Date: _____

9626 Niagara Falls Blvd Onsite Gamma Spec Screening Lab

Gamma Spectroscopy Detector work sheet.

Counted by (Initial,date)	Geometry Description	Analysis Number/Sample ID/Remarks	Sample Collection mmddyy hh:mm	Sample Quantity	Sample Units (GWET,GDRY,L, ft^3, etc)	Count Time (s)	Report Matches Sample Parameters (Initial, date)
cc/121516	450 cc SOIL	A5-CS009-0006-01	12-8-16 1425	741.3	GWET	7200	
cc/121616	450 cc SOIL	A5-CS010-0006-01	12-8-16 1430	840.6	GWET	7200	
cc/121616	450 cc SOIL	A5-CS011-0006-01	12-8-16 1435	799.7	GWET	7200	
cc/121616	450 cc SOIL	A5-CS012-0006-01	12-8-16 1440	883.6	GWET	7200	
cc/121616	450 cc SOIL	A5-CS014-0006-01	12-13-16 0910	754.7	GWET	7200	
cc/121616	450 cc SOIL	LCP-01	12-15-16 1430	644.3	GWET	7200	
cc/121916	450 cc SOIL	LCP-02	12-15-16 1435	633.3	GWET	7200	
cc/121916	450 cc SOIL	LCP-03	12-15-16 1440	646.9	GWET	7200	
cc/121916	450 cc SOIL	LCP-04	12-15-16 1445	604.0	GWET	7200	
cc/121916	450 cc SOIL	LCP-05	12-15-16 1450	826.6	GWET	7200	

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


Filename: ERT01,C:\GENIE2K\CAMFILES\SMP-A5-CS009-0006-01.CNF

Report Generated On              : 12/15/2016  7:51:15 PM

Sample Title                     : A5-CS009-0006-01
Sample Description               : 450 cc Soil
Sample Identification            :
Sample Type                      :
Sample Geometry                  :

Peak Locate Threshold            :  3.00
Peak Locate Range (in channels)  :   100 -  8192
Peak Area Range (in channels)    :   100 -  8192
Identification Energy Tolerance  :    1.000 keV

Sample Size                      :  7.413E+002 GWET

Sample Taken On                  : 12/8/2016   2:25:00 PM
Acquisition Started              : 12/15/2016  5:51:11 PM

Live Time                        :     7200.0 seconds
Real Time                        :     7201.8 seconds

Dead Time                        :   0.03 %


          Energy Calibration Used Done On        : 12/10/2016
          Efficiency Calibration Used Done On    : 9/27/2016
          Efficiency ID                          : ERT0101
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****
***** P E A K A N A L Y S I S R E P O R T *****
****

Detector Name: ERT01
Sample Title: A5-CS009-0006-01
Peak Analysis Performed on: 12/15/2016 7:51:15 PM
Peak Analysis From Channel: 100
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
M	1	293-	315	299.63	74.94	0.97	2.98E+002	24.84	4.91E+002
m	2	293-	315	308.97	77.27	0.97	4.25E+002	29.07	5.16E+002
	3	331-	341	337.54	84.41	0.72	6.09E+001	32.86	4.27E+002
M	4	355-	381	359.48	89.90	0.99	3.07E+001	8.10	5.36E+002
m	5	355-	381	372.12	93.06	1.00	2.37E+002	12.75	5.39E+002
	6	511-	525	517.64	129.44	0.57	1.09E+002	37.64	4.54E+002
	7	736-	750	744.18	186.08	0.71	2.55E+002	38.54	4.28E+002
	8	829-	846	837.39	209.38	1.14	1.37E+002	38.67	4.18E+002
M	9	948-	976	954.63	238.69	1.08	1.39E+003	41.12	3.36E+002
m	10	948-	976	966.56	241.67	1.08	2.37E+002	20.22	2.87E+002
	11	1075-	1090	1080.41	270.14	0.43	8.41E+001	29.13	2.52E+002
	12	1175-	1191	1180.87	295.25	0.95	3.53E+002	34.48	2.60E+002
	13	1303-	1318	1312.03	328.04	0.42	6.19E+001	25.55	1.96E+002
	14	1346-	1360	1353.15	338.33	1.04	2.34E+002	28.12	1.92E+002
	15	1401-	1414	1407.49	351.91	1.02	6.33E+002	34.33	1.98E+002
	16	1627-	1644	1636.59	409.19	0.80	4.45E+001	23.59	1.58E+002
	17	1843-	1859	1851.26	462.86	1.13	1.08E+002	20.49	9.96E+001
	18	2029-	2056	2042.25	510.61	1.47	3.52E+002	33.54	1.72E+002
	19	2323-	2343	2331.81	583.00	1.38	4.87E+002	30.23	1.18E+002
	20	2429-	2447	2436.38	609.14	1.28	5.67E+002	30.03	9.69E+001
	21	2898-	2918	2908.41	727.16	0.56	1.16E+002	20.71	8.64E+001
	22	3064-	3079	3071.58	767.95	0.72	5.40E+001	16.44	7.20E+001
	23	3173-	3186	3179.14	794.84	0.49	4.58E+001	13.62	5.02E+001
	24	3339-	3348	3343.37	835.90	0.38	1.61E+001	9.82	3.49E+001
	25	3434-	3449	3440.91	860.29	1.52	7.16E+001	16.52	6.64E+001
	26	3635-	3655	3643.78	911.01	1.14	3.04E+002	24.88	8.63E+001
	27	3728-	3741	3735.23	933.87	0.59	2.93E+001	11.99	3.97E+001
M	28	3851-	3887	3857.98	964.56	1.38	4.71E+001	9.27	5.09E+001
m	29	3851-	3887	3875.38	968.91	1.38	2.02E+002	15.80	5.00E+001
	30	4471-	4489	4480.90	1120.29	1.80	1.16E+002	18.52	6.61E+001
	31	5625-	5638	5632.96	1408.32	0.85	3.56E+001	8.08	1.04E+001
	32	5830-	5858	5844.31	1461.16	1.73	1.78E+003	44.34	3.97E+001
	33	6345-	6358	6352.91	1588.32	1.38	3.10E+001	9.01	1.70E+001
	34	7051-	7071	7060.17	1765.14	0.66	1.05E+002	11.40	7.20E+000

