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	

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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-LCP-04.CNF

Report Generated On	: 12/19/2016 3:58:56 PM
Sample Title	: LCP-04
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	: 6.040E+002 GWET
Sample Taken On	: 12/15/2016 2:45:00 PM
Acquisition Started	: 12/19/2016 1:58:53 PM
Live Time	: 7200.0 seconds
Real Time	: 7201.7 seconds
Dead Time	: 0.02 %

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 *****
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Detector Name: ERT01
Sample Title: LCP-04
Peak Analysis Performed on: 12/19/2016 3:58:56 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	260-	270	265.80	66.48	0.55	1.20E+001	27.71	3.16E+002
M	2	296-	318	299.94	75.01	0.94	2.22E+002	21.73	3.37E+002
m	3	296-	318	309.16	77.32	0.94	4.63E+002	27.67	3.60E+002
	4	343-	352	348.64	87.19	1.09	1.11E+002	29.83	3.46E+002
	5	366-	384	371.34	92.86	0.95	2.56E+002	47.36	5.82E+002
	6	509-	522	517.55	129.42	0.93	1.09E+002	31.99	3.29E+002
	7	722-	729	725.30	181.36	0.32	1.57E+001	18.00	1.53E+002
	8	730-	755	743.87	186.00	1.46	2.77E+002	51.09	5.49E+002
	9	830-	842	836.99	209.28	0.91	8.91E+001	27.67	2.57E+002
M	10	948-	974	954.59	238.68	1.08	1.03E+003	35.60	2.60E+002
m	11	948-	974	967.44	241.90	1.08	2.07E+002	18.68	2.32E+002
	12	1074-	1086	1079.80	269.99	1.24	9.03E+001	23.27	1.72E+002
	13	1169-	1187	1180.92	295.27	1.28	4.35E+002	32.13	1.78E+002
	14	1195-	1205	1200.20	300.09	0.96	5.38E+001	18.72	1.24E+002
	15	1346-	1359	1353.13	338.32	1.01	1.96E+002	24.49	1.46E+002
	16	1382-	1389	1385.64	346.45	0.91	2.03E+001	12.16	6.27E+001
	17	1401-	1417	1407.10	351.81	1.04	6.69E+002	32.81	1.28E+002
	18	1552-	1563	1555.61	388.94	0.41	1.45E+001	15.25	8.55E+001
	19	1841-	1856	1851.30	462.87	1.07	8.10E+001	18.69	8.90E+001
	20	2029-	2060	2041.95	510.53	1.57	3.35E+002	31.87	1.37E+002
	21	2244-	2254	2248.32	562.13	0.35	2.73E+001	11.07	3.97E+001
	22	2324-	2339	2331.55	582.93	1.08	3.66E+002	24.84	8.36E+001
	23	2430-	2443	2436.02	609.06	1.48	4.82E+002	26.46	7.85E+001
	24	2637-	2654	2646.17	661.59	0.55	6.64E+001	16.85	6.56E+001
	25	2900-	2913	2908.47	727.17	0.75	6.15E+001	14.92	5.85E+001
	26	3173-	3183	3178.48	794.68	0.57	3.49E+001	10.66	3.31E+001
	27	3433-	3449	3440.50	860.18	1.36	6.84E+001	13.40	3.56E+001
	28	3634-	3653	3643.83	911.02	1.13	2.39E+002	23.03	8.28E+001
	29	3729-	3741	3734.78	933.76	0.33	3.27E+001	10.85	3.23E+001
	30	3865-	3886	3874.45	968.67	1.18	1.58E+002	20.59	7.12E+001
	31	4181-	4192	4186.89	1046.79	0.28	1.20E+001	7.57	1.80E+001
	32	4473-	4491	4480.50	1120.19	0.38	1.21E+002	17.77	5.78E+001
	33	4946-	4959	4951.58	1237.97	0.46	3.93E+001	12.31	3.97E+001
	34	5830-	5856	5843.56	1460.97	1.85	1.28E+003	36.80	1.69E+001
	35	6031-	6042	6036.68	1509.25	0.67	1.10E+001	5.83	9.00E+000
