

GRID 157

Solutient
Technologies, LLC

Project Name:	PARL 200.1: A	Model:		NORTH
Work Order #	201421	Serial #		
Surveyor Name:	Mat Crosby	Probe:	N/A	
Date:	6/23/14	Serial #		
Survey Type:	1-2 meter	Calibration Due		
GRID # 157		⊕ = Sample Location		Comments:

<p>01 1 Minute Integrated Count</p> <p align="center"><u>N/A</u></p> <p align="center">⊕</p> <p>X - 1.8</p> <p>X - 0.7</p>	<p>02 1 Minute Integrated Count</p> <p align="center"><u>N/A</u></p> <p align="center">⊕</p> <p>X - 2.8</p> <p>X - 1.7</p>
<p>03 1 Minute Integrated Count</p> <p align="center"><u>N/A</u></p> <p align="center">⊕</p> <p>X - 4.0</p> <p>X - 0.4</p>	<p>04 1 Minute Integrated Count</p> <p align="center"><u>N/A</u></p> <p align="center">⊕</p> <p>X - 0.8</p> <p>X - 1.5</p>

- * 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 *****

Filename: C:\My Documents\AAR\AAR\Grid Samples\AAR-157-01.CNF

Report Generated On : 10/8/2014 10:34:41 AM

Sample Location : AAR-157-01
Sample Identification : AAR-157-01
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid 157 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 : 6/23/2014 2:44:00 PM
Acquisition Started : 6/23/2014 2:45:05 PM

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-157-01

Peak Analysis Performed on: 10/8/2014 10:34:41 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	416-	430	422.33	77.12	0.91	1.86E+002	66.91	3.29E+002
2	1137-	1158	1145.93	209.31	0.93	1.37E+002	53.48	1.62E+002
3	1295-	1328	1306.24	238.59	1.12	1.79E+003	109.44	2.41E+002
4	1471-	1488	1479.38	270.22	0.81	1.01E+002	36.22	7.27E+001
5	1634-	1651	1643.05	300.12	0.87	1.00E+002	34.56	6.48E+001
6	1785-	1803	1794.68	327.81	0.29	9.40E+001	33.18	5.70E+001
7	1838-	1862	1851.27	338.15	0.84	3.44E+002	51.29	8.31E+001
8	2523-	2545	2533.95	462.86	1.29	1.22E+002	29.81	2.84E+001
9	2783-	2806	2795.48	510.63	1.02	1.63E+002	35.05	3.91E+001
10	3178-	3206	3191.60	582.99	1.18	4.68E+002	50.49	4.27E+001
11	3969-	3993	3980.48	727.10	0.45	1.13E+002	27.62	2.09E+001
12	4340-	4363	4351.85	794.93	1.29	4.75E+001	22.23	1.85E+001
13	4698-	4723	4710.98	860.54	0.68	6.82E+001	20.59	9.83E+000
14	4973-	5003	4988.70	911.27	1.58	3.50E+002	40.49	1.56E+001
M 15	5266-	5319	5282.21	964.88	1.55	7.01E+001	17.45	8.66E+000
m 16	5266-	5319	5304.42	968.94	1.56	1.87E+002	28.04	1.54E+001
17	7984-	8017	8000.52	1461.44	0.45	5.70E+001	25.33	2.10E+001

M = First peak in a multiplet region

Other peak in a multiplet region

r = 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-157-01
 Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
BI-212	0.677	39.86	1.10		
		727.17*	11.80	1.02147E+001	2.54948E+000
		785.42	2.00		
		1620.56	2.75		
PB-212	0.636	74.81	9.60		
		77.11*	17.50	5.05853E+000	1.84738E+000
		87.20	6.30		
		89.80	1.75		
		115.19	0.60		
		238.63*	44.60	2.20000E+001	2.21508E+000
AC-228	0.999	300.09*	3.41	1.76998E+001	6.27488E+000
		338.32*	11.40	1.92476E+001	3.27874E+000
		911.07*	27.70	1.64318E+001	2.00070E+000
		969.11*	16.60	1.54744E+001	2.38943E+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	0.677	1.021466E+001	2.549481E+000
PB-212	0.636	1.228511E+001	1.383802E+000
AC-228	0.999	1.661372E+001	1.389429E+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 10:34:41 AM
 Peak Locate From Channel: 40
 Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
2	209.31	1.5251E-001	38.97
4	270.22	1.1258E-001	35.75
6	327.81	1.0444E-001	35.29
8	462.86	1.3506E-001	24.53
9	510.63	1.8099E-001	21.52
10	582.99	5.2036E-001	10.78
12	794.93	5.2778E-002	46.80
13	860.54	7.5741E-002	30.21
M 15	964.88	7.7868E-002	24.90
17	1461.44	6.3291E-002	44.47

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-157-01
 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	3.0145E+001	2.99E+000	-1.1037E+001
		727.17*	11.80	2.9900E+000		1.0215E+001
		785.42	2.00	3.5730E+001		2.9908E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
+	PB-212	74.81	9.60	6.1995E+000	1.51E+000	1.2857E+001
		77.11*	17.50	2.8656E+000		5.0585E+000
		87.20	6.30	8.5012E+000		-5.2757E+000
		89.80	1.75	3.1406E+001		2.1104E+001
		115.19	0.60	6.4810E+001		-3.5879E+001
		238.63*	44.60	1.5054E+000		2.2000E+001
		300.09*	3.41	8.9086E+000		1.7700E+001
	BI-214	609.31	46.30	1.3061E+000	1.31E+000	9.4344E-001
		768.36	5.04	1.3591E+001		4.6099E+000
		806.17	1.23	4.5451E+001		2.5654E+001
		934.06	3.21	1.7803E+001		-7.7630E+000
		1120.29	15.10	4.6285E+000		3.1209E+000
		1155.19	1.69	3.7228E+001		6.5570E+000
		1238.11	5.94	1.1908E+001		1.3860E+001
		1280.96	1.47	4.5764E+001		-2.6311E+001
		1377.67	4.11	1.8884E+001		2.1215E+001
		1385.31	0.78	9.6272E+001		9.0178E+001
		1401.50	1.39	5.1971E+001		1.7526E+001
		1407.98	2.48	2.7352E+001		2.0092E+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	9.4022E+000	1.32E+000	1.9499E+001
		77.11	10.70	5.9407E+000		1.0295E+001
		87.20	3.70	1.4475E+001		-8.9830E+000
		89.80	1.03	5.3360E+001		3.5856E+001
		241.98	7.49	1.6044E+001		1.6468E+000
		295.21	19.20	2.7937E+000		-1.8730E+000
		351.92	37.20	1.3225E+000		-3.6585E-001
		785.91	1.10	6.5923E+001		1.4722E+001
+	AC-228	338.32*	11.40	3.5514E+000	1.47E+000	1.9248E+001
		911.07*	27.70	1.4745E+000		1.6432E+001
		969.11*	16.60	1.7392E+000		1.5474E+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-157-02.CNF

Report Generated On : 10/8/2014 10:35:18 AM

Sample Location : AAR-157-02
Sample Identification : AAR-157-02
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 : 6/23/2014 4:28:00 PM
Acquisition Started : 6/23/2014 4:28:44 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-157-02

Peak Analysis Performed on: 10/8/2014 10:35:19 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-	1315	1306.19	238.58	1.02	6.16E+002	64.67	1.28E+002
2	1841-	1861	1851.65	338.22	0.62	1.07E+002	31.72	4.24E+001
3	2524-	2543	2533.28	462.73	1.01	4.44E+001	21.82	2.26E+001
4	2786-	2806	2795.83	510.69	0.71	9.06E+001	27.67	2.94E+001
5	3178-	3204	3191.53	582.98	0.83	2.19E+002	34.36	2.02E+001
6	3968-	3991	3979.72	726.96	0.46	4.79E+001	19.53	1.21E+001
7	4976-	5001	4988.82	911.29	1.13	1.43E+002	28.67	1.65E+001
8	5292-	5319	5305.15	969.08	1.33	9.58E+001	24.31	1.32E+001
9	7983-	8016	7999.66	1461.28	0.45	5.59E+001	17.22	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-157-02
 Nuclide Library Used: C:\GENIE2K\CAMFILES\COPY of Stdlib.nlb

..... IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
BI-212	0.676	39.86	1.10		
		727.17*	11.80	4.32417E+000	1.77694E+000
		785.42	2.00		
		1620.56	2.75		
AC-228	1.000	338.32*	11.40	5.96839E+000	1.84210E+000
		911.07*	27.70	6.68324E+000	1.36861E+000
		969.11*	16.60	7.93672E+000	2.03541E+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	0.676	4.324174E+000	1.776940E+000
AC-228	1.000	6.769129E+000	9.667589E-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

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

Peak Locate Performed on: 10/8/2014 10:35:19 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	6.8408E-001	10.50
3	462.73	4.9337E-002	49.14
4	510.69	1.0069E-001	30.54
5	582.98	2.4308E-001	15.71
9	1461.28	6.2106E-002	30.81

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-157-02
 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	2.1855E+001	2.37E+000	3.7629E+000
		727.17*	11.80	2.3725E+000		4.3242E+000
		785.42	2.00	2.7462E+001		7.1082E-001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	3.9354E+000	1.77E+000	-2.9030E+000
		77.11	17.50	2.2958E+000		3.7716E+000
		87.20	6.30	5.4988E+000		-6.2694E+000
		89.80	1.75	2.0644E+001		-7.4394E+000
		115.19	0.60	5.1681E+001		1.1072E+001
		238.63	44.60	1.7727E+000		9.5168E+000
		300.09	3.41	1.1500E+001		4.4686E+000
	BI-214	609.31	46.30	1.0302E+000	1.03E+000	1.2101E+000
		768.36	5.04	9.9293E+000		8.8915E+000
		806.17	1.23	3.6361E+001		-6.6259E+001
		934.06	3.21	1.3898E+001		-2.0598E+001
		1120.29	15.10	3.6351E+000		1.3394E+000
		1155.19	1.69	3.2845E+001		2.8685E+001
		1238.11	5.94	9.6220E+000		6.4632E-001
		1280.96	1.47	4.2497E+001		-3.3907E+000
		1377.67	4.11	1.1286E+001		8.2799E-001
		1385.31	0.78	5.7117E+001		4.5803E+001
		1401.50	1.39	3.2464E+001		-3.0734E+001
		1407.98	2.48	1.9577E+001		-2.7499E+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	5.9684E+000	1.01E+000	-4.4027E+000
		77.11	10.70	3.7548E+000		6.1685E+000
		87.20	3.70	9.3628E+000		-1.0675E+001
		89.80	1.03	3.5075E+001		-1.2640E+001
		241.98	7.49	1.0468E+001		3.1776E+000
		295.21	19.20	1.9614E+000		-5.5455E-001
		351.92	37.20	1.0113E+000		-1.8112E-001
		785.91	1.10	5.1410E+001		6.5035E+001
+	AC-228	338.32*	11.40	2.4461E+000	1.43E+000	5.9684E+000
		911.07*	27.70	1.4307E+000		6.6832E+000
		969.11*	16.60	2.3035E+000		7.9367E+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-157-03.CNF

Report Generated On : 10/8/2014 10:36:01 AM

Sample Location : AAR-157-03
Sample Identification : AAR-157-03
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 : 6/23/2014 1:58:00 PM
Acquisition Started : 6/23/2014 1:59:40 PM

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-157-03

Peak Analysis Performed on: 10/8/2014 10:36:01 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	404-	430	423.01	77.25	0.79	6.53E+002	100.97	4.57E+002
2	1136-	1157	1146.18	209.35	0.43	1.97E+002	63.36	2.26E+002
3	1296-	1315	1306.18	238.58	1.09	2.01E+003	112.35	3.63E+002
4	1468-	1488	1479.16	270.18	1.14	1.56E+002	44.51	9.91E+001
5	1510-	1527	1517.98	277.27	1.06	9.24E+001	40.96	1.06E+002
6	1634-	1652	1642.41	300.00	0.88	1.02E+002	42.77	1.08E+002
7	1784-	1806	1794.43	327.77	0.83	1.13E+002	43.86	9.97E+001
8	1839-	1862	1851.30	338.16	1.10	3.66E+002	58.11	1.28E+002
9	2232-	2249	2240.28	409.21	0.30	7.60E+001	33.27	6.50E+001
10	2523-	2543	2533.61	462.79	1.30	1.10E+002	36.05	6.30E+001
11	2781-	2806	2795.06	510.55	1.24	2.12E+002	49.64	1.01E+002
12	3177-	3207	3191.71	583.01	1.34	6.60E+002	62.65	7.38E+001
13	3323-	3344	3333.20	608.86	0.61	3.26E+001	29.73	5.24E+001
14	3967-	3993	3980.54	727.11	1.28	1.57E+002	33.24	2.98E+001
15	4339-	4362	4350.69	794.72	0.95	5.99E+001	30.45	4.51E+001
16	4699-	4724	4711.31	860.60	0.90	9.45E+001	22.72	9.50E+000
17	4974-	5004	4988.25	911.19	1.63	4.62E+002	46.59	2.19E+001
M 18	5266-	5319	5282.26	964.89	1.58	8.06E+001	17.87	8.74E-001
m 19	5266-	5319	5304.50	968.96	1.59	2.75E+002	32.93	4.15E+000
20	7983-	8016	7999.11	1461.18	0.38	6.95E+001	27.57	2.45E+001

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-157-03
 Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
BI-212	0.677	39.86	1.10		
		727.17*	11.80	1.41922E+001	3.09033E+000
		785.42	2.00		
		1620.56	2.75		
PB-212	0.636	74.81	9.60		
		77.11*	17.50	1.77232E+001	2.99184E+000
		87.20	6.30		
		89.80	1.75		
		115.19	0.60		
		238.63*	44.60	2.46633E+001	2.40829E+000
BI-214	0.445	300.09*	3.41	1.80402E+001	7.69699E+000
		609.31*	46.30	6.51738E-001	5.95628E-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		
AC-228	1.000	2118.54	1.21		
		338.32*	11.40	2.04575E+001	3.66194E+000
		911.07*	27.70	2.16657E+001	2.33748E+000
		969.11*	16.60	2.28060E+001	2.84957E+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	0.677	1.419216E+001	3.090328E+000
PB-212	0.636	2.171620E+001	1.822659E+000
BI-214	0.445	6.517383E-001	5.956279E-001
AC-228	1.000	2.179790E+001	1.620622E+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 10:36:01 AM