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

Errors quoted at 1.000 sigma

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

Detector Name: ERT01
Sample Geometry:
Sample Title: A5-CS009-0006-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\ERT_LIBRARY_LMDA.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	K-40	1460.82*	10.55	5.7492E-001	5.75E-001	1.4610E+001
	Co-60	1173.23	99.85	6.9738E-002	5.73E-002	3.8763E-002
		1332.49	99.98	5.7336E-002		-2.0816E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	8.0011E+002	5.55E-002	-3.8543E+002
		661.66	84.99	5.5467E-002		3.0028E-002
+	Tl-208	72.80	2.02	5.8618E+000	5.52E-002	-9.0773E-001
		74.97*	3.41	2.0163E+000		4.0566E+000
		84.90*	1.51	3.2513E+000		1.3109E+000
		277.36	6.31	6.5239E-001		3.5466E-001
		510.77*	22.60	2.7740E-001		3.4135E-001
		583.19*	84.50	5.5216E-002		2.6432E-001
		763.13	1.81	2.9817E+000		-2.9695E-001
		860.56*	12.42	3.3889E-001		3.5319E-001
+	Bi-212	39.86	1.06	4.4224E+002	6.87E-001	2.1719E+002
		727.33*	6.74	6.8748E-001		9.3454E-001
		785.37	1.11	4.7641E+000		1.6761E+000
		1620.74	1.51	3.2793E+000		1.3911E+000
		1806.00	0.09	4.3350E+001		1.0156E+001
+	Pb-212	74.81*	10.40	6.6111E-001	7.49E-002	1.3301E+000
		77.11*	17.50	3.6294E-001		1.0153E+000
		87.30	7.81	9.1756E-001		3.2100E-001
		115.18	0.59	7.4998E+000		1.0092E+000
		238.63*	43.30	7.4937E-002		8.0851E-001
		300.09	3.28	1.3425E+000		1.1697E+000
+	Bi-214	76.86*	0.43	1.4804E+001	9.20E-002	4.1415E+001
		89.81*	0.24	1.7893E+001		3.5419E+000
		386.77	0.30	1.4451E+001		4.4138E+000
		454.77	0.29	1.4455E+001		-1.5079E+000
		609.31*	45.49	9.2027E-002		5.9445E-001
		665.45	1.53	3.0924E+000		-2.4603E-003
		703.11	0.48	1.1060E+001		2.7857E+000
		719.86	0.39	1.3554E+001		1.2555E+000
		768.36*	4.89	8.1706E-001		6.2078E-001
		786.10	0.31	1.6769E+001		8.6046E+000
		806.17	1.26	4.0544E+000		-1.9257E+000
		934.06*	3.10	1.0893E+000		6.0859E-001
		964.08*	0.36	9.0016E+000		8.5470E+000
		1051.96	0.31	1.8924E+001		5.1100E+000
		1120.29*	14.91	3.5554E-001		5.6646E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.5795E+001	9.20E-002	-1.0781E+000
		1155.19	1.63	4.1597E+000		2.1043E-001
		1207.68	0.45	1.6425E+001		1.2963E+001
		1238.11	5.79	1.3967E+000		7.5627E-001
		1280.96	1.43	4.7773E+000		1.8066E+000
		1377.67	4.00	1.3644E+000		4.7264E-001
		1385.31	0.76	5.9641E+000		-1.3155E+001
		1401.50	1.27	3.8560E+000		-2.4271E-001
		1407.98*	2.15	1.1101E+000		1.4088E+000
		1509.23	2.11	2.2705E+000		8.3126E-001
		1538.50	0.38	1.1957E+001		2.5605E+000
		1543.32	0.20	2.1012E+001		1.9275E+000
		1583.22	0.69	8.1859E+000		3.3982E+000
		1594.73	0.25	2.4932E+001		-1.6290E+001
		1599.31	0.23	2.2205E+001		9.7223E+000
		1661.28	1.15	3.3651E+000		1.4054E+000
		1683.99	0.22	1.9087E+001		1.0390E+001
		1729.59	2.92	1.8507E+000		1.6072E+000
		1764.49*	15.40	1.8942E-001		6.4562E-001
		1847.42	2.11	1.9833E+000		-1.0936E+000
		1873.16	0.22	1.8471E+001		8.3545E+000
>		2118.55	1.14	0.0000E+000		0.0000E+000
>		2204.21	5.08	0.0000E+000		0.0000E+000
+	Pb-214	53.28	1.20	3.7809E+001	9.67E-002	4.4491E+000
		74.81*	6.44	1.0601E+000		2.1328E+000
		77.11*	10.80	5.8395E-001		1.6336E+000
		87.30	4.84	1.4702E+000		5.1432E-001
		242.00*	7.43	3.9428E-001		8.2001E-001
		258.87	0.52	7.7626E+000		1.7160E+000
		274.80	0.47	8.5599E+000		2.5841E+000
		295.22*	19.30	2.0400E-001		5.2534E-001
		351.93*	37.60	9.6658E-002		5.3625E-001
		462.00*	0.22	1.4980E+001		1.9171E+001
		533.66	0.19	2.3403E+001		-1.1737E+001
		785.96	1.07	4.8970E+000		2.4983E+000
		839.04	0.59	9.8242E+000		1.0706E+000
+	Ra-224	81.07	0.13	5.8225E+001	7.20E-001	5.4108E+000
		83.78*	0.22	2.2625E+001		9.1219E+000
		240.99*	4.10	7.1958E-001		1.4966E+000
+	Ra-226	81.07	0.20	3.8445E+001	1.10E+000	3.5726E+000
		83.78*	0.33	1.4862E+001		5.9923E+000
		94.90	0.15	3.9298E+001		-8.1668E+000
		186.21*	3.59	1.1029E+000		1.3284E+000
+	Ac-228	99.50	1.26	3.8063E+000	2.06E-001	-3.5448E-001
		129.07*	2.50	1.5900E+000		1.0192E+000
		209.25*	3.97	1.0636E+000		8.3854E-001
		270.24*	3.55	1.0141E+000		6.4939E-001
		328.00*	3.04	1.1775E+000		6.2960E-001
		338.32*	11.40	3.1130E-001		6.4720E-001
		409.46*	2.02	1.9238E+000		7.9326E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	7.4926E-001	2.06E-001	9.5886E-001
		755.31	1.03	4.7105E+000		-2.1845E+000
		772.29	1.52	4.0681E+000		-8.5648E-002
		794.94*	4.31	7.7615E-001		6.1643E-001
		835.70*	1.70	1.5680E+000		5.6987E-001
		911.20*	26.20	2.1044E-001		7.2608E-001
		964.79*	4.99	6.5948E-001		6.2617E-001
		968.96*	15.90	2.0587E-001		8.4676E-001
		1588.20*	3.06	1.0849E+000		9.4568E-001
		1630.62	1.52	2.8641E+000		1.0936E-001
+	Th-228	84.37*	1.26	3.8964E+000	3.90E+000	1.5710E+000
		131.61	0.13	3.5330E+001		1.4154E+000
		166.41	0.10	4.1804E+001		1.5692E+001
		215.98	0.25	1.6826E+001		-7.3988E-001
	Pa-234m	258.23	0.07	5.4833E+001	6.46E+000	-2.6867E+001
		742.81	0.09	5.6073E+001		-5.9251E+000
		766.36	0.32	1.8403E+001		7.2867E+000
		786.27	0.05	9.7002E+001		4.9773E+001
		1001.03	0.85	6.4623E+000		-7.8264E-001
		1737.77	0.02	2.1152E+002		-7.1641E+001
	Th-234	63.30	3.75	5.0032E+000	1.47E+000	2.6013E+000
		92.59	4.33	1.4747E+000		2.1066E+000
		112.81	0.22	2.0592E+001		-3.5234E+000

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or has not been calculated
@ = Half-life too short to be able to perform the decay correction

****
***** 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: A5-CS009-0006-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\ERT_LIBRARY_LMDA.NLB

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

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
K-40	0.982	1460.82*	10.55	1.46103E+001	5.34506E-001
Eu-152m	1.000	89.85*	69.90	1.23761E-002	3.29267E-003
Tl-208	0.856	72.80 @	2.02		
		74.97* @	3.41	4.05664E+000	3.65684E-001
		84.90* @	1.51	1.31089E+000	7.08313E-001
		277.36	6.31		
		510.77* @	22.60	3.41352E-001	6.48307E-002
		583.19*	84.50	2.64321E-001	1.87754E-002
		763.13 @	1.81		
		860.56*	12.42	3.53189E-001	8.19779E-002
Bi-211	0.883	351.03*	13.00	1.55195E+000	1.06258E-001
Bi-212	0.571	39.86 @	1.06		
		727.33*	6.74	9.34545E-001	1.70038E-001
		785.37	1.11		
		1620.74	1.51		
		1806.00 @	0.09		
Pb-212	0.768	74.81*	10.40	1.33011E+000	1.25892E-001
		77.11*	17.50	1.01531E+000	8.31071E-002
		87.30	7.81		
		115.18 @	0.59		
		238.63*	43.30	8.08514E-001	4.38459E-002
		300.09	3.28		
Bi-214	0.625	76.86* @	0.43	4.14146E+001	3.41888E+000
		89.81* @	0.24	3.54192E+000	9.50861E-001
		386.77 @	0.30		
		454.77 @	0.29		
		609.31*	45.49	5.94454E-001	3.63613E-002
		665.45 @	1.53		
		703.11 @	0.48		
		719.86 @	0.39		
		768.36*	4.89	6.20783E-001	1.89591E-001
		786.10 @	0.31		
		806.17 @	1.26		
		934.06*	3.10	6.08587E-001	2.49399E-001
		964.08* @	0.36	8.54697E+000	1.71573E+000
		1051.96 @	0.31		
		1120.29*	14.91	5.66456E-001	9.15475E-002
		1133.66 @	0.25		
		1155.19 @	1.63		
		1207.68 @	0.45		
		1238.11	5.79		

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.625	1280.96	@	1.43		
		1377.67		4.00		
		1385.31	@	0.76		
		1401.50	@	1.27		
		1407.98*	@	2.15	1.40883E+000	3.23346E-001
		1509.23	@	2.11		
		1538.50	@	0.38		
		1543.32	@	0.20		
		1583.22	@	0.69		
		1594.73	@	0.25		
		1599.31	@	0.23		
		1661.28	@	1.15		
		1683.99	@	0.22		
		1729.59	@	2.92		
		1764.49*		15.40	6.45622E-001	7.78556E-002
		1847.42	@	2.11		
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.856	53.28	@	1.20		
		74.81*		6.44	2.13284E+000	2.04457E-001
		77.11*		10.80	1.63357E+000	1.39146E-001
		87.30		4.84		
		242.00*		7.43	8.20009E-001	7.94533E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	5.25335E-001	5.57666E-002
		351.93*		37.60	5.36248E-001	3.63201E-002
		462.00*	@	0.22	1.91712E+001	3.76633E+000
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.889	81.07	@	0.13		
		83.78*	@	0.22	9.12187E+000	4.94027E+000
		240.99*		4.10	1.49658E+000	1.44463E-001
Ra-226	0.878	81.07	@	0.20		
		83.78*	@	0.33	5.99230E+000	3.24523E+000
		94.90	@	0.15		
		186.21*		3.59	1.32839E+000	2.58772E-001
Ac-228	0.906	99.50	@	1.26		
		129.07*	@	2.50	1.01918E+000	3.52800E-001
		209.25*		3.97	8.38540E-001	2.40850E-001
		270.24*		3.55	6.49385E-001	2.27405E-001
		328.00*		3.04	6.29601E-001	2.62065E-001
		338.32*		11.40	6.47198E-001	8.48267E-002
		409.46*	@	2.02	7.93261E-001	4.22153E-001
		463.00*		4.45	9.58860E-001	1.91402E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	6.16427E-001	1.85004E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.906	835.70*	@	1.70	5.69873E-001	3.48012E-001
		911.20*		26.20	7.26077E-001	6.68251E-002
		964.79*		4.99	6.26170E-001	1.25804E-001
		968.96*		15.90	8.46759E-001	7.39636E-002
		1588.20*		3.06	9.45684E-001	2.77897E-001
		1630.62	@	1.52		
Th-228	0.501	84.37*		1.26	1.57099E+000	8.49218E-001
		131.61	@	0.13		
		166.41	@	0.10		
		215.98		0.25		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 1.000 keV
Nuclide confidence index threshold = 0.45
Errors quoted at 1.000 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/GWET)	Wt mean Activity Uncertainty
	K-40		0.982	1.461025E+001	5.345063E-001
	Eu-152m		1.000	1.028297E-002	3.292661E-003
X	Tm-170		0.996		
	Tl-208	@	0.856	2.696907E-001	1.816259E-002
	Bi-211		0.883	7.709894E-002	1.799283E-001
	Bi-212	@	0.571	9.345448E-001	1.700375E-001
	Pb-212	@	0.768	7.922542E-001	3.729822E-002
	Bi-214	@	0.625	5.990250E-001	3.028313E-002
	Pb-214	@	0.856	5.096076E-001	5.078023E-002
	Ra-224	@	0.889	5.665056E-001	1.706625E-001
	Ra-226	@	0.878	1.328391E+000	2.578182E-001
	Ac-228	@	0.906	7.373189E-001	3.535156E-002
	Th-228	@	0.501	8.019607E-001	8.523272E-001
X	Th-231		0.834		