	36	7053-	7069	7060.86	1765.31	0.34	8.10E+001	10.58	1.00E+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: LCP-04
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	4.9285E-001	4.93E-001	1.2819E+001
	Co-60	1173.23	99.85	7.2416E-002	6.12E-002	-4.2174E-002
		1332.49	99.98	6.1237E-002		-1.2198E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
+	Cs-137	32.06	5.54	8.8592E+002	5.21E-002	-3.0081E+002
		661.66*	84.99	5.2121E-002		4.8526E-002
+	Tl-208	72.80	2.02	6.5828E+000	5.27E-002	-3.9043E+000
		74.97*	3.41	2.0444E+000		3.6781E+000
		84.90	1.51	5.4516E+000		1.9959E+000
		277.36	6.31	7.4055E-001		4.1225E-001
		510.77*	22.60	3.2344E-001		3.7812E-001
		583.19*	84.50	5.2695E-002		2.4217E-001
		763.13	1.81	3.4001E+000		-2.5323E+000
		860.56*	12.42	3.1242E-001		4.1289E-001
+	Bi-212	39.86	1.06	4.7099E+002	6.11E-001	-6.0722E+001
		727.33*	6.74	6.1095E-001		6.0862E-001
		785.37	1.11	5.4303E+000		2.8041E+000
		1620.74	1.51	3.4343E+000		-5.5648E-001
		1806.00	0.09	4.9514E+001		-1.1338E+001
+	Pb-212	74.81*	10.40	6.7032E-001	8.15E-002	1.2060E+000
		77.11*	17.50	3.7167E-001		1.3505E+000
		87.30*	7.81	6.2604E-001		5.2374E-001
		115.18	0.59	8.4758E+000		5.2524E+000
		238.63*	43.30	8.1455E-002		7.3240E-001
		300.09*	3.28	9.0178E-001		5.8657E-001
+	Bi-214	76.86*	0.43	1.5208E+001	9.17E-002	5.5260E+001
		89.81	0.24	3.2498E+001		-6.2425E+000
		386.77	0.30	1.6585E+001		2.5639E+000
		454.77	0.29	1.6478E+001		9.9678E+000
		609.31*	45.49	9.1726E-002		6.2064E-001
		665.45	1.53	4.3739E+000		1.6352E+000
		703.11	0.48	1.1770E+001		-8.9870E+000
		719.86	0.39	1.4370E+001		-3.3155E+000
		768.36	4.89	1.3344E+000		2.8093E-001
		786.10	0.31	1.9083E+001		2.7813E+000
		806.17	1.26	4.5716E+000		1.0422E+000
		934.06*	3.10	1.1619E+000		8.3231E-001
		964.08	0.36	2.6900E+001		6.3668E+000
		1051.96	0.31	2.0579E+001		7.7452E+000
		1120.29*	14.91	4.0508E-001		7.2695E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.8379E+001	9.17E-002	1.5616E+001
		1155.19	1.63	4.4494E+000		1.4854E+000
		1207.68	0.45	1.6970E+001		-3.1258E+000
		1238.11*	5.79	8.5889E-001		6.4876E-001
		1280.96	1.43	5.0560E+000		1.1968E-001
		1377.67	4.00	1.6834E+000		5.1717E-001
		1385.31	0.76	7.8229E+000		-2.3086E+000
		1401.50	1.27	4.1097E+000		-3.8506E+000
		1407.98	2.15	2.7269E+000		-3.2984E+000
		1509.23*	2.11	1.2997E+000		5.7135E-001
		1538.50	0.38	1.4260E+001		8.3688E+000
		1543.32	0.20	2.6335E+001		2.3778E+000
		1583.22	0.69	8.6721E+000		7.2689E+000
		1594.73	0.25	2.7016E+001		6.3833E+000
		1599.31	0.23	2.4426E+001		1.0577E+001
		1661.28	1.15	4.4657E+000		4.5316E-001
		1683.99	0.22	2.1241E+001		1.2907E+001
		1729.59	2.92	1.8540E+000		1.1066E+000
		1764.49*	15.40	2.5041E-001		6.0258E-001
		1847.42	2.11	2.0590E+000		-3.3067E-001
		1873.16	0.22	2.0833E+001		1.1520E+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	4.2503E+001	1.03E-001	1.7491E+001
