GRID 217

Solutient
Technologies, LLC

Project Name :	ARC-GEORGIA	**Model:**	N/A	NORTH
Work Order #	201421	**Serial #**	N/A	
Surveyor Name:	Dell Reuss	**Probe:**	N/A	
Date:	6/30/14	**Serial #**	N/A	
Survey Type:	1-2 meter	**Calibration Due**	N/A	
GRID # 217	⊕ = Sample Location	**Comments:**		

217 – 1

1 Minute Integrated Count

N/A

2.6

4.0

2

1 Minute Integrated Count

N/A

.4

.7

3

1 Minute Integrated Count

N/A

4.6

1.6

4

1 Minute Integrated Count

N/A

1.7

3.7

- All readings are presented in C.P.M
- Each grid represents an 10 Meter x 10 Meter area.
- Each Sub grid represents an 5 Meter x 5 Meter area.

Instrument BKG: N/A

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***** G A M M A S P E C T R U M A N A L Y S I S *****
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lename: C:\My Documents\AAR\AAR\Grid Samples\AAR-217-1.CNF

Report Generated On : 10/8/2014 10:21:21 AM

Sample Location : AAR-217-1
Sample Identification : AAR-217-1
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearence
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/1/2014 7:31:00 AM
Acquisition Started : 7/1/2014 7:32:03 AM

Live Time : 600.0 seconds
Real Time : 600.3 seconds

Dead Time : 0.05 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
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Detector Name: RE1A
Sample Title: AAR-217-1
Peak Analysis Performed on: 10/8/2014 10:21:22 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1298	1315	1306.52	238.64	0.87	1.53E+002	31.25	3.13E+001
2	3183	3204	3193.93	583.42	1.50	6.19E+001	18.83	8.14E+000
3	7989	8022	8005.23	1462.30	0.43	7.20E+001	16.63	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

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***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-217-1
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:21:22 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	238.64	2.5457E-001	20.46
2	583.42	1.0310E-001	30.43
3	1462.30	1.2000E-001	23.10

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

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***** NUCLIDE MDA REPORT *****
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Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-217-1
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	2.1492E+001	4.78E+000	7.3127E+000
		727.17	11.80	4.7779E+000		-5.9154E-001
		785.42	2.00	2.5450E+001		-3.2181E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	3.5772E+000	1.41E+000	-2.3881E+000
		77.11	17.50	2.0958E+000		1.6466E+000
		87.20	6.30	5.2409E+000		7.3650E-001
		89.80	1.75	1.7292E+001		-2.0623E+001
		115.19	0.60	4.9878E+001		1.5167E+001
		238.63	44.60	1.4083E+000		3.8379E+000
		300.09	3.41	1.2343E+001		-4.4268E+000
	BI-214	609.31	46.30	1.1892E+000	1.19E+000	1.1476E+000
		768.36	5.04	1.0426E+001		1.2622E+001
		806.17	1.23	4.1180E+001		-5.7524E+001
		934.06	3.21	1.6414E+001		7.1419E+000
		1120.29	15.10	3.9424E+000		3.6242E+000
		1155.19	1.69	3.9692E+001		4.0671E+001
		1238.11	5.94	1.2330E+001		1.2879E+001
		1280.96	1.47	3.6246E+001		2.4187E+001
		1377.67	4.11	1.6161E+001		2.6000E+000
		1385.31	0.78	7.4361E+001		-3.3325E+001
		1401.50	1.39	3.6153E+001		-2.3322E+001
		1407.98	2.48	2.1290E+001		-1.2252E+001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	5.4252E+000	1.03E+000	-3.6218E+000
		77.11	10.70	3.4278E+000		2.6930E+000
		87.20	3.70	8.9236E+000		1.2540E+000
		89.80	1.03	2.9379E+001		-3.5039E+001
		241.98	7.49	8.1486E+000		1.7137E+001
		295.21	19.20	1.9951E+000		-1.2868E+000
		351.92	37.20	1.0254E+000		6.6970E-001
		785.91	1.10	4.4397E+001		-1.3283E+002
	AC-228	338.32	11.40	4.0150E+000	2.59E+000	4.9121E+000
		911.07	27.70	2.5946E+000		2.6783E+000
		969.11	16.60	3.9492E+000		4.8491E+000

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** GAMMA SPECTRUM ANALYSIS *****
****

lename: C:\My Documents\AAR\AAR\Grid Samples\AAR-217-2.CNF

Report Generated On : 10/8/2014 10:22:00 AM

Sample Location : AAR-217-2
Sample Identification : AAR-217-2
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/1/2014 8:19:00 AM
Acquisition Started : 7/1/2014 8:19:49 AM

Live Time : 900.0 seconds
Real Time : 900.7 seconds

Dead Time : 0.07 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-217-2
Peak Analysis Performed on: 10/8/2014 10:22:00 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	418-	435	423.04	77.25	0.91	2.44E+002	51.33	1.33E+002
2	1137-	1155	1146.33	209.38	0.60	1.02E+002	40.39	9.25E+001
3	1296-	1315	1306.89	238.71	1.06	9.20E+002	74.22	1.49E+002
4	1636-	1651	1643.21	300.14	0.34	3.81E+001	27.82	5.29E+001
5	1788-	1803	1795.62	327.98	0.74	5.71E+001	24.79	3.29E+001
6	1841-	1862	1852.07	338.30	1.02	1.88E+002	40.91	6.60E+001
7	2527-	2544	2535.30	463.10	0.72	4.33E+001	22.36	2.57E+001
8	2787-	2806	2796.41	510.80	0.39	8.25E+001	28.35	3.55E+001
9	3180-	3207	3193.65	583.36	1.27	3.01E+002	43.19	4.14E+001
10	3971-	3994	3982.79	727.52	0.56	6.42E+001	26.54	2.98E+001
11	4342-	4365	4353.18	795.18	0.27	3.90E+001	18.30	1.20E+001
12	4977-	5004	4990.45	911.59	1.20	1.96E+002	32.77	1.80E+001
13	5295-	5322	5308.13	969.62	1.06	1.31E+002	27.33	1.40E+001
14	7988-	8021	8004.76	1462.22	0.30	9.40E+001	19.00	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

ors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-217-2
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
BI-212	0.675	39.86	1.10		
		727.17*	11.80	5.80004E+000	2.41593E+000
		785.42	2.00		
		1620.56	2.75		
PB-212	0.636	74.81	9.60		
		77.11*	17.50	6.61182E+000	1.46294E+000
		87.20	6.30		
		89.80	1.75		
		115.19	0.60		
		238.63*	44.60	1.13030E+001	1.28450E+000
		300.09*	3.41	6.72114E+000	4.94388E+000
AC-228	0.996	338.32*	11.40	1.05235E+001	2.44816E+000
		911.07*	27.70	9.19344E+000	1.57692E+000
		969.11*	16.60	1.08641E+001	2.30011E+000

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty
BI-212	0.675	5.800040E+000	2.415935E+000
PB-212	0.636	9.167544E+000	9.473502E-001
AC-228	0.996	9.902812E+000	1.148582E+000

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:22:00 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
2	209.38	1.1279E-001	39.79
5	327.98	6.3463E-002	43.40
7	463.10	4.8116E-002	51.64
8	510.80	9.1667E-002	34.37
9	583.36	3.3405E-001	14.36
11	795.18	4.3333E-002	46.91
14	1462.22	1.0444E-001	20.22

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** NUCLIDE MDA REPORT *****
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Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-217-2
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
+	BI-212	39.86	1.10	2.4786E+001	3.49E+000	-6.3494E+000
		727.17*	11.80	3.4878E+000		5.8000E+000
		785.42	2.00	2.9539E+001		-8.2052E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
+	PB-212	74.81	9.60	4.9777E+000	9.50E-001	2.2050E+000
		77.11*	17.50	1.9497E+000		6.6118E+000
		87.20	6.30	6.7217E+000		-3.9235E+000
		89.80	1.75	2.3487E+001		-1.8984E+001
		115.19	0.60	5.6655E+001		1.4700E+001
		238.63*	44.60	9.4981E-001		1.1303E+001
		300.09*	3.41	7.9042E+000		6.7211E+000
	BI-214	609.31	46.30	1.1474E+000	1.15E+000	2.8915E-002
		768.36	5.04	1.1405E+001		2.6498E+000
		806.17	1.23	4.0158E+001		-1.8026E+001
		934.06	3.21	1.5276E+001		2.3749E+000
		1120.29	15.10	4.0066E+000		-4.4274E+000
		1155.19	1.69	3.8665E+001		2.9353E+001
		1238.11	5.94	1.1560E+001		1.2038E+001
		1280.96	1.47	4.4972E+001		1.8915E+001
		1377.67	4.11	1.3733E+001		-2.8025E+000
		1385.31	0.78	8.3615E+001		1.0687E+002
		1401.50	1.39	4.7003E+001		-8.1488E+001
		1407.98	2.48	2.6773E+001		1.9793E+001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	7.5491E+000	1.17E+000	3.3441E+000
		77.11	10.70	4.9261E+000		1.6816E-001
		87.20	3.70	1.1445E+001		-6.6806E+000
		89.80	1.03	3.9906E+001		-3.2255E+001
		241.98	7.49	1.2453E+001		-1.9255E+000
		295.21	19.20	2.3969E+000		1.4653E+000
		351.92	37.20	1.1703E+000		5.0973E-001
		785.91	1.10	5.5525E+001		2.6896E+001
+	AC-228	338.32*	11.40	3.0493E+000	1.54E+000	1.0524E+001
		911.07*	27.70	1.5368E+000		9.1934E+000
		969.11*	16.60	2.3982E+000		1.0864E+001

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** G A M M A S P E C T R U M A N A L Y S I S *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-217-3.CNF

Report Generated On : 10/8/2014 10:22:46 AM

Sample Location : AAR-217-3
Sample Identification : AAR-217-3
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/1/2014 10:18:00 AM
Acquisition Started : 7/1/2014 10:18:49 AM

Live Time : 900.0 seconds
Real Time : 900.6 seconds

Dead Time : 0.07 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-217-3
Peak Analysis Performed on: 10/8/2014 10:22:47 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	401-	429	423.52	77.34	0.89	3.88E+002	85.11	3.21E+002
2	1138-	1155	1145.78	209.28	1.25	1.05E+002	41.96	1.07E+002
3	1296-	1316	1307.00	238.73	0.98	9.90E+002	85.32	2.49E+002
4	1636-	1651	1643.16	300.14	0.70	5.73E+001	27.76	4.67E+001
5	1788-	1804	1795.92	328.04	0.62	3.43E+001	30.85	6.67E+001
6	1842-	1861	1851.73	338.24	0.74	2.10E+002	38.93	5.23E+001
7	1919-	1934	1926.87	351.96	0.78	6.30E+001	21.26	1.80E+001
8	2526-	2543	2534.58	462.97	0.94	6.64E+001	22.74	2.06E+001
9	2786-	2807	2796.72	510.86	0.96	1.10E+002	37.02	6.57E+001
10	3180-	3207	3193.72	583.38	1.52	2.98E+002	45.42	5.28E+001
11	3971-	3994	3982.76	727.51	0.32	8.51E+001	26.35	2.39E+001
12	4978-	5006	4990.79	911.65	0.84	2.14E+002	33.70	1.77E+001
13	5294-	5321	5307.78	969.56	1.04	1.15E+002	27.40	1.76E+001
14	7987-	8020	8003.93	1462.06	1.26	8.66E+001	24.19	1.24E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

ors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-217-3
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
BI-212	0.675	39.86	1.10		
		727.17*	11.80	7.68861E+000	2.41327E+000
		785.42	2.00		
		1620.56	2.75		
PB-212	0.636	74.81	9.60		
		77.11*	17.50	1.05303E+001	2.41610E+000
		87.20	6.30		
		89.80	1.75		
		115.19	0.60		
		238.63*	44.60	1.21616E+001	1.43053E+000
		300.09*	3.41	1.01148E+001	4.97290E+000
AC-228	0.996	338.32*	11.40	1.17360E+001	2.38328E+000
		911.07*	27.70	1.00528E+001	1.62707E+000
		969.11*	16.60	9.56623E+000	2.29819E+000