? = 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 1.000 sigma

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

Peak Locate Performed on: 12/15/2016 7:51:15 PM
Peak Locate From Channel: 100
Peak Locate To Channel: 8192

	Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
m	5	93.06	2.2433E-002	8.71	Tol.	Yb-169 Th-227 Th-234

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

Errors quoted at 1.000 sigma

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

Filename: ERT01,C:\GENIE2K\CAMFILES\SMP-A5-CS010-0006-01.CNF

Report Generated On	: 12/16/2016 10:41:12 AM
Sample Title	: A5-CS010-0006-01
Sample Description	: 450 cc Soil
Sample Identification	:
Sample Type	:
Sample Geometry	:
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 100 - 8192
Peak Area Range (in channels)	: 100 - 8192
Identification Energy Tolerance	: 1.000 keV
Sample Size	: 8.406E+002 GWET
Sample Taken On	: 12/8/2016 2:30:00 PM
Acquisition Started	: 12/16/2016 8:41:08 AM
Live Time	: 7200.0 seconds
Real Time	: 7201.9 seconds
Dead Time	: 0.03 %

Energy Calibration Used Done On	: 12/10/2016
Efficiency Calibration Used Done On	: 9/27/2016
Efficiency ID	: ERT0101

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

Detector Name: ERT01
Sample Title: A5-CS010-0006-01
Peak Analysis Performed on: 12/16/2016 10:41:12 AM
Peak Analysis From Channel: 100
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
M	1	289-	318	299.93	75.01	0.97	2.74E+002	25.90	5.68E+002
m	2	289-	318	309.19	77.33	0.97	4.25E+002	29.52	5.80E+002
	3	344-	354	348.77	87.22	0.80	1.03E+002	37.19	5.34E+002
	4	365-	383	371.58	92.92	0.55	1.93E+002	54.39	8.15E+002
	5	734-	750	744.39	186.13	1.08	3.56E+002	42.47	4.63E+002
	6	831-	841	837.63	209.44	0.77	9.46E+001	28.39	2.99E+002
	7	946-	960	954.54	238.67	1.11	1.29E+003	51.97	4.93E+002
	8	1074-	1089	1081.12	270.31	1.11	9.08E+001	30.08	2.70E+002
	9	1174-	1187	1180.68	295.21	0.85	3.45E+002	29.54	1.91E+002
	10	1196-	1206	1199.98	300.03	0.57	4.18E+001	21.72	1.76E+002
	11	1306-	1316	1311.56	327.93	0.98	2.38E+001	20.84	1.72E+002
	12	1347-	1359	1353.22	338.34	0.94	2.61E+002	27.73	1.93E+002
	13	1397-	1419	1407.25	351.85	1.07	6.58E+002	40.18	2.46E+002
	14	1845-	1858	1851.44	462.90	1.08	6.62E+001	20.31	1.24E+002
	15	2027-	2057	2042.56	510.69	1.62	3.97E+002	37.39	2.05E+002
	16	2322-	2344	2332.12	583.08	1.39	5.65E+002	31.81	1.17E+002
	17	2428-	2446	2436.52	609.18	1.61	5.05E+002	30.64	1.29E+002
	18	2901-	2918	2908.77	727.25	0.89	1.19E+002	19.90	8.52E+001
	19	3064-	3080	3072.55	768.19	0.87	5.01E+001	16.60	7.09E+001
	20	3173-	3186	3178.92	794.79	0.88	5.30E+001	15.05	6.20E+001
	21	3335-	3347	3341.20	835.36	0.72	2.18E+001	12.10	4.72E+001
	22	3435-	3451	3441.16	860.35	0.36	5.49E+001	16.10	6.51E+001
	23	3634-	3656	3643.74	911.00	1.25	3.90E+002	26.57	8.05E+001
M	24	3850-	3885	3858.75	964.75	1.61	6.65E+001	10.59	6.41E+001
m	25	3850-	3885	3874.80	968.76	1.61	2.21E+002	16.58	6.02E+001
	26	4472-	4491	4480.85	1120.28	0.76	1.19E+002	17.48	5.34E+001
	27	4945-	4960	4952.12	1238.10	1.07	5.80E+001	16.20	6.80E+001
	28	5831-	5857	5844.24	1461.14	1.68	1.87E+003	45.06	3.70E+001
	29	6188-	6199	6193.54	1548.47	0.38	1.01E+001	5.03	5.88E+000
	30	6366-	6377	6371.30	1592.91	0.34	2.26E+001	7.70	1.44E+001
	31	6915-	6928	6921.96	1730.58	0.58	2.65E+001	6.99	7.51E+000
	32	7051-	7072	7061.03	1765.35	1.21	1.09E+002	11.37	5.50E+000