		74.81*	6.44	1.0782E+000		1.9399E+000
		77.11*	10.80	5.9987E-001		2.1797E+000
		87.30*	4.84	1.0062E+000		8.4181E-001
		242.00*	7.43	4.3631E-001		8.7802E-001
		258.87	0.52	8.6130E+000		5.8720E+000
		274.80	0.47	9.7669E+000		-1.3545E+000
		295.22*	19.30	2.1234E-001		7.9473E-001
		351.93*	37.60	1.0335E-001		6.9573E-001
		462.00*	0.22	1.7117E+001		1.7567E+001
		533.66	0.19	2.6276E+001		-1.1331E+001
		785.96	1.07	5.5281E+000		1.5818E+000
		839.04	0.59	1.1157E+001		1.3525E+000
+	Ra-224	81.07	0.13	6.3734E+001	7.94E-001	-2.0026E+001
		83.78	0.22	3.6800E+001		2.4203E+001
		240.99*	4.10	7.9379E-001		1.5974E+000
+	Ra-226	81.07	0.20	4.2215E+001	1.83E+000	-1.3264E+001
		83.78	0.33	2.4251E+001		1.5949E+001
		94.90	0.15	4.4655E+001		-2.4267E+000
		186.21*	3.59	1.8307E+000		1.8013E+000
+	Ac-228	99.50	1.26	4.0097E+000	2.48E-001	-7.1649E-001
		129.07*	2.50	1.6322E+000		1.2382E+000
		209.25*	3.97	9.2410E-001		6.6562E-001
		270.24*	3.55	9.5888E-001		8.5312E-001
		328.00	3.04	1.6184E+000		1.2264E+000
		338.32*	11.40	3.2564E-001		6.6444E-001
		409.46	2.02	2.5320E+000		1.3139E+000

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	8.5342E-001	2.48E-001	8.7586E-001
		755.31	1.03	5.7287E+000		5.0791E-001
		772.29	1.52	4.2728E+000		3.7175E+000
		794.94*	4.31	7.2414E-001		5.7537E-001
		835.70	1.70	3.9531E+000		1.5258E+000
		911.20*	26.20	2.4806E-001		6.9640E-001
		964.79	4.99	1.9980E+000		3.6641E-001
		968.96*	15.90	4.0200E-001		8.0712E-001
		1588.20	3.06	2.2932E+000		1.9567E+000
		1630.62	1.52	3.8327E+000		-4.7342E-001
	Th-228	84.37	1.26	6.4016E+000	6.40E+000	1.6686E+000
		131.61	0.13	3.8380E+001		3.7108E+000
		166.41	0.10	4.5619E+001		5.5198E+000
		215.98	0.25	1.8275E+001		4.1655E+000
	Pa-234m	258.23	0.07	6.0930E+001	7.54E+000	2.5818E+001
		742.81	0.09	5.7356E+001		7.1158E+000
		766.36	0.32	2.0022E+001		4.5204E-001
		786.27	0.05	1.1038E+002		1.6088E+001
		1001.03	0.85	7.5436E+000		-2.2134E+000
		1737.77	0.02	2.4192E+002		-9.9429E+001
+	Th-234	63.30	3.75	5.3101E+000	1.63E+000	2.8597E+000
		92.59*	4.33	1.6288E+000		1.3560E+000
		112.81	0.22	2.3119E+001		8.4050E+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: LCP-04
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	0.996	1460.82*		10.55	1.28192E+001	5.06158E-001
Cs-137	0.995	32.06	@	5.54		
		661.66*		84.99	4.85256E-002	1.23948E-002
Tl-208	0.831	72.80	@	2.02		
		74.97*	@	3.41	3.67810E+000	3.82026E-001
		84.90	@	1.51		
		277.36		6.31		
		510.77*	@	22.60	3.78124E-001	7.53959E-002
		583.19*		84.50	2.42171E-001	1.85606E-002
		763.13	@	1.81		
		860.56*		12.42	4.12892E-001	8.15565E-002
Bi-212	0.572	39.86	@	1.06		
		727.33*		6.74	6.08620E-001	1.48897E-001
		785.37		1.11		
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.984	74.81*		10.40	1.20599E+000	1.30001E-001