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty
BI-212	0.675	7.688605E+000	2.413267E+000
PB-212	0.636	1.164441E+001	1.194884E+000
AC-228	0.996	1.032761E+001	1.160032E+000

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

UNIDENTIFIED PEAKS

Peak Locate Performed on: 10/8/2014 10:22:47 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
2	209.28	1.1678E-001	39.93
5	328.04	3.8075E-002	90.04
7	351.96	6.9949E-002	33.78
8	462.97	7.3831E-002	34.23
9	510.86	1.2254E-001	33.57
10	583.38	3.3138E-001	15.23
14	1462.06	9.6187E-002	27.95

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** NUCLIDE MDA REPORT *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-217-3
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
+	BI-212	39.86	1.10	2.5142E+001	3.15E+000	4.6813E+000
		727.17*	11.80	3.1502E+000		7.6886E+000
		785.42	2.00	3.3067E+001		2.3507E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
+	PB-212	74.81	9.60	5.2298E+000	1.25E+000	2.9776E-001
		77.11*	17.50	3.5257E+000		1.0530E+001
		87.20	6.30	6.7401E+000		-7.2276E+000
		89.80	1.75	2.4880E+001		1.2001E+000
		115.19	0.60	5.9618E+001		3.0852E+001
		238.63*	44.60	1.2495E+000		1.2162E+001
		300.09*	3.41	7.4331E+000		1.0115E+001
	BI-214	609.31	46.30	1.2276E+000	1.23E+000	9.4781E-001
		768.36	5.04	1.1257E+001		-4.0341E+000
		806.17	1.23	4.6345E+001		-8.8724E+001
		934.06	3.21	1.5276E+001		-4.8993E+000
		1120.29	15.10	4.3147E+000		-7.7260E-004
		1155.19	1.69	3.6035E+001		2.6454E+000
		1238.11	5.94	1.2327E+001		-5.8253E+000
		1280.96	1.47	4.3339E+001		3.8089E+001
		1377.67	4.11	1.6113E+001		-7.5326E+000
		1385.31	0.78	8.1766E+001		-1.3964E+001
		1401.50	1.39	4.0772E+001		-4.4077E+001
		1407.98	2.48	2.2620E+001		6.7923E+000
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	7.9315E+000	1.25E+000	4.5158E-001
		77.11	10.70	5.2019E+000		-3.1058E-001
		87.20	3.70	1.1476E+001		-1.2307E+001
		89.80	1.03	4.2272E+001		2.0391E+000
		241.98	7.49	1.3347E+001		2.4492E+000
		295.21	19.20	2.5077E+000		9.7967E-001
		351.92	37.20	1.2529E+000		9.1579E-002
		785.91	1.10	6.0356E+001		-5.1941E+001
+	AC-228	338.32*	11.40	2.6545E+000	1.52E+000	1.1736E+001
		911.07*	27.70	1.5181E+000		1.0053E+001
		969.11*	16.60	2.6662E+000		9.5662E+000

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** G A M M A S P E C T R U M A N A L Y S I S *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-217-4.CNF

Report Generated On : 10/8/2014 10:23:10 AM

Sample Location : AAR-217-4
Sample Identification : AAR-217-4
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/1/2014 10:00:00 AM
Acquisition Started : 7/1/2014 10:00:56 AM

Live Time : 900.0 seconds
Real Time : 900.9 seconds

Dead Time : 0.10 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-217-4
Peak Analysis Performed on: 10/8/2014 10:23:10 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	401-	432	422.93	77.23	1.12	6.67E+002	120.01	6.11E+002
2	505-	522	512.02	93.51	0.68	1.40E+002	62.26	2.65E+002
3	1135-	1155	1146.50	209.41	0.90	1.64E+002	58.56	2.00E+002
4	1296-	1315	1306.95	238.72	1.06	1.93E+003	112.37	3.93E+002
5	1470-	1489	1480.21	270.37	0.53	1.65E+002	44.01	9.69E+001
6	1511-	1529	1519.38	277.52	0.89	8.96E+001	39.22	9.14E+001
7	1635-	1651	1643.21	300.14	0.31	1.05E+002	41.57	1.11E+002
8	1787-	1807	1796.55	328.16	1.20	6.48E+001	45.68	1.31E+002
9	1840-	1862	1852.15	338.31	1.13	3.87E+002	55.37	1.06E+002
10	1919-	1936	1926.55	351.90	0.95	6.01E+001	32.75	6.69E+001
11	2527-	2545	2535.65	463.17	0.97	1.05E+002	34.84	6.21E+001
12	2787-	2811	2796.72	510.86	1.32	1.98E+002	46.71	9.02E+001
13	3180-	3208	3193.56	583.35	1.21	6.15E+002	59.10	6.42E+001
14	3327-	3348	3337.19	609.59	0.23	4.13E+001	29.28	4.77E+001
15	3972-	3996	3983.02	727.56	1.04	1.50E+002	34.03	3.67E+001
16	4217-	4240	4228.60	772.42	0.85	3.19E+001	23.28	2.71E+001
17	4342-	4365	4353.25	795.19	0.39	7.69E+001	24.69	1.91E+001
18	4701-	4726	4713.68	861.03	1.09	8.43E+001	26.41	2.27E+001
19	4975-	5007	4990.71	911.64	1.57	4.39E+002	48.51	3.35E+001
20	5294-	5322	5307.92	969.58	0.64	2.59E+002	40.15	3.52E+001
21	7987-	8020	8003.92	1462.06	0.35	5.42E+001	21.63	1.28E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** NUCLIDE IDENTIFICATION REPORT *****
****

Sample Title: AAR-217-4
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
BI-212	0.675	39.86	1.10		
		727.17*	11.80	1.35739E+001	3.15384E+000
		785.42	2.00		
		1620.56	2.75		
PB-212	0.636	74.81	9.60		
		77.11*	17.50	1.80859E+001	3.47957E+000
		87.20	6.30		
		89.80	1.75		
		115.19	0.60		
		238.63*	44.60	2.37674E+001	2.35044E+000
		300.09*	3.41	1.84538E+001	7.49835E+000
BI-214	0.446	609.31*	46.30	8.25847E-001	5.88077E-001
		768.36	5.04		
		806.17	1.23		
		934.06	3.21		
		1120.29	15.10		
		1155.19	1.69		
		1238.11	5.94		
		1280.96	1.47		
		1377.67	4.11		
		1385.31	0.78		
		1401.50	1.39		
		1407.98	2.48		
		1509.19	2.19		
		1661.28	1.15		
		1729.60	3.05		
		1764.49	15.80		
		1847.44	2.12		
		2118.54	1.21		
AC-228	0.996	338.32*	11.40	2.16543E+001	3.57507E+000
		911.07*	27.70	2.05706E+001	2.40854E+000
		969.11*	16.60	2.14590E+001	3.41739E+000

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

***** INTERFERENCE CORRECTED REPORT *****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty
BI-212	0.675	1.357390E+001	3.153840E+000
PB-212	0.636	2.176393E+001	1.885149E+000
BI-214	0.446	8.258471E-001	5.880774E-001
AC-228	0.996	2.104901E+001	1.724525E+000

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** UNIDENTIFIED PEAKS **********

Peak Locate Performed on: 10/8/2014 10:23:10 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
2	93.51	1.5590E-001	44.37
3	209.41	1.8211E-001	35.73
5	270.37	1.8341E-001	26.66
6	277.52	9.9520E-002	43.78
8	328.16	7.1944E-002	70.55
10	351.90	6.6811E-002	54.47
11	463.17	1.1659E-001	33.20
12	510.86	2.1973E-001	23.62
13	583.35	6.8316E-001	9.61
16	772.42	3.5424E-002	73.01
17	795.19	8.5486E-002	32.09
18	861.03	9.3666E-002	31.33
21	1462.06	6.0236E-002	39.90

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** NUCLIDE MDA REPORT *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-217-4
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
+	BI-212	39.86	1.10	3.4144E+001	3.90E+000	1.6413E-001
		727.17*	11.80	3.8990E+000		1.3574E+001
		785.42	2.00	3.9421E+001		1.4810E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
+	PB-212	74.81	9.60	7.0304E+000	1.52E+000	9.7764E-001
		77.11*	17.50	5.0278E+000		1.8086E+001
		87.20	6.30	9.4744E+000		-9.5662E+000
		89.80	1.75	3.4381E+001		1.8670E+001
		115.19	0.60	7.7942E+001		1.9804E+001
		238.63*	44.60	1.5200E+000		2.3767E+001
		300.09*	3.41	1.1276E+001		1.8454E+001
+	BI-214	609.31*	46.30	9.4185E-001	9.42E-001	8.2585E-001
		768.36	5.04	1.4913E+001		1.5129E+001
		806.17	1.23	5.0966E+001		2.2853E+001
		934.06	3.21	1.7122E+001		-1.6782E+001
		1120.29	15.10	4.8953E+000		-3.3550E-001
		1155.19	1.69	3.9500E+001		-3.3893E+000
		1238.11	5.94	1.2161E+001		-1.3323E+000
		1280.96	1.47	4.7684E+001		3.2974E+001
		1377.67	4.11	1.9165E+001		-3.3731E+001
		1385.31	0.78	1.0160E+002		-1.2914E+002
		1401.50	1.39	5.3821E+001		-3.8985E+000
		1407.98	2.48	3.0826E+001		1.4463E+001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	1.0662E+001	1.50E+000	1.4827E+000
		77.11	10.70	6.7902E+000		3.3346E-001
		87.20	3.70	1.6132E+001		-1.6288E+001
		89.80	1.03	5.8414E+001		3.1722E+001
		241.98	7.49	1.8286E+001		-4.6694E+000
		295.21	19.20	3.2639E+000		-1.8836E+000
		351.92	37.20	1.5023E+000		2.1667E+000
		785.91	1.10	7.4514E+001		1.5757E+001
+	AC-228	338.32*	11.40	3.8855E+000	2.16E+000	2.1654E+001
		911.07*	27.70	2.1624E+000		2.0571E+001
		969.11*	16.60	3.6842E+000		2.1459E+001

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

GRID 247

Solutient
Technologies, LLC

Project Name :	AAR-Livonia	**Model:**	N/A	NORTH ↑
Work Order #	201421	**Serial #**		
Surveyor Name:	Dell Rouse	**Probe:**		
Date:	6/30/14	**Serial #**		
Survey Type:	1-2 Meter	**Calibration Due**	N/A	
GRID # 247	⊕ = Sample Location	**Comments:**		

AAR 247-1

1 Minute Integrated Count

N/A

X 1.2

X 3.4

2

1 Minute Integrated Count

N/A

X 0.4

X 3.5

3

1 Minute Integrated Count

N/A

X 0.5

X 3.0

4

1 Minute Integrated Count

N/A

X 3.6

X 2.7

* All readings are presented in C.P.M
* Each grid represents an 10 Meter x 10 Meter area.
* Each Sub grid represents an 5 Meter x 5 Meter area.