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

Errors quoted at 1.000 sigma

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

Detector Name: ERT01
Sample Geometry:
Sample Title: A5-CS010-0006-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\ERT_LIBRARY_LMDA.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	K-40	1460.82*	10.55	4.8121E-001	4.81E-001	1.3509E+001
	Co-60	1173.23	99.85	5.9721E-002	5.15E-002	-2.2952E-002
		1332.49	99.98	5.1500E-002		3.1631E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	7.2541E+002	5.24E-002	2.2681E+002
		661.66	84.99	5.2430E-002		4.0442E-003
+	Tl-208	72.80	2.02	5.4499E+000	4.98E-002	4.1559E-002
		74.97*	3.41	1.9056E+000		3.2769E+000
		84.90	1.51	4.3874E+000		2.5074E-001
		277.36	6.31	6.1493E-001		1.6464E-001
		510.77*	22.60	2.7136E-001		3.7417E-001
		583.19*	84.50	4.9787E-002		2.7106E-001
		763.13	1.81	2.6629E+000		-9.3758E-002
		860.56*	12.42	3.0128E-001		2.3896E-001
+	Bi-212	39.86	1.06	3.8942E+002	5.72E-001	-7.1283E+001
		727.33*	6.74	5.7183E-001		8.4789E-001
		785.37	1.11	4.4199E+000		2.1283E+000
		1620.74	1.51	2.5878E+000		1.2926E-001
		1806.00	0.09	4.0624E+001		1.9369E+001
+	Pb-212	74.81*	10.40	6.2483E-001	9.41E-002	1.0745E+000
		77.11*	17.50	3.3833E-001		8.9364E-001
		87.30*	7.81	5.7571E-001		3.5116E-001
		115.18	0.59	7.0864E+000		-3.4335E+000
		238.63*	43.30	9.4070E-002		6.6131E-001
		300.09*	3.28	7.7884E-001		3.2850E-001
+	Bi-214	76.86*	0.43	1.3792E+001	9.20E-002	3.6429E+001
		89.81	0.24	2.5706E+001		7.5788E+000
		386.77	0.30	1.3191E+001		7.2535E+000
		454.77	0.29	1.3455E+001		2.0494E+000
		609.31*	45.49	9.2045E-002		4.6654E-001
		665.45	1.53	2.9100E+000		1.5229E+000
		703.11	0.48	1.0051E+001		-7.0369E-001
		719.86	0.39	1.2034E+001		8.3809E+000
		768.36*	4.89	7.3537E-001		5.0777E-001
		786.10	0.31	1.5752E+001		9.5455E+000
		806.17	1.26	3.9100E+000		2.3395E+000
		934.06	3.10	1.7147E+000		8.9924E-001
		964.08*	0.36	8.8561E+000		1.0634E+001
		1051.96	0.31	1.6010E+001		3.0863E+000
		1120.29*	14.91	2.8562E-001		5.1097E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.1903E+001	9.20E-002	-8.7979E-001
		1155.19	1.63	3.9414E+000		-3.4185E-001
		1207.68	0.45	1.5159E+001		8.8079E+000
		1238.11*	5.79	8.2165E-001		6.8868E-001
		1280.96	1.43	3.7937E+000		-7.0915E-001
		1377.67	4.00	1.2595E+000		6.6691E-001
		1385.31	0.76	5.0902E+000		-1.1293E+001
		1401.50	1.27	3.6459E+000		-1.0470E+000
		1407.98	2.15	2.1348E+000		-2.6511E-003
		1509.23	2.11	1.9863E+000		7.1560E-001
		1538.50	0.38	9.8348E+000		-4.9739E+000
		1543.32	0.20	2.0050E+001		-6.3777E-001
		1583.22	0.69	6.8603E+000		8.6822E-001
		1594.73	0.25	2.2096E+001		1.3374E+001
		1599.31	0.23	2.0729E+001		-1.4033E+001
		1661.28	1.15	3.0503E+000		-9.6596E-001
		1683.99	0.22	1.5497E+001		6.7980E+000
		1729.59*	2.92	7.3449E-001		7.8758E-001
		1764.49*	15.40	1.5622E-001		5.9057E-001
		1847.42	2.11	2.0646E+000		1.7546E+000
		1873.16	0.22	1.5776E+001		-2.8579E+000
>		2118.55	1.14	0.0000E+000		0.0000E+000
>		2204.21	5.08	0.0000E+000		0.0000E+000
+	Pb-214	53.28	1.20	3.5199E+001	1.12E-001	1.8498E+001
		74.81*	6.44	1.0013E+000		1.7218E+000
		77.11*	10.80	5.4403E-001		1.4369E+000
		87.30*	4.84	9.2187E-001		5.6230E-001
		242.00	7.43	9.6487E-001		-3.3959E-001
		258.87	0.52	6.7679E+000		-9.1057E-001
		274.80	0.47	8.2141E+000		3.2104E+000
		295.22*	19.30	1.4369E-001		4.5216E-001
		351.93*	37.60	1.1153E-001		4.9116E-001
		462.00*	0.22	1.3913E+001		1.0314E+001
		533.66	0.19	2.2505E+001		5.4116E+000
		785.96	1.07	4.6063E+000		3.7845E+000
		839.04	0.59	8.8888E+000		4.9927E+000
	Ra-224	81.07	0.13	5.3842E+001	1.80E+000	5.7833E-001
		83.78	0.22	2.9662E+001		-1.4376E+000
		240.99	4.10	1.7962E+000		-1.7472E-001
+	Ra-226	81.07	0.20	3.5529E+001	1.05E+000	3.8163E-001
		83.78	0.33	1.9473E+001		-9.4379E-001
		94.90	0.15	3.5557E+001		2.5830E+000
		186.21*	3.59	1.0496E+000		1.7431E+000
+	Ac-228	99.50	1.26	3.5653E+000	1.86E-001	2.0736E+000
		129.07	2.50	1.7580E+000		6.6159E-001
		209.25*	3.97	6.8329E-001		5.0989E-001
		270.24*	3.55	9.2325E-001		6.1953E-001
		328.00*	3.04	8.6985E-001		2.1313E-001
		338.32*	11.40	2.6268E-001		6.3770E-001
		409.46	2.02	1.9453E+000		6.4866E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	6.9630E-001	1.86E-001	5.1620E-001
		755.31	1.03	4.5228E+000		2.0382E+000
		772.29	1.52	3.5080E+000		1.4064E+000
		794.94*	4.31	7.5990E-001		6.3013E-001
		835.70*	1.70	1.7025E+000		6.7851E-001
		911.20*	26.20	1.8603E-001		8.2503E-001
		964.79*	4.99	6.4922E-001		7.7954E-001
		968.96*	15.90	1.9835E-001		8.1715E-001
		1588.20	3.06	1.8405E+000		7.0992E-001
		1630.62	1.52	2.6354E+000		2.9507E-001
	Th-228	84.37	1.26	5.2069E+000	5.21E+000	-4.9979E-001
		131.61	0.13	3.3439E+001		2.2292E+001
		166.41	0.10	3.9056E+001		1.1328E+001
		215.98	0.25	1.5324E+001		-2.0243E+000
	Pa-234m	258.23	0.07	4.7895E+001	6.00E+000	-7.4553E+000
		742.81	0.09	4.5065E+001		-1.6510E+000
		766.36	0.32	1.5740E+001		9.1759E-002
		786.27	0.05	9.1119E+001		5.5215E+001
		1001.03	0.85	6.0009E+000		-1.5464E+000
		1737.77	0.02	1.9057E+002		4.0699E+000
	Th-234	63.30	3.75	4.6087E+000	1.34E+000	4.3512E+000
		92.59	4.33	1.3418E+000		4.0651E-001
		112.81	0.22	1.9787E+001		3.2637E+000

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or has not been calculated
@ = Half-life too short to be able to perform the decay correction

****
***** 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: A5-CS010-0006-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\ERT_LIBRARY_LMDA.NLB

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

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
K-40	0.984	1460.82*		10.55	1.35089E+001	4.87077E-001
Tl-208	0.839	72.80	@	2.02		
		74.97*	@	3.41	3.27693E+000	3.29745E-001
		84.90	@	1.51		
		277.36		6.31		
		510.77*	@	22.60	3.74171E-001	6.38230E-002
		583.19*		84.50	2.71055E-001	1.78223E-002
		763.13	@	1.81		
		860.56*		12.42	2.38962E-001	7.03664E-002
TL-208e	0.977	1592.53*		99.16	1.87822E-002	6.50316E-003
Bi-211	0.898	351.03*		13.00	1.42154E+000	1.05376E-001
Bi-212	0.573	39.86	@	1.06		
		727.33*		6.74	8.47894E-001	1.44508E-001
		785.37		1.11		
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.984	74.81*		10.40	1.07445E+000	1.12473E-001
		77.11*		17.50	8.93643E-001	7.39520E-002
		87.30*		7.81	3.51158E-001	1.27668E-001
		115.18	@	0.59		
		238.63*		43.30	6.61307E-001	4.03558E-002
		300.09*		3.28	3.28497E-001	1.71184E-001
Bi-214	0.647	76.86*	@	0.43	3.64294E+001	3.03985E+000
		89.81	@	0.24		
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	4.66539E-001	3.17179E-002
		665.45	@	1.53		
		703.11	@	0.48		
		719.86	@	0.39		
		768.36*		4.89	5.07769E-001	1.68782E-001
		786.10	@	0.31		
		806.17	@	1.26		
		934.06		3.10		
		964.08*	@	0.36	1.06339E+001	1.74827E+000
		1051.96	@	0.31		
		1120.29*		14.91	5.10965E-001	7.63565E-002
		1133.66	@	0.25		
		1155.19	@	1.63		
		1207.68	@	0.45		
		1238.11*		5.79	6.88679E-001	1.93360E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.647	1280.96	@	1.43		
		1377.67		4.00		
		1385.31	@	0.76		
		1401.50	@	1.27		
		1407.98	@	2.15		
		1509.23	@	2.11		
		1538.50	@	0.38		
		1543.32	@	0.20		
		1583.22	@	0.69		
		1594.73	@	0.25		
		1599.31	@	0.23		
		1661.28	@	1.15		
		1683.99	@	0.22		
		1729.59*	@	2.92	7.87576E-001	2.09481E-001
		1764.49*		15.40	5.90568E-001	6.86999E-002
		1847.42	@	2.11		
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.797	53.28	@	1.20		
		74.81*		6.44	1.72185E+000	1.82134E-001
		77.11*		10.80	1.43694E+000	1.23640E-001
		87.30*		4.84	5.62299E-001	2.04707E-001
		242.00		7.43		
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	4.52158E-001	4.30835E-002
		351.93*		37.60	4.91164E-001	3.60747E-002
		462.00*	@	0.22	1.03144E+001	3.21482E+000
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-226	0.778	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	1.74310E+000	2.57108E-001
Ac-228	0.765	99.50	@	1.26		
		129.07	@	2.50		
		209.25*		3.97	5.09890E-001	1.55684E-001
		270.24*		3.55	6.19529E-001	2.07514E-001
		328.00*		3.04	2.13131E-001	1.87362E-001
		338.32*		11.40	6.37696E-001	7.54482E-002
		409.46	@	2.02		
		463.00*		4.45	5.16195E-001	1.61922E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	6.30126E-001	1.80639E-001
		835.70*	@	1.70	6.78512E-001	3.78507E-001
		911.20*		26.20	8.25025E-001	6.53962E-002
		964.79*		4.99	7.79540E-001	1.28321E-001