Peak Locate From Channel: 40

Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
2	209.35	2.1833E-001	32.24
4	270.18	1.7318E-001	28.55
5	277.27	1.0271E-001	44.31
7	327.77	1.2594E-001	38.70
9	409.21	8.4399E-002	43.80
10	462.79	1.2222E-001	32.78
11	510.55	2.3572E-001	23.40
12	583.01	7.3351E-001	9.49
15	794.72	6.6579E-002	50.81
16	860.60	1.0499E-001	24.05
M 18	964.89	8.9585E-002	22.16
20	1461.18	7.7222E-002	39.67

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-157-03
 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	3.3454E+001	3.64E+000	-6.0881E+000
		727.17*	11.80	3.6367E+000		1.4192E+001
		785.42	2.00	4.0424E+001		1.7628E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
+	PB-212	74.81	9.60	6.9370E+000	1.48E+000	6.3474E-001
		77.11*	17.50	4.0647E+000		1.7723E+001
		87.20	6.30	9.7810E+000		-7.8101E+000
		89.80	1.75	3.4311E+001		-2.1546E+001
		115.19	0.60	8.0015E+001		5.9566E+001
		238.63*	44.60	1.4783E+000		2.4663E+001
		300.09*	3.41	1.1711E+001		1.8040E+001
+	BI-214	609.31*	46.30	9.7815E-001	9.78E-001	6.5174E-001
		768.36	5.04	1.4913E+001		-8.7623E+000
		806.17	1.23	5.7874E+001		4.6230E+001
		934.06	3.21	1.9497E+001		-1.4077E+001
		1120.29	15.10	4.6285E+000		-6.0928E+000
		1155.19	1.69	4.3170E+001		1.3010E+001
		1238.11	5.94	1.4086E+001		2.2997E+001
		1280.96	1.47	4.5764E+001		-2.4187E+001
		1377.67	4.11	1.9304E+001		1.2840E+001
		1385.31	0.78	9.7827E+001		-2.0400E+001
		1401.50	1.39	4.3153E+001		-2.1232E+002
		1407.98	2.48	2.5265E+001		1.4474E+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	1.0521E+001	1.51E+000	9.6264E-001
		77.11	10.70	6.5229E+000		-6.9465E-001
		87.20	3.70	1.6654E+001		-1.3298E+001
		89.80	1.03	5.8296E+001		-3.6608E+001
		241.98	7.49	1.8225E+001		5.6039E+000
		295.21	19.20	3.2901E+000		3.2789E-001
		351.92	37.20	1.5137E+000		5.8656E-001
		785.91	1.10	7.5476E+001		5.8786E+001
+	AC-228	338.32*	11.40	4.3232E+000	1.01E+000	2.0458E+001
		911.07*	27.70	1.6913E+000		2.1666E+001
		969.11*	16.60	1.0097E+000		2.2806E+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 *****

lename: RE1A

Report Generated On : 6/23/2014 5:01:05 PM

Sample Location : AAR-157-04
 Sample Identification : AAR-157-04
 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 : 6/23/2014 4:45:00 PM
 Acquisition Started : 6/23/2014 4:46:02 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 :

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*****
*****      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-157-04

Peak Analysis Performed on: 6/23/2014 5:01:05 PM

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-	1313	1306.23	238.59	1.10	3.90E+002	46.55	5.62E+001
2	1842-	1859	1851.14	338.13	1.10	7.65E+001	23.98	2.25E+001
3	2786-	2805	2795.75	510.68	0.44	5.50E+001	23.43	2.50E+001
4	3180-	3203	3191.95	583.05	1.45	1.40E+002	29.31	2.08E+001
5	4975-	5000	4987.79	911.10	0.53	1.08E+002	22.70	6.28E+000
6	5292-	5319	5305.50	969.14	0.43	4.76E+001	17.91	7.41E+000
7	7984-	8017	8000.35	1461.41	0.54	7.12E+001	20.60	7.78E+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-157-04
 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

 ***** 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-157-04
 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	1.9385E+001	4.55E+000	-4.3465E+000
	727.17	11.80	4.5494E+000		5.9164E+000
	785.42	2.00	2.0801E+001		-4.6131E+001
>	1620.56	2.75	0.0000E+000		0.0000E+000
PB-212	74.81	9.60	3.5901E+000	1.41E+000	-7.5066E-001
	77.11	17.50	1.9370E+000		1.4409E+000
	87.20	6.30	4.8704E+000		-3.8620E-001
	89.80	1.75	1.7226E+001		-1.2491E+001
	115.19	0.60	4.2531E+001		-1.1163E+001
	238.63	44.60	1.4063E+000		5.2419E+000
	300.09	3.41	1.0094E+001		1.1498E+001
BI-214	609.31	46.30	9.9860E-001	9.99E-001	-4.1149E-001
	768.36	5.04	8.7120E+000		4.2476E+000
	806.17	1.23	3.3986E+001		-2.7345E+001
	934.06	3.21	1.2838E+001		-2.7219E+000
	1120.29	15.10	3.6705E+000		3.0617E+000
	1155.19	1.69	3.2845E+001		1.1190E+001
	1238.11	5.94	9.8346E+000		1.2731E+001
	1280.96	1.47	3.4965E+001		3.7210E+001
	1377.67	4.11	1.1286E+001		-1.8000E-001
	1385.31	0.78	6.2418E+001		-9.7245E+001
	1401.50	1.39	3.5478E+001		-2.1695E+001
	1407.98	2.48	2.1160E+001		-3.2160E+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	5.4447E+000	1.01E+000	-1.1384E+000
	77.11	10.70	3.1681E+000		2.3566E+000
	87.20	3.70	8.2929E+000		-6.5759E-001
	89.80	1.03	2.9268E+001		-2.1222E+001
	241.98	7.49	8.3023E+000		3.0773E+001
	295.21	19.20	1.7856E+000		-1.6178E-001
	351.92	37.20	1.0078E+000		5.6691E-001
	785.91	1.10	3.8818E+001		1.6404E+001
AC-228	89.95	2.10	1.4275E+001	2.74E+000	-1.5271E+001
	93.35	3.50	8.2149E+000		-4.7777E+000
	129.08	2.80	1.0303E+001		4.0577E+000
	209.28	4.40	7.9444E+000		7.0753E+000
	270.23	3.60	9.9225E+000		5.3684E+000

Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
AC-228	327.64	3.20	1.0322E+001	2.74E+000	-4.1742E+000
	338.32	11.40	3.6068E+000		1.8886E+000
	409.51	2.13	1.6306E+001		2.6813E+001
	463.00	4.40	9.1384E+000		7.3986E+000
	583.20	0.14	4.5509E+002		7.6567E+002
	794.70	4.60	1.0045E+001		5.3085E+000
	911.07	27.70	2.7443E+000		2.4964E+000
	964.60	5.20	1.2534E+001		1.9544E+001
	969.11	16.60	4.0031E+000		5.1474E+000
>	1587.90	3.71	0.0000E+000		0.0000E+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 158

Solutient
Technologies, LLC

Project Name :	HAR-L.VEN-1	Model:	N/A	NORTH
Work Order #	201421	Serial #		
Surveyor Name:	mat Ersky	Probe:		
Date:	7-3-14	Serial #		
Survey Type:	1-2 Refers	Calibration Due	N/A	
GRID # 158		⊕ = Sample Location Comments:		

<div style="text-align: center;">1 Minute Integrated Count</div> <div style="font-size: 2em; margin-bottom: 20px;">01</div> <div style="text-align: center; border-bottom: 1px solid black; margin-bottom: 20px;">N/A</div> <div style="text-align: center; margin-bottom: 20px;">⊕</div> <div style="position: absolute; left: 10px; top: 40%; transform: rotate(-90deg);">X-3.4</div> <div style="position: absolute; left: 10px; top: 60%; transform: rotate(-90deg);">X-2.7</div>	<div style="text-align: center;">1 Minute Integrated Count</div> <div style="font-size: 2em; margin-bottom: 20px;">02</div> <div style="text-align: center; border-bottom: 1px solid black; margin-bottom: 20px;">N/A</div> <div style="text-align: center; margin-bottom: 20px;">⊕</div> <div style="position: absolute; left: 40%; top: 40%; transform: rotate(-90deg);">X-3.7</div> <div style="position: absolute; left: 40%; top: 60%; transform: rotate(-90deg);">X-2.8</div>
<div style="text-align: center;">1 Minute Integrated Count</div> <div style="font-size: 2em; margin-bottom: 20px;">03</div> <div style="text-align: center; border-bottom: 1px solid black; margin-bottom: 20px;">N/A</div> <div style="text-align: center; margin-bottom: 20px;">⊕</div> <div style="position: absolute; left: 10px; top: 40%; transform: rotate(-90deg);">X-6.2</div> <div style="position: absolute; left: 10px; top: 60%; transform: rotate(-90deg);">X-1.3</div>	<div style="text-align: center;">1 Minute Integrated Count</div> <div style="font-size: 2em; margin-bottom: 20px;">04</div> <div style="text-align: center; border-bottom: 1px solid black; margin-bottom: 20px;">N/A</div> <div style="text-align: center; margin-bottom: 20px;">⊕</div> <div style="position: absolute; left: 40%; top: 40%; transform: rotate(-90deg);">X-3.3</div> <div style="position: absolute; left: 40%; top: 60%; transform: rotate(-90deg);">X-2.7</div>

- * 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: RE1A

Report Generated On : 7/9/2014 12:44:36 PM

Sample Location : AAR-158-01
Sample Identification : AAR-158-01
Sample Description 1 : 8 Oz. Can *Qat PW2*
Sample Description 2 : Grid Clearance *12* meter
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil Waste
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 : 7/9/2014 12:29:00 AM
Acquisition Started : 7/9/2014 12:29:34 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-158-01

Peak Analysis Performed on: 7/9/2014 12:44:36 PM

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	8004.17	1462.11	0.78	8.18E+001	19.94	4.15E+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-158-01
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: 7/9/2014 12:44:36 PM
 Peak Locate From Channel: 40
 Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
1	1462.11	9.0943E-002	24.36

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-158-01
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	2.80E+000	1.9536E+000
		727.17	11.80	2.7999E+000		8.8040E-001
		785.42	2.00	1.7414E+001		-1.9915E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	1.6832E+000	6.19E-001	-1.4767E+000
		77.11	17.50	1.0264E+000		4.2798E-001
		87.20	6.30	2.5554E+000		-1.4357E+000
		89.80	1.75	9.2769E+000		-3.8916E+000
		115.19	0.60	2.9870E+001		8.3412E+000
		238.63	44.60	6.1898E-001		5.1433E-001
		300.09	3.41	6.8416E+000		7.2749E+000
	BI-214	609.31	46.30	7.1872E-001	7.19E-001	1.0201E+000
		768.36	5.04	6.4277E+000		-2.6452E+000
		806.17	1.23	2.7061E+001		-2.1410E+001
		934.06	3.21	1.2517E+001		-5.2049E+000
		1120.29	15.10	3.0056E+000		1.6460E+000
		1155.19	1.69	2.6032E+001		2.6146E+001
		1238.11	5.94	8.8338E+000		1.0067E+001
		1280.96	1.47	3.1628E+001		2.9768E+001
		1377.67	4.11	1.0774E+001		8.6399E+000
		1385.31	0.78	5.8493E+001		-5.1227E+001
		1401.50	1.39	3.2464E+001		-5.2630E+000
		1407.98	2.48	1.9578E+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	2.5527E+000	6.78E-001	-2.2395E+000
		77.11	10.70	1.6786E+000		6.9997E-001
		87.20	3.70	4.3511E+000		-2.4446E+000
		89.80	1.03	1.5762E+001		-6.6119E+000
		241.98	7.49	3.6879E+000		3.4125E+000
		295.21	19.20	1.2338E+000		1.0165E+000
		351.92	37.20	6.7838E-001		1.1818E-001
		785.91	1.10	3.1678E+001		-3.5388E+001
	AC-228	89.95	2.10	7.8055E+000	1.42E+000	-2.9913E+000
		93.35	3.50	5.0225E+000		3.7286E-001
		129.08	2.80	6.5124E+000		2.3264E+000
		209.28	4.40	4.7923E+000		2.4088E+000
		270.23	3.60	5.7925E+000		-5.6285E+000

Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
AC-228	327.64	3.20	7.4843E+000	1.42E+000	2.4140E+000
	338.32	11.40	2.1689E+000		3.7785E-001
	409.51	2.13	1.1053E+001		-2.1281E+000
	463.00	4.40	6.3548E+000		-1.6545E+000
	583.20	0.14	2.3823E+002		3.5210E+002
	794.70	4.60	8.0257E+000		6.3284E+000
	911.07	27.70	1.4173E+000		1.1117E-001
	964.60	5.20	7.7542E+000		3.2930E-001
	969.11	16.60	2.5060E+000		1.6028E+000
>	1587.90	3.71	0.0000E+000		0.0000E+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-158-02.CNF

Report Generated On : 10/8/2014 10:32:32 AM

Sample Location : AAR-158-02
Sample Identification : AAR-158-02
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 : 7/7/2014 10:49:00 AM
Acquisition Started : 7/7/2014 10:49:49 AM

Live Time : 900.0 seconds
Real Time : 900.8 seconds

Dead Time : 0.09 %

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-158-02

Peak Analysis Performed on: 10/8/2014 10:32:32 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	1306.38	238.62	1.12	4.00E+002	50.22	8.10E+001
2	1842-	1859	1851.89	338.26	0.77	9.59E+001	27.50	3.11E+001
3	3180-	3203	3191.84	583.03	1.15	1.14E+002	30.74	3.30E+001
4	4977-	5002	4989.62	911.44	0.48	9.89E+001	20.74	3.14E+000
5	5294-	5321	5307.11	969.43	0.78	4.22E+001	22.48	1.98E+001
6	7986-	8019	8002.10	1461.73	0.49	6.49E+001	21.14	9.07E+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-158-02
 Nuclide Library Used: C:\GENIE2K\CAMFILES\COPY of Stdlib.nlb

..... IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
AC-228	0.998	338.32*	11.40	5.36619E+000	1.60130E+000
		911.07*	27.70	4.63607E+000	9.88972E-001
		969.11*	16.60	3.49990E+000	1.86828E+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
AC-228	0.998	4.612078E+000	7.672115E-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