Instrument BKG: N/A

R

****
***** GAMMA SPECTRUM ANALYSIS *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-247-1.CNF

Report Generated On : 10/8/2014 10:18:56 AM

Sample Location : AAR-247-1
Sample Identification : AAR-247-1
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance 247-1
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 6/30/2014 4:38:00 PM
Acquisition Started : 6/30/2014 4:38:55 PM

Live Time : 900.0 seconds
Real Time : 900.4 seconds

Dead Time : 0.04 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-247-1
Peak Analysis Performed on: 10/8/2014 10:18:56 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	7988-	8021	8004.63	1462.19	0.25	9.28E+001	22.82	8.22E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-247-1
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

***** INTERFERENCE CORRECTED REPORT *****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** UNIDENTIFIED PEAKS **********

Peak Locate Performed on: 10/8/2014 10:18:56 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	1462.19	1.0309E-001	24.60

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-247-1
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.4542E+001	2.83E+000	8.1322E+000
		727.17	11.80	2.8342E+000		-1.5850E+000
		785.42	2.00	1.9870E+001		1.8523E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	1.9377E+000	6.38E-001	-3.5288E-001
		77.11	17.50	1.1295E+000		8.8167E-001
		87.20	6.30	2.7986E+000		-1.6851E+000
		89.80	1.75	1.0547E+001		-9.8836E+000
		115.19	0.60	3.1945E+001		-2.3495E+000
		238.63	44.60	6.3819E-001		5.1808E-001
		300.09	3.41	7.8261E+000		1.1257E+001
	BI-214	609.31	46.30	6.9213E-001	6.92E-001	-7.3091E-002
		768.36	5.04	7.1156E+000		-6.7402E-001
		806.17	1.23	2.4118E+001		-2.8512E+001
		934.06	3.21	1.2186E+001		1.3663E+001
		1120.29	15.10	3.0491E+000		-3.6964E+000
		1155.19	1.69	3.1820E+001		2.4261E+001
		1238.11	5.94	9.4042E+000		8.1421E-001
		1280.96	1.47	3.2783E+001		1.5957E+001
		1377.67	4.11	1.1533E+001		1.0080E+001
		1385.31	0.78	5.9834E+001		-2.6655E+001
		1401.50	1.39	3.6187E+001		-2.3503E+001
		1407.98	2.48	1.9986E+001		1.7925E+001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	2.9387E+000	7.53E-001	-5.3517E-001
		77.11	10.70	1.8472E+000		1.4420E+000
		87.20	3.70	4.7653E+000		-2.8692E+000
		89.80	1.03	1.7920E+001		-1.6792E+001
		241.98	7.49	3.9623E+000		4.0948E+000
		295.21	19.20	1.3551E+000		6.0183E-001
		351.92	37.20	7.5286E-001		7.0034E-002
		785.91	1.10	3.5797E+001		1.9396E+001
	AC-228	338.32	11.40	2.2513E+000	1.52E+000	1.0954E+000
		911.07	27.70	1.5235E+000		4.9796E-001
		969.11	16.60	2.4060E+000		1.2537E+000

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

R

****
***** GAMMA SPECTRUM ANALYSIS *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-247-2.CNF

Report Generated On : 10/8/2014 10:19:26 AM

Sample Location : AAR-247-2
Sample Identification : AAR-247-2
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance 247-2
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 6/30/2014 4:18:00 PM
Acquisition Started : 6/30/2014 4:19:00 PM

Live Time : 900.0 seconds
Real Time : 900.3 seconds

Dead Time : 0.04 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-247-2
Peak Analysis Performed on: 10/8/2014 10:19:27 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1296	1315	1306.73	238.68	0.87	3.91E+002	50.95	8.15E+001
2	1843	1861	1853.16	338.50	0.61	7.09E+001	26.49	3.31E+001
3	3183	3205	3193.90	583.41	0.87	1.21E+002	28.93	2.51E+001
4	3971	3994	3982.69	727.50	0.72	4.40E+001	18.80	1.20E+001
5	4978	5004	4991.13	911.71	0.69	8.24E+001	25.43	1.96E+001
6	7989	8022	8005.46	1462.34	0.40	8.46E+001	20.42	4.39E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-247-2
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
BI-212	0.675	39.86	1.10		
		727.17*	11.80	3.97456E+000	1.71112E+000
		785.42	2.00		
		1620.56	2.75		
AC-228	0.567	338.32*	11.40	3.96824E+000	1.51892E+000
		911.07*	27.70	3.86438E+000	1.20218E+000
		969.11	16.60		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

***** INTERFERENCE CORRECTED REPORT *****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty
BI-212	0.675	3.974562E+000	1.711123E+000
AC-228	0.567	3.904380E+000	9.426532E-001

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** UNIDENTIFIED PEAKS **********

Peak Locate Performed on: 10/8/2014 10:19:27 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	238.68	4.3496E-001	13.02
3	583.41	1.3433E-001	23.93
6	1462.34	9.4011E-002	24.13

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** NUCLIDE MDA REPORT *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-247-2
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
+	BI-212	39.86	1.10	1.7929E+001	2.30E+000	-5.6091E+000
		727.17*	11.80	2.3045E+000		3.9746E+000
		785.42	2.00	2.3517E+001		1.2725E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	3.2749E+000	1.45E+000	-5.7519E+000
		77.11	17.50	2.0042E+000		2.6156E+000
		87.20	6.30	4.9090E+000		-4.9941E+000
		89.80	1.75	1.6893E+001		-2.7900E+001
		115.19	0.60	4.1025E+001		-2.7235E+001
		238.63	44.60	1.4485E+000		5.7533E+000
		300.09	3.41	1.0371E+001		7.4454E+000
	BI-214	609.31	46.30	9.6594E-001	9.66E-001	4.3368E-001
		768.36	5.04	9.2809E+000		6.1732E+000
		806.17	1.23	3.3676E+001		-6.9801E+001
		934.06	3.21	1.2679E+001		6.8285E+000
		1120.29	15.10	3.8425E+000		8.9192E-002
		1155.19	1.69	3.3179E+001		-6.3101E+000
		1238.11	5.94	1.0830E+001		1.0671E+001
		1280.96	1.47	3.7982E+001		-5.4437E+000
		1377.67	4.11	1.2465E+001		-4.4351E+000
		1385.31	0.78	6.3666E+001		-9.1911E+001
		1401.50	1.39	3.9523E+001		-1.6271E+001
		1407.98	2.48	2.1904E+001		-9.9812E+000
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	4.9666E+000	9.47E-001	-8.7233E+000
		77.11	10.70	3.2779E+000		4.2778E+000
		87.20	3.70	8.3585E+000		-8.5035E+000
		89.80	1.03	2.8702E+001		-4.7403E+001
		241.98	7.49	8.5862E+000		-6.8476E-001
		295.21	19.20	1.7917E+000		-8.6272E-002
		351.92	37.20	9.4716E-001		1.1901E-001
		785.91	1.10	4.2780E+001		-1.6293E+001
+	AC-228	338.32*	11.40	2.0996E+000	1.56E+000	3.9682E+000
		911.07*	27.70	1.5580E+000		3.8644E+000
		969.11	16.60	4.1763E+000		4.9198E+000

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** GAMMA SPECTRUM ANALYSIS *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-247-3.CNF

Report Generated On : 10/8/2014 10:20:04 AM

Sample Location : AAR-247-3
Sample Identification : AAR-247-3
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance 247-3
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 6/30/2014 4:56:00 PM
Acquisition Started : 6/30/2014 4:57:34 PM

Live Time : 900.0 seconds
Real Time : 900.4 seconds

Dead Time : 0.04 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-247-3
Peak Analysis Performed on: 10/8/2014 10:20:04 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	7988-	8021	8004.23	1462.12	0.97	8.50E+001	18.07	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-247-3
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:20:04 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	1462.12	9.4444E-002	21.26

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-247-3
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.4328E+001	3.06E+000	6.0484E+000
		727.17	11.80	3.0627E+000		1.6028E+000
		785.42	2.00	2.0060E+001		-4.2649E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	1.9815E+000	6.87E-001	-8.3221E-001
		77.11	17.50	1.1953E+000		6.6224E-001
		87.20	6.30	3.2071E+000		-8.9648E-001
		89.80	1.75	1.1528E+001		-4.7648E+000
		115.19	0.60	3.1722E+001		-1.3489E+001
		238.63	44.60	6.8749E-001		6.4656E-001
		300.09	3.41	7.8261E+000		2.6486E+000
	BI-214	609.31	46.30	7.9862E-001	7.99E-001	7.9131E-001
		768.36	5.04	7.3555E+000		3.3770E+000
		806.17	1.23	2.7839E+001		-2.1632E+001
		934.06	3.21	1.4186E+001		-1.3710E+001
		1120.29	15.10	3.2168E+000		-5.0102E+000
		1155.19	1.69	2.6032E+001		7.4062E+000
		1238.11	5.94	1.0345E+001		-1.8998E+000
		1280.96	1.47	2.9802E+001		3.5734E+000
		1377.67	4.11	1.1286E+001		9.5999E+000
		1385.31	0.78	6.2418E+001		-4.1350E+001
		1401.50	1.39	3.3247E+001		2.7480E+001
		1407.98	2.48	1.8730E+001		5.5749E-001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	3.0051E+000	7.19E-001	-1.2621E+000
		77.11	10.70	1.9549E+000		1.0831E+000
		87.20	3.70	5.4607E+000		-1.5264E+000
		89.80	1.03	1.9586E+001		-8.0956E+000
		241.98	7.49	4.2325E+000		4.7552E+000
		295.21	19.20	1.3551E+000		1.6328E+000
		351.92	37.20	7.1914E-001		9.4172E-002
		785.91	1.10	3.6146E+001		-2.2306E+001
	AC-228	338.32	11.40	2.2351E+000	1.49E+000	-1.5307E-002
		911.07	27.70	1.4890E+000		-3.3087E-001
		969.11	16.60	2.8115E+000		9.8272E-001

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** GAMMA SPECTRUM ANALYSIS *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-247-4.CNF

Report Generated On : 10/8/2014 10:20:23 AM

Sample Location : AAR-247-4
Sample Identification : AAR-247-4
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance 247-4
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 6/30/2014 5:18:00 PM
Acquisition Started : 6/30/2014 5:19:32 PM

Live Time : 900.0 seconds
Real Time : 900.4 seconds

Dead Time : 0.05 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-247-4
Peak Analysis Performed on: 10/8/2014 10:20:23 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1298-	1315	1306.44	238.63	0.78	1.15E+002	32.17	4.61E+001
2	3182-	3203	3192.69	583.19	0.39	5.47E+001	18.20	8.32E+000
3	4978-	5003	4990.22	911.55	0.37	4.10E+001	12.55	0.00E+000
4	7988-	8021	8004.71	1462.21	0.69	7.98E+001	21.71	8.22E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-247-4
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:20:23 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	238.63	1.2767E-001	27.99
2	583.19	6.0754E-002	33.29
3	911.55	4.5556E-002	30.61
4	1462.21	8.8649E-002	27.21