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.765	968.96*	15.90	8.17146E-001	6.90801E-002
		1588.20	3.06		
		1630.62 @	1.52		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 1.000 keV
Nuclide confidence index threshold = 0.45
Errors quoted at 1.000 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/GWET)	Wt mean Activity Uncertainty
	K-40		0.984	1.350893E+001	4.870765E-001
X	Mn-54		0.958		
X	Cd-109		0.900		
	Tl-208	@	0.839	2.700480E-001	1.712620E-002
	TL-208e		0.977	1.878219E-002	6.503159E-003
	Bi-211		0.898	1.883115E-001	1.544855E-001
	Bi-212	@	0.573	8.478944E-001	1.445076E-001
	Pb-212	@	0.984	6.109185E-001	3.251614E-002
	Bi-214	@	0.647	4.954282E-001	2.629571E-002
	Pb-214	@	0.797	4.260994E-001	3.968647E-002
	Ra-226	@	0.778	1.743103E+000	2.571082E-001
	Ac-228	@	0.765	7.209201E-001	3.265422E-002

? = 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 1.000 sigma

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

Peak Locate Performed on: 12/16/2016 10:41:12 AM
Peak Locate From Channel: 100
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
4	92.92	1.6269E-002	46.71	Tol.	Yb-169 Th-227 Th-234
29	1548.47	1.4063E-003	49.73	Sum	

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

Errors quoted at 1.000 sigma

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

Filename: ERT01,C:\GENIE2K\CAMFILES\SMP-A5-CS011-0006-01.CNF

Report Generated On	: 12/16/2016 12:44:12 PM
Sample Title	: A5-CS011-0006-01
Sample Description	: 450 cc Soil
Sample Identification	:
Sample Type	:
Sample Geometry	:
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 100 - 8192
Peak Area Range (in channels)	: 100 - 8192
Identification Energy Tolerance	: 1.000 keV
Sample Size	: 7.997E+002 GWET
Sample Taken On	: 12/8/2016 2:35:00 PM
Acquisition Started	: 12/16/2016 10:44:08 AM
Live Time	: 7200.0 seconds
Real Time	: 7201.9 seconds
Dead Time	: 0.03 %

Energy Calibration Used Done On	: 12/10/2016
Efficiency Calibration Used Done On	: 9/27/2016
Efficiency ID	: ERT0101

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

Detector Name: ERT01
Sample Title: A5-CS011-0006-01
Peak Analysis Performed on: 12/16/2016 12:44:12 PM
Peak Analysis From Channel: 100
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
M	1	295-	321	299.89	75.00	0.95	2.40E+002	24.71	5.08E+002
m	2	295-	321	309.00	77.28	0.95	4.68E+002	29.77	5.10E+002
M	3	345-	380	349.47	87.40	1.02	1.66E+002	22.54	4.42E+002
m	4	345-	380	360.64	90.19	1.03	1.29E+002	21.38	5.31E+002
m	5	345-	380	372.25	93.09	1.03	1.90E+002	23.89	5.42E+002
	6	513-	521	516.96	129.27	0.60	2.42E+001	27.76	3.48E+002
	7	736-	753	744.32	186.11	1.09	3.38E+002	43.76	4.85E+002
	8	830-	845	836.41	209.14	1.13	1.54E+002	36.11	3.82E+002
M	9	947-	972	954.73	238.72	1.10	1.33E+003	40.76	3.63E+002
m	10	947-	972	967.02	241.79	1.10	2.50E+002	20.97	2.84E+002
	11	1074-	1089	1080.47	270.15	0.80	1.22E+002	30.16	2.62E+002
	12	1169-	1190	1180.83	295.24	1.04	4.81E+002	37.82	2.53E+002
	13	1192-	1206	1200.19	300.08	0.49	1.23E+002	25.88	1.89E+002
	14	1306-	1319	1312.15	328.08	0.83	6.83E+001	23.29	1.70E+002
	15	1346-	1359	1352.83	338.25	0.97	2.70E+002	27.53	1.77E+002
	16	1400-	1420	1407.30	351.86	1.15	7.37E+002	39.08	2.11E+002
	17	1845-	1858	1851.70	462.97	0.67	7.86E+001	18.77	9.94E+001
	18	2030-	2055	2042.25	510.61	1.80	3.21E+002	33.03	1.81E+002
	19	2324-	2342	2331.85	583.01	1.27	4.57E+002	29.40	1.20E+002
	20	2430-	2449	2436.35	609.14	1.12	5.39E+002	32.01	1.34E+002
	21	2654-	2664	2659.86	665.02	0.51	2.82E+001	13.23	6.18E+001
	22	2901-	2915	2908.10	727.08	0.51	8.86E+001	17.89	7.94E+001
	23	3169-	3187	3178.80	794.76	0.56	6.17E+001	18.15	7.83E+001
	24	3432-	3449	3441.22	860.36	1.39	7.71E+001	17.63	7.19E+001
	25	3636-	3654	3643.92	911.04	1.77	3.39E+002	25.18	8.61E+001
M	26	3852-	3884	3858.50	964.69	1.44	4.76E+001	9.95	6.93E+001
m	27	3852-	3884	3875.02	968.82	1.44	1.99E+002	16.26	6.94E+001
	28	4308-	4319	4313.50	1078.44	0.25	5.38E+000	10.69	4.16E+001
	29	4472-	4488	4479.48	1119.94	1.48	8.98E+001	19.84	9.62E+001
	30	5506-	5518	5511.71	1378.01	0.90	2.13E+001	9.06	2.28E+001
	31	5831-	5856	5843.98	1461.08	1.87	1.78E+003	44.13	3.89E+001
	32	6032-	6043	6037.73	1509.52	0.33	1.26E+001	6.22	1.04E+001
	33	6347-	6362	6354.61	1588.74	0.45	4.40E+001	9.29	1.40E+001
	34	7050-	7070	7061.07	1765.36	0.51	1.16E+002	13.17	1.58E+001