		77.11*		17.50	1.35050E+000	1.01017E-001
		87.30*		7.81	5.23743E-001	1.43002E-001
		115.18	@	0.59		
		238.63*		43.30	7.32400E-001	4.19509E-002
		300.09*		3.28	5.86571E-001	2.05326E-001
Bi-214	0.609	76.86*	@	0.43	5.52603E+001	4.17571E+000
		89.81	@	0.24		
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	6.20642E-001	3.89813E-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	8.32305E-001	2.77181E-001
		964.08	@	0.36		
		1051.96	@	0.31		
		1120.29*		14.91	7.26950E-001	1.08034E-001
		1133.66	@	0.25		
		1155.19	@	1.63		
		1207.68	@	0.45		
		1238.11*		5.79	6.48760E-001	2.04241E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.609	1280.96	@	1.43		
		1377.67		4.00		
		1385.31	@	0.76		
		1401.50	@	1.27		
		1407.98	@	2.15		
		1509.23*	@	2.11	5.71355E-001	3.03495E-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	6.02582E-001	8.75347E-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	1.93992E+000	2.11186E-001
		77.11*		10.80	2.17971E+000	1.70944E-001
		87.30*		4.84	8.41811E-001	2.30399E-001
		242.00*		7.43	8.78019E-001	8.90023E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	7.94727E-001	6.73531E-002
		351.93*		37.60	6.95733E-001	4.41936E-002
		462.00*	@	0.22	1.75668E+001	4.16477E+000
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.775	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	1.59742E+000	1.61369E-001
Ra-226	0.773	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	1.80127E+000	4.15730E-001
Ac-228	0.661	99.50	@	1.26		
		129.07*	@	2.50	1.23819E+000	3.67780E-001
		209.25*		3.97	6.65615E-001	2.10084E-001
		270.24*		3.55	8.53117E-001	2.24052E-001
		328.00		3.04		
		338.32*		11.40	6.64435E-001	8.98817E-002
		409.46	@	2.02		
		463.00*		4.45	8.75857E-001	2.09946E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	5.75373E-001	1.77129E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.661	835.70	@	1.70		
		911.20*		26.20	6.96399E-001	7.38359E-002
		964.79		4.99		
		968.96*		15.90	8.07118E-001	1.09991E-001
		1588.20		3.06		
		1630.62	@	1.52		
Th-234	0.451	63.30		3.75		
		92.59*		4.33	1.35599E+000	3.67686E-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

****
***** 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		0.996	1.281916E+001	5.061585E-001
X	Cd-109		0.892		
	Cs-137	@	0.995	4.852565E-002	1.239482E-002
	Tl-208	@	0.831	2.503066E-001	1.797817E-002
X	Bi-211		0.907		
	Bi-212	@	0.572	6.086196E-001	1.488973E-001
	Pb-212	@	0.984	7.072475E-001	3.511117E-002
	Bi-214	@	0.609	6.323124E-001	3.305238E-002
	Pb-214	@	0.945	7.155931E-001	3.503978E-002
	Ra-224	@	0.775	2.955082E-001	1.724081E-001
	Ra-226	@	0.773	1.801271E+000	4.157296E-001
	Ac-228	@	0.661	7.106757E-001	4.388592E-002
	Th-234	@	0.451	1.355987E+000	3.676855E-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

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