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** NUCLIDE MDA REPORT *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-247-4
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.4960E+001	3.16E+000	1.7905E+000
		727.17	11.80	3.1551E+000		-5.4931E-001
		785.42	2.00	1.8062E+001		-2.6486E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	2.5560E+000	9.22E-001	-3.3554E-001
		77.11	17.50	1.3912E+000		1.6383E-001
		87.20	6.30	3.2270E+000		-4.1119E-001
		89.80	1.75	1.2493E+001		5.3618E-001
		115.19	0.60	3.2606E+001		-2.6717E+001
		238.63	44.60	9.2247E-001		1.9229E+000
		300.09	3.41	7.6870E+000		-2.4142E+000
	BI-214	609.31	46.30	7.9278E-001	7.93E-001	-4.5718E-001
		768.36	5.04	7.7376E+000		-2.7634E+000
		806.17	1.23	3.5491E+001		-2.8628E+001
		934.06	3.21	1.2995E+001		-1.0144E+001
		1120.29	15.10	3.1342E+000		-2.6262E-002
		1155.19	1.69	2.6032E+001		1.0428E+001
		1238.11	5.94	9.8346E+000		7.2814E+000
		1280.96	1.47	2.6440E+001		1.9845E+001
		1377.67	4.11	9.9484E+000		7.1999E+000
		1385.31	0.78	5.4244E+001		-5.9640E+000
		1401.50	1.39	3.3247E+001		-2.5577E+001
		1407.98	2.48	1.9986E+001		-1.4055E+001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	3.8764E+000	8.20E-001	-5.0888E-001
		77.11	10.70	2.2753E+000		2.6794E-001
		87.20	3.70	5.4947E+000		-7.0013E-001
		89.80	1.03	2.1226E+001		9.1098E-001
		241.98	7.49	5.4436E+000		5.1849E+000
		295.21	19.20	1.4505E+000		1.2529E+000
		351.92	37.20	8.2020E-001		-4.3849E-001
		785.91	1.10	3.3992E+001		1.4002E+001
	AC-228	338.32	11.40	2.7560E+000	1.95E+000	6.2975E-001
		911.07	27.70	1.9518E+000		2.5481E+000
		969.11	16.60	2.9785E+000		1.4831E+000

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

GRID 265

Solutient
Technologies, LLC

Project Name:	AAR Livonia	**Model:**	N/A	**NORTH**
Work Order #	201421	**Serial #**		
Surveyor Name:	AAR Crew 5-j	**Probe:**		
Date:	7-14-14	**Serial #**		
Survey Type:	1-2 Meter	**Calibration Due**	N/A	
GRID # 265	⊕ = Sample Location	**Comments:**		

1 Minute Integrated Count

1 N/A ✓

⊕

X 1.6

X ~~.2~~

1 Minute Integrated Count

2 N/A ✓

⊕

X 1.0

X - 2.4

1 Minute Integrated Count

3 N/A ✓

⊕

X 3.9

X 3.6

1 Minute Integrated Count

4 N/A ✓

⊕

X - 2.1

X - 3.1

* All readings are presented in C.P.M

* Each grid represents an 10 Meter x 10 Meter area.

* Each Sub grid represents an 5 Meter x 5 Meter area.

Instrument BKG: N/A

****
***** GAMMA SPECTRUM ANALYSIS *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-265-01.CNF

Report Generated On : 10/8/2014 10:14:24 AM

Sample Location : AAR-265-01
Sample Identification : AAR-265-01
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/15/2014 10:01:00 AM
Acquisition Started : 7/15/2014 10:01:55 AM

Live Time : 900.0 seconds
Real Time : 900.6 seconds

Dead Time : 0.07 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-265-01
Peak Analysis Performed on: 10/8/2014 10:14:24 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1299-	1315	1307.51	238.82	0.38	4.90E+001	21.66	2.20E+001
2	7988-	8021	8004.07	1462.09	0.29	9.80E+001	19.40	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-265-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

***** INTERFERENCE CORRECTED REPORT *****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** UNIDENTIFIED PEAKS **********

Peak Locate Performed on: 10/8/2014 10:14:24 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	238.82	5.4491E-002	44.17
2	1462.09	1.0889E-001	19.80

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-265-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.0835E+001	2.62E+000	3.2243E+000
		727.17	11.80	2.6210E+000		5.0228E-001
		785.42	2.00	1.9678E+001		1.0662E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	1.8622E+000	6.70E-001	-4.2891E-001
		77.11	17.50	1.0910E+000		-1.4921E-002
		87.20	6.30	2.6800E+000		-1.5820E+000
		89.80	1.75	1.0225E+001		-8.3523E+000
		115.19	0.60	2.7885E+001		-2.6283E+001
		238.63	44.60	6.6977E-001		3.8769E-001
		300.09	3.41	7.2526E+000		-6.4918E-001
	BI-214	609.31	46.30	7.5054E-001	7.51E-001	8.8033E-001
		768.36	5.04	7.8115E+000		1.0851E+001
		806.17	1.23	2.8963E+001		4.8867E+000
		934.06	3.21	1.2838E+001		4.9236E-001
		1120.29	15.10	3.3755E+000		4.2019E+000
		1155.19	1.69	3.0758E+001		3.6314E+000
		1238.11	5.94	8.2197E+000		2.8689E+000
		1280.96	1.47	3.7007E+001		1.9900E+001
		1377.67	4.11	1.2240E+001		-9.0599E+000
		1385.31	0.78	6.4887E+001		1.7229E+001
		1401.50	1.39	3.4752E+001		-3.4436E-001
		1407.98	2.48	1.9577E+001		1.7111E+001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	2.8242E+000	7.09E-001	-6.5049E-001
		77.11	10.70	1.7844E+000		-2.4403E-002
		87.20	3.70	4.5633E+000		-2.6936E+000
		89.80	1.03	1.7373E+001		-1.4191E+001
		241.98	7.49	3.9933E+000		5.3089E+000
		295.21	19.20	1.2959E+000		2.1967E-001
		351.92	37.20	7.0918E-001		3.9818E-001
		785.91	1.10	3.5797E+001		2.5257E+000
	AC-228	338.32	11.40	2.0654E+000	1.52E+000	-5.7533E-002
		911.07	27.70	1.5235E+000		1.9221E+000
		969.11	16.60	2.7533E+000		-3.3686E-001

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** G A M M A S P E C T R U M A N A L Y S I S *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-265-02.CNF

Report Generated On : 10/8/2014 10:15:00 AM

Sample Location : AAR-265-02
Sample Identification : AAR-265-02
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Monizite Sand
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/15/2014 9:43:00 AM
Acquisition Started : 7/15/2014 9:44:15 AM

Live Time : 900.0 seconds
Real Time : 900.6 seconds

Dead Time : 0.07 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-265-02
Peak Analysis Performed on: 10/8/2014 10:15:00 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1298	1314	1307.36	238.79	1.16	1.63E+002	30.64	2.57E+001
2	3183	3204	3193.30	583.30	0.23	3.85E+001	19.67	1.65E+001
3	4978	5003	4990.74	911.64	0.30	3.71E+001	21.21	1.89E+001
4	7988	8021	8004.64	1462.19	0.69	8.49E+001	20.18	4.10E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-265-02
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:15:00 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	238.79	1.8143E-001	18.76
2	583.30	4.2778E-002	51.08
3	911.64	4.1200E-002	57.19
4	1462.19	9.4332E-002	23.77

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-265-02
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.5953E+001	2.90E+000	-2.1267E+000
		727.17	11.80	2.9015E+000		-1.4301E+000
		785.42	2.00	1.5287E+001		-7.7348E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	2.5116E+000	9.95E-001	-2.0845E-001
		77.11	17.50	1.4211E+000		3.8455E-001
		87.20	6.30	3.4571E+000		-1.5273E+000
		89.80	1.75	1.3010E+001		-1.8153E+001
		115.19	0.60	3.5115E+001		9.4981E+000
		238.63	44.60	9.9485E-001		2.2470E+000
		300.09	3.41	7.6870E+000		-3.6198E+000
	BI-214	609.31	46.30	9.0196E-001	9.02E-001	4.0702E-001
		768.36	5.04	7.7376E+000		2.6158E+000
		806.17	1.23	3.3676E+001		7.6327E+000
		934.06	3.21	1.2517E+001		-4.9062E+000
		1120.29	15.10	3.2573E+000		-2.2372E+000
		1155.19	1.69	2.9654E+001		1.7995E+001
		1238.11	5.94	9.4042E+000		1.1547E+001
		1280.96	1.47	3.7007E+001		-2.8355E+001
		1377.67	4.11	1.1774E+001		1.6254E+000
		1385.31	0.78	6.2418E+001		-4.1234E+001
		1401.50	1.39	3.7561E+001		3.6158E+001
		1407.98	2.48	2.0386E+001		3.0289E+000
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	3.8090E+000	8.46E-001	-3.1614E-001
		77.11	10.70	2.3242E+000		6.2894E-001
		87.20	3.70	5.8864E+000		-2.6005E+000
		89.80	1.03	2.2105E+001		-3.0842E+001
		241.98	7.49	5.8414E+000		1.3307E+001
		295.21	19.20	1.3957E+000		1.9825E+000
		351.92	37.20	8.4554E-001		4.3771E-001
		785.91	1.10	2.7342E+001		-6.8614E+001
	AC-228	338.32	11.40	2.6086E+000	2.17E+000	1.0076E+000
		911.07	27.70	2.1730E+000		3.3878E+000
		969.11	16.60	3.1104E+000		2.0101E+000

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** G A M M A S P E C T R U M A N A L Y S I S *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-265-03.CNF

Report Generated On : 10/8/2014 10:15:41 AM

Sample Location : AAR-265-03
Sample Identification : AAR-265-03
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/18/2014 3:23:00 PM
Acquisition Started : 7/18/2014 3:24:25 PM

Live Time : 900.0 seconds
Real Time : 900.6 seconds

Dead Time : 0.07 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-265-03
Peak Analysis Performed on: 10/8/2014 10:15:41 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1295	1314	1305.44	238.44	1.07	2.22E+002	40.90	6.13E+001
2	3180	3201	3190.25	582.74	0.94	9.85E+001	21.40	5.50E+000
3	4972	4997	4984.97	910.59	0.45	5.30E+001	20.48	1.30E+001
4	7980	8013	7996.33	1460.68	0.32	8.30E+001	19.93	4.02E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-265-03
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:15:41 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	238.44	2.4633E-001	18.45
2	582.74	1.0944E-001	21.73
3	910.59	5.8847E-002	38.67
4	1460.68	9.2203E-002	24.02

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-265-03
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.3434E+001	3.53E+000	-5.0240E+000
		727.17	11.80	3.5257E+000		1.7967E+000
		785.42	2.00	1.9287E+001		9.5250E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	2.7568E+000	1.14E+000	-2.4435E+000
		77.11	17.50	1.5828E+000		7.5523E-001
		87.20	6.30	4.1125E+000		1.4620E+000
		89.80	1.75	1.5111E+001		1.8358E+000
		115.19	0.60	4.0162E+001		6.5185E+000
		238.63	44.60	1.1402E+000		3.0328E+000
		300.09	3.41	8.3580E+000		3.9590E+000
	BI-214	609.31	46.30	8.5468E-001	8.55E-001	-2.5198E-001
		768.36	5.04	7.7376E+000		7.3884E+000
		806.17	1.23	3.1750E+001		-3.5994E+001
		934.06	3.21	1.2679E+001		1.9666E+000
		1120.29	15.10	3.5264E+000		-7.6787E+000
		1155.19	1.69	2.8503E+001		1.5949E+001
		1238.11	5.94	9.0667E+000		4.5172E+000
		1280.96	1.47	3.0425E+001		-1.8295E+001
		1377.67	4.11	1.2903E+001		4.7511E+000
		1385.31	0.78	6.4887E+001		6.1071E+001
		1401.50	1.39	3.4752E+001		3.0373E+001
		1407.98	2.48	1.8730E+001		1.5481E+001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	4.1809E+000	8.54E-001	-3.7058E+000
		77.11	10.70	2.5887E+000		1.2352E+000
		87.20	3.70	7.0023E+000		2.4893E+000
		89.80	1.03	2.5673E+001		3.1191E+000
		241.98	7.49	6.7441E+000		-2.3426E+000
		295.21	19.20	1.5683E+000		-9.7087E-002
		351.92	37.20	8.5382E-001		-3.3838E-001
		785.91	1.10	3.3992E+001		-5.0443E+001
	AC-228	338.32	11.40	2.9927E+000	2.23E+000	1.1389E+000
		911.07	27.70	2.2303E+000		3.6317E+000
		969.11	16.60	3.5865E+000		5.1354E+000