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

Errors quoted at 1.000 sigma

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

Detector Name: ERT01
Sample Geometry:
Sample Title: A5-CS011-0006-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\ERT_LIBRARY_LMDA.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	K-40	1460.82*	10.55	5.1036E-001	5.10E-001	1.3533E+001
	Co-60	1173.23	99.85	6.4830E-002	5.58E-002	1.5740E-002
		1332.49	99.98	5.5796E-002		1.3850E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	7.6544E+002	5.97E-002	-4.9269E+001
		661.66	84.99	5.9710E-002		7.2881E-003
+	Tl-208	72.80	2.02	5.6517E+000	5.01E-002	-1.8486E+000
		74.97*	3.41	1.8963E+000		3.0107E+000
		84.90	1.51	4.6048E+000		-3.8055E-001
		277.36	6.31	6.3955E-001		4.1236E-001
		510.77*	22.60	2.5712E-001		2.6139E-001
		583.19*	84.50	5.0109E-002		2.2968E-001
		763.13	1.81	2.9353E+000		-7.0923E-001
		860.56*	12.42	3.3794E-001		3.5321E-001
+	Bi-212	39.86	1.06	4.0299E+002	5.51E-001	-1.0679E+002
		727.33*	6.74	5.5116E-001		6.6424E-001
		785.37	1.11	4.5794E+000		1.9126E+000
		1620.74	1.51	3.0419E+000		-6.9718E-001
		1806.00	0.09	3.9563E+001		-5.2740E-001
+	Pb-212	74.81*	10.40	6.2178E-001	7.20E-002	9.8717E-001
		77.11*	17.50	3.3462E-001		1.0355E+000
		87.30*	7.81	5.0240E-001		5.9052E-001
		115.18	0.59	7.5016E+000		5.7666E+000
		238.63*	43.30	7.2020E-002		7.2020E-001
		300.09*	3.28	9.2047E-001		1.0137E+000
+	Bi-214	76.86*	0.43	1.3640E+001	1.02E-001	4.2210E+001
		89.81*	0.24	1.6406E+001		1.3725E+001
		386.77	0.30	1.4336E+001		4.3823E+000
		454.77	0.29	1.4143E+001		7.9026E+000
		609.31*	45.49	1.0222E-001		5.2357E-001
		665.45*	1.53	1.8176E+000		8.6689E-001
		703.11	0.48	1.0911E+001		1.5688E+000
		719.86	0.39	1.1463E+001		-6.0577E+000
		768.36	4.89	1.1440E+000		8.4426E-001
		786.10	0.31	1.6361E+001		1.0530E+001
		806.17	1.26	3.7800E+000		-1.4814E+000
		934.06	3.10	1.8342E+000		1.6466E+000
		964.08*	0.36	9.6589E+000		8.0019E+000
		1051.96	0.31	1.7542E+001		-1.1978E+001
		1120.29*	14.91	3.7943E-001		4.0664E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.4112E+001	1.02E-001	-8.8972E+000
		1155.19	1.63	4.0464E+000		1.2896E+000
		1207.68	0.45	1.5477E+001		6.2261E+000
		1238.11	5.79	1.3445E+000		3.0894E-001
		1280.96	1.43	4.4284E+000		1.2962E+000
		1377.67*	4.00	7.5777E-001		4.1293E-001
		1385.31	0.76	6.4903E+000		2.1480E+000
		1401.50	1.27	3.9217E+000		-1.3449E+000
		1407.98	2.15	2.3757E+000		3.8886E-001
		1509.23*	2.11	1.0371E+000		4.9471E-001
		1538.50	0.38	1.0114E+001		5.0204E-001
		1543.32	0.20	1.9478E+001		1.0388E+001
		1583.22	0.69	8.4543E+000		2.0920E+000
		1594.73	0.25	2.2995E+001		1.6596E+000
		1599.31	0.23	1.7182E+001		8.0210E-001
		1661.28	1.15	3.6076E+000		-1.9133E-001
		1683.99	0.22	1.8986E+001		6.4208E+000
		1729.59	2.92	1.5375E+000		2.8120E-003
		1764.49*	15.40	2.4071E-001		6.6740E-001
		1847.42	2.11	2.0351E+000		1.2147E+000
		1873.16	0.22	1.9120E+001		6.8121E+000
>		2118.55	1.14	0.0000E+000		0.0000E+000
>		2204.21	5.08	0.0000E+000		0.0000E+000
+	Pb-214	53.28	1.20	3.5477E+001	1.07E-001	1.6083E+001
		74.81*	6.44	9.9634E-001		1.5818E+000
		77.11*	10.80	5.3802E-001		1.6650E+000
		87.30*	4.84	8.0442E-001		9.4550E-001
		242.00*	7.43	3.6320E-001		7.9910E-001
		258.87	0.52	7.5265E+000		2.0909E+000
		274.80	0.47	8.6783E+000		2.0270E+000
		295.22*	19.30	2.0132E-001		6.6307E-001
		351.93*	37.60	1.0698E-001		5.7896E-001
		462.00*	0.22	1.3053E+001		1.2886E+001
		533.66	0.19	2.2946E+001		4.4207E+000
		785.96	1.07	4.7279E+000		1.9804E+000
		839.04	0.59	9.3222E+000		5.9393E+000
+	Ra-224	81.07	0.13	5.4460E+001	6.63E-001	-2.2249E+001
		83.78	0.22	3.1321E+001		3.7180E+000
		240.99*	4.10	6.6333E-001		1.4594E+000
+	Ra-226	81.07	0.20	3.5934E+001	1.15E+000	-1.4680E+001
		83.78	0.33	2.0561E+001		2.4407E+000
		94.90	0.15	3.7118E+001		-1.0717E+000
		186.21*	3.59	1.1481E+000		1.7274E+000
+	Ac-228	99.50	1.26	3.6469E+000	1.89E-001	-1.8989E+000
		129.07*	2.50	1.1209E+000		2.0870E-001
		209.25*	3.97	9.0871E-001		8.7039E-001
		270.24*	3.55	9.5453E-001		8.7577E-001
		328.00*	3.04	9.8120E-001		6.4413E-001
		338.32*	11.40	2.7081E-001		6.9309E-001
		409.46	2.02	2.1906E+000		4.3791E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	6.5330E-001	1.89E-001	6.4493E-001
		755.31	1.03	4.6704E+000		1.2308E-001
		772.29	1.52	3.4942E+000		1.0949E+000
		794.94*	4.31	9.8370E-001		7.7047E-001
		835.70	1.70	3.2425E+000		1.3226E+000
		911.20*	26.20	1.8935E-001		7.5308E-001
		964.79*	4.99	7.0812E-001		5.8664E-001
		968.96*	15.90	2.2308E-001		7.7209E-001
		1588.20*	3.06	9.3124E-001		1.2425E+000
		1630.62	1.52	2.9841E+000		9.9571E-001
	Th-228	84.37	1.26	5.4345E+000	5.43E+000	2.2087E-001
		131.61	0.13	3.3773E+001		6.8034E-001
		166.41	0.10	4.0584E+001		1.4143E+000
		215.98	0.25	1.6098E+001		-3.6304E+000
	Pa-234m	258.23	0.07	5.3869E+001	6.09E+000	2.7398E+001
		742.81	0.09	4.7920E+001		-4.4074E+001
		766.36	0.32	1.6855E+001		4.0509E+000
		786.27	0.05	9.4637E+001		6.0908E+001
		1001.03	0.85	6.0914E+000		-1.9283E+000
		1737.77	0.02	1.8272E+002		-2.1367E+002
	Th-234	63.30	3.75	4.6534E+000	1.41E+000	1.4132E+000
		92.59	4.33	1.4079E+000		2.5379E-002
		112.81	0.22	1.9940E+001		-4.6326E+000

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or has not been calculated
@ = Half-life too short to be able to perform the decay correction

****
***** 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: A5-CS011-0006-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\ERT_LIBRARY_LMDA.NLB

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

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
K-40	0.990	1460.82*		10.55	1.35329E+001	4.94127E-001
Eu-152m	0.982	89.85*		69.90	4.79625E-002	8.10449E-003
Tl-208	0.836	72.80	@	2.02		
		74.97*	@	3.41	3.01073E+000	3.27621E-001
		84.90	@	1.51		
		277.36		6.31		
		510.77*	@	22.60	2.61385E-001	5.89841E-002
		583.19*		84.50	2.29675E-001	1.68106E-002
		763.13	@	1.81		
		860.56*		12.42	3.53209E-001	8.12096E-002
Bi-211	0.895	351.03*		13.00	1.67567E+000	1.12992E-001
Bi-212	0.568	39.86	@	1.06		
		727.33*		6.74	6.64238E-001	1.35841E-001
		785.37		1.11		
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.985	74.81*		10.40	9.87173E-001	1.11132E-001
		77.11*		17.50	1.03553E+000	8.07319E-002
		87.30*		7.81	5.90515E-001	8.48190E-002
		115.18	@	0.59		
		238.63*		43.30	7.20203E-001	3.94540E-002
		300.09*		3.28	1.01371E+000	2.17744E-001
Bi-214	0.575	76.86*	@	0.43	4.22100E+001	3.32174E+000
		89.81*	@	0.24	1.37251E+001	2.37089E+000
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	5.23572E-001	3.49902E-002
		665.45*	@	1.53	8.66889E-001	4.07900E-001
		703.11	@	0.48		
		719.86	@	0.39		
		768.36		4.89		
		786.10	@	0.31		
		806.17	@	1.26		
		934.06		3.10		
		964.08*	@	0.36	8.00190E+000	1.70335E+000
		1051.96	@	0.31		
		1120.29*		14.91	4.06644E-001	9.04214E-002
		1133.66	@	0.25		
		1155.19	@	1.63		
		1207.68	@	0.45		
		1238.11		5.79		

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.575	1280.96	@	1.43		
		1377.67*		4.00	4.12930E-001	1.76522E-001
		1385.31	@	0.76		
		1401.50	@	1.27		
		1407.98	@	2.15		
		1509.23*	@	2.11	4.94706E-001	2.44361E-001
		1538.50	@	0.38		
		1543.32	@	0.20		
		1583.22	@	0.69		
		1594.73	@	0.25		
		1599.31	@	0.23		
		1661.28	@	1.15		
		1683.99	@	0.22		
		1729.59	@	2.92		
		1764.49*		15.40	6.67399E-001	8.29807E-002
		1847.42	@	2.11		
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.946	53.28	@	1.20		
		74.81*		6.44	1.58185E+000	1.79696E-001
		77.11*		10.80	1.66495E+000	1.35604E-001
		87.30*		4.84	9.45498E-001	1.36982E-001
		242.00*		7.43	7.99101E-001	7.66377E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	6.63071E-001	5.90158E-002
		351.93*		37.60	5.78964E-001	3.86063E-002
		462.00*	@	0.22	1.28857E+001	3.15406E+000
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.799	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	1.45943E+000	1.39429E-001
Ra-226	0.778	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	1.72742E+000	2.76028E-001
Ac-228	0.839	99.50	@	1.26		
		129.07*	@	2.50	2.08704E-001	2.39964E-001
		209.25*		3.97	8.70392E-001	2.10235E-001
		270.24*		3.55	8.75766E-001	2.20619E-001
		328.00*		3.04	6.44134E-001	2.22445E-001
		338.32*		11.40	6.93086E-001	7.93810E-002
		409.46	@	2.02		
		463.00*		4.45	6.44930E-001	1.59500E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	7.70469E-001	2.28746E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.839	835.70	@	1.70		
		911.20*		26.20	7.53078E-001	6.39414E-002
		964.79*		4.99	5.86642E-001	1.24971E-001
		968.96*		15.90	7.72094E-001	6.99678E-002
		1588.20*		3.06	1.24254E+000	2.68820E-001
		1630.62	@	1.52		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 1.000 keV
Nuclide confidence index threshold = 0.45
Errors quoted at 1.000 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/GWET)	Wt mean Activity Uncertainty
	K-40		0.990	1.353287E+001	4.941268E-001
X	Cd-109		0.937		
	Eu-152m		0.982	4.612496E-002	8.094695E-003
	Tl-208	@	0.836	2.341389E-001	1.634166E-002
	Bi-211		0.895	1.113493E-001	1.833293E-001
	Bi-212	@	0.568	6.642377E-001	1.358412E-001
	Pb-212	@	0.985	6.461834E-001	3.248997E-002
	Bi-214	@	0.575	5.258264E-001	2.985841E-002
	Pb-214	@	0.946	5.404916E-001	5.059398E-002
	Ra-224	@	0.799	4.723084E-001	1.663184E-001
	Ra-226	@	0.778	1.727418E+000	2.760275E-001
	Ac-228	@	0.839	7.365421E-001	3.346043E-002

? = 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 1.000 sigma

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

Peak Locate Performed on: 12/16/2016 12:44:12 PM
Peak Locate From Channel: 100
Peak Locate To Channel: 8192

	Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
m	5	93.09	1.5798E-002	21.64	Tol.	Yb-169 Th-227 Th-234
	28	1078.44	7.4764E-004	198.57	S-Esc.	

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

Errors quoted at 1.000 sigma

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

Filename: ERT01,C:\GENIE2K\CAMFILES\SMP-A5-CS012-0006-01.CNF

Report Generated On	: 12/16/2016 2:49:57 PM
Sample Title	: A5-CS012-0006-01
Sample Description	: 450 cc Soil
Sample Identification	:
Sample Type	:
Sample Geometry	:
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 100 - 8192
Peak Area Range (in channels)	: 100 - 8192
Identification Energy Tolerance	: 1.000 keV
Sample Size	: 8.836E+002 GWET
Sample Taken On	: 12/8/2016 2:40:00 PM
Acquisition Started	: 12/16/2016 12:49:54 PM
Live Time	: 7200.0 seconds
Real Time	: 7201.9 seconds
Dead Time	: 0.03 %

Energy Calibration Used Done On	: 12/10/2016
Efficiency Calibration Used Done On	: 9/27/2016
Efficiency ID	: ERT0101

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

Detector Name: ERT01
Sample Title: A5-CS012-0006-01
Peak Analysis Performed on: 12/16/2016 2:49:57 PM
Peak Analysis From Channel: 100
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	152-	158	154.31	38.60	0.31	6.44E+000	20.34	2.15E+002
M	2	293-	319	299.96	75.02	1.01	2.75E+002	25.86	6.31E+002
m	3	293-	319	309.14	77.31	1.02	4.59E+002	29.65	5.27E+002
M	4	342-	365	349.07	87.29	0.81	1.10E+002	22.04	4.83E+002
m	5	342-	365	359.55	89.91	0.81	6.63E+001	19.77	5.49E+002
	6	735-	753	743.93	186.01	1.32	2.75E+002	46.33	5.53E+002
	7	832-	842	837.24	209.34	0.90	1.26E+002	29.72	3.15E+002
M	8	946-	973	954.53	238.67	1.08	1.36E+003	40.76	3.30E+002
m	9	946-	973	966.56	241.68	1.08	2.21E+002	19.69	2.78E+002
	10	1105-	1116	1108.83	277.24	0.63	5.40E+001	23.91	2.05E+002
	11	1174-	1187	1180.58	295.18	1.09	3.27E+002	32.23	2.58E+002
	12	1194-	1209	1200.45	300.15	1.00	7.73E+001	28.58	2.45E+002
	13	1306-	1321	1310.82	327.74	0.98	6.37E+001	26.07	2.03E+002
	14	1347-	1360	1353.09	338.31	1.02	2.68E+002	29.33	2.10E+002
	15	1393-	1421	1407.36	351.88	1.11	7.54E+002	45.42	2.83E+002
	16	1845-	1859	1850.93	462.77	0.42	8.08E+001	19.69	1.06E+002
	17	2034-	2055	2042.25	510.61	1.48	3.60E+002	30.00	1.42E+002
	18	2324-	2341	2331.97	583.04	1.57	4.88E+002	28.22	9.34E+001
	19	2426-	2445	2436.22	609.10	1.39	4.99E+002	29.44	1.05E+002
	20	2769-	2780	2775.05	693.82	0.48	7.62E+000	12.41	5.84E+001
	21	2902-	2917	2907.83	727.01	1.04	1.09E+002	19.03	8.36E+001
	22	3170-	3186	3178.20	794.61	0.36	5.70E+001	16.62	7.00E+001
	23	3432-	3449	3441.14	860.34	0.74	8.26E+001	16.34	5.64E+001
	24	3633-	3654	3643.68	910.98	1.35	3.76E+002	26.67	8.86E+001
	25	3730-	3742	3735.60	933.96	0.36	2.60E+001	11.65	4.10E+001
M	26	3849-	3885	3856.77	964.26	1.57	6.59E+001	10.52	5.78E+001
m	27	3849-	3885	3874.79	968.76	1.57	2.40E+002	17.17	6.18E+001
	28	4468-	4490	4479.73	1120.00	1.27	1.27E+002	19.68	6.65E+001
	29	5444-	5455	5449.48	1362.45	0.67	4.15E+000	7.34	1.88E+001
	30	5506-	5517	5511.46	1377.95	0.28	2.49E+001	8.70	2.01E+001
	31	5828-	5856	5843.68	1461.00	1.69	1.89E+003	44.55	1.89E+001
	32	6914-	6927	6920.93	1730.33	0.32	2.88E+001	7.54	1.02E+001
	33	7052-	7071	7060.56	1765.23	0.69	9.77E+001	11.37	9.28E+000

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

Errors quoted at 1.000 sigma

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

Detector Name: ERT01
Sample Geometry:
Sample Title: A5-CS012-0006-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\ERT_LIBRARY_LMDA.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	K-40	1460.82*	10.55	3.6318E-001	3.63E-001	1.3025E+001
	Co-60	1173.23	99.85	6.1354E-002	4.58E-002	1.7832E-002
		1332.49	99.98	4.5836E-002		-1.1463E-003
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	7.0499E+002	4.97E-002	-1.5905E+002
		661.66	84.99	4.9656E-002		5.4407E-003
+	Tl-208	72.80	2.02	5.0800E+000	3.98E-002	5.0563E-001
		74.97*	3.41	1.9080E+000		3.1278E+000
		84.90	1.51	4.1796E+000		4.3804E-001
		277.36*	6.31	4.0201E-001		2.0021E-001
		510.77*	22.60	2.0402E-001		2.9817E-001
		583.19*	84.50	3.9832E-002		2.2224E-001
		763.13	1.81	2.7633E+000		-1.5531E+000
		860.56*	12.42	2.7284E-001		3.4225E-001
+	Bi-212	39.86	1.06	3.5238E+002	5.20E-001	-3.8034E+002
		727.33*	6.74	5.2009E-001		7.4282E-001
		785.37	1.11	4.3916E+000		3.9059E+000
		1620.74	1.51	2.8212E+000		-1.4176E-001
		1806.00	0.09	3.6975E+001		-5.6567E+000
+	Pb-212	74.81*	10.40	6.2561E-001	6.24E-002	1.0255E+000
		77.11*	17.50	3.0744E-001		9.1753E-001
		87.30*	7.81	4.7625E-001		3.5728E-001
		115.18	0.59	6.8764E+000		1.9655E+000
		238.63*	43.30	6.2374E-002		6.6461E-001
		300.09*	3.28	9.6557E-001		5.7771E-001
+	Bi-214	76.86*	0.43	1.2531E+001	8.08E-002	3.7397E+001
		89.81*	0.24	1.5176E+001		6.4209E+000
		386.77	0.30	1.2465E+001		2.8865E+000
		454.77	0.29	1.2996E+001		3.4906E+000
		609.31*	45.49	8.0766E-002		4.3883E-001
		665.45	1.53	2.8300E+000		7.3548E-001
		703.11	0.48	9.7778E+000		1.7224E+000
		719.86	0.39	1.0709E+001		-7.3593E+000
		768.36	4.89	1.1196E+000		1.2832E+000
		786.10	0.31	1.5544E+001		1.0535E+001
		806.17	1.26	3.4599E+000		1.8177E+000
		934.06*	3.10	8.9663E-001		4.5236E-001
		964.08*	0.36	8.0156E+000		1.0022E+001
		1051.96	0.31	1.5482E+001		-3.8376E+000
		1120.29*	14.91	3.1897E-001		5.1872E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.0326E+001	8.08E-002	-5.5671E+000
		1155.19	1.63	3.3569E+000		-1.5203E+000
		1207.68	0.45	1.4577E+001		9.1238E+000
		1238.11	5.79	1.2825E+000		1.1917E+000
		1280.96	1.43	3.9712E+000		2.8124E+000
		1377.67*	4.00	6.3049E-001		4.3809E-001
		1385.31	0.76	5.5288E+000		-1.0479E+000
		1401.50	1.27	3.3645E+000		-3.0777E+000
		1407.98	2.15	2.0914E+000		-1.4496E+000
		1509.23	2.11	2.0497E+000		-3.1220E-001
		1538.50	0.38	8.9462E+000		-5.5963E+000
		1543.32	0.20	1.6455E+001		6.8413E+000
		1583.22	0.69	6.4824E+000		2.2642E+000
		1594.73	0.25	1.9395E+001		7.8603E+000
		1599.31	0.23	1.7467E+001		-6.4651E+000
		1661.28	1.15	2.8628E+000		9.0650E-001
		1683.99	0.22	1.6013E+001		8.7167E+000
		1729.59*	2.92	7.7386E-001		8.1451E-001
		1764.49*	15.40	1.7236E-001		5.0317E-001
		1847.42	2.11	2.1518E+000		1.6954E+000
		1873.16	0.22	1.7726E+001		-3.9313E+000
>		2118.55	1.14	0.0000E+000		0.0000E+000
>		2204.21	5.08	0.0000E+000		0.0000E+000
+	Pb-214	53.28	1.20	3.1812E+001	1.24E-001	8.3283E-001
		74.81*	6.44	1.0024E+000		1.6432E+000
		77.11*	10.80	4.9427E-001		1.4751E+000
		87.30*	4.84	7.6248E-001		5.7200E-001
		242.00*	7.43	3.2562E-001		6.4104E-001
		258.87	0.52	6.5186E+000		6.1039E-001
		274.80	0.47	8.0248E+000		-1.0549E+001
		295.22*	19.30	1.5818E-001		4.0815E-001
		351.93*	37.60	1.2351E-001		5.3665E-001
		462.00*	0.22	1.2485E+001		1.1979E+001
		533.66	0.19	2.0767E+001		9.1721E-001
		785.96	1.07	4.4929E+000		2.9165E+000
		839.04	0.59	8.6837E+000		9.6594E+000
+	Ra-224	81.07	0.13	4.9814E+001	5.95E-001	-1.3914E+001
		83.78	0.22	2.8425E+001		9.0654E+000
		240.99*	4.10	5.9474E-001		1.1708E+000
+	Ra-226	81.07	0.20	3.2866E+001	1.13E+000	-9.1803E+000
		83.78	0.33	1.8659E+001		5.9506E+000
		94.90	0.15	3.4139E+001		4.5719E+001
		186.21*	3.59	1.1267E+000		1.2195E+000
+	Ac-228	99.50	1.26	3.2848E+000	1.82E-001	3.8235E-001
		129.07	2.50	1.6671E+000		9.0289E-001
		209.25*	3.97	6.7011E-001		6.4799E-001
		270.24	3.55	1.0994E+000		6.2868E-001
		328.00*	3.04	1.0079E+000		5.4411E-001
		338.32*	11.40	2.6939E-001		6.2251E-001
		409.46	2.02	1.9802E+000		1.2503E+000

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	6.2492E-001	1.82E-001	5.9962E-001
		755.31	1.03	4.3570E+000		-1.7057E+000
		772.29	1.52	3.4602E+000		6.2589E-001
		794.94*	4.31	8.0861E-001		6.4455E-001
		835.70	1.70	3.0073E+000		1.1725E+000
		911.20*	26.20	1.8183E-001		7.5821E-001
		964.79*	4.99	5.8769E-001		7.3479E-001
		968.96*	15.90	1.9102E-001		8.4191E-001
		1588.20	3.06	1.6200E+000		-1.1488E+000
		1630.62	1.52	2.4308E+000		-2.0534E+000
	Th-228	84.37	1.26	4.9605E+000	4.96E+000	1.2006E+000
		131.61	0.13	3.0980E+001		2.2364E+000
		166.41	0.10	3.6999E+001		1.7793E+000
		215.98	0.25	1.4501E+001		-1.3960E+000
	Pa-234m	258.23	0.07	4.6350E+001	5.66E+000	1.2154E+001
		742.81	0.09	4.3984E+001		-2.4761E+001
		766.36	0.32	1.6273E+001		-6.2605E+000
		786.27	0.05	8.9911E+001		6.0938E+001
		1001.03	0.85	5.6562E+000		-1.0309E+000
		1737.77	0.02	1.7353E+002		-3.7405E+001
	Th-234	63.30	3.75	4.2885E+000	1.30E+000	1.0356E+000
		92.59	4.33	1.3034E+000		1.4392E+000
		112.81	0.22	1.8562E+001		-2.9349E+000

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or has not been calculated
@ = Half-life too short to be able to perform the decay correction

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

Sample Title: A5-CS012-0006-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\ERT_LIBRARY_LMDA.NLB

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

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
K-40	0.995	1460.82*		10.55	1.30254E+001	4.64400E-001
Eu-152m	0.999	89.85*		69.90	2.24381E-002	6.72989E-003
Tl-208	0.933	72.80	@	2.02		
		74.97*	@	3.41	3.12777E+000	3.13352E-001
		84.90	@	1.51		
		277.36*		6.31	2.00209E-001	8.90189E-002
		510.77*	@	22.60	2.98169E-001	4.91568E-002
		583.19*		84.50	2.22236E-001	1.49506E-002
		763.13	@	1.81		
		860.56*		12.42	3.42251E-001	6.82312E-002
Bi-211	0.891	351.03*		13.00	1.55320E+000	1.13834E-001
Bi-212	0.564	39.86	@	1.06		
		727.33*		6.74	7.42815E-001	1.31270E-001
		785.37		1.11		
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.985	74.81*		10.40	1.02555E+000	1.06918E-001
		77.11*		17.50	9.17533E-001	7.23062E-002
		87.30*		7.81	3.57277E-001	7.31447E-002
		115.18	@	0.59		
		238.63*		43.30	6.64607E-001	3.61840E-002
		300.09*		3.28	5.77709E-001	2.14968E-001
Bi-214	0.603	76.86*	@	0.43	3.73971E+001	2.97423E+000
		89.81*	@	0.24	6.42089E+000	1.93955E+000
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	4.38834E-001	2.91637E-002
		665.45	@	1.53		
		703.11	@	0.48		
		719.86	@	0.39		
		768.36		4.89		
		786.10	@	0.31		
		806.17	@	1.26		
		934.06*		3.10	4.52359E-001	2.03382E-001
		964.08*	@	0.36	1.00218E+001	1.65055E+000
		1051.96	@	0.31		
		1120.29*		14.91	5.18716E-001	8.16832E-002
		1133.66	@	0.25		
		1155.19	@	1.63		
		1207.68	@	0.45		
		1238.11		5.79		

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.603	1280.96	@	1.43		
		1377.67*		4.00	4.38091E-001	1.53540E-001
		1385.31	@	0.76		
		1401.50	@	1.27		
		1407.98	@	2.15		
		1509.23	@	2.11		
		1538.50	@	0.38		
		1543.32	@	0.20		
		1583.22	@	0.69		
		1594.73	@	0.25		
		1599.31	@	0.23		
		1661.28	@	1.15		
		1683.99	@	0.22		
		1729.59*	@	2.92	8.14509E-001	2.15069E-001
		1764.49*		15.40	5.03167E-001	6.47760E-002
		1847.42	@	2.11		
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.945	53.28	@	1.20		
		74.81*		6.44	1.64320E+000	1.73123E-001
		77.11*		10.80	1.47511E+000	1.21333E-001
		87.30*		4.84	5.72003E-001	1.17605E-001
		242.00*		7.43	6.41038E-001	6.42853E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	4.08151E-001	4.36660E-002
		351.93*		37.60	5.36645E-001	3.89612E-002
		462.00*	@	0.22	1.19793E+001	2.99106E+000
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.822	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	1.17085E+000	1.17004E-001
Ra-226	0.774	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	1.21949E+000	2.59005E-001
Ac-228	0.654	99.50	@	1.26		
		129.07	@	2.50		
		209.25*		3.97	6.47989E-001	1.56669E-001
		270.24		3.55		
		328.00*		3.04	5.44105E-001	2.24343E-001
		338.32*		11.40	6.22513E-001	7.54885E-002
		409.46	@	2.02		
		463.00*		4.45	5.99619E-001	1.51210E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	6.44551E-001	1.89632E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.654	835.70	@	1.70		
		911.20*		26.20	7.58213E-001	6.19173E-002
		964.79*		4.99	7.34787E-001	1.21168E-001
		968.96*		15.90	8.41905E-001	6.87381E-002
		1588.20		3.06		
		1630.62	@	1.52		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 1.000 keV
Nuclide confidence index threshold = 0.45
Errors quoted at 1.000 sigma

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***** 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 *****
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	Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/GWET)	Wt mean Activity Uncertainty
	K-40		0.995	1.302539E+001	4.643998E-001
X	Cd-109		0.916		
	Eu-152m		0.999	2.084454E-002	6.727691E-003
	Tl-208	@	0.933	2.278370E-001	1.429530E-002
	Bi-211		0.891	5.550790E-001	1.591234E-001
	Bi-212	@	0.564	7.428150E-001	1.312699E-001
	Pb-212	@	0.985	5.966700E-001	2.914537E-002
	Bi-214	@	0.603	4.560152E-001	2.470665E-002
	Pb-214	@	0.945	3.448605E-001	3.920800E-002
	Ra-224	@	0.822	5.409644E-001	1.364352E-001
	Ra-226	@	0.774	1.219490E+000	2.590052E-001
	Ac-228	@	0.654	7.273076E-001	3.244603E-002

? = 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 1.000 sigma

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

Peak Locate Performed on: 12/16/2016 2:49:57 PM
Peak Locate From Channel: 100
Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
1	38.60	8.9429E-004	315.89	Tol.	I-129 Pa-231
20	693.82	1.0585E-003	162.83		
29	1362.45	5.7669E-004	176.73	Sum	

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

Errors quoted at 1.000 sigma