Peak Locate Performed on: 12/19/2016 3:58:56 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	66.48	1.6599E-003	231.84	Tol.	Cs-136 Ta-182
7	181.36	2.1746E-003	114.94	Tol.	Np-239
16	346.45	2.8188E-003	59.93	Sum	
18	388.94	2.0170E-003	105.04	Sum	
21	562.13	3.7966E-003	40.50		
31	1046.79	1.6713E-003	62.88	Sum	

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

Errors quoted at 1.000 sigma

```
*************************************************************************
*****        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-LCP-05.CNF

Report Generated On	: 12/19/2016 6:03:28 PM
Sample Title	: LCP-05
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	: 8.266E+002 GWET
Sample Taken On	: 12/15/2016 2:50:00 PM
Acquisition Started	: 12/19/2016 4:03:23 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

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

Detector Name: ERT01
Sample Title: LCP-05
Peak Analysis Performed on: 12/19/2016 6:03:28 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	291-	316	299.96	75.02	0.97	2.75E+002	24.84	4.85E+002
m	2	291-	316	308.99	77.27	0.97	3.94E+002	27.55	4.45E+002
M	3	343-	386	349.91	87.51	1.18	1.66E+002	23.87	5.84E+002
m	4	343-	386	360.77	90.22	1.19	1.09E+002	21.20	5.77E+002
m	5	343-	386	372.22	93.08	1.19	2.70E+002	25.96	5.20E+002
	6	513-	521	516.70	129.21	0.87	2.82E+001	27.18	3.31E+002
	7	738-	760	744.11	186.06	1.18	3.44E+002	51.14	5.81E+002
	8	831-	844	836.95	209.27	1.03	1.01E+002	32.40	3.44E+002
M	9	948-	973	954.61	238.69	1.07	1.24E+003	39.31	3.37E+002
m	10	948-	973	966.85	241.75	1.07	2.64E+002	20.91	2.87E+002
	11	1171-	1188	1180.89	295.26	1.03	4.44E+002	34.61	2.32E+002
	12	1194-	1206	1200.86	300.25	1.33	7.18E+001	22.98	1.72E+002
	13	1346-	1362	1353.00	338.29	0.93	2.56E+002	30.63	2.15E+002
	14	1400-	1418	1407.43	351.90	1.15	7.60E+002	38.36	2.10E+002
	15	1846-	1859	1851.70	462.97	1.20	8.95E+001	19.17	1.01E+002
	16	2032-	2054	2042.27	510.61	1.14	2.58E+002	32.03	1.98E+002
	17	2325-	2342	2332.02	583.05	1.16	4.71E+002	27.08	8.12E+001
	18	2430-	2446	2436.48	609.17	1.18	5.53E+002	29.47	1.01E+002
	19	2902-	2917	2907.78	727.00	1.24	1.06E+002	17.73	6.89E+001
	20	3061-	3078	3072.60	768.20	0.81	7.43E+001	16.48	6.07E+001
	21	3137-	3148	3142.16	785.59	0.50	3.59E+001	12.31	4.61E+001
	22	3175-	3184	3179.18	794.85	1.15	2.31E+001	12.55	5.89E+001
	23	3435-	3448	3441.68	860.48	0.76	3.68E+001	13.44	5.22E+001
	24	3634-	3654	3644.13	911.09	1.49	3.27E+002	24.33	7.32E+001
	25	3827-	3839	3832.44	958.17	1.11	2.31E+001	11.50	4.09E+001
M	26	3851-	3885	3858.84	964.77	1.45	6.55E+001	10.64	6.69E+001
m	27	3851-	3885	3875.18	968.86	1.45	2.09E+002	16.09	5.57E+001
	28	4470-	4491	4481.41	1120.42	1.32	1.45E+002	18.17	4.95E+001
	29	5831-	5858	5844.26	1461.15	1.93	1.68E+003	42.17	2.34E+001