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** GAMMA SPECTRUM ANALYSIS *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-265-04.30.CNF

Report Generated On : 10/8/2014 10:16:22 AM

Sample Location : AAR-265-04
Sample Identification : AAR-265-04
Sample Description 1 : 8 Oz. Can
Sample Description 2 : GRID CLEARANCE
Sample Description 3 :
Sample Description 4 :
Sample Type : SOIL
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/29/2014 4:17:00 PM
Acquisition Started : 7/29/2014 4:17:51 PM

Live Time : 1800.0 seconds
Real Time : 1801.4 seconds

Dead Time : 0.08 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** PEAK ANALYSIS REPORT *****
****

Detector Name: RE1A
Sample Title: AAR-265-04
Peak Analysis Performed on: 10/8/2014 10:16:22 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1294	1316	1306.66	238.67	0.86	4.98E+002	63.71	1.46E+002
2	1844	1862	1851.97	338.28	0.65	7.61E+001	33.55	6.39E+001
3	2787	2806	2796.79	510.87	1.22	1.04E+002	30.00	3.73E+001
4	3181	3206	3192.88	583.22	1.21	1.43E+002	36.52	4.66E+001
5	3969	3992	3980.90	727.17	0.31	4.79E+001	21.74	1.81E+001
6	4977	5003	4990.81	911.65	1.18	1.12E+002	26.78	1.70E+001
7	5294	5321	5307.96	969.59	0.94	6.89E+001	23.70	1.71E+001
8	7987	8020	8003.79	1462.04	1.09	1.81E+002	27.86	4.12E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-265-04
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
BI-212	0.677	39.86	1.10		
		727.17*	11.80	2.16235E+000	9.87992E-001
		785.42	2.00		
		1620.56	2.75		
AC-228	0.996	338.32*	11.40	2.13119E+000	9.55320E-001
		911.07*	27.70	2.62779E+000	6.36086E-001
		969.11*	16.60	2.85589E+000	9.87921E-001

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

***** INTERFERENCE CORRECTED REPORT *****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty
BI-212	0.677	2.162345E+000	9.879917E-001
AC-228	0.996	2.560188E+000	4.666649E-001

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** UNIDENTIFIED PEAKS **********

Peak Locate Performed on: 10/8/2014 10:16:22 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	238.67	2.7661E-001	12.80
3	510.87	5.7621E-002	28.92
4	583.22	7.9673E-002	25.46
8	1462.04	1.0049E-001	15.41

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** NUCLIDE MDA REPORT *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-265-04
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
+	BI-212	39.86	1.10	1.1329E+001	1.41E+000	2.2072E+000
		727.17*	11.80	1.4098E+000		2.1623E+000
		785.42	2.00	1.4390E+001		-6.6535E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	2.1676E+000	8.48E-001	-1.4682E+000
		77.11	17.50	1.2507E+000		1.6927E+000
		87.20	6.30	2.9519E+000		-5.1449E-002
		89.80	1.75	1.0380E+001		-1.7675E+001
		115.19	0.60	2.7898E+001		5.9048E+000
		238.63	44.60	8.4842E-001		3.8401E+000
		300.09	3.41	6.5762E+000		3.1715E+000
	BI-214	609.31	46.30	6.6676E-001	6.67E-001	1.0267E+000
		768.36	5.04	5.9194E+000		8.8578E-001
		806.17	1.23	2.2154E+001		-1.1633E+001
		934.06	3.21	8.1443E+000		-1.6690E+001
		1120.29	15.10	2.4216E+000		-2.8826E+000
		1155.19	1.69	2.2563E+001		3.4703E+001
		1238.11	5.94	7.2885E+000		-3.8009E+000
		1280.96	1.47	2.4215E+001		3.1059E+000
		1377.67	4.11	8.7788E+000		-1.0613E+001
		1385.31	0.78	4.6131E+001		1.7494E+001
		1401.50	1.39	2.5268E+001		3.4712E+001
		1407.98	2.48	1.4235E+001		4.3455E+000
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	3.2873E+000	5.97E-001	-2.2267E+000
		77.11	10.70	2.0455E+000		2.7684E+000
		87.20	3.70	5.0263E+000		-8.7602E-002
		89.80	1.03	1.7637E+001		-3.0031E+001
		241.98	7.49	5.0247E+000		1.9112E+000
		295.21	19.20	1.2007E+000		1.9204E+000
		351.92	37.20	5.9683E-001		6.3939E-001
		785.91	1.10	2.6640E+001		1.9731E+001
+	AC-228	338.32*	11.40	1.4319E+000	7.30E-001	2.1312E+000
		911.07*	27.70	7.2997E-001		2.6278E+000
		969.11*	16.60	1.3116E+000		2.8559E+000

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

GRID 266

Solutient
Technologies, LLC

Project Name:	AAR Livonia	**Model:**	N/A	NORTH
Work Order #	201421	**Serial #**		
Surveyor Name:	Matt Crosby	**Probe:**		
Date:	2-14-14	**Serial #**		
Survey Type:	1-2 Meter	**Calibration Due**	N/A	
GRID # 266	⊕ = Sample Location	**Comments:**		

1 Minute Integrated Count

1 N/A

X .2

X 2.7

1 Minute Integrated Count

2 N/A

X 2.9

X 4.5

1 Minute Integrated Count

3 N/A

X .9

X 2.4

1 Minute Integrated Count

4 N/A

X 4.8

X .4

- All readings are presented in C.P.M
- Each grid represents an 10 Meter x 10 Meter area.
- Each Sub grid represents an 5 Meter x 5 Meter area.

Instrument BKG: N/A

****
***** G A M M A S P E C T R U M A N A L Y S I S *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-266-01.CNF

Report Generated On : 10/8/2014 10:11:42 AM

Sample Location : AAR-266-01
Sample Identification : AAR-266-01
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/19/2014 9:09:00 AM
Acquisition Started : 7/19/2014 9:09:50 AM

Live Time : 900.0 seconds
Real Time : 900.7 seconds

Dead Time : 0.08 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-266-01
Peak Analysis Performed on: 10/8/2014 10:11:42 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1298-	1313	1305.85	238.52	0.96	4.64E+001	21.15	2.26E+001
2	7984-	8017	8000.27	1461.40	0.41	6.99E+001	18.69	4.08E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-266-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:11:42 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	238.52	5.1582E-002	45.55
2	1461.40	7.7688E-002	26.73

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** NUCLIDE MDA REPORT *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-266-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.2717E+001	2.77E+000	-1.6519E+000
		727.17	11.80	2.7651E+000		-5.0604E-001
		785.42	2.00	1.7849E+001		5.5444E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	2.1206E+000	6.70E-001	2.3237E-001
		77.11	17.50	1.0988E+000		4.7433E-001
		87.20	6.30	2.9342E+000		-7.6507E-001
		89.80	1.75	1.0935E+001		-6.5081E+000
		115.19	0.60	3.3676E+001		1.0768E+001
		238.63	44.60	6.6977E-001		1.0116E+000
		300.09	3.41	7.1015E+000		-2.0232E+000
	BI-214	609.31	46.30	8.2716E-001	8.27E-001	8.8507E-001
		768.36	5.04	6.5180E+000		7.4821E-001
		806.17	1.23	2.4562E+001		-1.8396E+001
		934.06	3.21	1.2353E+001		1.4077E+001
		1120.29	15.10	3.1758E+000		7.8786E-002
		1155.19	1.69	3.1820E+001		8.4616E+000
		1238.11	5.94	9.0667E+000		-7.4019E-002
		1280.96	1.47	3.4434E+001		3.5970E+001
		1377.67	4.11	1.1774E+001		-7.7999E+000
		1385.31	0.78	5.8493E+001		4.8348E+001
		1401.50	1.39	3.0831E+001		1.2203E+000
		1407.98	2.48	1.6887E+001		1.2222E+001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	3.2160E+000	6.84E-001	3.5241E-001
		77.11	10.70	1.7972E+000		7.7578E-001
		87.20	3.70	4.9961E+000		-1.3027E+000
		89.80	1.03	1.8580E+001		-1.1058E+001
		241.98	7.49	3.9311E+000		1.4470E+000
		295.21	19.20	1.2429E+000		7.2079E-001
		351.92	37.20	6.8362E-001		2.8997E-001
		785.91	1.10	3.2858E+001		-5.2917E+000
	AC-228	338.32	11.40	2.0654E+000	1.77E+000	1.0356E+000
		911.07	27.70	1.7736E+000		2.6722E+000
		969.11	16.60	2.8115E+000		9.5232E-001

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** G A M M A S P E C T R U M A N A L Y S I S *****
****

Filename: C:\My Documents\AAR\AAR\Grid Samples\AAR-266-02.CNF

Report Generated On	:	10/8/2014 10:12:20 AM
Sample Location	:	AAR-266-02
Sample Identification	:	AAR-266-02
Sample Description 1	:	8 Oz. Can
Sample Description 2	:	Grid Clearance
Sample Description 3	:	
Sample Description 4	:	
Sample Type	:	Soil
Sample Geometry	:	8 Oz. Can
Peak Locate Threshold	:	5.00
Peak Locate Range (in channels)	:	40 - 8192
Peak Area Range (in channels)	:	40 - 8192
Identification Energy Tolerance	:	3.000 keV
Sample Size	:	2.003E+002 Grams
Sample Taken On	:	7/19/2014 9:35:00 AM
Acquisition Started	:	7/19/2014 9:36:38 AM
Live Time	:	900.0 seconds
Real Time	:	900.7 seconds
Dead Time	:	0.08 %

Energy Calibration Used Done On	:	6/4/2008
Efficiency Calibration Used Done On	:	5/23/2008
Efficiency ID	:	

****
***** PEAK ANALYSIS REPORT *****
****

Detector Name: RE1A
Sample Title: AAR-266-02
Peak Analysis Performed on: 10/8/2014 10:12:21 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1298-	1315	1306.31	238.60	0.76	8.30E+001	27.76	3.60E+001
2	7983-	8016	7999.82	1461.31	0.26	7.40E+001	16.86	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-266-02
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

****
***** INTERFERENCE CORRECTED REPORT *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:12:21 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	238.60	9.2222E-002	33.44
2	1461.31	8.2222E-002	22.78

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** NUCLIDE MDA REPORT *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-266-02
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.1951E+001	2.97E+000	-2.5667E+000
		727.17	11.80	2.9671E+000		1.2932E+000
		785.42	2.00	1.9287E+001		-6.5395E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	2.0383E+000	7.87E-001	-7.2761E-001
		77.11	17.50	1.2642E+000		6.9520E-001
		87.20	6.30	3.1463E+000		2.1028E-001
		89.80	1.75	1.1236E+001		-5.3655E+000
		115.19	0.60	3.2606E+001		-9.3866E+000
		238.63	44.60	7.8726E-001		9.1220E-001
		300.09	3.41	7.9174E+000		3.3140E+000
	BI-214	609.31	46.30	7.7498E-001	7.75E-001	4.3378E-001
		768.36	5.04	7.0336E+000		-3.8937E+000
		806.17	1.23	3.1079E+001		1.2532E+001
		934.06	3.21	1.1314E+001		4.6615E+000
		1120.29	15.10	3.5264E+000		1.0242E+000
		1155.19	1.69	2.8108E+001		-3.1472E+000
		1238.11	5.94	9.5138E+000		6.5248E+000
		1280.96	1.47	3.1628E+001		4.5092E+000
		1377.67	4.11	1.2009E+001		-7.3199E+000
		1385.31	0.78	5.7117E+001		4.5803E+001
		1401.50	1.39	2.9093E+001		-1.4463E+000
		1407.98	2.48	1.6887E+001		-1.9283E+000
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	3.0913E+000	7.58E-001	-1.1035E+000
		77.11	10.70	2.0676E+000		1.1370E+000
		87.20	3.70	5.3573E+000		3.5805E-001
		89.80	1.03	1.9090E+001		-9.1162E+000
		241.98	7.49	4.7763E+000		9.7297E+000
		295.21	19.20	1.3715E+000		7.0243E-001
		351.92	37.20	7.5755E-001		6.9965E-001
		785.91	1.10	3.5444E+001		3.1636E+001
	AC-228	338.32	11.40	2.6086E+000	1.68E+000	3.9884E+000
		911.07	27.70	1.6846E+000		-1.8577E+000
		969.11	16.60	2.7826E+000		-1.6851E+000

