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)
KE/103016	450 cc SOIL	N002-A05-S014-2434-01	10/25/16 1554	547.5	GWET	7200	
KE/103016	450 cc SOIL	N002-A05-S013-1218-01	10/25/16 1500	614.1	GWET	7200	
KE/103016	450 cc SOIL	N002-A05-S015-1016-01	10/25/16 1500	581.3	GWET	7200	
KE/103[illegible]16	450 cc SOIL	N002-A05-S016-0818-01	10/25/16 1500	647.6	GWET	7200	
KE/103[illegible]16	450 cc SOIL	N002-A05-S013-1824-01	10/25/16 1500	596.9	GWET	7200	
KE/103[illegible]16	450 cc SOIL	N002-A05-S016-1828-01	10/25/16 1500	542.5	GWET	7200	
KE/103[illegible]16	450 cc SOIL	N002-A05-S015-1622-01	10/25/16 1500	634.7	GWET	7200	
KE/103116	450 cc SOIL	N002-A05-S016-2838-01	10/25/16 1500	447.1	GWET	7200	
KE/103116	450 cc SOIL	N002-A05-S012-3036-01	10/24/16 1500	510.5	GWET	7200	
11/01/16 KE	450 cc SOIL	N002-A05-S013-2430-01	10/24/16 1500	534.6	GWET	7200	

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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-N002-A05-S012-3036-01.CNF

Report Generated On	: 10/31/2016 7:54:44 PM
Sample Title	: N002-A05-S012-3036-01
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	: 5.105E+002 GWET
Sample Taken On	: 10/24/2016 4:42:00 PM
Acquisition Started	: 10/31/2016 5:54:40 PM
Live Time	: 7200.0 seconds
Real Time	: 7202.0 seconds
Dead Time	: 0.03 %

Energy Calibration Used Done On	: 10/24/2016
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: N002-A05-S012-3036-01
Peak Analysis Performed on: 10/31/2016 7:54:44 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	294-	320	300.37	75.05	0.95	2.95E+002	25.40	5.39E+002
m	2	294-	320	309.28	77.28	0.95	4.69E+002	29.42	5.27E+002
M	3	346-	384	349.57	87.35	1.15	1.65E+002	22.21	4.29E+002
m	4	346-	384	360.54	90.09	1.15	1.15E+002	20.94	5.62E+002
m	5	346-	384	371.74	92.89	1.16	3.27E+002	27.02	5.29E+002
	6	514-	525	517.43	129.32	0.48	6.30E+001	32.09	3.81E+002
	7	735-	757	744.08	185.99	1.21	3.71E+002	52.33	6.09E+002
	8	833-	845	838.01	209.47	0.98	1.12E+002	30.95	3.19E+002
M	9	948-	977	954.95	238.71	1.12	1.12E+003	37.81	3.22E+002
m	10	948-	977	967.79	241.92	1.13	3.15E+002	22.12	2.64E+002
	11	1072-	1088	1081.74	270.41	0.86	1.21E+002	30.62	2.61E+002
	12	1172-	1189	1181.18	295.27	1.12	5.47E+002	37.05	2.54E+002
	13	1190-	1205	1201.45	300.34	0.88	8.85E+001	26.89	2.11E+002
	14	1348-	1359	1353.22	338.28	1.21	2.20E+002	23.56	1.33E+002
	15	1399-	1415	1407.83	351.94	1.21	8.90E+002	38.40	1.87E+002
	16	1845-	1859	1852.66	463.16	0.41	7.42E+001	19.39	1.05E+002
	17	2031-	2054	2043.30	510.82	1.50	2.75E+002	31.36	1.77E+002
	18	2324-	2341	2332.72	583.18	1.26	4.21E+002	29.07	1.31E+002
	19	2430-	2447	2437.07	609.27	1.23	7.78E+002	33.59	1.06E+002
	20	2638-	2655	2645.98	661.50	1.74	1.14E+002	19.93	8.48E+001
	21	2901-	2917	2908.98	727.26	0.64	9.46E+001	19.06	8.54E+001
	22	3066-	3083	3074.12	768.55	0.40	7.42E+001	18.53	8.28E+001
	23	3635-	3656	3645.31	911.35	1.43	2.99E+002	23.75	7.08E+001
	24	3731-	3744	3736.87	934.25	1.42	5.80E+001	12.94	3.90E+001
M	25	3850-	3886	3857.90	964.51	1.43	4.10E+001	9.61	7.38E+001
m	26	3850-	3886	3876.49	969.15	1.43	1.80E+002	15.61	7.32E+001
	27	4000-	4011	4005.45	1001.40	0.97	2.35E+001	11.48	4.25E+001
	28	4471-	4488	4481.25	1120.36	1.35	1.36E+002	18.30	6.17E+001
	29	5507-	5520	5513.77	1378.51	0.70	3.29E+001	9.25	1.91E+001
	30	5833-	5859	5846.14	1461.61	1.75	1.41E+003	39.01	2.68E+001
	31	6368-	6380	6373.46	1593.45	0.28	1.92E+001	7.81	1.58E+001
	32	6916-	6929	6922.94	1730.83	0.41	3.13E+001	7.44	8.73E+000
	33	7053-	7073	7062.71	1765.78	2.21	1.42E+002	14.57	1.89E+001

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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***** N U C L I D E M D A R E P O R T *****
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Detector Name: ERT01
Sample Geometry:
Sample Title: N002-A05-S012-3036-01
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	6.9338E-001	6.93E-001	1.6675E+001
	Co-60	1173.23	99.85	9.7492E-002	7.73E-002	-3.3142E-002
		1332.49	99.98	7.7259E-002		-2.9281E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
+	Cs-137	32.06	5.54	1.2643E+003	7.00E-002	-5.3915E+002
		661.66*	84.99	7.0002E-002		9.8736E-002
+	Tl-208	72.80	2.02	8.8769E+000	8.00E-002	1.6445E-001
		74.97*	3.41	3.0500E+000		5.7908E+000
		84.90	1.51	6.9288E+000		-5.8958E+000
		277.36	6.31	1.0348E+000		3.0959E-001
		510.77*	22.60	3.8988E-001		2.8527E-001
		583.19*	84.50	7.9968E-002		3.3077E-001
		763.13	1.81	4.4435E+000		-1.0258E+000
		860.56	12.42	7.0407E-001		3.8335E-001
+	Bi-212	39.86	1.06	6.6937E+002	9.27E-001	-1.5787E+001
		727.33*	6.74	9.2654E-001		1.1110E+000
		785.37	1.11	6.9537E+000		1.9663E+000
		1620.74	1.51	4.4752E+000		7.6390E-002
		1806.00	0.09	6.9619E+001		-1.4263E+001
+	Pb-212	74.81*	10.40	1.0001E+000	1.07E-001	1.8987E+000
		77.11*	17.50	5.3254E-001		1.6252E+000
		87.30*	7.81	7.7614E-001		9.1948E-001
		115.18	0.59	1.1084E+001		4.3520E-002
		238.63*	43.30	1.0662E-001		9.4157E-001
		300.09*	3.28	1.5504E+000		1.1451E+000
+	Bi-214	76.86*	0.43	2.1724E+001	1.37E-001	6.6297E+001
		89.81*	0.24	2.6470E+001		1.9213E+001
		386.77	0.30	2.1015E+001		-3.1945E+000
		454.77	0.29	2.2269E+001		-3.4248E+000
		609.31*	45.49	1.3663E-001		1.1839E+000
		665.45	1.53	5.8830E+000		1.1626E+000
		703.11	0.48	1.5664E+001		6.4080E-001
		719.86	0.39	1.7511E+001		-8.7679E+000
		768.36*	4.89	1.3196E+000		1.2399E+000
		786.10	0.31	2.5379E+001		7.8981E+000
		806.17	1.26	6.9587E+000		5.6066E+000
		934.06*	3.10	1.5493E+000		1.7486E+000
		964.08*	0.36	1.5588E+001		1.0810E+001
		1051.96	0.31	2.4253E+001		-1.0330E+001
		1120.29*	14.91	4.8421E-001		9.6710E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	3.4617E+001	1.37E-001	-2.4145E+000
		1155.19	1.63	5.5355E+000		-3.3840E+000
		1207.68	0.45	2.2017E+001		6.2595E+000
		1238.11	5.79	2.0282E+000		-3.7136E-001
		1280.96	1.43	6.5455E+000		3.6455E-001
		1377.67*	4.00	1.1093E+000		1.0016E+000
		1385.31	0.76	9.7529E+000		-6.8205E+000
		1401.50	1.27	6.0034E+000		-3.8558E-001
		1407.98	2.15	3.8591E+000		8.3969E-002
		1509.23	2.11	3.8925E+000		-1.5237E-001
		1538.50	0.38	1.7362E+001		5.5325E+000
		1543.32	0.20	3.5610E+001		2.2286E+001
		1583.22	0.69	1.0427E+001		-7.1985E+000
		1594.73	0.25	3.6920E+001		4.6506E+001
		1599.31	0.23	3.2727E+001		-1.0483E+001
		1661.28	1.15	5.7684E+000		-2.1250E-001
		1683.99	0.22	2.5132E+001		7.7870E-001
		1729.59	2.92	2.6258E+000		1.5222E+000
		1764.49	15.40	8.7241E-001		1.4927E+000
		1847.42	2.11	3.3307E+000		2.6995E+000
		1873.16	0.22	2.8040E+001		2.2855E+001
>		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	5.5849E+001	1.45E-001	-2.0166E+001
		74.81*	6.44	1.6037E+000		3.0449E+000
		77.11*	10.80	8.5690E-001		2.6151E+000
		87.30*	4.84	1.2437E+000		1.4734E+000
		242.00*	7.43	5.4954E-001		1.5827E+000
		258.87	0.52	1.1575E+001		-6.0562E+000
		274.80	0.47	1.3375E+001		2.6500E+000
		295.22*	19.30	2.9443E-001		1.1815E+000
		351.93*	37.60	1.4504E-001		1.0978E+000
		462.00	0.22	3.1504E+001		2.1593E+001
		533.66	0.19	3.4723E+001		-2.0814E+001
		785.96	1.07	7.3700E+000		-6.4321E-001
		839.04	0.59	1.5223E+001		1.6019E+001
+	Ra-224	81.07	0.13	8.5244E+001	1.00E+000	-1.4467E+001
		83.78	0.22	4.7514E+001		-3.4425E+001
		240.99*	4.10	1.0029E+000		2.8882E+000
+	Ra-226	81.07	0.20	5.6290E+001	2.18E+000	-9.5534E+000
		83.78	0.33	3.1216E+001		-2.2617E+001
		94.90	0.15	5.7979E+001		1.5294E+000
		186.21*	3.59	2.1810E+000		3.0144E+000
+	Ac-228	99.50	1.26	5.3253E+000	2.82E-001	2.0708E-001
		129.07*	2.50	1.9910E+000		8.5176E-001
		209.25*	3.97	1.2244E+000		9.8922E-001
		270.24*	3.55	1.5214E+000		1.3627E+000
		328.00	3.04	2.1986E+000		-2.0816E-001
		338.32*	11.40	3.5336E-001		8.8263E-001
		409.46	2.02	3.2102E+000		1.9866E+000

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	1.0720E+000	2.82E-001	9.5339E-001
		755.31	1.03	7.5347E+000		8.3427E-001
		772.29	1.52	5.7950E+000		-3.4700E-001
		794.94	4.31	1.9069E+000		4.2845E-001
		835.70	1.70	5.2343E+000		-9.2803E-001
		911.20*	26.20	2.8168E-001		1.0388E+000
		964.79*	4.99	1.1419E+000		7.9188E-001
		968.96*	15.90	3.5830E-001		1.0911E+000
		1588.20	3.06	3.0286E+000		3.6372E-001
		1630.62	1.52	4.7507E+000		5.0063E-001
	Th-228	84.37	1.26	8.2459E+000	8.25E+000	-7.1216E+000
		131.61	0.13	5.3522E+001		1.6440E+001
		166.41	0.10	6.1618E+001		-1.4341E+001
		215.98	0.25	2.5317E+001		3.1781E+000
	Pa-234m	258.23	0.07	8.3095E+001	1.07E+001	7.7074E+000
		742.81	0.09	7.1782E+001		-2.2196E+001
		766.36	0.32	2.7247E+001		-7.7020E-001
		786.27	0.05	1.4716E+002		7.8318E+001
		1001.03	0.85	1.0694E+001		6.5686E+000
		1737.77	0.02	3.3289E+002		-2.9878E+002
	Th-234	63.30	3.75	7.6665E+000	2.18E+000	3.7867E+000
		92.59	4.33	2.1846E+000		4.7584E+000
		112.81	0.22	3.0389E+001		5.6010E+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 *****
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Sample Title: N002-A05-S012-3036-01
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	0.905	1460.82*	10.55	1.66748E+001	6.45656E-001
Cs-137	0.992	32.06 @	5.54		
		661.66*	84.99	9.87360E-002	1.74629E-002
Eu-152m	0.990	89.85*	69.90	6.71317E-002	1.24150E-002
Tl-208	0.713	72.80 @	2.02		
		74.97* @	3.41	5.79080E+000	5.37573E-001
		84.90 @	1.51		
		277.36	6.31		
		510.77* @	22.60	2.85268E-001	8.73835E-002
		583.19*	84.50	3.30773E-001	2.56804E-002
		763.13 @	1.81		
		860.56	12.42		
TL-208e	0.874	1592.53*	99.16	2.62096E-002	1.07993E-002
Bi-211	0.876	351.03*	13.00	3.17700E+000	1.89633E-001
Bi-212	0.574	39.86 @	1.06		
		727.33*	6.74	1.11105E+000	2.26486E-001
		785.37	1.11		
		1620.74	1.51		
		1806.00 @	0.09		
Pb-212	0.984	74.81*	10.40	1.89872E+000	1.84576E-001
		77.11*	17.50	1.62519E+000	1.25512E-001
		87.30*	7.81	9.19482E-001	1.31061E-001
		115.18 @	0.59		
		238.63*	43.30	9.41566E-001	5.35148E-002
		300.09*	3.28	1.14508E+000	3.51029E-001
Bi-214	0.493	76.86* @	0.43	6.62974E+001	5.16920E+000
		89.81* @	0.24	1.92127E+001	3.61935E+000
		386.77 @	0.30		
		454.77 @	0.29		
		609.31*	45.49	1.18395E+000	6.26702E-002
		665.45 @	1.53		
		703.11 @	0.48		
		719.86 @	0.39		
		768.36*	4.89	1.23991E+000	3.11097E-001
		786.10 @	0.31		
		806.17 @	1.26		
		934.06*	3.10	1.74861E+000	3.92498E-001
		964.08* @	0.36	1.08098E+001	2.56788E+000
		1051.96 @	0.31		
		1120.29*	14.91	9.67099E-001	1.32012E-001
		1133.66 @	0.25		

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.493	1155.19	@	1.63		
		1207.68	@	0.45		
		1238.11		5.79		
		1280.96	@	1.43		
		1377.67*		4.00	1.00156E+000	2.83005E-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		
		1764.49		15.40		
		1847.42	@	2.11		
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.943	53.28	@	1.20		
		74.81*		6.44	3.04489E+000	2.99595E-001
		77.11*		10.80	2.61506E+000	2.11154E-001
		87.30*		4.84	1.47337E+000	2.11857E-001
		242.00*		7.43	1.58266E+000	1.32929E-001
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	1.18150E+000	9.39496E-002
		351.93*		37.60	1.09776E+000	6.45948E-002
		462.00	@	0.22		
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.770	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	2.88820E+000	2.41370E-001
Ra-226	0.772	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	3.01437E+000	5.13064E-001
Ac-228	0.668	99.50	@	1.26		
		129.07*	@	2.50	8.51759E-001	4.35186E-001
		209.25*		3.97	9.89219E-001	2.80106E-001
		270.24*		3.55	1.36266E+000	3.50475E-001
		328.00		3.04		
		338.32*		11.40	8.82627E-001	1.05278E-001
		409.46	@	2.02		
		463.00*		4.45	9.53393E-001	2.56485E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.668	755.31	@	1.03		
		772.29	@	1.52		
		794.94		4.31		
		835.70	@	1.70		
		911.20*		26.20	1.03877E+000	9.31977E-002
		964.79*		4.99	7.91880E-001	1.88225E-001
		968.96*		15.90	1.09110E+000	1.04020E-001
		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		0.905	1.667485E+001	6.456558E-001
X	Cd-109		0.928		
	Cs-137	@	0.992	9.873596E-002	1.746289E-002
	Eu-152m		0.990	6.310660E-002	1.240310E-002
	Tl-208	@	0.713	3.325386E-001	2.550782E-002
	TL-208e		0.874	2.620964E-002	1.079929E-002
	Bi-211		0.876	1.424400E-001	2.936515E-001
	Bi-212	@	0.574	1.111048E+000	2.264862E-001
	Pb-212	@	0.984	8.792020E-001	4.594746E-002
	Bi-214	@	0.493	1.151974E+000	5.398500E-002
	Pb-214	@	0.943	1.048546E+000	7.911655E-002
	Ra-224	@	0.770	9.747033E-001	2.790420E-001
	Ra-226	@	0.772	3.014374E+000	5.130643E-001
	Ac-228	@	0.668	9.914272E-001	5.009478E-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: 10/31/2016 7:54:44 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	92.89	3.4922E-002	11.00	Tol.	Yb-169 Th-227 Th-234
	27	1001.40	3.2592E-003	48.94	Sum	
	32	1730.83	4.3437E-003	23.78	Sum	
	33	1765.78	1.9009E-002	10.70		

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-N002-A05-S013-2430-01.CNF

Report Generated On	: 11/1/2016 9:36:45 AM
Sample Title	: N002-A05-S013-2430-01
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	: 5.346E+002 GWET
Sample Taken On	: 10/24/2016 3:00:00 PM
Acquisition Started	: 11/1/2016 7:36:42 AM
Live Time	: 7200.0 seconds
Real Time	: 7201.6 seconds
Dead Time	: 0.02 %

Energy Calibration Used Done On	: 10/24/2016
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: N002-A05-S013-2430-01
Peak Analysis Performed on: 11/1/2016 9:36:46 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	294-	317	299.97	74.95	1.08	2.39E+002	22.68	4.04E+002
m	2	294-	317	309.01	77.21	1.08	3.95E+002	26.75	4.09E+002
	3	343-	355	348.92	87.19	0.92	1.26E+002	35.68	4.37E+002
	4	366-	383	371.31	92.79	1.47	2.92E+002	43.27	4.82E+002
	5	736-	749	744.67	186.13	1.00	2.39E+002	32.17	2.89E+002
	6	786-	796	791.95	197.96	0.60	2.86E+001	23.53	2.20E+002
	7	830-	844	837.72	209.40	1.00	9.24E+001	28.70	2.54E+002
M	8	948-	976	954.74	238.66	1.05	8.49E+002	32.98	2.59E+002
m	9	948-	976	967.58	241.87	1.05	2.25E+002	19.14	2.19E+002
	10	1174-	1192	1180.98	295.22	1.05	4.22E+002	34.68	2.21E+002
	11	1192-	1204	1200.33	300.06	0.45	5.43E+001	20.52	1.40E+002
	12	1343-	1360	1352.95	338.22	1.08	1.65E+002	26.62	1.67E+002
	13	1400-	1417	1407.61	351.88	1.25	7.72E+002	35.57	1.52E+002
	14	2030-	2051	2042.77	510.69	1.36	2.57E+002	27.68	1.36E+002
	15	2324-	2340	2332.11	583.03	1.13	2.73E+002	23.74	9.31E+001
	16	2428-	2448	2436.78	609.20	1.45	6.06E+002	30.11	8.45E+001
	17	2639-	2655	2646.19	661.55	0.49	5.99E+001	17.43	7.71E+001
	18	2903-	2914	2908.36	727.10	0.81	4.28E+001	13.05	4.92E+001
	19	3066-	3080	3072.91	768.24	0.60	5.85E+001	14.19	4.95E+001
	20	3172-	3184	3178.18	794.56	0.80	3.69E+001	12.16	4.21E+001
	21	3433-	3450	3439.79	859.97	0.55	5.95E+001	12.80	3.15E+001
	22	3636-	3653	3644.09	911.05	1.21	1.93E+002	19.54	5.81E+001
M	23	3852-	3885	3859.20	964.83	1.43	5.01E+001	8.54	2.79E+001
m	24	3852-	3885	3874.71	968.71	1.43	1.11E+002	12.20	4.22E+001
	25	4471-	4492	4481.21	1120.35	1.43	1.31E+002	19.05	6.21E+001
	26	4948-	4962	4954.83	1238.76	0.88	4.59E+001	13.79	5.01E+001
	27	5504-	5520	5511.63	1377.97	0.30	3.93E+001	8.90	1.28E+001
	28	5833-	5858	5844.56	1461.21	2.09	1.06E+003	34.45	2.89E+001
	29	6349-	6361	6355.45	1588.95	0.46	2.15E+001	6.21	6.50E+000
	30	7054-	7072	7061.66	1765.52	0.51	8.61E+001	11.79	1.59E+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: N002-A05-S013-2430-01
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	6.7565E-001	6.76E-001	1.2006E+001
	Co-60	1173.23	99.85	8.1627E-002	6.11E-002	-2.2938E-002
		1332.49	99.98	6.1142E-002		-2.6355E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
+	Cs-137	32.06	5.54	1.0775E+003	6.22E-002	5.5100E+002
		661.66*	84.99	6.2217E-002		4.9454E-002
+	Tl-208	72.80	2.02	7.6320E+000	6.40E-002	3.6250E-001
		74.97*	3.41	2.5416E+000		4.5085E+000
		84.90	1.51	5.9856E+000		1.3534E+000
		277.36	6.31	8.8949E-001		2.1641E-001
		510.77*	22.60	3.3040E-001		2.2556E-001
		583.19*	84.50	6.4010E-002		2.0321E-001
		763.13	1.81	3.7349E+000		-1.2821E+000
		860.56*	12.42	3.4358E-001		4.0747E-001
+	Bi-212	39.86	1.06	5.6108E+002	6.20E-001	-1.9698E+001
		727.33*	6.74	6.1957E-001		4.8044E-001
		785.37	1.11	6.1580E+000		3.7067E+000
		1620.74	1.51	3.6161E+000		1.8465E+000
		1806.00	0.09	6.5652E+001		-1.2227E+001
+	Pb-212	74.81*	10.40	8.3334E-001	9.21E-002	1.4783E+000
		77.11*	17.50	4.5051E-001		1.3123E+000
		87.30*	7.81	8.5807E-001		6.7731E-001
		115.18	0.59	9.3846E+000		1.0252E+000
		238.63*	43.30	9.2069E-002		6.8071E-001
		300.09*	3.28	1.1335E+000		6.7094E-001
+	Bi-214	76.86*	0.43	1.8366E+001	1.21E-001	5.3501E+001
		89.81	0.24	3.5135E+001		-5.7696E+000
		386.77	0.30	1.7338E+001		1.0162E+000
		454.77	0.29	1.9265E+001		1.0288E+001
		609.31*	45.49	1.2123E-001		8.8024E-001
		665.45	1.53	4.9131E+000		-1.3931E-001
		703.11	0.48	1.3060E+001		-2.9105E+000
		719.86	0.39	1.5371E+001		4.6303E+000
		768.36*	4.89	9.2905E-001		9.3257E-001
		786.10	0.31	2.2553E+001		1.1118E+001
		806.17	1.26	4.9848E+000		1.5120E+000
		934.06	3.10	2.3435E+000		1.3022E+000
		964.08*	0.36	9.4140E+000		1.2600E+001
		1051.96	0.31	2.2697E+001		-3.6321E-001
		1120.29*	14.91	4.9829E-001		8.8737E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.8106E+001	1.21E-001	-7.7904E+000
		1155.19	1.63	5.1322E+000		2.9041E+000
		1207.68	0.45	1.8513E+001		6.5966E-001
		1238.11*	5.79	1.0940E+000		8.5709E-001
		1280.96	1.43	5.2969E+000		-2.5788E+000
		1377.67*	4.00	9.3400E-001		1.1409E+000
		1385.31	0.76	8.8992E+000		4.5989E-001
		1401.50	1.27	5.1992E+000		-5.9263E+000
		1407.98	2.15	3.1468E+000		-1.6975E+000
		1509.23	2.11	3.0470E+000		1.3372E+000
		1538.50	0.38	1.7034E+001		-4.0208E+000
		1543.32	0.20	3.2375E+001		1.2578E+000
		1583.22	0.69	1.0343E+001		-2.1148E+000
		1594.73	0.25	2.8057E+001		8.6140E+000
		1599.31	0.23	2.5420E+001		4.2060E-001
		1661.28	1.15	5.1058E+000		7.5202E-001
		1683.99	0.22	2.3242E+001		-5.4442E+000
		1729.59	2.92	2.2781E+000		1.2944E+000
		1764.49	15.40	6.6950E-001		7.2301E-001
		1847.42	2.11	3.0790E+000		9.1700E-001
		1873.16	0.22	2.5613E+001		1.1023E+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	4.5502E+001	1.28E-001	6.6090E+000
		74.81*	6.44	1.3355E+000		2.3691E+000
		77.11*	10.80	7.2444E-001		2.1103E+000
		87.30*	4.84	1.3741E+000		1.0846E+000
		242.00*	7.43	4.7887E-001		1.0791E+000
		258.87	0.52	9.6409E+000		1.5582E+000
		274.80	0.47	1.1700E+001		-1.3134E+001
		295.22*	19.30	2.7346E-001		8.7102E-001
		351.93*	37.60	1.2778E-001		9.0861E-001
		462.00	0.22	2.6471E+001		1.7748E+000
		533.66	0.19	3.2451E+001		6.6725E+000
		785.96	1.07	6.5333E+000		2.9110E+000
		839.04	0.59	1.2850E+001		1.3679E-001
+	Ra-224	81.07	0.13	7.0201E+001	8.74E-001	-4.2062E+001
		83.78	0.22	4.0392E+001		1.7645E+001
		240.99*	4.10	8.7444E-001		1.9705E+000
+	Ra-226	81.07	0.20	4.6327E+001	1.25E+000	-2.7758E+001
		83.78	0.33	2.6520E+001		1.1585E+001
		94.90	0.15	4.9568E+001		-4.8017E-001
		186.21*	3.59	1.2545E+000		1.6918E+000
+	Ac-228	99.50	1.26	4.5257E+000	2.30E-001	4.2881E-001
		129.07	2.50	2.3109E+000		1.4545E+000
		209.25*	3.97	1.0888E+000		7.8333E-001
		270.24	3.55	1.5849E+000		9.8602E-001
		328.00	3.04	1.7619E+000		3.9760E-001
		338.32*	11.40	4.2676E-001		6.3407E-001
		409.46	2.02	2.6552E+000		7.4500E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00	4.45	1.3442E+000	2.30E-001	7.8843E-001
		755.31	1.03	5.9446E+000		3.1060E+000
		772.29	1.52	4.8205E+000		4.5414E-002
		794.94*	4.31	9.6484E-001		6.8939E-001
		835.70	1.70	4.4947E+000		2.4948E+000
		911.20*	26.20	2.3033E-001		6.3330E-001
		964.79*	4.99	6.9007E-001		9.2363E-001
		968.96*	15.90	2.6351E-001		6.4551E-001
		1588.20*	3.06	9.2813E-001		9.0898E-001
		1630.62	1.52	3.7955E+000		-1.6323E+000
	Th-228	84.37	1.26	7.0552E+000	7.06E+000	1.4379E+000
		131.61	0.13	4.4432E+001		4.0765E+001
		166.41	0.10	5.1613E+001		-6.0986E+000
		215.98	0.25	2.0666E+001		-9.0574E+000
	Pa-234m	258.23	0.07	6.8839E+001	8.39E+000	2.9506E+001
		742.81	0.09	6.4802E+001		-3.0361E+000
		766.36	0.32	2.2905E+001		1.3466E+001
		786.27	0.05	1.3046E+002		4.5321E+001
		1001.03	0.85	8.3933E+000		-1.2697E+000
		1737.77	0.02	2.9330E+002		5.3056E+001
+	Th-234	63.30	3.75	6.2691E+000	1.66E+000	1.2344E+000
		92.59*	4.33	1.6569E+000		1.8413E+000
		112.81	0.22	2.6366E+001		1.6841E+001

+ = 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: N002-A05-S013-2430-01
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	0.976	1460.82*		10.55	1.20060E+001	5.08656E-001
Cs-137	0.994	32.06	@	5.54		
		661.66*		84.99	4.94536E-002	1.44634E-002
Tl-208	0.833	72.80	@	2.02		
		74.97*	@	3.41	4.50855E+000	4.55017E-001
		84.90	@	1.51		
		277.36		6.31		
		510.77*	@	22.60	2.25563E-001	7.40279E-002
		583.19*		84.50	2.03214E-001	1.93936E-002
		763.13	@	1.81		
		860.56*		12.42	4.07469E-001	8.81893E-002
Bi-211	0.890	351.03*		13.00	2.62972E+000	1.62869E-001
Bi-212	0.569	39.86	@	1.06		
		727.33*		6.74	4.80439E-001	1.47216E-001
		785.37		1.11		
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.986	74.81*		10.40	1.47828E+000	1.55168E-001
		77.11*		17.50	1.31235E+000	1.06691E-001
		87.30*		7.81	6.77308E-001	1.93683E-001
		115.18	@	0.59		
		238.63*		43.30	6.80714E-001	4.10204E-002
		300.09*		3.28	6.70940E-001	2.54967E-001
Bi-214	0.516	76.86*	@	0.43	5.35013E+001	4.38718E+000
		89.81	@	0.24		
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	8.80243E-001	5.13982E-002
		665.45	@	1.53		
		703.11	@	0.48		
		719.86	@	0.39		
		768.36*		4.89	9.32568E-001	2.27400E-001
		786.10	@	0.31		
		806.17	@	1.26		
		934.06		3.10		
		964.08*	@	0.36	1.26003E+001	2.20726E+000
		1051.96	@	0.31		
		1120.29*		14.91	8.87366E-001	1.30925E-001
		1133.66	@	0.25		
		1155.19	@	1.63		
		1207.68	@	0.45		

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.516	1238.11*		5.79	8.57089E-001	2.58753E-001
		1280.96	@	1.43		
		1377.67*		4.00	1.14092E+000	2.60914E-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		
		1764.49		15.40		
		1847.42	@	2.11		
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.943	53.28	@	1.20		
		74.81*		6.44	2.36915E+000	2.51273E-001
		77.11*		10.80	2.11033E+000	1.78628E-001
		87.30*		4.84	1.08462E+000	3.10838E-001
		242.00*		7.43	1.07912E+000	1.04385E-001
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	8.71019E-001	8.01991E-002
		351.93*		37.60	9.08612E-001	5.55322E-002
		462.00	@	0.22		
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.782	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	1.97054E+000	1.89895E-001
Ra-226	0.778	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	1.69177E+000	3.02453E-001
Ac-228	0.542	99.50	@	1.26		
		129.07	@	2.50		
		209.25*		3.97	7.83330E-001	2.47164E-001
		270.24		3.55		
		328.00		3.04		
		338.32*		11.40	6.34070E-001	1.07432E-001
		409.46	@	2.02		
		463.00		4.45		
		755.31	@	1.03		
		772.29	@	1.52		

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.542	794.94*		4.31	6.89385E-001	2.28716E-001
		835.70	@	1.70		
		911.20*		26.20	6.33301E-001	7.06530E-002
		964.79*		4.99	9.23629E-001	1.61975E-001
		968.96*		15.90	6.45509E-001	7.51716E-002
		1588.20*		3.06	9.08984E-001	2.66160E-001
		1630.62	@	1.52		
Th-234	0.454	63.30		3.75		
		92.59*		4.33	1.84131E+000	3.85999E-001
		112.81	@	0.22		

* = 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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***** INTERFERENCE CORRECTED REPORT *****
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	Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/GWET)	Wt mean Activity Uncertainty
	K-40		0.976	1.200596E+001	5.086565E-001
X	Cd-109		0.892		
	Cs-137	@	0.994	4.945361E-002	1.446336E-002
	Tl-208	@	0.833	2.135435E-001	1.885773E-002
	Bi-211		0.890	1.066670E-001	2.549067E-001
	Bi-212	@	0.569	4.804394E-001	1.472164E-001
	Pb-212	@	0.986	6.808264E-001	3.664139E-002
	Bi-214	@	0.516	8.918301E-001	4.526160E-002
	Pb-214	@	0.943	8.717570E-001	6.904134E-002
	Ra-224	@	0.782	3.786538E-001	2.266661E-001
	Ra-226	@	0.778	1.691768E+000	3.024535E-001
	Ac-228	@	0.542	6.653501E-001	4.124719E-002
	Th-234	@	0.454	1.841305E+000	3.859990E-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 1.000 sigma

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

Peak Locate Performed on: 11/1/2016 9:36:45 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
6	197.96	1.6382E-003	203.11	Tol.	Yb-169 Ta-182
30	1765.52	1.1225E-002	14.70		

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

Errors quoted at 1.000 sigma