	30	7050-	7071	7061.26	1765.41	0.71	9.90E+001	11.84	1.10E+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: LCP-05
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	4.0656E-001	4.07E-001	1.2302E+001
	Co-60	1173.23	99.85	5.9634E-002	4.84E-002	4.0829E-002
		1332.49	99.98	4.8426E-002		1.1318E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	7.0810E+002	5.40E-002	-1.0145E+002
		661.66	84.99	5.4014E-002		3.7891E-002
+	Tl-208	72.80	2.02	5.2429E+000	3.93E-002	-5.1441E-001
		74.97*	3.41	1.7849E+000		3.3227E+000
		84.90	1.51	4.3306E+000		8.3931E-001
		277.36	6.31	6.0689E-001		2.4020E-001
		510.77*	22.60	2.4743E-001		1.4758E-001
		583.19*	84.50	3.9349E-002		2.2841E-001
		763.13	1.81	2.7171E+000		-1.2369E+000
		860.56*	12.42	2.5812E-001		1.6219E-001
+	Bi-212	39.86	1.06	3.7843E+002	5.05E-001	1.6723E+002
		727.33*	6.74	5.0457E-001		7.6719E-001
		785.37*	1.11	2.4424E+000		1.6637E+000
		1620.74	1.51	2.2671E+000		7.4705E-001
		1806.00	0.09	3.6183E+001		1.8340E+001
+	Pb-212	74.81*	10.40	5.8525E-001	6.70E-002	1.0895E+000
		77.11*	17.50	3.0170E-001		8.4044E-001
		87.30*	7.81	5.5362E-001		5.6853E-001
		115.18	0.59	6.9908E+000		4.8131E-001
		238.63*	43.30	6.7042E-002		6.4316E-001
		300.09*	3.28	8.1258E-001		5.7137E-001
+	Bi-214	76.86*	0.43	1.2344E+001	8.02E-002	3.4387E+001
		89.81*	0.24	1.6522E+001		1.1208E+001
		386.77	0.30	1.2432E+001		1.7975E+000
		454.77	0.29	1.3183E+001		-5.5998E-001
		609.31*	45.49	8.0207E-002		5.1953E-001
		665.45	1.53	3.0316E+000		-1.3130E+000
		703.11	0.48	9.9622E+000		4.4535E+000
		719.86	0.39	1.2265E+001		-1.5733E-001
		768.36*	4.89	7.0144E-001		7.6614E-001
		786.10*	0.31	8.7103E+000		5.9331E+000
		806.17	1.26	3.8100E+000		8.4130E-001
		934.06	3.10	1.7349E+000		1.2145E+000
		964.08*	0.36	9.1882E+000		1.0658E+001
		1051.96	0.31	1.5784E+001		-3.1829E+000
		1120.29*	14.91	2.8955E-001		6.3332E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.2741E+001	8.02E-002	-5.9619E+000
		1155.19	1.63	3.6904E+000		-2.0287E-002
		1207.68	0.45	1.4157E+001		1.5697E+000
		1238.11	5.79	1.2756E+000		3.4444E-001
		1280.96	1.43	3.7845E+000		-5.5523E-001
		1377.67	4.00	1.2746E+000		4.4287E-001
		1385.31	0.76	5.6766E+000		-6.7732E+000
		1401.50	1.27	4.1015E+000		-3.2104E+000
		1407.98	2.15	2.3473E+000		-1.0550E+000
		1509.23	2.11	2.3212E+000		7.6604E-001
		1538.50	0.38	1.1113E+001		1.7367E+000
		1543.32	0.20	2.0390E+001		3.1912E+000
		1583.22	0.69	7.3854E+000		5.0999E+000
		1594.73	0.25	2.0243E+001		-2.4975E+000
		1599.31	0.23	1.8016E+001		5.3408E+000
		1661.28	1.15	3.9671E+000		3.3729E+000
		1683.99	0.22	1.8166E+001		5.8110E+000
		1729.59	2.92	1.6721E+000		1.0518E+000
		1764.49*	15.40	2.0432E-001		5.4532E-001
		1847.42	2.11	1.9232E+000		-2.2838E-001
		1873.16	0.22	1.8036E+001		1.3663E-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	3.4249E+001	9.84E-002	-3.3810E+000
		74.81*	6.44	9.4133E-001		1.7523E+000