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** G A M M A S P E C T R U M A N A L Y S I S *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-266-03.CNF

Report Generated On : 10/8/2014 10:13:01 AM

Sample Location : AAR-266-03
Sample Identification : AAR-266-03
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/19/2014 9:54:00 AM
Acquisition Started : 7/19/2014 9:55:32 AM

Live Time : 900.0 seconds
Real Time : 900.6 seconds

Dead Time : 0.07 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-266-03
Peak Analysis Performed on: 10/8/2014 10:13:01 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1297-	1314	1306.24	238.59	0.96	8.70E+001	30.85	4.90E+001
2	3182-	3203	3192.28	583.11	0.52	2.51E+001	22.49	2.79E+001
3	7985-	8018	8001.07	1461.54	0.67	1.10E+002	20.56	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-266-03
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:13:01 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	238.59	9.6667E-002	35.46
2	583.11	2.7935E-002	89.44
3	1461.54	1.2222E-001	18.69

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** NUCLIDE MDA REPORT *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-266-03
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.4753E+001	3.03E+000	-2.3190E+000
		727.17	11.80	3.0312E+000		2.3087E-001
		785.42	2.00	1.8062E+001		7.8810E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	2.3003E+000	8.50E-001	3.1862E-002
		77.11	17.50	1.2972E+000		2.2727E-001
		87.20	6.30	3.5483E+000		9.6617E-001
		89.80	1.75	1.2947E+001		-3.7086E+000
		115.19	0.60	2.7626E+001		-1.3629E+001
		238.63	44.60	8.4968E-001		1.1941E+000
		300.09	3.41	7.9174E+000		1.9628E+000
	BI-214	609.31	46.30	8.4378E-001	8.44E-001	7.1359E-001
		768.36	5.04	7.8848E+000		-1.2179E+000
		806.17	1.23	3.0737E+001		-1.1725E+001
		934.06	3.21	1.2995E+001		9.2148E+000
		1120.29	15.10	3.5630E+000		-2.4686E+000
		1155.19	1.69	2.9276E+001		-2.4209E-001
		1238.11	5.94	7.9593E+000		7.9941E+000
		1280.96	1.47	2.6440E+001		1.9845E+001
		1377.67	4.11	1.0774E+001		-6.4666E-001
		1385.31	0.78	5.2740E+001		-6.9977E+000
		1401.50	1.39	3.0831E+001		-5.3333E+000
		1407.98	2.48	1.6887E+001		1.2222E+001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	3.4886E+000	7.76E-001	4.8322E-002
		77.11	10.70	2.1215E+000		3.7171E-001
		87.20	3.70	6.0417E+000		1.6451E+000
		89.80	1.03	2.1997E+001		-6.3009E+000
		241.98	7.49	5.1450E+000		9.7502E+000
		295.21	19.20	1.3715E+000		-7.0036E-002
		351.92	37.20	7.7600E-001		6.7823E-001
		785.91	1.10	3.3240E+001		-5.6250E-001
	AC-228	338.32	11.40	2.5947E+000	2.10E+000	1.9522E+000
		911.07	27.70	2.1020E+000		3.1571E+000
		969.11	16.60	3.1867E+000		9.0091E-001

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** GAMMA SPECTRUM ANALYSIS *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-266-04.CNF

Report Generated On : 10/8/2014 10:13:40 AM

Sample Location : AAR-266-04
Sample Identification : AAR-266-04
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/19/2014 10:12:00 AM
Acquisition Started : 7/19/2014 10:13:21 AM

Live Time : 900.0 seconds
Real Time : 900.7 seconds

Dead Time : 0.08 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** PEAK ANALYSIS REPORT *****
****

Detector Name: RE1A
Sample Title: AAR-266-04
Peak Analysis Performed on: 10/8/2014 10:13:40 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1296	1314	1306.22	238.59	0.71	2.49E+002	42.83	6.79E+001
2	1842	1859	1851.29	338.15	0.34	4.57E+001	19.81	1.63E+001
3	3180	3203	3192.10	583.08	1.36	8.90E+001	25.78	2.10E+001
4	4976	5001	4988.31	911.20	0.22	5.35E+001	20.88	1.35E+001
5	5291	5318	5304.20	968.90	0.48	4.62E+001	15.82	3.85E+000
6	7983	8016	7999.55	1461.26	0.52	8.66E+001	20.60	4.38E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-266-04
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
AC-228	1.000	338.32*	11.40	2.55675E+000	1.12828E+000
		911.07*	27.70	2.50876E+000	9.83665E-001
		969.11*	16.60	3.82463E+000	1.31815E+000

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

****
***** INTERFERENCE CORRECTED REPORT *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty
AC-228	1.000	2.840774E+000	6.462308E-001

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** UNIDENTIFIED PEAKS **********

Peak Locate Performed on: 10/8/2014 10:13:40 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	238.59	2.7682E-001	17.19
3	583.08	9.8912E-002	28.96
6	1461.26	9.6239E-002	23.78

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** NUCLIDE MDA REPORT *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-266-04
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.6332E+001	3.86E+000	-5.7180E+000
		727.17	11.80	3.8584E+000		6.6820E+000
		785.42	2.00	1.9089E+001		-7.9676E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	2.9997E+000	1.20E+000	-8.2335E-002
		77.11	17.50	1.6347E+000		4.0338E-001
		87.20	6.30	4.2635E+000		1.5593E+000
		89.80	1.75	1.4893E+001		-2.0167E+001
		115.19	0.60	3.7259E+001		7.0421E+000
		238.63	44.60	1.2047E+000		3.2224E+000
		300.09	3.41	9.3644E+000		3.4017E+000
	BI-214	609.31	46.30	9.6594E-001	9.66E-001	1.1682E+000
		768.36	5.04	8.1001E+000		5.5915E+000
		806.17	1.23	3.5783E+001		-1.3316E+001
		934.06	3.21	1.2018E+001		-5.9613E+000
		1120.29	15.10	3.4893E+000		4.5171E+000
		1155.19	1.69	3.1470E+001		3.9703E+001
		1238.11	5.94	9.5138E+000		-9.6225E+000
		1280.96	1.47	3.7982E+001		-2.8597E+000
		1377.67	4.11	1.1533E+001		-1.0720E+001
		1385.31	0.78	5.9834E+001		-5.7572E+000
		1401.50	1.39	3.2464E+001		-3.3547E+000
		1407.98	2.48	1.9577E+001		1.7111E+001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	4.5493E+000	8.62E-001	-1.2487E-001
		77.11	10.70	2.6735E+000		6.5973E-001
		87.20	3.70	7.2595E+000		2.6550E+000
		89.80	1.03	2.5303E+001		-3.4265E+001
		241.98	7.49	7.1264E+000		-3.2923E+000
		295.21	19.20	1.7545E+000		1.8521E+000
		351.92	37.20	8.6200E-001		6.5678E-001
		785.91	1.10	3.5444E+001		-5.3467E+000
+	AC-228	338.32*	11.40	1.5347E+000	1.32E+000	2.5568E+000
		911.07*	27.70	1.3214E+000		2.5088E+000
		969.11*	16.60	1.4124E+000		3.8246E+000

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

GRID 283

Solutient
Technologies, LLC

Project Name:	AAR Livonia	**Model:**	N/A	**NORTH**
Work Order #	20142	**Serial #**		
Surveyor Name:	Matt Crosby	**Probe:**		
Date:	7-14-14	**Serial #**		
Survey Type:	1-2 Meter	**Calibration Due**	N/A	
GRID # 283	⊕ = Sample Location	**Comments:**		

1 Minute Integrated Count

1

N/A

⊕

X 0.3

X 3.3

1 Minute Integrated Count

2

N/A

⊕

X 2.7

X 4.0

1 Minute Integrated Count

3

N/A

⊕

X 3.4

X 0.3

1 Minute Integrated Count

4

N/A

⊕

X 1.5

X 0.2

- All readings are presented in C.P.M
- Each grid represents an 10 Meter x 10 Meter area.
- Each Sub grid represents an 5 Meter x 5 Meter area.

Instrument BKG: N/A

****
***** GAMMA SPECTRUM ANALYSIS *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-283-01.CNF

Report Generated On : 10/8/2014 10:09:00 AM

Sample Location : AAR-283-01
Sample Identification : AAR-283-01
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/18/2014 2:17:00 PM
Acquisition Started : 7/18/2014 3:04:13 PM

Live Time : 900.0 seconds
Real Time : 900.5 seconds

Dead Time : 0.06 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-283-01
Peak Analysis Performed on: 10/8/2014 10:09:00 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1297	1314	1306.17	238.58	0.75	9.23E+001	25.76	2.47E+001
2	7982	8015	7998.78	1461.12	0.87	8.40E+001	17.96	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-283-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:09:00 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	238.58	1.0251E-001	27.92
2	1461.12	9.3333E-002	21.39

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-283-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.4542E+001	3.09E+000	1.8322E+000
		727.17	11.80	3.0938E+000		3.0711E+000
		785.42	2.00	1.8889E+001		6.5263E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	2.0523E+000	8.29E-001	-1.4336E+000
		77.11	17.50	1.0673E+000		-1.4614E-001
		87.20	6.30	3.0634E+000		5.3195E-001
		89.80	1.75	1.0468E+001		-1.1281E+001
		115.19	0.60	3.2606E+001		1.4880E+001
		238.63	44.60	8.2941E-001		1.2488E+000
		300.09	3.41	8.1409E+000		-3.2981E-001
	BI-214	609.31	46.30	8.1017E-001	8.10E-001	1.0620E+000
		768.36	5.04	7.1156E+000		2.2034E+000
		806.17	1.23	3.2728E+001		2.7469E+000
		934.06	3.21	1.3898E+001		5.2788E+000
		1120.29	15.10	3.4139E+000		4.3070E+000
		1155.19	1.69	2.6462E+001		9.1303E+000
		1238.11	5.94	9.1807E+000		-1.0501E+001
		1280.96	1.47	3.3343E+001		1.6538E+001
		1377.67	4.11	1.0774E+001		8.6399E+000
		1385.31	0.78	5.4244E+001		3.8169E+000
		1401.50	1.39	2.5194E+001		1.4463E+001
		1407.98	2.48	1.4778E+001		8.9627E+000
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	3.1125E+000	7.19E-001	-2.1742E+000
		77.11	10.70	1.7455E+000		-2.3902E-001
		87.20	3.70	5.2160E+000		9.0575E-001
		89.80	1.03	1.7785E+001		-1.9166E+001
		241.98	7.49	4.8018E+000		7.0338E+000
		295.21	19.20	1.4351E+000		6.8480E-001
		351.92	37.20	7.1914E-001		5.8524E-001
		785.91	1.10	3.4361E+001		4.4482E+001
	AC-228	338.32	11.40	2.3920E+000	1.83E+000	1.0587E+000
		911.07	27.70	1.8304E+000		2.1359E+000
		969.11	16.60	2.7533E+000		9.3252E-001