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

Peak Locate Performed on: 10/8/2014 10:32:32 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	238.62	4.4440E-001	12.56
3	583.03	1.2669E-001	26.96
6	1461.73	7.2147E-002	32.55

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-158-02
 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	1.8913E+001	4.34E+000	-6.0276E+000
		727.17	11.80	4.3393E+000		3.8581E+000
		785.42	2.00	2.3517E+001		-3.1334E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	3.4483E+000	1.48E+000	-3.6079E+000
		77.11	17.50	2.0651E+000		2.7861E+000
		87.20	6.30	4.7529E+000		-5.9762E+000
		89.80	1.75	1.7645E+001		-8.1541E+000
		115.19	0.60	4.4924E+001		-1.2454E+001
		238.63	44.60	1.4816E+000		6.3983E+000
		300.09	3.41	1.0673E+001		1.4602E+000
	BI-214	609.31	46.30	9.4188E-001	9.42E-001	5.8230E-001
		768.36	5.04	9.4024E+000		1.0493E+001
		806.17	1.23	3.5491E+001		-5.9970E+001
		934.06	3.21	1.2679E+001		1.9666E+000
		1120.29	15.10	3.7056E+000		-4.6736E-001
		1155.19	1.69	3.1116E+001		2.1128E+001
		1238.11	5.94	8.4712E+000		4.4579E+000
		1280.96	1.47	3.6002E+001		-5.8916E+000
		1377.67	4.11	1.1774E+001		4.0363E-001
		1385.31	0.78	6.9535E+001		-2.6082E+001
		1401.50	1.39	4.3153E+001		4.9175E+001
		1407.98	2.48	2.2265E+001		-4.1147E+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	5.2297E+000	8.94E-001	-5.4717E+000
		77.11	10.70	3.3776E+000		4.5566E+000
		87.20	3.70	8.0928E+000		-1.0176E+001
		89.80	1.03	2.9980E+001		-1.3854E+001
		241.98	7.49	8.6695E+000		3.2447E+001
		295.21	19.20	1.9333E+000		2.4926E+000
		351.92	37.20	8.9396E-001		5.3267E-001
		785.91	1.10	4.3923E+001		5.8455E+000
+	AC-228	338.32*	11.40	2.0019E+000	6.86E-001	5.3662E+000
		911.07*	27.70	6.8645E-001		4.6361E+000
		969.11*	16.60	2.8030E+000		3.4999E+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 *****

Filename: C:\My Documents\AAR\AAR\Grid Samples\AAR-158-03.CNF

Report Generated On : 10/8/2014 10:33:28 AM

Sample Location : AAR-158-03
Sample Identification : AAR-158-03
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 : 7/7/2014 12:30:00 PM
Acquisition Started : 7/7/2014 12:31:25 PM

Live Time : 900.0 seconds
Real Time : 901.2 seconds

Dead Time : 0.13 %

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-158-03

Peak Analysis Performed on: 10/8/2014 10:33:29 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	404-	433	422.98	77.24	0.96	9.96E+002	123.16	6.23E+002
2	503-	523	511.96	93.50	0.77	2.03E+002	73.39	3.29E+002
3	1136-	1155	1146.00	209.32	1.14	1.97E+002	68.01	2.86E+002
4	1294-	1329	1306.62	238.66	1.15	2.88E+003	136.43	3.49E+002
5	1469-	1489	1479.67	270.27	1.22	2.00E+002	50.65	1.29E+002
6	1511-	1527	1518.58	277.38	0.42	1.08E+002	43.63	1.22E+002
7	1632-	1651	1642.19	299.96	1.09	1.13E+002	47.88	1.38E+002
8	1785-	1805	1795.80	328.02	1.26	1.36E+002	45.37	1.10E+002
9	1841-	1861	1851.95	338.27	1.14	4.75E+002	60.71	1.34E+002
10	2232-	2251	2240.73	409.29	0.94	1.06E+002	39.16	8.30E+001
11	2524-	2546	2535.08	463.06	1.41	1.58E+002	40.83	7.14E+001
12	2785-	2811	2796.09	510.74	0.59	2.53E+002	53.21	1.11E+002
13	3177-	3206	3192.61	583.18	1.39	8.30E+002	70.95	1.01E+002
14	3968-	3995	3981.79	727.34	1.37	1.84E+002	40.18	5.22E+001
15	4339-	4364	4352.14	794.99	1.18	1.03E+002	26.95	1.97E+001
16	4700-	4725	4712.50	860.82	0.75	1.13E+002	29.93	2.84E+001
17	4973-	5004	4989.23	911.37	1.66	5.42E+002	53.34	3.98E+001
M 18	5267-	5321	5282.43	964.92	1.57	9.67E+001	20.22	8.70E+000
m 19	5267-	5321	5305.77	969.19	1.58	3.07E+002	35.27	1.52E+001
20	7986-	8019	8002.02	1461.72	1.41	9.99E+001	25.65	1.31E+001

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-158-03
 Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
BI-212	0.676	39.86	1.10		
		727.17*	11.80	1.66028E+001	3.72970E+000
		785.42	2.00		
		1620.56	2.75		
PB-212	0.636	74.81	9.60		
		77.11*	17.50	2.70051E+001	3.81151E+000
		87.20	6.30		
		89.80	1.75		
		115.19	0.60		
		238.63*	44.60	3.54014E+001	3.29175E+000
AC-228	0.999	300.09*	3.41	1.99943E+001	8.61325E+000
		338.32*	11.40	2.66110E+001	4.04272E+000
		911.07*	27.70	2.54279E+001	2.68517E+000
		969.11*	16.60	2.54433E+001	3.06291E+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	0.676	1.660276E+001	3.729700E+000
PB-212	0.636	3.090184E+001	2.393180E+000
AC-228	0.999	2.566944E+001	1.806357E+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 10:33:29 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	93.50	2.2521E-001	36.21
3	209.32	2.1883E-001	34.53
5	270.27	2.2264E-001	25.28
6	277.38	1.1962E-001	40.53
8	328.02	1.5079E-001	33.43
10	409.29	1.1776E-001	36.95
11	463.06	1.7511E-001	25.91
12	510.74	2.8083E-001	21.05
13	583.18	9.2202E-001	8.55
15	794.99	1.1478E-001	26.09
16	860.82	1.2507E-001	26.59
M 18	964.92	1.0743E-001	20.91
20	1461.72	1.1095E-001	25.69

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-158-03
 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	3.4567E+001	4.81E+000	-2.9545E+001
		727.17*	11.80	4.8130E+000		1.6603E+001
		785.42	2.00	4.4201E+001		6.0318E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
+	PB-212	74.81	9.60	7.9747E+000	1.82E+000	-1.9867E+000
		77.11*	17.50	4.9225E+000		2.7005E+001
		87.20	6.30	1.0461E+001		-1.6606E+001
		89.80	1.75	3.8353E+001		6.2491E+001
		115.19	0.60	9.0101E+001		7.2909E-001
		238.63*	44.60	1.8244E+000		3.5401E+001
		300.09*	3.41	1.3250E+001		1.9994E+001
	BI-214	609.31	46.30	1.6687E+000	1.67E+000	1.8415E+000
		768.36	5.04	1.6792E+001		8.4469E+000
		806.17	1.23	5.5732E+001		1.1350E+001
		934.06	3.21	1.9497E+001		1.7868E+001
		1120.29	15.10	4.8953E+000		3.7782E+000
		1155.19	1.69	4.7676E+001		3.3554E+001
		1238.11	5.94	1.3045E+001		-2.5832E+000
		1280.96	1.47	5.5295E+001		-3.4906E+001
		1377.67	4.11	1.8598E+001		1.8840E+000
		1385.31	0.78	1.0086E+002		1.6399E+001
		1401.50	1.39	5.8584E+001		1.1001E+001
		1407.98	2.48	3.2055E+001		-1.2734E+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	1.2094E+001	1.63E+000	-3.0129E+000
		77.11	10.70	7.6966E+000		2.1898E+001
		87.20	3.70	1.7812E+001		-2.8275E+001
		89.80	1.03	6.5163E+001		1.0617E+002
		241.98	7.49	2.0104E+001		-1.9853E+000
		295.21	19.20	3.5145E+000		1.0787E+000
		351.92	37.20	1.6270E+000		3.9878E-001
		785.91	1.10	8.2326E+001		8.4788E+001
+	AC-228	338.32*	11.40	4.2027E+000	1.73E+000	2.6611E+001
		911.07*	27.70	2.2996E+000		2.5428E+001
		969.11*	16.60	1.7280E+000		2.5443E+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-158-04.CNF

Report Generated On : 10/8/2014 10:33:54 AM

Sample Location : AAR-158-04
Sample Identification : AAR-158-04
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 : 7/7/2014 11:06:00 AM
Acquisition Started : 7/7/2014 11:07:33 AM

Live Time : 900.0 seconds
Real Time : 900.8 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-158-04

Peak Analysis Performed on: 10/8/2014 10:33:54 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	417-	430	422.59	77.17	0.76	1.34E+002	45.49	1.44E+002
2	1295-	1315	1306.43	238.62	1.12	8.25E+002	72.78	1.56E+002
3	1635-	1651	1643.22	300.15	0.26	3.86E+001	28.58	5.54E+001
4	1842-	1860	1852.04	338.29	1.07	1.66E+002	32.64	3.16E+001
5	2526-	2543	2534.56	462.97	0.46	6.46E+001	22.46	2.04E+001
6	2786-	2806	2795.76	510.68	0.55	1.12E+002	29.47	3.15E+001
7	3180-	3205	3191.90	583.05	1.38	2.58E+002	37.02	2.41E+001
8	3969-	3992	3980.78	727.15	1.06	5.90E+001	23.43	2.10E+001
9	4975-	5002	4988.10	911.16	0.70	2.02E+002	30.84	1.03E+001
10	5293-	5320	5306.37	969.30	1.16	1.06E+002	24.12	1.03E+001
11	7985-	8018	8001.68	1461.65	0.25	7.74E+001	21.84	8.63E+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-158-04
 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	5.33108E+000	2.13359E+000
		785.42	2.00		
		1620.56	2.75		
PB-212	0.636	74.81	9.60		
		77.11*	17.50	3.63486E+000	1.25845E+000
		87.20	6.30		
		89.80	1.75		
		115.19	0.60		
		238.63*	44.60	1.01407E+001	1.20750E+000
AC-228	1.000	300.09*	3.41	6.81005E+000	5.07866E+000
		338.32*	11.40	9.31298E+000	1.98142E+000
		911.07*	27.70	9.45582E+000	1.49100E+000
		969.11*	16.60	8.76554E+000	2.02429E+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	0.677	5.331079E+000	2.133588E+000
PB-212	0.636	7.016075E+000	8.587421E-001
AC-228	1.000	9.239876E+000	1.026750E+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 10:33:54 AM
 Peak Locate From Channel: 40
 Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
5	462.97	7.1804E-002	34.76
6	510.68	1.2389E-001	26.43
7	583.05	2.8652E-001	14.36
11	1461.65	8.5963E-002	28.23

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-158-04
 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	2.1855E+001	2.96E+000	-4.8217E+000
		727.17*	11.80	2.9646E+000		5.3311E+000
		785.42	2.00	2.9162E+001		1.9782E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
+	PB-212	74.81	9.60	4.4355E+000	9.84E-001	4.1269E+000
		77.11*	17.50	1.8686E+000		3.6349E+000
		87.20	6.30	6.3900E+000		-7.5639E+000
		89.80	1.75	2.2969E+001		1.4530E+001
		115.19	0.60	5.6777E+001		1.6812E+000
		238.63*	44.60	9.8419E-001		1.0141E+001
		300.09*	3.41	8.1436E+000		6.8100E+000
	BI-214	609.31	46.30	1.1354E+000	1.14E+000	7.2005E-001
		768.36	5.04	1.0903E+001		-3.6815E+000
		806.17	1.23	4.1175E+001		-1.4186E+002
		934.06	3.21	1.3150E+001		-9.8066E+000
		1120.29	15.10	3.6705E+000		5.0423E+000
		1155.19	1.69	3.1470E+001		3.9703E+001
		1238.11	5.94	1.0542E+001		4.0711E+000
		1280.96	1.47	3.9855E+001		3.0443E+001
		1377.67	4.11	1.5772E+001		1.1666E+001
		1385.31	0.78	8.5420E+001		-1.8636E+001
		1401.50	1.39	4.5397E+001		5.4960E+001
		1407.98	2.48	2.5265E+001		3.0147E+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	6.7268E+000	1.16E+000	6.2588E+000
		77.11	10.70	4.4008E+000		9.1955E+000
		87.20	3.70	1.0880E+001		-1.2879E+001
		89.80	1.03	3.9025E+001		2.4687E+001
		241.98	7.49	1.1921E+001		1.4236E+000
		295.21	19.20	2.3372E+000		2.1442E+000
		351.92	37.20	1.1584E+000		-1.0546E+000
		785.91	1.10	5.4190E+001		8.8706E+001
+	AC-228	338.32*	11.40	2.0916E+000	1.17E+000	9.3130E+000
		911.07*	27.70	1.1725E+000		9.4558E+000
		969.11*	16.60	2.0684E+000		8.7655E+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 187

Solutient
Technologies, LLC

Project Name :	RAK Livonia	Model:	N/A	NORTH ↑
Work Order #	201421	Serial #		
Surveyor Name:	Mat Crosby	Probe:		
Date:	7-3-14	Serial #		
Survey Type:		Calibration Due	N/A	
GRID # 159	⊕ = Sample Location	Comments:		

<div style="text-align: center;">1 1 Minute Integrated Count</div> <div style="text-align: center; font-size: 1.5em;">N/A</div> <div style="text-align: center;">⊕</div> <div style="text-align: center;">x <u>3.5</u></div> <div style="text-align: center;">x <u>.2</u></div>	<div style="text-align: center;">2 1 Minute Integrated Count</div> <div style="text-align: center; font-size: 1.5em;">N/A</div> <div style="text-align: center;">⊕</div> <div style="text-align: center;">x <u>.3</u></div> <div style="text-align: center;">⊕ x <u>.6</u></div>
<div style="text-align: center;">3 1 Minute Integrated Count</div> <div style="text-align: center; font-size: 1.5em;">N/A</div> <div style="text-align: center;">⊕</div> <div style="text-align: center;">x <u>.5</u></div> <div style="text-align: center;">x <u>2.9</u></div> <div style="text-align: center;">⊕</div>	<div style="text-align: center;">4 1 Minute Integrated Count</div> <div style="text-align: center; font-size: 1.5em;">N/A</div> <div style="text-align: center;">⊕</div> <div style="text-align: center;">x <u>3.6</u></div> <div style="text-align: center;">x <u>2.8</u></div>