		77.11*	10.80	4.8690E-001		1.3564E+000
		87.30*	4.84	8.8976E-001		9.1373E-001
		242.00*	7.43	3.5342E-001		8.1887E-001
		258.87	0.52	7.1041E+000		4.2727E-001
		274.80	0.47	8.1511E+000		-9.5671E+000
		295.22*	19.30	1.7390E-001		5.9258E-001
		351.93*	37.60	9.8365E-002		5.7842E-001
		462.00*	0.22	1.2727E+001		1.4184E+001
		533.66	0.19	2.2674E+001		1.1886E+000
		785.96*	1.07	2.5235E+000		1.7189E+000
		839.04	0.59	8.3998E+000		1.5171E+000
+	Ra-224	81.07	0.13	5.2057E+001	6.43E-001	-2.3504E+001
		83.78	0.22	2.9465E+001		1.2399E+001
		240.99*	4.10	6.4304E-001		1.4899E+000
+	Ra-226	81.07	0.20	3.4478E+001	1.32E+000	-1.5567E+001
		83.78	0.33	1.9415E+001		8.1698E+000
		94.90	0.15	3.5047E+001		-4.6801E+000
		186.21*	3.59	1.3206E+000		1.7046E+000
+	Ac-228	99.50	1.26	3.3317E+000	1.74E-001	-1.5307E-001
		129.07*	2.50	1.0545E+000		2.3446E-001
		209.25*	3.97	7.9674E-001		5.5374E-001
		270.24	3.55	1.1636E+000		1.3860E+000
		328.00	3.04	1.3252E+000		8.2458E-001
		338.32*	11.40	3.0732E-001		6.3428E-001
		409.46	2.02	1.9042E+000		-1.3920E+000

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	6.3462E-001	1.74E-001	7.0727E-001
		755.31	1.03	4.3104E+000		5.7829E-001
		772.29	1.52	3.4695E+000		2.8655E-001
		794.94*	4.31	6.8119E-001		2.7769E-001
		835.70	1.70	3.0020E+000		1.2513E+000
		911.20*	26.20	1.7360E-001		6.9949E-001
		964.79*	4.99	6.7109E-001		7.7846E-001
		968.96*	15.90	1.9362E-001		7.8038E-001
		1588.20	3.06	1.7635E+000		-2.9141E-001
		1630.62	1.52	2.6969E+000		1.1453E+000
	Th-228	84.37	1.26	5.0958E+000	5.10E+000	1.4123E+000
		131.61	0.13	3.2245E+001		5.0375E+000
		166.41	0.10	3.8589E+001		1.1656E+001
		215.98	0.25	1.5388E+001		1.5396E+000
	Pa-234m	258.23	0.07	5.0007E+001	6.20E+000	-1.7150E+001
		742.81	0.09	4.7406E+001		1.0300E+001
		766.36	0.32	1.6274E+001		6.4617E-001
		786.27	0.05	9.0887E+001		5.1179E+001
		1001.03	0.85	6.1953E+000		-8.3730E-001
		1737.77	0.02	1.9176E+002		-2.7843E+002
	Th-234	63.30	3.75	4.3796E+000	1.33E+000	2.0580E+000
		92.59	4.33	1.3276E+000		2.2143E+000
		112.81	0.22	1.9183E+001		-5.9534E+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: LCP-05
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	0.983	1460.82*		10.55	1.23024E+001	4.52812E-001
Eu-152m	0.978	89.85*		69.90	3.91457E-002	7.72368E-003
Tl-208	0.838	72.80	@	2.02		
		74.97*	@	3.41	3.32268E+000	3.21946E-001
		84.90	@	1.51		
		277.36		6.31		
		510.77*	@	22.60	1.47576E-001	5.47776E-002
		583.19*		84.50	2.28413E-001	1.53021E-002
		763.13	@	1.81		
		860.56*		12.42	1.62192E-001	5.94503E-002
Bi-211	0.887	351.03*		13.00	1.67357E+000	1.09345E-001
Bi-212	0.750	39.86	@	1.06		
		727.33*		6.74	7.67194E-001	1.30418E-001
		785.37*		1.11	1.66367E+000	5.72047E-001
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.984	74.81*		10.40	1.08946E+000	1.10140E-001
		77.11*		17.50	8.40442E-001	6.99277E-002
		87.30*		7.81	5.68533E-001	8.58452E-002
		115.18	@	0.59		
		238.63*		43.30	6.43164E-001	3.57139E-002
		300.09*		3.28	5.71369E-001	1.84494E-001
Bi-214	0.558	76.86*	@	0.43	3.43868E+001	2.88475E+000
		89.81*	@	0.24	1.12080E+001	2.24765E+000
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	5.19526E-001	3.19413E-002
		665.45	@	1.53		
		703.11	@	0.48		
		719.86	@	0.39		
		768.36*		4.89	7.66141E-001	1.71024E-001
		786.10*	@	0.31	5.93314E+000	2.25275E+000
		806.17	@	1.26		
		934.06		3.10		
		964.08*	@	0.36	1.06583E+001	1.78299E+000
		1051.96	@	0.31		
		1120.29*		14.91	6.33321E-001	8.11416E-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	0.558	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		
		1764.49*		15.40	5.45320E-001	7.19693E-002
		1847.42	@	2.11		
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.959	53.28	@	1.20		
		74.81*		6.44	1.75232E+000	1.79145E-001
		77.11*		10.80	1.35637E+000	1.17294E-001
		87.30*		4.84	9.13728E-001	1.39048E-001
		242.00*		7.43	8.18872E-001	7.50249E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	5.92581E-001	5.23555E-002
		351.93*		37.60	5.78425E-001	3.73451E-002
		462.00*	@	0.22	1.41844E+001	3.13516E+000
		533.66	@	0.19		
		785.96*	@	1.07	1.71895E+000	6.04666E-001
		839.04	@	0.59		
Ra-224	0.808	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	1.48993E+000	1.35933E-001
Ra-226	0.776	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	1.70456E+000	3.08282E-001
Ac-228	0.657	99.50	@	1.26		
		129.07*	@	2.50	2.34457E-001	2.26484E-001
		209.25*		3.97	5.53739E-001	1.79600E-001
		270.24		3.55		
		328.00		3.04		
		338.32*		11.40	6.34280E-001	8.27016E-002
		409.46	@	2.02		
		463.00*		4.45	7.07274E-001	1.58316E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	2.77693E-001	1.51404E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.657	835.70	@	1.70		
		911.20*		26.20	6.99490E-001	5.95298E-002
		964.79*		4.99	7.78462E-001	1.30384E-001
		968.96*		15.90	7.80377E-001	6.74839E-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		0.983	1.230244E+001	4.528118E-001
X	Cd-109		0.957		
	Eu-152m		0.978	3.725234E-002	7.716942E-003
	Tl-208	@	0.838	2.251211E-001	1.469830E-002
	Bi-211		0.887	2.026985E-001	1.688939E-001
	Bi-212	@	0.750	7.795458E-001	1.265071E-001
	Pb-212	@	0.984	5.793206E-001	2.950061E-002
	Bi-214	@	0.558	5.420823E-001	2.705273E-002
	Pb-214	@	0.959	5.083673E-001	4.528482E-002
	Ra-224	@	0.808	5.649596E-001	1.579132E-001
	Ra-226	@	0.776	1.704561E+000	3.082816E-001
	Ac-228	@	0.657	6.872615E-001	3.308901E-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: 12/19/2016 6:03:28 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	93.08	2.6942E-002	13.73	Tol.	Yb-169 Th-227 Th-234
	25	958.17	3.2129E-003	49.73		

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

Errors quoted at 1.000 sigma