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** G A M M A S P E C T R U M A N A L Y S I S *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-283-02.CNF

Report Generated On : 10/8/2014 10:09:38 AM

Sample Location : AAR-283-02
Sample Identification : AAR-283-02
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Monizite Sand
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/15/2014 9:20:00 AM
Acquisition Started : 7/15/2014 9:21:26 AM

Live Time : 900.0 seconds
Real Time : 900.5 seconds

Dead Time : 0.06 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-283-02
Peak Analysis Performed on: 10/8/2014 10:09:39 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	7987-	8020	8003.80	1462.04	0.76	7.99E+001	19.72	4.13E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-283-02
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:09:39 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	1462.04	8.8750E-002	24.69

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** NUCLIDE MDA REPORT *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-283-02
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.4110E+001	2.93E+000	4.2239E+000
		727.17	11.80	2.9345E+000		1.2416E+000
		785.42	2.00	1.6506E+001		8.9652E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	1.9959E+000	6.75E-001	1.3743E-001
		77.11	17.50	1.0009E+000		2.3109E-001
		87.20	6.30	3.1052E+000		1.1001E-001
		89.80	1.75	1.0143E+001		-4.9138E+000
		115.19	0.60	2.8896E+001		-2.2334E+000
		238.63	44.60	6.7488E-001		6.0067E-001
		300.09	3.41	6.9988E+000		-3.2225E+000
	BI-214	609.31	46.30	7.7498E-001	7.75E-001	1.9785E-001
		768.36	5.04	6.4277E+000		-2.2144E+000
		806.17	1.23	2.0162E+001		-5.3409E+001
		934.06	3.21	1.1671E+001		-1.0282E+000
		1120.29	15.10	3.5264E+000		-4.4616E+000
		1155.19	1.69	3.0395E+001		3.6798E+001
		1238.11	5.94	7.5499E+000		-1.4310E+001
		1280.96	1.47	2.5707E+001		1.8605E+001
		1377.67	4.11	1.1286E+001		9.5999E+000
		1385.31	0.78	5.4244E+001		4.0714E+001
		1401.50	1.39	3.1660E+001		-6.1405E+001
		1407.98	2.48	1.9986E+001		-3.8517E+001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	3.0269E+000	7.09E-001	2.0842E-001
		77.11	10.70	1.6371E+000		3.7795E-001
		87.20	3.70	5.2872E+000		1.8731E-001
		89.80	1.03	1.7233E+001		-8.3486E+000
		241.98	7.49	4.1147E+000		8.5847E+000
		295.21	19.20	1.2338E+000		-5.5337E-001
		351.92	37.20	7.0918E-001		1.8967E-001
		785.91	1.10	3.0027E+001		3.8793E+000
	AC-228	338.32	11.40	2.1857E+000	1.61E+000	4.3383E-001
		911.07	27.70	1.6062E+000		8.0104E-001
		969.11	16.60	2.6635E+000		6.8385E-001

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** G A M M A S P E C T R U M A N A L Y S I S *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-283-03.CNF

Report Generated On : 10/8/2014 10:10:15 AM

Sample Location : AAR-283-03
Sample Identification : AAR-283-03
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/19/2014 8:49:00 AM
Acquisition Started : 7/19/2014 8:50:26 AM

Live Time : 900.0 seconds
Real Time : 900.7 seconds

Dead Time : 0.07 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-283-03
Peak Analysis Performed on: 10/8/2014 10:10:16 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	7983-	8016	7999.75	1461.30	0.51	8.04E+001	22.06	8.57E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-283-03
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:10:15 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	1461.30	8.9363E-002	27.42

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-283-03
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.0224E+001	2.93E+000	-6.2262E+000
		727.17	11.80	2.9345E+000		1.1331E+000
		785.42	2.00	1.6506E+001		-2.2151E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	1.9377E+000	6.19E-001	-2.3573E-001
		77.11	17.50	1.0592E+000		9.3059E-002
		87.20	6.30	2.7281E+000		1.5012E+000
		89.80	1.75	9.5455E+000		-9.5037E+000
		115.19	0.60	2.9629E+001		-5.5645E+000
		238.63	44.60	6.1898E-001		3.2285E-001
		300.09	3.41	6.6805E+000		-1.9617E+000
	BI-214	609.31	46.30	7.3163E-001	7.32E-001	3.1550E-001
		768.36	5.04	6.3359E+000		6.8648E+000
		806.17	1.23	3.3676E+001		3.4513E+001
		934.06	3.21	1.0156E+001		-3.8297E+000
		1120.29	15.10	3.0920E+000		3.4666E+000
		1155.19	1.69	2.9654E+001		-3.6098E+001
		1238.11	5.94	8.8338E+000		-6.6617E-001
		1280.96	1.47	3.3894E+001		-2.8627E+001
		1377.67	4.11	1.1034E+001		9.1199E+000
		1385.31	0.78	6.3666E+001		9.6806E+000
		1401.50	1.39	3.7561E+001		3.6158E+001
		1407.98	2.48	1.8730E+001		3.0233E+000
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	2.9387E+000	7.29E-001	-3.5750E-001
		77.11	10.70	1.7324E+000		1.5220E-001
		87.20	3.70	4.6452E+000		2.5560E+000
		89.80	1.03	1.6218E+001		-1.6147E+001
		241.98	7.49	3.6711E+000		3.0546E+000
		295.21	19.20	1.2338E+000		-2.9250E-001
		351.92	37.20	7.2894E-001		1.5157E-001
		785.91	1.10	3.0449E+001		-2.4310E+001
	AC-228	338.32	11.40	2.2674E+000	1.62E+000	1.1883E+000
		911.07	27.70	1.6222E+000		1.4964E+000
		969.11	16.60	2.5703E+000		-9.1684E-001

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** GAMMA SPECTRUM ANALYSIS *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-283-04.CNF

Report Generated On : 10/8/2014 10:10:47 AM

Sample Location : AAR-283-04
Sample Identification : AAR-283-04
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Monizite Sand
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/15/2014 9:02:00 AM
Acquisition Started : 7/15/2014 9:03:15 AM

Live Time : 900.0 seconds
Real Time : 900.6 seconds

Dead Time : 0.07 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-283-04
Peak Analysis Performed on: 10/8/2014 10:10:47 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1298	1315	1306.86	238.70	0.54	7.57E+001	25.65	2.93E+001
2	7987	8020	8003.94	1462.06	0.64	8.20E+001	17.75	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-283-04
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

***** INTERFERENCE CORRECTED REPORT *****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** UNIDENTIFIED PEAKS **********

Peak Locate Performed on: 10/8/2014 10:10:47 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	238.70	8.4082E-002	33.90
2	1462.06	9.1111E-002	21.64

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** NUCLIDE MDA REPORT *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-283-04
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.3434E+001	3.06E+000	-7.6435E+000
		727.17	11.80	3.0627E+000		-8.5782E-001
		785.42	2.00	1.7192E+001		-4.3990E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	2.1472E+000	7.70E-001	-1.1754E-002
		77.11	17.50	1.1738E+000		4.6930E-001
		87.20	6.30	3.0844E+000		-1.5962E+000
		89.80	1.75	1.1162E+001		-5.5513E+000
		115.19	0.60	3.3465E+001		7.8368E+000
		238.63	44.60	7.6972E-001		1.5192E+000
		300.09	3.41	7.5452E+000		-6.7260E+000
	BI-214	609.31	46.30	7.2521E-001	7.25E-001	8.2218E-001
		768.36	5.04	7.5873E+000		7.3041E+000
		806.17	1.23	3.2080E+001		5.4384E+000
		934.06	3.21	1.0359E+001		-3.9602E+000
		1120.29	15.10	2.7281E+000		2.6262E+000
		1155.19	1.69	2.4228E+001		-1.1862E+001
		1238.11	5.94	8.3465E+000		8.8823E+000
		1280.96	1.47	2.9802E+001		1.9934E+000
		1377.67	4.11	1.1533E+001		1.6628E+000
		1385.31	0.78	5.7117E+001		4.5803E+001
		1401.50	1.39	2.9977E+001		-5.4237E+000
		1407.98	2.48	1.6390E+001		-7.0276E+000
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	3.2565E+000	8.12E-001	-1.7825E-002
		77.11	10.70	1.9197E+000		7.6755E-001
		87.20	3.70	5.2517E+000		-2.7179E+000
		89.80	1.03	1.8964E+001		-9.4319E+000
		241.98	7.49	4.5669E+000		8.1262E+000
		295.21	19.20	1.3385E+000		1.8116E-001
		351.92	37.20	8.1156E-001		1.2283E+000
		785.91	1.10	2.9598E+001		-7.4657E+001
	AC-228	338.32	11.40	2.2834E+000	1.61E+000	9.6583E-001
		911.07	27.70	1.6062E+000		1.4431E+000
		969.11	16.60	2.7237E+000		4.4801E-001

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

GRID 284

Solutient
Technologies, LLC

Project Name :	AAR Livonia	**Model:**	N/A	**NORTH** ↑
Work Order #	201421	**Serial #**		
Surveyor Name:	Mat Crosby	**Probe:**		
Date:	7-14-14	**Serial #**		
Survey Type:		**Calibration Due**	N/A	
GRID # 284	⊕ =Sample Location	**Comments:**		

1 Minute Integrated Count

1 _____

⊕

1.1

1.7

1 Minute Integrated Count

2 N/A

⊕

0.1

0.2

1 Minute Integrated Count

3 _____

⊕

4.4

1.0

1 Minute Integrated Count

4 N/A

⊕

0.4

1.7

* All readings are presented in C.P.M
* Each grid represents an 10 Meter x 10 Meter area.
* Each Sub grid represents an 5 Meter x 5 Meter area.