- * 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-187-01.CNF

Report Generated On : 10/8/2014 10:29:12 AM

Sample Location : AAR-187-01
Sample Identification : AAR-187-01
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 : 7/2/2014 7:32:00 AM
Acquisition Started : 7/2/2014 7:33:14 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-187-01

Peak Analysis Performed on: 10/8/2014 10:29:13 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	417-	431	422.94	77.24	0.90	1.77E+002	49.76	1.61E+002
2	1137-	1155	1146.10	209.34	0.99	1.13E+002	40.48	9.26E+001
3	1299-	1315	1306.79	238.69	1.02	8.90E+002	73.80	1.64E+002
4	1472-	1487	1479.56	270.25	0.54	5.49E+001	31.22	6.61E+001
5	1843-	1862	1852.24	338.33	0.96	1.60E+002	39.72	7.07E+001
6	2526-	2543	2534.01	462.87	0.48	5.81E+001	24.66	2.99E+001
7	2788-	2808	2797.78	511.05	0.62	1.11E+002	33.15	4.77E+001
8	3180-	3207	3193.79	583.39	1.60	3.61E+002	44.49	3.45E+001
9	3971-	3994	3982.86	727.53	0.81	7.20E+001	24.51	2.10E+001
10	4342-	4365	4353.15	795.17	0.25	4.19E+001	17.43	9.14E+000
11	4701-	4726	4713.87	861.07	0.28	4.85E+001	17.10	6.50E+000
12	4978-	5004	4991.10	911.71	1.58	2.26E+002	33.07	1.35E+001
13	5294-	5321	5307.02	969.42	0.46	1.31E+002	23.54	3.17E+000
14	7988-	8021	8004.76	1462.22	0.22	7.18E+001	18.95	4.15E+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-187-01
 Nuclide Library Used: C:\GENIE2K\CAMFILES\COPY of Stdlib.nlb

..... IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
BI-212	0.675	39.86	1.10		
		727.17*	11.80	6.50042E+000	2.23951E+000
		785.42	2.00		
		1620.56	2.75		
PB-212	0.575	74.81	9.60		
		77.11*	17.50	4.78779E+000	1.38834E+000
		87.20	6.30		
		89.80	1.75		
		115.19	0.60		
		238.63*	44.60	1.09385E+001	1.26040E+000
AC-228	0.996	300.09	3.41		
		338.32*	11.40	8.97527E+000	2.34287E+000
		911.07*	27.70	1.05783E+001	1.60348E+000
		969.11*	16.60	1.08476E+001	1.98995E+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	6.500417E+000	2.239512E+000
PB-212	0.575	8.159538E+000	9.331991E-001
AC-228	0.996	1.030629E+001	1.101871E+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 10:29:13 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	209.34	1.2601E-001	35.70
4	270.25	6.1001E-002	56.87
6	462.87	6.4501E-002	42.49
7	511.05	1.2372E-001	29.77
8	583.39	4.0056E-001	12.34
10	795.17	4.6514E-002	41.64
11	861.07	5.3889E-002	35.27
14	1462.22	7.9832E-002	26.38

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-187-01
 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	2.6955E+001	2.97E+000	2.0376E+001
		727.17*	11.80	2.9748E+000		6.5004E+000
		785.42	2.00	3.0882E+001		2.0756E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
+	PB-212	74.81	9.60	5.0270E+000	9.62E-001	5.3158E+000
		77.11*	17.50	2.0039E+000		4.7878E+000
		87.20	6.30	6.7401E+000		-6.9780E+000
		89.80	1.75	2.4161E+001		-1.1219E+001
		115.19	0.60	5.8921E+001		-8.4189E+000
		238.63*	44.60	9.6177E-001		1.0938E+001
		300.09	3.41	1.4274E+001		1.0459E+001
	BI-214	609.31	46.30	1.1314E+000	1.13E+000	4.5197E-001
		768.36	5.04	1.1056E+001		4.0822E+000
		806.17	1.23	4.1425E+001		-2.4587E+001
		934.06	3.21	1.5791E+001		-1.4801E+001
		1120.29	15.10	3.9090E+000		-1.4922E+000
		1155.19	1.69	3.8665E+001		-6.3776E+000
		1238.11	5.94	1.1383E+001		1.1805E+000
		1280.96	1.47	4.4570E+001		-7.4664E+000
		1377.67	4.11	1.6610E+001		4.8867E+000
		1385.31	0.78	8.7185E+001		1.1705E+002
		1401.50	1.39	4.4847E+001		2.7510E+001
		1407.98	2.48	2.2620E+001		-8.3516E+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	7.6239E+000	1.19E+000	8.0619E+000
		77.11	10.70	4.8366E+000		8.9684E+000
		87.20	3.70	1.1476E+001		-1.1881E+001
		89.80	1.03	4.1050E+001		-1.9062E+001
		241.98	7.49	1.2648E+001		7.6863E+001
		295.21	19.20	2.5077E+000		2.6913E+000
		351.92	37.20	1.1937E+000		-1.1232E-001
		785.91	1.10	5.7466E+001		2.5372E+001
+	AC-228	338.32*	11.40	3.0653E+000	1.22E+000	8.9753E+000
		911.07*	27.70	1.3138E+000		1.0578E+001
		969.11*	16.60	1.2215E+000		1.0848E+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-187-02.CNF

Report Generated On : 10/8/2014 10:30:07 AM

Sample Location : AAR-187-02
Sample Identification : AAR-187-02
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil Waste
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 : 7/2/2014 9:44:00 AM
Acquisition Started : 7/2/2014 9:45:17 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-187-02

Peak Analysis Performed on: 10/8/2014 10:30:07 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	417-	432	423.38	77.32	0.84	2.40E+002	56.44	1.95E+002
2	1295-	1315	1306.83	238.70	0.92	1.16E+003	83.38	1.82E+002
3	1470-	1489	1479.57	270.25	0.99	8.98E+001	32.75	5.42E+001
4	1635-	1651	1643.43	300.18	1.02	7.05E+001	32.53	6.55E+001
5	1842-	1863	1852.93	338.45	1.13	2.52E+002	41.46	5.22E+001
6	1920-	1935	1927.13	352.01	0.66	5.69E+001	25.69	3.81E+001
7	2527-	2546	2535.73	463.18	1.11	8.40E+001	28.26	3.50E+001
8	2787-	2806	2796.30	510.78	0.71	6.79E+001	38.72	9.21E+001
9	3181-	3206	3193.06	583.26	1.04	3.72E+002	44.27	3.25E+001
10	3325-	3346	3335.04	609.19	0.56	7.57E+001	22.91	1.63E+001
11	3971-	3995	3983.32	727.61	1.11	8.06E+001	28.49	3.14E+001
12	4341-	4364	4352.63	795.08	0.72	5.40E+001	17.31	6.00E+000
13	4700-	4725	4712.47	860.81	0.82	4.00E+001	23.74	2.50E+001
14	4978-	5006	4991.02	911.69	0.93	2.32E+002	39.00	3.56E+001
15	5294-	5321	5307.82	969.56	0.46	1.22E+002	33.54	3.73E+001
16	7987-	8020	8003.95	1462.07	0.37	8.55E+001	22.36	8.50E+000

M = First peak in a multiplet region

r = Other peak in a multiplet region

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-187-02
 Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
BI-212	0.674	39.86	1.10		
		727.17*	11.80	7.27865E+000	2.60139E+000
		785.42	2.00		
		1620.56	2.75		
PB-212	0.636	74.81	9.60		
		77.11*	17.50	6.51446E+000	1.59331E+000
		87.20	6.30		
		89.80	1.75		
BI-214	0.447	115.19	0.60		
		238.63*	44.60	1.43015E+001	1.53608E+000
		300.09*	3.41	1.24572E+001	5.83620E+000
		609.31*	46.30	1.51434E+000	4.67868E-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	0.995	338.32*	11.40	1.40992E+001	2.59510E+000
		911.07*	27.70	1.09036E+001	1.87658E+000
		969.11*	16.60	1.00914E+001	2.80478E+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	0.674	7.278646E+000	2.601385E+000
PB-212	0.636	1.061643E+001	1.086516E+000
BI-214	0.447	1.514345E+000	4.678680E-001
AC-228	0.995	1.156708E+001	1.336820E+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 10:30:07 AM

Peak Locate From Channel: 40

Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty
3	270.25	9.9799E-002	36.46
6	352.01	6.3205E-002	45.16
7	463.18	9.3333E-002	33.64
8	510.78	7.5458E-002	57.02
9	583.26	4.1278E-001	11.92
12	795.08	6.0000E-002	32.06
13	860.81	4.4462E-002	59.32
16	1462.07	9.5000E-002	26.15

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-187-02
 Nuclide Library Used: C:\GENIE2K\CAMFILES\Cop 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	2.7281E+001	3.64E+000	4.7269E+000
		727.17*	11.80	3.6427E+000		7.2786E+000
		785.42	2.00	3.1822E+001		-7.1691E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
+	PB-212	74.81	9.60	5.3283E+000	1.06E+000	6.0236E+000
		77.11*	17.50	2.2389E+000		6.5145E+000
		87.20	6.30	7.6364E+000		-4.1300E+000
		89.80	1.75	2.7009E+001		9.7375E+000
		115.19	0.60	6.4278E+001		2.5907E+001
		238.63*	44.60	1.0605E+000		1.4301E+001
		300.09*	3.41	8.7948E+000		1.2457E+001
+	BI-214	609.31*	46.30	5.6752E-001	5.68E-001	1.5143E+000
		768.36	5.04	1.2703E+001		1.5777E+001
		806.17	1.23	4.4307E+001		-4.4152E+001
		934.06	3.21	1.5917E+001		-8.8366E+000
		1120.29	15.10	4.2850E+000		4.8212E-002
		1155.19	1.69	3.8097E+001		2.5904E+001
		1238.11	5.94	1.1560E+001		-3.4049E+000
		1280.96	1.47	3.8931E+001		1.5504E+000
		1377.67	4.11	1.7403E+001		-1.1908E+001
		1385.31	0.78	8.8053E+001		2.2265E+001
		1401.50	1.39	5.0048E+001		6.7977E+001
		1407.98	2.48	2.4633E+001		-3.4629E+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	8.0808E+000	1.26E+000	9.1353E+000
		77.11	10.70	5.3180E+000		9.8360E+000
		87.20	3.70	1.3002E+001		-7.0321E+000
		89.80	1.03	4.5889E+001		1.6544E+001
		241.98	7.49	1.3909E+001		1.8226E+000
		295.21	19.20	2.6628E+000		-9.9360E-001
		351.92	37.20	1.2639E+000		2.5058E+000
		785.91	1.10	5.8723E+001		1.1121E+001
+	AC-228	338.32*	11.40	2.7278E+000	2.10E+000	1.4099E+001
		911.07*	27.70	2.0998E+000		1.0904E+001
		969.11*	16.60	3.7934E+000		1.0091E+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

***** 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-187-03.CNF

Report Generated On : 10/8/2014 10:30:48 AM

Sample Location : AAR-187-03
Sample Identification : AAR-187-03
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 : 7/2/2014 7:51:00 AM
Acquisition Started : 7/2/2014 7:53:10 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-187-03

Peak Analysis Performed on: 10/8/2014 10:30:48 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-	1316	1307.00	238.73	1.02	2.88E+002	43.95	6.02E+001
2	3181-	3204	3193.34	583.31	1.23	1.05E+002	25.20	1.50E+001
3	4979-	5004	4991.44	911.77	1.00	7.20E+001	22.12	1.30E+001
4	5294-	5321	5307.43	969.49	0.61	3.80E+001	16.34	7.00E+000
5	7987-	8020	8003.33	1461.95	0.28	6.98E+001	18.76	4.16E+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-187-03
 Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
AC-228	0.562	338.32	11.40		
		911.07*	27.70	3.37776E+000	1.04591E+000
		969.11*	16.60	3.15103E+000	1.35977E+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
AC-228	0.562	3.293480E+000	8.290317E-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

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

Peak Locate Performed on: 10/8/2014 10:30:48 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	238.73	3.1980E-001	15.27
2	583.31	1.1664E-001	24.00
5	1461.95	7.7601E-002	26.85

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-187-03
 Nuclide Library Used: C:\GENIE2K\CAMFILES\Cop 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	1.7062E+001	3.71E+000	-7.1042E-001
		727.17	11.80	3.7088E+000		-1.2416E+000
		785.42	2.00	2.4604E+001		1.1089E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	2.9904E+000	1.26E+000	-4.5073E+000
		77.11	17.50	1.7948E+000		2.5044E+000
		87.20	6.30	4.2635E+000		-2.1802E+000
		89.80	1.75	1.5537E+001		-6.5163E+000
		115.19	0.60	4.3021E+001		2.3669E+001
		238.63	44.60	1.2552E+000		4.3636E+000
		300.09	3.41	1.0164E+001		1.3021E+000
	BI-214	609.31	46.30	9.4188E-001	9.42E-001	5.4130E-001
		768.36	5.04	8.5133E+000		7.7506E-001
		806.17	1.23	3.2728E+001		-2.0446E+001
		934.06	3.21	1.4327E+001		-3.6337E-001
		1120.29	15.10	3.2972E+000		3.9393E-001
		1155.19	1.69	3.2165E+001		4.1640E+001
		1238.11	5.94	8.7148E+000		4.8180E+000
		1280.96	1.47	3.7007E+001		2.0137E+001
		1377.67	4.11	1.4128E+001		-2.5200E+000
		1385.31	0.78	6.8406E+001		2.5705E+001
		1401.50	1.39	3.6881E+001		5.8606E+000
		1407.98	2.48	2.3312E+001		2.5258E+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	4.5352E+000	8.66E-001	-6.8356E+000
		77.11	10.70	2.9355E+000		4.0960E+000
		87.20	3.70	7.2595E+000		-3.7122E+000
		89.80	1.03	2.6398E+001		-1.1071E+001
		241.98	7.49	7.5207E+000		2.9770E+001
		295.21	19.20	1.7545E+000		4.6357E-001
		351.92	37.20	8.6607E-001		1.1468E+000
		785.91	1.10	4.3923E+001		2.5366E+000
+	AC-228	338.32	11.40	3.3941E+000	1.28E+000	5.2552E+000
		911.07*	27.70	1.2757E+000		3.3778E+000
		969.11*	16.60	1.7558E+000		3.1510E+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 *****

Filename: C:\My Documents\AAR\AAR\Grid Samples\AAR-187-04.CNF

Report Generated On : 10/8/2014 10:31:12 AM

Sample Location : AAR-187-04
Sample Identification : AAR-187-04
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Soil Waste
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 4:04:00 PM
Acquisition Started : 7/1/2014 4:05:27 PM

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-187-04

Peak Analysis Performed on: 10/8/2014 10:31:13 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	416-	431	423.41	77.32	0.76	1.61E+002	53.45	1.91E+002
2	1139-	1155	1146.94	209.49	1.04	9.64E+001	36.78	8.16E+001
3	1296-	1316	1306.79	238.69	0.84	8.50E+002	80.25	2.27E+002
4	1470-	1487	1479.07	270.16	0.88	4.92E+001	30.55	5.88E+001
5	1787-	1805	1795.88	328.03	0.34	5.73E+001	28.05	4.37E+001
6	1843-	1862	1852.56	338.39	1.10	1.89E+002	33.62	3.00E+001
7	2526-	2543	2534.91	463.03	0.81	6.24E+001	20.27	1.36E+001
8	2786-	2808	2796.13	510.75	0.75	1.15E+002	33.03	4.33E+001
9	3179-	3206	3192.78	583.21	1.05	2.52E+002	43.24	5.23E+001
10	3326-	3347	3336.14	609.39	0.32	3.96E+001	25.32	3.34E+001
11	3971-	3994	3982.67	727.50	0.57	6.70E+001	22.10	1.50E+001
12	4343-	4366	4354.49	795.42	0.28	3.73E+001	19.33	1.47E+001
13	4977-	5005	4990.62	911.62	0.68	2.08E+002	30.73	7.68E+000
14	5295-	5322	5308.17	969.63	1.55	1.15E+002	24.50	9.52E+000
15	7987-	8020	8003.91	1462.06	0.45	7.41E+001	22.84	1.19E+001

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-187-04
 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	0.675	39.86	1.10		
		727.17*	11.80	6.05243E+000	2.02057E+000
		785.42	2.00		
		1620.56	2.75		
PB-212	0.575	74.81	9.60		
		77.11*	17.50	4.37248E+000	1.47971E+000
		87.20	6.30		
		89.80	1.75		
		115.19	0.60		
		238.63*	44.60	1.04421E+001	1.29252E+000
		300.09	3.41		
BI-214	0.447	609.31*	46.30	7.92194E-001	5.08978E-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		
AC-228	0.996	1847.44	2.12		
		2118.54	1.21		
		338.32*	11.40	1.05809E+001	2.07362E+000
		911.07*	27.70	9.77159E+000	1.48932E+000
		969.11*	16.60	9.57741E+000	2.06112E+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	6.052427E+000	2.020571E+000
PB-212	0.575	7.815267E+000	9.734432E-001
BI-214	0.447	7.921943E-001	5.089777E-001
AC-228	0.996	9.926698E+000	1.043253E+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 10:31:13 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	209.49	1.0708E-001	38.16
4	270.16	5.4691E-002	62.06
5	328.03	6.3685E-002	48.94
7	463.03	6.9379E-002	32.46
8	510.75	1.2740E-001	28.81
9	583.21	2.7970E-001	17.18
12	795.42	4.1400E-002	51.88
15	1462.06	8.2280E-002	30.85

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-187-04
 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	2.4666E+001	2.55E+000	-2.0317E+000
		727.17*	11.80	2.5483E+000		6.0524E+000
		785.42	2.00	3.3289E+001		8.1576E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
+	PB-212	74.81	9.60	4.5937E+000	1.20E+000	4.3792E+000
		77.11*	17.50	2.2269E+000		4.3725E+000
		87.20	6.30	6.5343E+000		-6.2931E+000
		89.80	1.75	2.3961E+001		-9.5648E+000
		115.19	0.60	5.5796E+001		-3.1838E+001
		238.63*	44.60	1.1955E+000		1.0442E+001
		300.09	3.41	1.4151E+001		2.3087E+001
+	BI-214	609.31*	46.30	7.9673E-001	7.97E-001	7.9219E-001
		768.36	5.04	1.1600E+001		-5.4807E+000
		806.17	1.23	4.4769E+001		-2.1408E+001
		934.06	3.21	1.5144E+001		-1.7436E+001
		1120.29	15.10	4.2248E+000		4.9409E+000
		1155.19	1.69	3.4480E+001		-2.3241E+000
		1238.11	5.94	9.5138E+000		-1.4280E+001
		1280.96	1.47	3.7007E+001		-6.7252E+001
		1377.67	4.11	1.4321E+001		-2.0400E+000
		1385.31	0.78	7.9870E+001		-5.4709E+001
		1401.50	1.39	4.0772E+001		-4.1003E+001
		1407.98	2.48	2.3650E+001		-5.9072E+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	6.9668E+000	1.25E+000	6.6415E+000
		77.11	10.70	4.7545E+000		8.9779E+000
		87.20	3.70	1.1126E+001		-1.0715E+001
		89.80	1.03	4.0710E+001		-1.6251E+001
		241.98	7.49	1.2496E+001		-2.1110E+000
		295.21	19.20	2.5077E+000		1.3409E+000
		351.92	37.20	1.2529E+000		1.0185E+000
		785.91	1.10	6.1156E+001		-2.6351E+001
+	AC-228	338.32*	11.40	2.0402E+000	1.07E+000	1.0581E+001
		911.07*	27.70	1.0713E+000		9.7716E+000
		969.11*	16.60	1.9678E+000		9.5774E+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 188

Solutient
Technologies, LLC

Project Name :	APR2 LIVEN-A	Model:	N/A	NORTH ↑
Work Order #	201421	Serial #		
Surveyor Name:	mat crosby	Probe:		
Date:	7-21-14	Serial #		
Survey Type:	1-2 meter	Calibration Due	N/A	
GRID # 188	⊕ = Sample Location		Comments:	

<div style="display: flex; justify-content: space-between;"> 01 1 Minute Integrated Count ✓ </div> <div style="text-align: center; margin-top: 20px;"> <u>N/A</u> </div> <div style="text-align: center; margin-top: 40px;">⊕</div> <div style="position: absolute; left: 0; top: 50%; transform: translateY(-50%);"> x - 1.5 x - 3.5 </div>	<div style="display: flex; justify-content: space-between;"> 02 1 Minute Integrated Count ✓ </div> <div style="text-align: center; margin-top: 20px;"> <u>N/A</u> </div> <div style="text-align: center; margin-top: 40px;">⊕</div> <div style="position: absolute; left: 50%; top: 50%; transform: translate(-50%, -50%);"> y - 3.7 x - 1.0 </div>
<div style="display: flex; justify-content: space-between;"> 03 1 Minute Integrated Count ✓ </div> <div style="text-align: center; margin-top: 20px;"> <u>N/A</u> </div> <div style="text-align: center; margin-top: 40px;">⊕</div> <div style="position: absolute; left: 0; top: 50%; transform: translateY(-50%);"> x - 3.3 x - 3.4 </div>	<div style="display: flex; justify-content: space-between;"> 04 1 Minute Integrated Count ✓ </div> <div style="text-align: center; margin-top: 20px;"> <u>N/A</u> </div> <div style="text-align: center; margin-top: 40px;">⊕</div> <div style="position: absolute; left: 50%; top: 50%; transform: translate(-50%, -50%);"> x 3.3 x 1.1 </div>

- * 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 *****

Filename: C:\My Documents\AAR\AAR\Grid Samples\AAR-188-01.CNF

Report Generated On : 10/8/2014 10:26:41 AM

Sample Location : aar-188-01
Sample Identification : AAR188-01
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 : 7/22/2014 3:16:00 PM
Acquisition Started : 7/22/2014 3:16:50 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-188-01

Peak Analysis Performed on: 10/8/2014 10:26:41 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	7991-	8024	8007.35	1462.69	0.67	7.60E+001	17.09	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-188-01
 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 10:26:41 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	1462.69	8.4444E-002	22.48

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-188-01
 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	1.1951E+001	3.27E+000	-2.3507E-001
		727.17	11.80	3.2740E+000		1.9214E+000
		785.42	2.00	1.9089E+001		-1.4514E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	1.6832E+000	7.10E-001	-7.0221E-001
		77.11	17.50	9.2948E-001		1.5422E-001
		87.20	6.30	3.0634E+000		2.6197E+000
		89.80	1.75	1.0060E+001		-6.8243E+000
		115.19	0.60	2.9387E+001		9.5936E+000
		238.63	44.60	7.0959E-001		1.0918E+000
		300.09	3.41	7.4973E+000		-1.5662E-001
	BI-214	609.31	46.30	7.1217E-001	7.12E-001	2.5202E-002
		768.36	5.04	6.2426E+000		4.9825E-001
		806.17	1.23	3.3048E+001		-2.3010E+001
		934.06	3.21	1.2353E+001		6.2073E+000
		1120.29	15.10	3.2972E+000		2.1293E+000
		1155.19	1.69	3.1820E+001		4.0671E+001
		1238.11	5.94	9.1807E+000		5.8195E+000
		1280.96	1.47	3.1033E+001		-3.5875E+001
		1377.67	4.11	1.1034E+001		1.5158E-001
		1385.31	0.78	5.2740E+001		-5.1317E+000
		1401.50	1.39	2.9977E+001		-3.2783E+000
		1407.98	2.48	1.7369E+001		-1.0439E+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	2.5527E+000	7.09E-001	-1.0650E+000
		77.11	10.70	1.5202E+000		2.5223E-001
		87.20	3.70	5.2160E+000		4.4606E+000
		89.80	1.03	1.7092E+001		-1.1595E+001
		241.98	7.49	4.0240E+000		5.5751E+000
		295.21	19.20	1.2959E+000		4.1855E-001
		351.92	37.20	7.0918E-001		2.3039E-001
		785.91	1.10	3.5444E+001		1.5202E+001
	AC-228	338.32	11.40	2.2834E+000	1.65E+000	-7.3670E-001
		911.07	27.70	1.6537E+000		2.2971E+000
		969.11	16.60	2.8401E+000		-4.3698E-002

+ = 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-188-02.CNF

Report Generated On : 10/8/2014 10:27:13 AM

Sample Location : AAR-188-02
Sample Identification : AAR188-02
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 : 7/22/2014 3:33:00 PM
Acquisition Started : 7/22/2014 3:34:16 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-188-02

Peak Analysis Performed on: 10/8/2014 10:27:13 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	8006.27	1462.49	0.75	9.59E+001	21.22	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-188-02
Nuclide Library Used: C:\GENIE2K\CAMFILES\Coppy of Stdlib.nlb

..... IDENTIFIED NUCLIDES

Nuclide	Id	Energy	Yield	Activity	Activity
Name	Confidence	(keV)	(%)	(pCi/Gram)	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 10:27:13 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	1462.49	1.0653E-001	22.13

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-188-02
 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	2.62E+000	8.9823E-001
		727.17	11.80	2.6210E+000		6.7723E-002
		785.42	2.00	1.6031E+001		-1.5069E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	1.6484E+000	5.76E-001	-1.8985E-001
		77.11	17.50	1.0511E+000		8.5748E-001
		87.20	6.30	2.8898E+000		-4.4377E-001
		89.80	1.75	1.0704E+001		-9.3202E-001
		115.19	0.60	2.7885E+001		-8.7008E+000
		238.63	44.60	5.7553E-001		6.5868E-001
		300.09	3.41	6.8944E+000		3.0763E+000
	BI-214	609.31	46.30	7.3799E-001	7.38E-001	5.8504E-001
		768.36	5.04	6.7812E+000		5.1686E+000
		806.17	1.23	2.4562E+001		-3.5468E+000
		934.06	3.21	1.3150E+001		-2.2668E+001
		1120.29	15.10	3.0920E+000		-1.3131E-001
		1155.19	1.69	2.9276E+001		1.8904E+001
		1238.11	5.94	8.8338E+000		-5.7909E+000
		1280.96	1.47	3.1033E+001		-1.1514E+001
		1377.67	4.11	1.1286E+001		-1.0308E+001
		1385.31	0.78	5.9834E+001		-4.1350E+000
		1401.50	1.39	3.6187E+001		1.5092E+000
		1407.98	2.48	1.9577E+001		-1.9225E+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	2.5000E+000	6.68E-001	-2.8792E-001
		77.11	10.70	1.7191E+000		1.4024E+000
		87.20	3.70	4.9205E+000		-7.5560E-001
		89.80	1.03	1.8187E+001		-1.5835E+000
		241.98	7.49	3.4805E+000		2.3482E+000
		295.21	19.20	1.2873E+000		1.5992E+000
		351.92	37.20	6.6778E-001		1.1245E-001
		785.91	1.10	2.9598E+001		-1.2397E+001
	AC-228	338.32	11.40	1.9932E+000	1.62E+000	-7.5627E-001
		911.07	27.70	1.6222E+000		7.0320E-002
		969.11	16.60	2.8115E+000		2.4407E+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\AAR188-03.CNF

Report Generated On : 10/8/2014 10:27:54 AM

Sample Location : AAR188-03
Sample Identification : AAR118-03
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 : 7/22/2014 2:53:00 PM
Acquisition Started : 7/22/2014 2:53:55 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: AAR188-03

Peak Analysis Performed on: 10/8/2014 10:27:54 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	1307.24	238.77	1.14	5.48E+001	21.11	2.02E+001
2	7991-	8024	8007.71	1462.75	0.94	8.00E+001	17.53	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: AAR188-03
 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 10:27:54 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	238.77	6.0919E-002	38.51
2	1462.75	8.8889E-002	21.91

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: AAR188-03
 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	1.2467E+001	3.03E+000	-3.6849E+000
	727.17	11.80	3.0312E+000		2.7895E+000
	785.42	2.00	1.4228E+001		-1.2059E+001
>	1620.56	2.75	0.0000E+000		0.0000E+000
PB-212	74.81	9.60	1.8467E+000	6.82E-001	-7.1507E-001
	77.11	17.50	1.0832E+000		-2.8527E-001
	87.20	6.30	2.5808E+000		-1.3199E+000
	89.80	1.75	9.5455E+000		-1.7759E+001
	115.19	0.60	3.0344E+001		-1.4880E+000
	238.63	44.60	6.8248E-001		8.8456E-001
	300.09	3.41	6.9468E+000		6.4486E+000
BI-214	609.31	46.30	7.1217E-001	7.12E-001	7.3946E-001
	768.36	5.04	6.4277E+000		-8.3128E+000
	806.17	1.23	2.9687E+001		-4.3806E+000
	934.06	3.21	1.2353E+001		1.4077E+001
	1120.29	15.10	3.1758E+000		3.6767E+000
	1155.19	1.69	2.9654E+001		3.4861E+001
	1238.11	5.94	8.8338E+000		4.8200E+000
	1280.96	1.47	3.1628E+001		7.5583E+000
	1377.67	4.11	1.0774E+001		8.6399E+000
	1385.31	0.78	5.5701E+001		4.3259E+001
	1401.50	1.39	3.0831E+001		-3.5706E+000
	1407.98	2.48	1.6390E+001		-7.5514E+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	2.8007E+000	7.14E-001	-1.0845E+000
	77.11	10.70	1.7716E+000		-4.6656E-001
	87.20	3.70	4.3944E+000		-2.2474E+000
	89.80	1.03	1.6218E+001		-3.0174E+001
	241.98	7.49	4.0847E+000		2.2577E+000
	295.21	19.20	1.2061E+000		4.2800E-002
	351.92	37.20	7.1418E-001		7.1366E-001
	785.91	1.10	2.6379E+001		-8.3620E+000
AC-228	338.32	11.40	2.1350E+000	1.59E+000	7.2289E-001
	911.07	27.70	1.5901E+000		2.1096E+000
	969.11	16.60	2.8401E+000		3.8130E+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-188-04.CNF

Report Generated On : 10/8/2014 10:28:27 AM

Sample Location : AAR-188-04
Sample Identification : AAR-188-04
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 : 7/22/2014 2:07:00 PM
Acquisition Started : 7/22/2014 2:08:04 PM

Live Time : 900.0 seconds
Real Time : 900.8 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-188-04
Peak Analysis Performed on: 10/8/2014 10:28:28 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-	1314	1307.49	238.82	0.93	1.27E+002	29.26	3.18E+001
2	3184-	3205	3194.93	583.60	0.71	5.21E+001	15.62	2.89E+000
3	4980-	5005	4992.37	911.94	0.45	4.30E+001	12.85	0.00E+000
4	7991-	8024	8007.18	1462.66	0.59	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-188-04
 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	Nuclide	Wt mean	Wt mean
Nuclide	Id	Activity	Activity
Name	Confidence	(pCi/Gram)	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 10:28:27 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	238.82	1.4129E-001	23.01
2	583.60	5.7904E-002	29.97
3	911.94	4.7778E-002	29.89
4	1462.66	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

 ***** 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-188-04
 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	1.1683E+001	3.30E+000	-3.2168E+000
	727.17	11.80	3.3029E+000		-1.3072E+000
	785.42	2.00	2.0618E+001		-2.8269E+000
>	1620.56	2.75	0.0000E+000		0.0000E+000
PB-212	74.81	9.60	2.3966E+000	9.21E-001	-9.6772E-001
	77.11	17.50	1.3419E+000		7.7255E-001
	87.20	6.30	2.9779E+000		-2.2561E+000
	89.80	1.75	1.2427E+001		-1.4075E+000
	115.19	0.60	3.1945E+001		6.6246E+000
	238.63	44.60	9.2063E-001		1.3954E+000
	300.09	3.41	8.1848E+000		9.4789E+000
BI-214	609.31	46.30	8.2153E-001	8.22E-001	5.9769E-001
	768.36	5.04	7.4337E+000		-5.5927E+000
	806.17	1.23	3.0391E+001		2.4177E+000
	934.06	3.21	1.0558E+001		-2.8878E+001
	1120.29	15.10	3.4139E+000		-3.2648E+000
	1155.19	1.69	2.3753E+001		3.3563E+000
	1238.11	5.94	8.3465E+000		-1.8505E+000
	1280.96	1.47	3.3894E+001		1.1949E+001
	1377.67	4.11	1.1774E+001		1.0560E+001
	1385.31	0.78	6.2418E+001		5.5982E+001
	1401.50	1.39	3.0831E+001		-3.2316E+000
	1407.98	2.48	1.9159E+001		1.6296E+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	3.6347E+000	7.58E-001	-1.4676E+000
	77.11	10.70	2.1947E+000		1.2635E+000
	87.20	3.70	5.0706E+000		-3.8415E+000
	89.80	1.03	2.1113E+001		-2.3913E+000
	241.98	7.49	5.4547E+000		1.1249E+001
	295.21	19.20	1.4582E+000		9.8682E-001
	351.92	37.20	7.5755E-001		-1.9893E-001
	785.91	1.10	3.7840E+001		1.0803E+001
AC-228	338.32	11.40	2.8582E+000	1.91E+000	1.9929E+000
	911.07	27.70	1.9123E+000		-3.9148E-001
	969.11	16.60	2.9514E+000		2.7553E+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 189

Solutient
Technologies, LLC

Project Name :	AAR LIDONIA	Model:	N/A	NORTH N
Work Order #	201421	Serial #		
Surveyor Name:	Mat Covesky	Probe:		
Date:	7-3-14	Serial #		
Survey Type:	1-2 meter	Calibration Due	N/A	
GRID # 189		⊕ = Sample Location		
Comments:				

<p align="center">01 1 Minute Integrated Count</p> <p align="center"><u>N/A</u></p> <p align="center">⊕</p> <p>X-1.7 ⊕</p> <p>X-1.5</p>	<p align="center">02 1 Minute Integrated Count</p> <p align="center"><u>N/A</u></p> <p align="center">⊕</p> <p>X-0.3</p> <p>X-4.2</p>
<p align="center">03 1 Minute Integrated Count</p> <p align="center"><u>N/A</u></p> <p align="center">⊕</p> <p>X-1.5 ⊕</p> <p>X-1.9</p>	<p align="center">04 1 Minute Integrated Count</p> <p align="center"><u>N/A</u></p> <p align="center">⊕</p> <p>X-2.9</p> <p>X-2.3</p>

- 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 *****

lename: C:\My Documents\AAR\AAR\Grid Samples\AAR-189-01.CNF

Report Generated On : 10/8/2014 10:24:13 AM

Sample Location : AAR-189-01
Sample Identification : AAR-189-01
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 : 7/7/2014 9:51:00 AM
Acquisition Started : 7/7/2014 9:52:40 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-189-01
Peak Analysis Performed on: 10/8/2014 10:24:13 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-	1315	1306.47	238.63	0.46	1.21E+002	31.54	4.05E+001
2	3180-	3201	3190.49	582.79	0.29	3.72E+001	20.98	1.98E+001
3	7984-	8017	8000.66	1461.47	0.46	6.50E+001	24.35	1.70E+001

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-189-01
 Nuclide Library Used: C:\GENIE2K\CAMFILES\Cop 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	Nuclide	Wt mean	Wt mean
Name	Id	Activity	Activity
	Confidence	(pCi/Gram)	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 10:24:13 AM
 Peak Locate From Channel: 40
 Peak Locate To Channel: 8192

Peak	Energy	Peak Size in	Peak CPS
No.	(keV)	Counts per Second	% Uncertainty
1	238.63	1.3498E-001	25.96
2	582.79	4.1345E-002	56.39
3	1461.47	7.2222E-002	37.46

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-189-01
 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	1.2961E+001	2.87E+000	1.5089E+000
		727.17	11.80	2.8681E+000		-2.6447E+000
		785.42	2.00	2.2033E+001		1.0847E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	2.5450E+000	9.04E-001	-1.0168E+000
		77.11	17.50	1.4329E+000		9.2329E-001
		87.20	6.30	3.5303E+000		2.5800E+000
		89.80	1.75	1.1812E+001		-1.9450E+001
		115.19	0.60	3.5316E+001		2.0194E+001
		238.63	44.60	9.0391E-001		1.7096E+000
		300.09	3.41	8.1848E+000		-1.8340E+000
	BI-214	609.31	46.30	8.2716E-001	8.27E-001	6.2077E-001
		768.36	5.04	7.6628E+000		1.1885E+000
		806.17	1.23	2.6663E+001		-2.2715E+001
		934.06	3.21	1.2838E+001		9.1981E+000
		1120.29	15.10	3.7403E+000		3.4009E+000
		1155.19	1.69	2.9654E+001		1.6845E+001
		1238.11	5.94	9.2932E+000		5.1814E-001
		1280.96	1.47	3.8460E+001		-3.5945E+001
		1377.67	4.11	1.0774E+001		8.6399E+000
		1385.31	0.78	5.1185E+001		-2.8718E+001
		1401.50	1.39	3.1660E+001		2.4588E+001
		1407.98	2.48	1.7836E+001		-3.6426E+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	3.8597E+000	7.43E-001	-1.5420E+000
		77.11	10.70	2.3435E+000		1.5101E+000
		87.20	3.70	6.0110E+000		4.3930E+000
		89.80	1.03	2.0069E+001		-3.3046E+001
		241.98	7.49	5.4436E+000		8.5617E+000
		295.21	19.20	1.4273E+000		2.5001E-001
		351.92	37.20	7.4339E-001		5.1074E-001
		785.91	1.10	4.0082E+001		1.6534E+001
	AC-228	338.32	11.40	2.6360E+000	1.83E+000	2.1132E+000
		911.07	27.70	1.8304E+000		-6.9936E-002
		969.11	16.60	3.1615E+000		4.8077E+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 *****

Filename: C:\My Documents\AAR\AAR\Grid Samples\AAR-189-02.CNF

Report Generated On : 10/8/2014 10:24:44 AM

Sample Location : AAR-189-02
Sample Identification : AAR-189-02
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 : 7/7/2014 10:11:00 AM
Acquisition Started : 7/7/2014 10:12:34 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-189-02

Peak Analysis Performed on: 10/8/2014 10:24:45 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	1136-	1154	1145.99	209.32	0.63	9.33E+001	32.71	5.47E+001
2	1297-	1314	1306.26	238.59	0.97	5.27E+002	62.61	1.51E+002
3	1471-	1487	1478.99	270.15	0.29	3.44E+001	27.22	4.96E+001
4	1841-	1861	1851.98	338.28	1.31	1.45E+002	31.53	3.15E+001
5	2786-	2805	2795.62	510.66	0.66	7.13E+001	28.42	3.97E+001
6	3180-	3203	3192.38	583.13	1.05	2.04E+002	32.54	1.79E+001
7	4976-	5001	4988.61	911.25	1.00	1.30E+002	28.51	1.93E+001
8	5293-	5320	5306.54	969.33	1.02	7.70E+001	20.42	7.00E+000
9	7986-	8019	8002.06	1461.72	1.23	8.51E+001	20.06	3.94E+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-189-02
Nuclide Library Used: C:\GENIE2K\CAMFILES\Copy of Stdlib.nlb

..... IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
AC-228	0.999	338.32*	11.40	8.08836E+000	1.88608E+000
		911.07*	27.70	6.08074E+000	1.35694E+000
		969.11*	16.60	6.38397E+000	1.70836E+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
AC-228	0.999	6.653452E+000	9.257479E-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

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

Peak Locate Performed on: 10/8/2014 10:24:45 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	209.32	1.0363E-001	35.08
2	238.59	5.8500E-001	11.89
3	270.15	3.8267E-002	79.04
5	510.66	7.9204E-002	39.86
6	583.13	2.2676E-001	15.95
9	1461.72	9.4510E-002	23.59

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-189-02
 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	2.1019E+001	4.73E+000	-1.0018E+000
		727.17	11.80	4.7301E+000		2.6919E+000
		785.42	2.00	2.7462E+001		-7.0362E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	4.1403E+000	1.75E+000	-6.9393E+000
		77.11	17.50	2.5852E+000		6.1140E+000
		87.20	6.30	5.5778E+000		-5.0559E+000
		89.80	1.75	2.0877E+001		-6.0448E-001
		115.19	0.60	5.2872E+001		-1.2365E+001
		238.63	44.60	1.7452E+000		9.4329E+000
		300.09	3.41	1.1652E+001		4.6284E+000
	BI-214	609.31	46.30	1.1233E+000	1.12E+000	-3.2798E-001
		768.36	5.04	1.1056E+001		7.6404E+000
		806.17	1.23	3.6929E+001		-1.3308E+002
		934.06	3.21	1.5012E+001		1.4949E+001
		1120.29	15.10	3.8088E+000		3.4555E+000
		1155.19	1.69	3.3836E+001		4.6481E+001
		1238.11	5.94	1.0345E+001		1.4212E+001
		1280.96	1.47	4.0309E+001		-1.7501E+001
		1377.67	4.11	1.4699E+001		-1.0800E+000
		1385.31	0.78	8.0824E+001		9.9240E+001
		1401.50	1.39	4.0153E+001		1.2082E+001
		1407.98	2.48	2.1904E+001		3.2290E+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	6.2791E+000	1.04E+000	-1.0524E+001
		77.11	10.70	4.2281E+000		9.9996E+000
		87.20	3.70	9.4973E+000		-8.6087E+000
		89.80	1.03	3.5471E+001		-1.0270E+000
		241.98	7.49	1.0220E+001		4.8912E+001
		295.21	19.20	2.0381E+000		-4.0465E-001
		351.92	37.20	1.0351E+000		3.9832E-001
		785.91	1.10	5.0447E+001		-4.4741E+001
+	AC-228	338.32*	11.40	2.1197E+000	1.52E+000	8.0884E+000
		911.07*	27.70	1.5226E+000		6.0807E+000
		969.11*	16.60	1.7560E+000		6.3840E+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 *****

Filename: C:\My Documents\AAR\AAR\Grid Samples\AAR-189-03.CNF

Report Generated On : 10/8/2014 10:25:13 AM

Sample Location : AAR-189-03
Sample Identification : AAR-189-03
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 : 7/7/2014 12:53:00 PM
Acquisition Started : 7/7/2014 12:53:33 PM

Live Time : 900.0 seconds
Real Time : 900.8 seconds

Dead Time : 0.09 %

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-189-03

Peak Analysis Performed on: 10/8/2014 10:25:13 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	417-	430	422.79	77.21	0.81	2.17E+002	50.36	1.57E+002
2	1138-	1156	1145.59	209.24	1.17	1.16E+002	43.14	1.09E+002
3	1297-	1315	1306.63	238.66	1.05	1.05E+003	84.49	2.37E+002
4	1633-	1652	1643.07	300.12	0.82	9.50E+001	30.05	4.00E+001
5	1841-	1861	1851.70	338.23	0.94	2.19E+002	42.31	6.82E+001
6	2526-	2544	2534.07	462.88	0.97	5.94E+001	26.84	3.66E+001
7	2785-	2807	2795.88	510.70	1.32	1.56E+002	35.20	4.30E+001
8	3178-	3206	3192.55	583.16	1.18	3.76E+002	48.44	5.07E+001
9	3971-	3994	3982.20	727.41	0.92	6.88E+001	29.94	4.12E+001
10	4341-	4364	4352.30	795.02	0.91	3.26E+001	24.53	3.04E+001
11	4701-	4726	4713.41	860.98	1.14	4.81E+001	18.68	9.89E+000
12	4975-	5005	4989.88	911.48	0.96	3.03E+002	36.20	7.75E+000
13	5294-	5321	5307.42	969.49	1.54	1.30E+002	30.88	2.67E+001
14	7987-	8020	8003.88	1462.06	0.46	6.83E+001	24.49	1.67E+001

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-189-03
 Nuclide Library Used: C:\GENIE2K\CAMFILES\COPY of Stdlib.nlb

..... IDENTIFIED NUCLIDES					
Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/Gram)	Activity Uncertainty
BI-212	0.676	39.86	1.10		
		727.17*	11.80	6.21414E+000	2.72353E+000
		785.42	2.00		
		1620.56	2.75		
PB-212	0.636	74.81	9.60		
		77.11*	17.50	5.88704E+000	1.42337E+000
		87.20	6.30		
		89.80	1.75		
		115.19	0.60		
		238.63*	44.60	1.29252E+001	1.46544E+000
AC-228	0.998	300.09*	3.41	1.67755E+001	5.48471E+000
		338.32*	11.40	1.22463E+001	2.57374E+000
		911.07*	27.70	1.42223E+001	1.78336E+000
		969.11*	16.60	1.08068E+001	2.58973E+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	0.676	6.214140E+000	2.723535E+000
PB-212	0.636	9.553919E+000	1.003779E+000
AC-228	0.998	1.290813E+001	1.275675E+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 10:25:13 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	209.24	1.2904E-001	37.15
6	462.88	6.6027E-002	45.17
7	510.70	1.7337E-001	22.56
8	583.16	4.1812E-001	12.87
10	795.02	3.6208E-002	75.27
11	860.98	5.3458E-002	38.83
14	1462.06	7.5843E-002	35.87

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-189-03
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	2.6845E+001	4.06E+000	3.8821E+000
		727.17*	11.80	4.0565E+000		6.2141E+000
		785.42	2.00	3.3289E+001		-3.3099E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
+	PB-212	74.81	9.60	5.3895E+000	1.18E+000	5.5078E+000
		77.11*	17.50	1.9518E+000		5.8870E+000
		87.20	6.30	7.4560E+000		-3.5873E+000
		89.80	1.75	2.6771E+001		1.3231E+001
		115.19	0.60	6.1882E+001		3.2501E+001
		238.63*	44.60	1.1810E+000		1.2925E+001
		300.09*	3.41	7.3536E+000		1.6775E+001
	BI-214	609.31	46.30	1.2852E+000	1.29E+000	-9.5507E-001
		768.36	5.04	1.1791E+001		1.0885E+001
		806.17	1.23	4.5451E+001		-2.0408E+001
		934.06	3.21	1.5276E+001		3.7569E+000
		1120.29	15.10	3.9744E+000		-2.9298E+000
		1155.19	1.69	3.6035E+001		-3.1168E+001
		1238.11	5.94	1.1383E+001		-3.9280E+000
		1280.96	1.47	3.7982E+001		2.2421E+001
		1377.67	4.11	1.5424E+001		1.0152E+001
		1385.31	0.78	8.4523E+001		6.0198E+001
		1401.50	1.39	4.4847E+001		-3.2542E+000
		1407.98	2.48	2.5574E+001		-1.6934E+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	8.1736E+000	1.21E+000	8.3530E+000
		77.11	10.70	5.1216E+000		7.1779E+000
		87.20	3.70	1.2695E+001		-6.1081E+000
		89.80	1.03	4.5485E+001		2.2480E+001
		241.98	7.49	1.3712E+001		9.4296E+001
		295.21	19.20	2.4105E+000		2.0544E-001
		351.92	37.20	1.2137E+000		1.2537E+000
		785.91	1.10	6.1748E+001		1.9800E+001
+	AC-228	338.32*	11.40	3.0468E+000	1.08E+000	1.2246E+001
		911.07*	27.70	1.0759E+000		1.4222E+001
		969.11*	16.60	3.1863E+000		1.0807E+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-189-04.CNF

Report Generated On : 10/8/2014 10:25:44 AM

Sample Location : AAR-189-04
Sample Identification : AAR-189-04
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 : 7/7/2014 9:33:00 AM
Acquisition Started : 7/7/2014 9:34:19 AM

Live Time : 900.0 seconds
Real Time : 900.9 seconds

Dead Time : 0.11 %

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-189-04

Peak Analysis Performed on: 10/8/2014 10:25:45 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-	430	423.14	77.27	0.99	3.11E+002	55.59	1.86E+002
2	701-	712	706.83	129.09	0.79	5.36E+001	37.37	1.23E+002
3	1136-	1152	1145.53	209.23	0.37	1.22E+002	45.12	1.30E+002
4	1294-	1314	1306.55	238.65	1.10	1.35E+003	91.21	2.33E+002
5	1472-	1489	1479.64	270.27	0.49	6.55E+001	36.51	8.55E+001
6	1510-	1529	1519.60	277.56	0.43	6.04E+001	38.45	9.26E+001
7	1633-	1652	1642.78	300.07	1.18	7.78E+001	35.31	7.02E+001
8	1787-	1804	1795.50	327.96	0.73	6.42E+001	33.16	6.78E+001
9	1842-	1863	1852.01	338.29	0.98	2.55E+002	46.96	8.36E+001
10	1916-	1935	1926.47	351.89	0.40	6.21E+001	31.36	5.49E+001
11	2526-	2544	2535.05	463.06	1.19	7.71E+001	28.51	3.99E+001
12	2785-	2805	2795.49	510.63	0.71	1.18E+002	37.64	6.86E+001
13	3179-	3205	3192.39	583.13	1.18	4.42E+002	51.01	5.38E+001
14	3325-	3346	3335.42	609.26	0.37	5.65E+001	22.41	1.95E+001
15	3970-	3994	3981.64	727.31	0.82	9.23E+001	28.98	3.07E+001
16	4341-	4364	4352.25	795.01	0.85	5.27E+001	24.72	2.63E+001
17	4699-	4724	4711.50	860.63	0.46	5.45E+001	22.99	1.95E+001
18	4974-	5004	4989.21	911.36	1.36	3.24E+002	37.29	7.75E+000
19	5292-	5320	5305.97	969.23	1.31	1.93E+002	35.47	2.90E+001
20	7985-	8018	8001.57	1461.63	0.84	8.85E+001	22.63	8.50E+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-189-04
 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	8.33140E+000	2.65229E+000
		785.42	2.00		
		1620.56	2.75		
PB-212	0.636	74.81	9.60		
		77.11*	17.50	8.43164E+000	1.61296E+000
		87.20	6.30		
		89.80	1.75		
		115.19	0.60		
BI-214	0.447	238.63*	44.60	1.65514E+001	1.73497E+000
		300.09*	3.41	1.37367E+001	6.33680E+000
		609.31*	46.30	1.13047E+000	4.53676E-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		
AC-228	0.999	1847.44	2.12		
		2118.54	1.21		
		338.32*	11.40	1.42969E+001	2.88006E+000
		911.07*	27.70	1.52053E+001	1.84381E+000
		969.11*	16.60	1.59997E+001	2.99620E+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	0.677	8.331403E+000	2.652286E+000
PB-212	0.636	1.224773E+001	1.161307E+000
BI-214	0.447	1.130474E+000	4.536756E-001
AC-228	0.999	1.516537E+001	1.378689E+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 10:25:45 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	129.09	5.9576E-002	69.70
3	209.23	1.3559E-001	36.97
5	270.27	7.2778E-002	55.74
6	277.56	6.7139E-002	63.64
8	327.96	7.1326E-002	51.65
10	351.89	6.9017E-002	50.49
11	463.06	8.5691E-002	36.96
12	510.63	1.3158E-001	31.78
13	583.13	4.9132E-001	11.54
16	795.01	5.8604E-002	46.88
17	860.63	6.0556E-002	42.18
20	1461.63	9.8333E-002	25.57

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-189-04
 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	2.7064E+001	3.58E+000	-9.3706E+000
		727.17*	11.80	3.5835E+000		8.3314E+000
		785.42	2.00	3.5215E+001		1.0005E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
+	PB-212	74.81	9.60	5.9893E+000	1.19E+000	2.6560E+000
		77.11*	17.50	2.0560E+000		8.4316E+000
		87.20	6.30	8.1150E+000		-8.6523E+000
		89.80	1.75	2.9197E+001		2.2542E+000
		115.19	0.60	6.6996E+001		6.4579E+000
		238.63*	44.60	1.1896E+000		1.6551E+001
		300.09*	3.41	9.6021E+000		1.3737E+001
+	BI-214	609.31*	46.30	6.2073E-001	6.21E-001	1.1305E+000
		768.36	5.04	1.3176E+001		2.7071E+000
		806.17	1.23	4.9751E+001		-9.7297E+000
		934.06	3.21	1.6770E+001		-4.4226E-001
		1120.29	15.10	4.5452E+000		6.2863E+000
		1155.19	1.69	3.4797E+001		4.9386E+001
		1238.11	5.94	1.2244E+001		1.5322E+001
		1280.96	1.47	4.7307E+001		4.7619E+001
		1377.67	4.11	1.6610E+001		-2.7296E+001
		1385.31	0.78	8.1766E+001		1.0178E+002
		1401.50	1.39	4.5939E+001		3.3470E+001
		1407.98	2.48	2.8195E+001		2.3538E+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	9.0833E+000	1.39E+000	4.0280E+000
		77.11	10.70	5.8929E+000		1.2586E+001
		87.20	3.70	1.3817E+001		-1.4732E+001
		89.80	1.03	4.9606E+001		3.8299E+000
		241.98	7.49	1.5096E+001		-3.8803E+000
		295.21	19.20	2.7152E+000		2.3167E+000
		351.92	37.20	1.3859E+000		1.6280E+000
		785.91	1.10	6.6107E+001		6.4959E+000
+	AC-228	338.32*	11.40	3.4391E+000	1.08E+000	1.4297E+001
		911.07*	27.70	1.0755E+000		1.5205E+001
		969.11*	16.60	3.3877E+000		1.6000E+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 216

Solutient
Technologies, LLC

Project Name:	AAR LIVENIA	Model:		NORTH ↑
Work Order #	201421	Serial #	N/A	
Surveyor Name:	Kevin Gmelwar	Probe:		
Date:	6-20-14	Serial #		
Survey Type:	Soil 1-2 meters	Calibration Due		
AAR - GRID # 216		⊕ = Sample Location		
Comments:				

<p>01 ② 1 Minute Integrated Count</p> <p align="center"><u>N/A</u></p> <p align="center">⊕</p> <p>x-4.5</p> <p align="center">x 2.3</p>	<p>02 1 Minute Integrated Count</p> <p align="center"><u>N/A</u></p> <p align="center">⊕</p> <p align="right">Ⓢ</p> <p align="center">x 2.2</p> <p align="center">x-4.0</p>
<p>03 ② 1 Minute Integrated Count</p> <p align="center"><u>N/A</u></p> <p align="center">⊕</p> <p align="center">Ⓢ</p> <p align="center">Remove 1-2 meter</p> <p align="center">Ⓢ</p> <p align="center">Ⓢ</p> <p align="center">x-5.0</p> <p align="center">x-8</p> <p align="center">Got In water no sample</p>	<p>04 1 Minute Integrated Count</p> <p align="center"><u>N/A</u></p> <p align="center">⊕</p> <p align="center">Remove 1-2 meter</p> <p align="center">x-5.9</p> <p align="center">Ⓢ</p> <p align="center">x-1.1</p>

- * 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

* measure from SW Corner

***** 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-216-01.CNF

Report Generated On : 10/8/2014 10:00:19 AM

Sample Location :
Sample Identification : AAR-216-01
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid 216 Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Grid clearance
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 : 6/20/2014 4:43:00 AM
Acquisition Started : 6/20/2014 4:45:29 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:

Peak Analysis Performed on: 10/8/2014 10:00:20 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	7962-	7995	7978.41	1457.40	0.56	7.88E+001	19.67	4.18E+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:

Nuclide Library Used: C:\GENIE2K\CAMFILES\Copv 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	Nuclide	Wt mean	Wt mean
Name	Id	Activity	Activity
	Confidence	(pCi/Gram)	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 10:00:20 AM

Peak Locate From Channel: 40

Peak Locate To Channel: 8192

Peak	Energy	Peak Size in	Peak CPS
No.	(keV)	Counts per Second	% Uncertainty
1	1457.40	8.7577E-002	24.96

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:
 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	2.90E+000	-4.1868E+000
	727.17	11.80	2.9015E+000		-4.6729E-001
	785.42	2.00	2.1161E+001		1.5212E+001
>	1620.56	2.75	0.0000E+000		0.0000E+000
PB-212	74.81	9.60	2.0243E+000	7.22E-001	-1.2912E+000
	77.11	17.50	1.1810E+000		7.5334E-001
	87.20	6.30	3.0210E+000		-1.6612E+000
	89.80	1.75	1.0859E+001		-1.5272E+001
	115.19	0.60	3.1497E+001		-1.7621E+001
	238.63	44.60	7.2156E-001		1.2171E+000
	300.09	3.41	7.0503E+000		4.3820E+000
BI-214	609.31	46.30	6.8530E-001	6.85E-001	1.5305E-001
	768.36	5.04	6.6070E+000		-2.2600E+000
	806.17	1.23	2.5845E+001		-1.4947E+001
	934.06	3.21	1.1494E+001		-2.8771E+001
	1120.29	15.10	3.4518E+000		2.5362E+000
	1155.19	1.69	2.8108E+001		-3.1472E+000
	1238.11	5.94	8.9511E+000		-1.1826E+001
	1280.96	1.47	3.4966E+001		1.0274E+001
	1377.67	4.11	1.2687E+001		-5.8799E+000
	1385.31	0.78	6.7256E+001		6.6160E+001
	1401.50	1.39	3.7561E+001		3.6158E+001
	1407.98	2.48	1.9578E+001		-1.3968E+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	3.0700E+000	7.76E-001	-1.9582E+000
	77.11	10.70	1.9315E+000		1.2321E+000
	87.20	3.70	5.1439E+000		-2.8285E+000
	89.80	1.03	1.8450E+001		-2.5947E+001
	241.98	7.49	4.1888E+000		5.5121E+000
	295.21	19.20	1.3046E+000		1.4851E-001
	351.92	37.20	7.7600E-001		9.1120E-001
	785.91	1.10	3.7840E+001		2.0690E+000
AC-228	338.32	11.40	2.5947E+000	1.71E+000	9.5163E-001
	911.07	27.70	1.7148E+000		1.8020E+000
	969.11	16.60	2.8963E+000		1.1458E+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-216-02.CNF

Report Generated On : 10/8/2014 10:00:50 AM

Sample Location :
Sample Identification : AAR-216-02
Sample Description 1 : 8 Oz. Can
Sample Description 2 : Grid 216 Clearance
Sample Description 3 :
Sample Description 4 :
Sample Type : Grid clearance
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 : 6/20/2014 5:41:00 PM
Acquisition Started : 6/20/2014 5:45:47 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:

Peak Analysis Performed on: 10/8/2014 10:00:50 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-	1310	1302.62	237.93	0.78	1.45E+002	32.64	4.25E+001
2	3172-	3193	3182.51	581.33	0.37	5.14E+001	19.83	1.36E+001
3	4961-	4986	4973.62	908.51	0.34	4.67E+001	15.36	3.35E+000
4	7961-	7994	7977.95	1457.32	0.61	1.04E+002	22.19	4.47E+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:

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 10:00:50 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	237.93	1.6056E-001	22.59
2	581.33	5.7073E-002	38.61
3	908.51	5.1839E-002	32.93
4	1457.32	1.1504E-001	21.43

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:
 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	1.3663E+001	3.09E+000	-5.3368E+000
		727.17	11.80	3.0938E+000		3.5579E-001
		785.42	2.00	1.7849E+001		2.1609E+001
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	2.7466E+000	9.74E-001	1.2957E+000
		77.11	17.50	1.3912E+000		5.7511E-001
		87.20	6.30	3.3633E+000		-4.1020E-001
		89.80	1.75	1.2089E+001		-6.5439E+000
		115.19	0.60	3.4914E+001		1.7621E+000
		238.63	44.60	9.7424E-001		1.7834E+000
		300.09	3.41	8.3580E+000		8.8283E+000
	BI-214	609.31	46.30	8.9168E-001	8.92E-001	4.3151E-001
		768.36	5.04	7.8848E+000		7.6454E+000
		806.17	1.23	2.6257E+001		2.3645E-001
		934.06	3.21	1.2018E+001		-5.7414E+000
		1120.29	15.10	3.2972E+000		2.1355E+000
		1155.19	1.69	2.9654E+001		3.4861E+001
		1238.11	5.94	9.6220E+000		-8.1963E+000
		1280.96	1.47	3.1033E+001		8.2510E+000
		1377.67	4.11	1.0507E+001		-2.0915E+001
		1385.31	0.78	6.1141E+001		9.0273E+000
		1401.50	1.39	3.1660E+001		2.4588E+001
		1407.98	2.48	1.6390E+001		1.1407E+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	4.1655E+000	8.16E-001	1.9651E+000
		77.11	10.70	2.2753E+000		9.4059E-001
		87.20	3.70	5.7267E+000		-6.9846E-001
		89.80	1.03	2.0540E+001		-1.1118E+001
		241.98	7.49	5.8310E+000		4.3263E-001
		295.21	19.20	1.5106E+000		4.9362E-001
		351.92	37.20	8.1589E-001		2.6135E-001
		785.91	1.10	3.1274E+001		-1.3914E+001
	AC-228	338.32	11.40	2.9927E+000	2.00E+000	3.6995E+000
		911.07	27.70	2.0032E+000		2.8261E+000
		969.11	16.60	2.9240E+000		-1.5195E+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 *****

Filename: RE1A

Report Generated On : 6/24/2014 8:04:07 AM

Sample Location : 216-3
Sample Identification : 216-3
Sample Description 1 : 8 Oz. Can
Sample Description 2 : 216-3 At 2 meters
Sample Description 3 :
Sample Description 4 :
Sample Type : Grab
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 : 6/24/2014 7:53:00 AM
Acquisition Started : 6/24/2014 7:54:06 AM

Live Time : 600.0 seconds
Real Time : 600.2 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: 216-3

Peak Analysis Performed on: 6/24/2014 8:04:08 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-	1315	1306.43	238.63	0.95	4.74E+002	57.81	1.08E+002
2	1844-	1860	1851.59	338.21	0.79	8.51E+001	26.78	3.09E+001
3	2787-	2806	2796.95	510.90	0.39	5.21E+001	23.13	2.49E+001
4	3182-	3204	3192.85	583.22	1.14	1.72E+002	30.28	1.73E+001
5	4977-	5002	4989.37	911.39	1.26	9.77E+001	24.57	1.33E+001
6	5293-	5320	5306.47	969.32	0.85	5.01E+001	19.08	9.89E+000
7	7985-	8018	8001.32	1461.59	0.49	5.00E+001	13.86	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: 216-3
 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

 ***** 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: 6/24/2014 8:04:08 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	7.8953E-001	12.20
2	338.21	1.4177E-001	31.48
3	510.90	8.6883E-002	44.37
4	583.22	2.8625E-001	17.63
5	911.39	1.6279E-001	25.15
6	969.32	8.3521E-002	38.08
7	1461.59	8.3333E-002	27.72

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: 216-3
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	2.9994E+001	6.44E+000	1.6072E+001
	727.17	11.80	6.4439E+000		3.3956E+000
	785.42	2.00	3.6448E+001		1.0806E+001
>	1620.56	2.75	0.0000E+000		0.0000E+000
PB-212	74.81	9.60	5.8502E+000	2.36E+000	-3.8674E+000
	77.11	17.50	3.4329E+000		5.7860E+000
	87.20	6.30	7.7373E+000		-7.6913E-001
	89.80	1.75	2.8137E+001		2.1497E+000
	115.19	0.60	7.1007E+001		1.1209E+001
	238.63	44.60	2.3633E+000		1.0892E+001
	300.09	3.41	1.5759E+001		9.2556E+000
BI-214	609.31	46.30	1.3981E+000	1.40E+000	-3.0002E-001
	768.36	5.04	1.4194E+001		9.4376E-001
	806.17	1.23	5.1895E+001		-1.8180E+002
	934.06	3.21	1.7241E+001		1.8010E+001
	1120.29	15.10	5.2895E+000		-1.7396E+000
	1155.19	1.69	3.7722E+001		-1.0923E+001
	1238.11	5.94	1.1939E+001		2.7634E+000
	1280.96	1.47	5.7690E+001		6.8839E+001
	1377.67	4.11	1.7661E+001		-3.6392E+001
	1385.31	0.78	9.3627E+001		-6.2025E+001
	1401.50	1.39	5.5322E+001		1.5322E+001
	1407.98	2.48	3.2303E+001		7.9324E+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	8.8724E+000	1.49E+000	-5.8652E+000
	77.11	10.70	5.6145E+000		9.4630E+000
	87.20	3.70	1.3174E+001		-1.3096E+000
	89.80	1.03	4.7806E+001		3.6524E+000
	241.98	7.49	1.3973E+001		-7.7376E-001
	295.21	19.20	2.6691E+000		1.0856E+000
	351.92	37.20	1.4908E+000		1.2146E+000
	785.91	1.10	6.6724E+001		-1.5129E+001
AC-228	89.95	2.10	2.3500E+001	4.08E+000	-4.9425E+000
	93.35	3.50	1.3215E+001		-3.1600E+000
	129.08	2.80	1.8461E+001		1.4139E+001
	209.28	4.40	1.2875E+001		-8.2123E-002
	270.23	3.60	1.3651E+001		1.7973E+001

Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
AC-228	327.64	3.20	1.7514E+001	4.08E+000	2.8774E+001
	338.32	11.40	5.7661E+000		9.4798E+000
	409.51	2.13	2.5708E+001		2.1486E+001
	463.00	4.40	1.4042E+001		4.5087E+000
	583.20	0.14	7.2676E+002		1.9078E+003
	794.70	4.60	1.6110E+001		6.8948E+000
	911.07	27.70	4.0754E+000		6.7450E+000
	964.60	5.20	1.9729E+001		3.3343E+001
	969.11	16.60	6.1791E+000		6.9832E+000
>	1587.90	3.71	0.0000E+000		0.0000E+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 *****

Filename: REL1A

Report Generated On : 6/24/2014 8:18:01 AM

Sample Location : 216-4
Sample Identification : 216-4
Sample Description 1 : 8 Oz. Can
Sample Description 2 : 216-4 At 2 meters
Sample Description 3 :
Sample Description 4 :
Sample Type : Grab
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 : 6/24/2014 8:07:00 AM
Acquisition Started : 6/24/2014 8:07:59 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 *****

Detector Name: RE1A

Sample Title: 216-4

Peak Analysis Performed on: 6/24/2014 8:18:01 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-	1315	1306.56	238.65	1.05	3.90E+002	53.54	1.04E+002
2	1843-	1861	1851.78	338.24	1.04	7.41E+001	22.58	1.69E+001
3	2787-	2806	2796.33	510.79	1.20	4.93E+001	22.35	2.27E+001
4	3181-	3204	3192.22	583.10	1.42	1.49E+002	26.56	8.73E+000
5	4976-	5001	4988.53	911.24	0.30	1.03E+002	24.76	1.31E+001
6	5293-	5320	5306.84	969.38	0.22	3.40E+001	19.01	1.30E+001
7	7985-	8018	8001.79	1461.67	0.38	3.80E+001	12.08	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: 216-4
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

 ***** 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: 6/24/2014 8:18:01 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	238.65	6.5030E-001	13.72
2	338.24	1.2343E-001	30.49
3	510.79	8.2118E-002	45.35
4	583.10	2.4879E-001	17.79
5	911.24	1.7142E-001	24.08
6	969.38	5.6738E-002	55.85
7	1461.67	6.3333E-002	31.80

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: 216-4
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	2.6122E+001	5.68E+000	-8.8090E+000
		727.17	11.80	5.6766E+000		-1.9683E+000
		785.42	2.00	3.5984E+001		9.0896E+000
>		1620.56	2.75	0.0000E+000		0.0000E+000
	PB-212	74.81	9.60	5.3386E+000	2.20E+000	-7.1363E+000
		77.11	17.50	3.1037E+000		2.8302E+000
		87.20	6.30	7.8098E+000		-4.5153E-001
		89.80	1.75	2.8459E+001		5.9202E+000
		115.19	0.60	6.4532E+001		-1.6740E+001
		238.63	44.60	2.2037E+000		9.5151E+000
		300.09	3.41	1.5088E+001		1.4830E+001
	BI-214	609.31	46.30	1.3297E+000	1.33E+000	1.2191E+000
		768.36	5.04	1.1717E+001		-2.1591E+000
		806.17	1.23	5.0515E+001		-1.5628E+002
		934.06	3.21	1.9257E+001		1.3226E+001
		1120.29	15.10	4.5084E+000		1.9557E+000
		1155.19	1.69	4.2754E+001		4.7934E+001
		1238.11	5.94	1.3600E+001		8.4999E+000
		1280.96	1.47	5.0015E+001		1.7141E+001
		1377.67	4.11	1.8360E+001		1.7280E+001
		1385.31	0.78	9.3627E+001		8.3973E+001
		1401.50	1.39	4.6247E+001		3.4712E+001
		1407.98	2.48	2.2167E+001		-8.6108E+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	8.0965E+000	1.25E+000	-1.0823E+001
		77.11	10.70	5.0762E+000		4.6288E+000
		87.20	3.70	1.3298E+001		-7.6882E-001
		89.80	1.03	4.8353E+001		1.0059E+001
		241.98	7.49	1.3066E+001		5.6867E+001
		295.21	19.20	2.7781E+000		4.5649E+000
		351.92	37.20	1.2495E+000		8.3221E-001
		785.91	1.10	6.5885E+001		1.5299E+001
	AC-228	89.95	2.10	2.2789E+001	3.98E+000	-2.1245E+001
		93.35	3.50	1.2723E+001		-5.7397E+000
		129.08	2.80	1.6148E+001		-1.4747E+001
		209.28	4.40	1.2126E+001		5.4251E+000
		270.23	3.60	1.3410E+001		9.5513E+000

Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/Gram)	Nuclide MDA (pCi/Gram)	Activity (pCi/Gram)
AC-228	327.64	3.20	1.5160E+001	3.98E+000	1.2068E+001
	338.32	11.40	5.1535E+000		6.5630E+000
	409.51	2.13	2.0218E+001		-4.1474E+001
	463.00	4.40	1.2585E+001		-1.5473E+000
	583.20	0.14	6.5468E+002		9.7667E+002
	794.70	4.60	1.5598E+001		1.0607E+001
	911.07	27.70	3.9777E+000		7.3618E+000
	964.60	5.20	1.8990E+001		1.2448E+001
	969.11	16.60	5.9750E+000		9.5883E+000
>	1587.90	3.71	0.0000E+000		0.0000E+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