Instrument BKG: N/A

****
***** GAMMA SPECTRUM ANALYSIS *****
****

lename: C:\My Documents\AAR\AAR\Grid Samples\AAR-284-01.CNF

Report Generated On : 10/8/2014 10:06:39 AM

Sample Location : AAR-284-01
Sample Identification : AAR-284-01
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Monizite Sand
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/15/2014 8:40:00 AM
Acquisition Started : 7/15/2014 8:41:09 AM

Live Time : 900.0 seconds
Real Time : 900.5 seconds

Dead Time : 0.06 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** PEAK ANALYSIS REPORT *****
****

Detector Name: RE1A
Sample Title: AAR-284-01
Peak Analysis Performed on: 10/8/2014 10:06:39 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	1300-	1315	1307.28	238.78	0.52	6.88E+001	22.38	2.02E+001
2	7987-	8020	8003.23	1461.94	1.36	7.16E+001	19.19	4.42E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-284-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

***** INTERFERENCE CORRECTED REPORT *****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** UNIDENTIFIED PEAKS **********

Peak Locate Performed on: 10/8/2014 10:06:39 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	238.78	7.6392E-002	32.55
2	1461.94	7.9532E-002	26.80

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** NUCLIDE MDA REPORT *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-284-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.2212E+001	2.87E+000	-4.2658E+000
		727.17	11.80	2.8681E+000		-6.4846E+000
		785.42	2.00	1.9870E+001		1.1420E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	1.8622E+000	7.29E-001	-6.5711E-001
		77.11	17.50	1.1370E+000		6.6416E-001
		87.20	6.30	3.2862E+000		-2.2965E-001
		89.80	1.75	1.1236E+001		-1.0650E+001
		115.19	0.60	3.3885E+001		2.2928E+000
		238.63	44.60	7.2865E-001		7.5622E-001
		300.09	3.41	7.8261E+000		6.3049E+000
	BI-214	609.31	46.30	7.6895E-001	7.69E-001	1.8162E-001
		768.36	5.04	7.1966E+000		1.4988E-001
		806.17	1.23	2.8963E+001		-7.3957E+000
		934.06	3.21	1.2517E+001		-5.5598E+000
		1120.29	15.10	3.1342E+000		3.5716E+000
		1155.19	1.69	3.0395E+001		-3.2708E+001
		1238.11	5.94	8.7148E+000		-9.6225E-001
		1280.96	1.47	3.2211E+001		3.1008E+001
		1377.67	4.11	1.1286E+001		9.5999E+000
		1385.31	0.78	5.7117E+001		4.5803E+001
		1401.50	1.39	3.4009E+001		2.8927E+001
		1407.98	2.48	1.8289E+001		1.4666E+001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	2.8242E+000	7.62E-001	-9.9656E-001
		77.11	10.70	1.8595E+000		1.0862E+000
		87.20	3.70	5.5954E+000		-3.9102E-001
		89.80	1.03	1.9090E+001		-1.8094E+001
		241.98	7.49	4.3328E+000		8.9657E+000
		295.21	19.20	1.4734E+000		3.3462E-001
		351.92	37.20	7.6221E-001		-3.4335E-002
		785.91	1.10	3.6146E+001		5.2155E+000
	AC-228	338.32	11.40	2.1179E+000	1.67E+000	1.9887E-001
		911.07	27.70	1.6692E+000		9.5401E-001
		969.11	16.60	2.6328E+000		3.8789E-001

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** G A M M A S P E C T R U M A N A L Y S I S *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-284-02.CNF

Report Generated On : 10/8/2014 10:07:16 AM

Sample Location : AAR-284-02
Sample Identification : AAR-284-02
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/14/2014 3:43:00 PM
Acquisition Started : 7/14/2014 3:45:14 PM

Live Time : 900.0 seconds
Real Time : 900.5 seconds

Dead Time : 0.06 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-284-02
Peak Analysis Performed on: 10/8/2014 10:07:16 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	7990-	8023	8006.76	1462.58	0.36	8.08E+001	19.86	4.17E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-284-02
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:07:16 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	1462.58	8.9810E-002	24.57

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-284-02
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.1951E+001	3.24E+000	-2.3507E+000
		727.17	11.80	3.2447E+000		3.4295E+000
		785.42	2.00	1.5787E+001		9.3730E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	1.5946E+000	6.52E-001	-1.0484E+000
		77.11	17.50	1.0429E+000		7.1143E-001
		87.20	6.30	2.6309E+000		-6.7124E-001
		89.80	1.75	9.7202E+000		-1.7932E+001
		115.19	0.60	3.0108E+001		2.0435E+001
		238.63	44.60	6.5154E-001		3.8699E-001
		300.09	3.41	7.0503E+000		2.3065E+000
	BI-214	609.31	46.30	7.5054E-001	7.51E-001	6.2505E-001
		768.36	5.04	6.3359E+000		-8.0345E+000
		806.17	1.23	2.8963E+001		1.7885E+001
		934.06	3.21	1.0943E+001		-2.2234E+001
		1120.29	15.10	3.3366E+000		2.1353E+000
		1155.19	1.69	2.8503E+001		3.1956E+001
		1238.11	5.94	8.8338E+000		-6.6617E-001
		1280.96	1.47	3.2783E+001		6.8338E+000
		1377.67	4.11	9.3512E+000		6.2399E+000
		1385.31	0.78	4.9574E+001		3.3080E+001
		1401.50	1.39	3.0831E+001		-6.3955E+000
		1407.98	2.48	1.6887E+001		-1.6459E+001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	2.4184E+000	7.24E-001	-1.5899E+000
		77.11	10.70	1.7057E+000		1.1635E+000
		87.20	3.70	4.4797E+000		-1.1429E+000
		89.80	1.03	1.6515E+001		-3.0467E+001
		241.98	7.49	3.9154E+000		5.5332E+000
		295.21	19.20	1.1872E+000		-7.7308E-001
		351.92	37.20	7.2406E-001		-4.9836E-001
		785.91	1.10	2.9162E+001		1.7758E+001
	AC-228	338.32	11.40	2.2023E+000	1.44E+000	-7.8144E-001
		911.07	27.70	1.4356E+000		1.0024E+000
		969.11	16.60	2.7826E+000		1.0154E+000

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** G A M M A S P E C T R U M A N A L Y S I S *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-284-03.CNF

Report Generated On : 10/8/2014 10:07:44 AM

Sample Location : AAR-284-03
Sample Identification : AAR-284-03
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/19/2014 8:05:00 AM
Acquisition Started : 7/19/2014 8:06:26 AM

Live Time : 900.0 seconds
Real Time : 900.6 seconds

Dead Time : 0.07 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-284-03
Peak Analysis Performed on: 10/8/2014 10:07:44 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	7984-	8017	8000.69	1461.47	0.70	8.30E+001	17.86	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-284-03
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:07:44 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	1461.47	9.2222E-002	21.51

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-284-03
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.2717E+001	3.00E+000	1.4916E-001
		727.17	11.80	2.9993E+000		1.3891E+000
		785.42	2.00	1.6031E+001		-1.4330E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	1.8928E+000	6.52E-001	5.5594E-001
		77.11	17.50	1.0009E+000		7.6524E-001
		87.20	6.30	2.4774E+000		-9.7565E-001
		89.80	1.75	8.8092E+000		-7.9804E+000
		115.19	0.60	3.0578E+001		6.8783E+000
		238.63	44.60	6.5154E-001		2.6004E-001
		300.09	3.41	7.6401E+000		3.1336E+000
	BI-214	609.31	46.30	7.7498E-001	7.75E-001	9.4099E-001
		768.36	5.04	6.6070E+000		-2.4066E+000
		806.17	1.23	2.9687E+001		2.1729E+001
		934.06	3.21	1.1494E+001		-9.3156E-001
		1120.29	15.10	3.4518E+000		8.1412E-001
		1155.19	1.69	2.7706E+001		1.0816E+001
		1238.11	5.94	8.8338E+000		-6.6617E-001
		1280.96	1.47	3.2211E+001		-3.9232E+001
		1377.67	4.11	1.2687E+001		-1.4275E+001
		1385.31	0.78	6.9535E+001		7.1249E+001
		1401.50	1.39	3.2464E+001		-8.4570E+000
		1407.98	2.48	1.6887E+001		-1.6812E+001
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	2.8706E+000	6.78E-001	8.4314E-001
		77.11	10.70	1.6371E+000		1.2516E+000
		87.20	3.70	4.2182E+000		-1.6612E+000
		89.80	1.03	1.4967E+001		-1.3559E+001
		241.98	7.49	3.8197E+000		1.7359E+000
		295.21	19.20	1.3131E+000		-5.8256E-002
		351.92	37.20	6.7838E-001		2.7138E-001
		785.91	1.10	2.9162E+001		-4.1534E+001
	AC-228	338.32	11.40	1.9371E+000	1.45E+000	-2.9567E-001
		911.07	27.70	1.4536E+000		3.1644E-001
		969.11	16.60	2.4060E+000		2.6525E+000

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

****
***** G A M M A S P E C T R U M A N A L Y S I S *****
****

ename: C:\My Documents\AAR\AAR\Grid Samples\AAR-284-04.CNF

Report Generated On : 10/8/2014 10:08:13 AM

Sample Location : AAR-284-04
Sample Identification : AAR-284-04
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil
Sample Geometry : 8 Oz. Can

Peak Locate Threshold : 5.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 3.000 keV

Sample Size : 2.003E+002 Grams

Sample Taken On : 7/19/2014 8:31:00 AM
Acquisition Started : 7/19/2014 8:32:25 AM

Live Time : 900.0 seconds
Real Time : 900.6 seconds

Dead Time : 0.06 %

Energy Calibration Used Done On : 6/4/2008
Efficiency Calibration Used Done On : 5/23/2008
Efficiency ID :

****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: RE1A
Sample Title: AAR-284-04
Peak Analysis Performed on: 10/8/2014 10:08:14 AM
Peak Analysis From Channel: 40
Peak Analysis To Channel: 8192

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
1	7983-	8016	7999.60	1461.27	0.50	8.10E+001	17.64	0.00E+000

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: AAR-284-04
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 3.000 keV
Nuclide confidence index threshold = 0.30
Errors quoted at 1.960 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/Gram)	Wt mean Activity Uncertainty

? = nuclide is part of an undetermined solution
X = nuclide rejected by the interference analysis
@ = nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.960 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 10/8/2014 10:08:14 AM
Peak Locate From Channel: 40
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	1461.27	9.0000E-002	21.78

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.960 sigma

****
***** N U C L I D E M D A R E P O R T *****
****

Detector Name: RE1A
Sample Geometry: 8 Oz. Can
Sample Title: AAR-284-04
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
	BI-212	39.86	1.10	1.2717E+001	2.83E+000	2.4364E+000
		727.17	11.80	2.8342E+000		-1.8356E-001
		785.42	2.00	1.7414E+001		2.0472E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	1.9524E+000	6.08E-001	1.3793E+000
		77.11	17.50	1.0347E+000		-1.9282E-001
		87.20	6.30	2.7519E+000		-1.1339E+000
		89.80	1.75	1.0307E+001		-5.8048E+000
		115.19	0.60	2.7626E+001		-9.5337E+000
		238.63	44.60	6.0771E-001		8.0476E-001
		300.09	3.41	7.4973E+000		-5.6359E-001
	BI-214	609.31	46.30	7.5673E-001	7.57E-001	1.4984E-001
		768.36	5.04	7.4337E+000		7.2963E+000
		806.17	1.23	3.0391E+001		2.5365E+001
		934.06	3.21	1.1671E+001		6.0586E+000
		1120.29	15.10	3.2168E+000		-9.6294E-002
		1155.19	1.69	2.8108E+001		3.0988E+001
		1238.11	5.94	8.8338E+000		-1.9963E+000
		1280.96	1.47	2.7841E+001		-4.5772E+001
		1377.67	4.11	1.0507E+001		-9.1058E-001
		1385.31	0.78	5.1185E+001		-8.0610E+001
		1401.50	1.39	2.9093E+001		-3.6520E+001
		1407.98	2.48	1.4778E+001		8.9627E+000
>		1509.19	2.19	0.0000E+000		0.0000E+000
>		1661.28	1.15	0.0000E+000		0.0000E+000
>		1729.60	3.05	0.0000E+000		0.0000E+000
>		1764.49	15.80	0.0000E+000		0.0000E+000
>		1847.44	2.12	0.0000E+000		0.0000E+000
>		2118.54	1.21	0.0000E+000		0.0000E+000
	PB-214	74.81	6.33	2.9610E+000	6.46E-001	2.0919E+000
		77.11	10.70	1.6922E+000		-3.1536E-001
		87.20	3.70	4.6856E+000		-1.9308E+000
		89.80	1.03	1.7511E+001		-9.8625E+000
		241.98	7.49	3.5685E+000		1.6332E+000
		295.21	19.20	1.2519E+000		7.5555E-001
		351.92	37.20	6.4600E-001		4.6154E-001
		785.91	1.10	3.1678E+001		-1.1638E+001
	AC-228	338.32	11.40	2.1350E+000	1.54E+000	2.3718E+000
		911.07	27.70	1.5404E+000		5.5084E-001
		969.11	16.60	2.6328E+000		6.0096E-001

\+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction