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,GDR Y,L, ft^3, etc)	Count Time (s)	Report Matches Sample Parameters (Initial, date)
cc/110816	450 cc SOIL	P006-S001-1824-01	10/14/16 1434	505.7	GWET	7200	
cc/110916	450 cc SOIL	P006-S002-1824-01	10/14/16 1516	497.3	GWET	7200	
cc/110916	450 cc SOIL	P007-S001-1824-01	10/14/16 1546	558.8	GWET	7200	
cc/110716	450 cc SOIL	~~Replicate~~ P006-S001-0412-01	10/14/16 1432	746.3	GWET	7200	
cc/110916	450 cc SOIL	N002-S018-2228-01	9/19/16 1410	492.4	GWET	7200	
cc/110916	450 cc SOIL	N002-S018-1016-01	9/19/16 1351	580.7	GWET	7200	
cc/111016	450 cc SOIL	N002-S018-1622-01	9/19/16 1400	464.01	GWET	7200	
cc/111016	450 cc SOIL	N002-S018-0410-01	9/19/16 1320	697.7	GWET	7200	
cc/111016	450 cc SOIL	N004-S001-0511-01	9/15/16 1052	763.5	GWET	7200	
cc/111016	450 cc SOIL	N004-S001-1117-01	9/15/16 1052	803.4	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: C:\GENIE2K\CAMFILES\SMP-N002-S018-2228-01.CNF,C:\GENIE2K\CAMF

Report Generated On	: 11/10/2016 2:43:37 PM
Sample Title	: N002-S018-2228-01
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	: 4.924E+002 GWET
Sample Taken On	: 9/19/2016 2:10:00 PM
Acquisition Started	: 11/9/2016 3:17:51 PM
Live Time	: 7200.0 seconds
Real Time	: 7201.7 seconds
Dead Time	: 0.02 %

Energy Calibration Used Done On	: 10/24/2016
Efficiency Calibration Used Done On	: 9/27/2016
Efficiency ID	: ERT0101

Changed Sample Date

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

Detector Name: ERT01
Sample Title: N002-S018-2228-01
Peak Analysis Performed on: 11/10/2016 2:43:37 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	212-	217	214.88	53.68	0.29	1.93E+001	16.71	1.47E+002
M	2	293-	315	300.20	75.01	1.01	2.37E+002	22.89	4.54E+002
m	3	293-	315	309.26	77.27	1.01	4.20E+002	27.84	4.33E+002
M	4	332-	354	336.39	84.05	0.83	3.56E+001	17.57	3.56E+002
m	5	332-	354	349.84	87.42	0.84	8.83E+001	41.96	4.20E+002
	6	366-	382	371.89	92.93	0.83	2.16E+002	45.03	5.74E+002
	7	733-	750	743.80	185.92	1.05	2.36E+002	37.97	3.71E+002
	8	833-	844	837.01	209.22	0.45	9.30E+001	25.40	2.16E+002
M	9	947-	973	954.79	238.67	1.08	1.36E+003	40.43	2.71E+002
m	10	947-	973	966.40	241.57	1.09	1.91E+002	17.83	2.14E+002
	11	1172-	1187	1181.05	295.24	1.13	3.14E+002	30.14	1.98E+002
	12	1192-	1209	1200.25	300.04	0.81	7.29E+001	27.72	2.13E+002
	13	1302-	1318	1311.53	327.86	0.81	6.42E+001	24.84	1.75E+002
	14	1345-	1362	1353.05	338.24	1.05	2.34E+002	30.03	2.05E+002
	15	1397-	1417	1407.47	351.85	1.26	5.82E+002	35.20	1.81E+002
	16	1847-	1859	1851.17	462.78	1.07	8.42E+001	17.32	8.08E+001
	17	2028-	2060	2042.41	510.60	2.07	3.54E+002	34.09	1.58E+002
	18	2324-	2340	2332.23	583.06	1.38	4.14E+002	26.78	9.64E+001
	19	2429-	2445	2436.62	609.16	1.55	4.45E+002	28.17	1.11E+002
	20	2898-	2916	2908.16	727.05	0.64	1.18E+002	18.28	6.40E+001
	21	3067-	3080	3073.32	768.35	0.41	5.72E+001	14.07	5.08E+001
	22	3174-	3185	3179.48	794.89	0.58	3.30E+001	11.78	4.20E+001
	23	3435-	3448	3440.52	860.15	0.61	4.70E+001	14.21	5.60E+001
	24	3634-	3653	3644.11	911.05	1.40	3.40E+002	24.03	6.75E+001
	25	3731-	3743	3736.60	934.18	0.41	3.79E+001	9.98	2.31E+001
M	26	3852-	3883	3858.38	964.63	1.39	3.04E+001	8.86	6.38E+001
m	27	3852-	3883	3874.91	968.76	1.39	1.57E+002	14.71	6.32E+001
	28	4469-	4490	4481.13	1120.33	0.99	1.24E+002	19.29	6.44E+001
	29	4945-	4957	4951.88	1238.03	0.51	3.00E+001	12.64	4.70E+001
	30	5831-	5857	5844.37	1461.17	1.75	1.62E+003	41.73	2.70E+001
	31	6914-	6927	6921.00	1730.35	0.84	1.76E+001	6.92	1.04E+001
	32	7052-	7071	7061.57	1765.49	1.65	1.00E+002	13.04	2.00E+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: N002-S018-2228-01
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	7.2216E-001	7.22E-001	1.9998E+001
	Co-60	1173.23	99.85	1.0182E-001	7.78E-002	2.3701E-002
		1332.49	99.98	7.7791E-002		-1.9190E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	1.1964E+003	8.33E-002	2.2300E+002
		661.66	84.99	8.3305E-002		2.5756E-002
+	Tl-208	72.80	2.02	8.8438E+000	7.40E-002	-1.6234E+000
		74.97*	3.41	3.0422E+000		5.0449E+000
		84.90*	1.51	4.3320E+000		1.2171E+000
		277.36	6.31	1.0113E+000		1.2214E+000
		510.77*	22.60	4.4405E-001		5.4018E-001
		583.19*	84.50	7.4024E-002		3.5223E-001
		763.13	1.81	4.4068E+000		-1.8340E+000
		860.56*	12.42	4.7025E-001		3.6473E-001
+	Bi-212	39.86	1.06	6.5381E+002	9.04E-001	-3.3811E+001
		727.33*	6.74	9.0395E-001		1.4998E+000
		785.37	1.11	7.3723E+000		2.3518E+000
		1620.74	1.51	4.8008E+000		1.3663E+000
		1806.00	0.09	6.8171E+001		8.4321E+000
+	Pb-212	74.81*	10.40	9.9750E-001	1.07E-001	1.6541E+000
		77.11*	17.50	5.2359E-001		1.5776E+000
		87.30*	7.81	8.3027E-001		5.3305E-001
		115.18	0.59	1.0356E+001		5.0076E-001
		238.63*	43.30	1.0662E-001		1.2515E+000
		300.09*	3.28	1.7551E+000		1.0205E+000
+	Bi-214	76.86*	0.43	2.0447E+001	1.41E-001	6.1609E+001
		89.81	0.24	4.0230E+001		-3.8158E+000
		386.77	0.30	2.0870E+001		1.2296E+001
		454.77	0.29	2.0437E+001		-2.1455E+000
		609.31*	45.49	1.4138E-001		7.0163E-001
		665.45	1.53	4.7153E+000		-8.0065E-001
		703.11	0.48	1.6871E+001		4.1855E+000
		719.86	0.39	1.7137E+001		1.1770E+000
		768.36*	4.89	1.0017E+000		9.9046E-001
		786.10	0.31	2.5985E+001		4.5294E+000
		806.17	1.26	5.9976E+000		1.4895E+000
		934.06*	3.10	1.2278E+000		1.1861E+000
		964.08*	0.36	1.5082E+001		8.2914E+000
		1051.96	0.31	2.6873E+001		-2.0531E+000
		1120.29*	14.91	5.5934E-001		9.0978E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	3.3061E+001	1.41E-001	-1.2736E+001
		1155.19	1.63	6.1616E+000		-3.7519E-001
		1207.68	0.45	2.2891E+001		-6.9475E+000
		1238.11*	5.79	1.1289E+000		6.0792E-001
		1280.96	1.43	6.7864E+000		3.8115E+000
		1377.67	4.00	2.0542E+000		6.0430E-001
		1385.31	0.76	9.3954E+000		-1.6102E+001
		1401.50	1.27	5.8055E+000		-2.2519E+000
		1407.98	2.15	3.9609E+000		1.8420E+000
		1509.23	2.11	3.5508E+000		3.3010E-001
		1538.50	0.38	1.7664E+001		-6.2514E+000
		1543.32	0.20	3.2305E+001		4.3789E-001
		1583.22	0.69	1.1230E+001		1.7632E+000
		1594.73	0.25	3.3984E+001		1.7906E+001
		1599.31	0.23	3.0524E+001		-3.3782E+000
		1661.28	1.15	5.7353E+000		2.7006E+000
		1683.99	0.22	2.4813E+001		1.3724E+001
		1729.59*	2.92	1.4378E+000		8.9379E-001
		1764.49*	15.40	4.2593E-001		9.2528E-001
		1847.42	2.11	3.1500E+000		-2.4602E+000
		1873.16	0.22	2.3064E+001		-9.2452E-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	2.4183E+001	1.59E-001	5.9963E+000
		74.81*	6.44	1.5314E+000		2.5394E+000
		77.11*	10.80	8.0653E-001		2.4301E+000
		87.30*	4.84	1.2736E+000		8.1770E-001
		242.00*	7.43	5.1372E-001		9.9052E-001
		258.87	0.52	1.0878E+001		1.9764E+000
		274.80	0.47	1.2704E+001		-1.4379E+001
		295.22*	19.30	2.6001E-001		7.0304E-001
		351.93*	37.60	1.5898E-001		7.4083E-001
		462.00*	0.22	1.8904E+001		2.2412E+001
		533.66	0.19	3.5157E+001		1.0367E+001
		785.96	1.07	7.5846E+000		4.3093E+000
		839.04	0.59	1.4684E+001		-7.7096E-001
+	Ra-224	81.07	0.13	8.6282E+001	9.79E-001	-1.7806E+001
		83.78*	0.22	3.0144E+001		8.4692E+000
		240.99*	4.10	9.7930E-001		1.8882E+000
+	Ra-226	81.07	0.20	5.4543E+001	1.64E+000	-1.1256E+001
		83.78*	0.33	1.8959E+001		5.3266E+000
		94.90	0.15	5.5131E+001		8.5787E-001
		186.21*	3.59	1.6449E+000		1.8115E+000
+	Ac-228	99.50	1.26	5.4580E+000	2.90E-001	1.6321E+000
		129.07	2.50	2.8664E+000		8.2330E-001
		209.25*	3.97	1.0752E+000		8.9317E-001
		270.24	3.55	1.8018E+000		2.9850E-001
		328.00*	3.04	1.7919E+000		1.0266E+000
		338.32*	11.40	5.3472E-001		1.0205E+000
		409.46	2.02	3.3648E+000		5.8463E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	9.8756E-001	2.90E-001	1.1708E+000
		755.31	1.03	7.5166E+000		-7.0384E-001
		772.29	1.52	5.8974E+000		1.3713E+000
		794.94*	4.31	1.0698E+000		6.9858E-001
		835.70	1.70	5.3447E+000		1.5210E+000
		911.20*	26.20	2.8960E-001		1.2827E+000
		964.79*	4.99	1.1541E+000		6.3446E-001
		968.96*	15.90	3.6176E-001		1.0329E+000
		1588.20	3.06	3.0170E+000		2.6375E+000
		1630.62	1.52	5.0149E+000		1.2456E+000
	Th-228	84.37*	1.26	5.1915E+000	5.19E+000	1.4586E+000
		131.61	0.13	5.4472E+001		-1.9874E+000
		166.41	0.10	6.0151E+001		-2.0087E-001
		215.98	0.25	2.4815E+001		9.5016E+000
	Pa-234m	258.23	0.07	7.6620E+001	9.93E+000	-2.7228E+001
		742.81	0.09	7.5345E+001		-7.4826E+001
		766.36	0.32	2.6239E+001		6.2196E+000
		786.27	0.05	1.4953E+002		2.2867E+001
		1001.03	0.85	9.9255E+000		5.0700E+000
		1737.77	0.02	2.6488E+002		-4.7912E+001
	Th-234	63.30	3.75	7.1986E+000	2.08E+000	1.6369E+000
		92.59	4.33	2.0792E+000		3.9246E-001
		112.81	0.22	2.7499E+001		-1.9755E+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-S018-2228-01
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	0.981	1460.82*		10.55	1.99979E+001	7.43872E-001
Tm-170	0.993	84.25*		2.48	9.29352E-001	4.60837E-001
Tl-208	0.856	72.80	@	2.02		
		74.97*	@	3.41	5.04485E+000	5.18049E-001
		84.90*	@	1.51	1.21710E+000	6.01901E-001
		277.36		6.31		
		510.77*	@	22.60	5.40184E-001	1.03540E-001
		583.19*		84.50	3.52227E-001	2.59439E-002
		763.13	@	1.81		
		860.56*		12.42	3.64732E-001	1.10658E-001
Bi-211	0.899	351.03*		13.00	2.15215E+000	1.58690E-001
Bi-212	0.566	39.86	@	1.06		
		727.33*		6.74	1.49982E+000	2.37215E-001
		785.37		1.11		
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.985	74.81*		10.40	1.65413E+000	1.76435E-001
		77.11*		17.50	1.57760E+000	1.26386E-001
		87.30*		7.81	5.33052E-001	2.54555E-001
		115.18	@	0.59		
		238.63*		43.30	1.25152E+000	6.78479E-002
		300.09*		3.28	1.02055E+000	3.90416E-001
Bi-214	0.683	76.86*	@	0.43	6.16086E+001	4.97963E+000
		89.81	@	0.24		
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	7.01634E-001	4.93754E-002
		665.45	@	1.53		
		703.11	@	0.48		
		719.86	@	0.39		
		768.36*		4.89	9.90457E-001	2.44811E-001
		786.10	@	0.31		
		806.17	@	1.26		
		934.06*		3.10	1.18612E+000	3.13541E-001
		964.08*	@	0.36	8.29141E+000	2.44264E+000
		1051.96	@	0.31		
		1120.29*		14.91	9.09783E-001	1.43701E-001
		1133.66	@	0.25		
		1155.19	@	1.63		
		1207.68	@	0.45		
		1238.11*		5.79	6.07920E-001	2.56848E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.683	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	8.93785E-001	3.52756E-001
		1764.49*		15.40	9.25276E-001	1.32143E-001
		1847.42	@	2.11		
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.951	53.28*	@	1.20	5.99626E+000	5.41658E+000
		74.81*		6.44	2.53942E+000	2.73601E-001
		77.11*		10.80	2.43012E+000	2.02933E-001
		87.30*		4.84	8.17696E-001	3.90792E-001
		242.00*		7.43	9.90522E-001	1.03390E-001
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	7.03039E-001	7.35845E-002
		351.93*		37.60	7.40834E-001	5.41191E-002
		462.00*	@	0.22	2.24122E+001	4.76638E+000
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.910	81.07	@	0.13		
		83.78*	@	0.22	8.46921E+000	4.19996E+000
		240.99*		4.10	1.88822E+000	1.96453E-001
Ra-226	0.872	81.07	@	0.20		
		83.78*	@	0.33	5.32655E+000	2.64138E+000
		94.90	@	0.15		
		186.21*		3.59	1.81147E+000	3.82110E-001
Ac-228	0.659	99.50	@	1.26		
		129.07	@	2.50		
		209.25*		3.97	8.93167E-001	2.48938E-001
		270.24		3.55		
		328.00*		3.04	1.02664E+000	4.00982E-001
		338.32*		11.40	1.02048E+000	1.41108E-001
		409.46	@	2.02		
		463.00*		4.45	1.17081E+000	2.52414E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	6.98581E-001	2.50988E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.659	835.70	@	1.70		
		911.20*		26.20	1.28266E+000	1.04589E-001
		964.79*		4.99	6.34461E-001	1.86985E-001
		968.96*		15.90	1.03294E+000	1.04849E-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		0.981	1.999793E+001	7.438720E-001
X	Cd-109		0.941		
	Tm-170		0.993	2.702007E-001	4.654853E-001
	Tl-208	@	0.856	3.525882E-001	2.508082E-002
	Bi-211		0.899	3.004499E-001	2.500263E-001
	Bi-212	@	0.566	1.499817E+000	2.372152E-001
	Pb-212	@	0.985	1.162874E+000	5.540596E-002
	Bi-214	@	0.683	7.556363E-001	4.225619E-002
	Pb-214	@	0.951	6.374100E-001	6.738480E-002
	Ra-224	@	0.910	6.731323E-001	2.335899E-001
	Ra-226	@	0.872	1.811473E+000	3.809088E-001
	Ac-228	@	0.659	1.052442E+000	5.383912E-002
X	Th-228		0.490		
X	Th-231		0.635		

? = 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: 11/10/2016 2:43:37 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
6	92.93	1.9430E-002	32.47	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          *****
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Filename: C:\GENIE2K\CAMFILES\SMP-N002-S018-1016-01.CNF,C:\GENIE2K\CAMF

Report Generated On	: 11/10/2016 2:51:43 PM
Sample Title	: N002-S018-1016-01
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	: 5.807E+002 GWET
Sample Taken On	: 9/19/2016 1:51:00 PM
Acquisition Started	: 11/9/2016 5:42:15 PM
Live Time	: 7200.0 seconds
Real Time	: 7201.7 seconds
Dead Time	: 0.02 %

Energy Calibration Used Done On	: 10/24/2016
Efficiency Calibration Used Done On	: 9/27/2016
Efficiency ID	: ERT0101

Changed Sample Date/Time

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

Detector Name: ERT01
Sample Title: N002-S018-1016-01
Peak Analysis Performed on: 11/10/2016 2:51:43 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	249-	257	253.53	63.34	0.55	4.47E+001	25.51	2.83E+002
M	2	296-	320	300.44	75.07	0.96	2.48E+002	23.39	4.15E+002
m	3	296-	320	309.23	77.27	0.96	3.66E+002	26.44	4.27E+002
M	4	333-	380	337.55	84.35	1.15	8.67E+001	18.46	3.50E+002
m	5	333-	380	348.81	87.16	1.15	1.65E+002	20.94	4.41E+002
m	6	333-	380	359.81	89.91	1.16	1.25E+002	19.67	4.45E+002
m	7	333-	380	372.32	93.04	1.16	2.52E+002	24.07	4.50E+002
M	8	501-	522	504.36	126.05	0.62	3.01E+001	12.90	2.29E+002
m	9	501-	522	517.27	129.28	0.62	6.71E+001	14.99	2.25E+002
	10	735-	749	743.77	185.91	0.88	2.38E+002	34.12	3.22E+002
	11	775-	782	778.00	194.47	0.41	2.95E-001	18.70	1.73E+002
	12	829-	843	837.14	209.25	0.44	9.66E+001	31.32	3.06E+002
M	13	947-	976	954.71	238.65	1.13	1.24E+003	39.08	3.32E+002
m	14	947-	976	967.26	241.79	1.13	2.35E+002	19.25	2.29E+002
	15	1173-	1191	1180.91	295.20	1.08	3.64E+002	31.97	1.94E+002
	16	1193-	1206	1199.99	299.97	0.83	7.64E+001	22.31	1.53E+002
	17	1305-	1315	1311.59	327.88	0.76	2.26E+001	18.20	1.29E+002
	18	1347-	1359	1352.86	338.19	1.13	2.27E+002	25.30	1.56E+002
	19	1395-	1414	1407.57	351.87	1.26	6.35E+002	36.30	1.94E+002
	20	1844-	1857	1851.46	462.86	1.26	4.84E+001	18.13	1.02E+002
	21	2033-	2058	2043.15	510.78	1.70	3.31E+002	28.93	1.19E+002
	22	2324-	2339	2332.06	583.02	1.27	4.42E+002	26.45	8.58E+001
	23	2427-	2446	2436.64	609.16	1.35	4.38E+002	28.98	1.15E+002
	24	2903-	2915	2908.38	727.11	1.29	8.48E+001	14.75	5.02E+001
	25	3174-	3187	3179.44	794.88	1.55	6.03E+001	11.83	2.87E+001
	26	3434-	3452	3442.03	860.53	0.41	5.73E+001	15.23	5.17E+001
	27	3636-	3653	3643.88	911.00	1.62	3.01E+002	21.22	4.54E+001
M	28	3852-	3884	3858.41	964.64	1.41	6.22E+001	9.80	3.94E+001
m	29	3852-	3884	3875.20	968.83	1.41	1.88E+002	14.97	4.08E+001
	30	3999-	4010	4004.68	1001.21	0.61	1.75E+001	8.60	2.25E+001
	31	4472-	4491	4481.00	1120.30	1.14	1.25E+002	17.99	5.67E+001
	32	4946-	4962	4953.66	1238.47	0.34	5.06E+001	13.19	3.94E+001
	33	5506-	5519	5511.30	1377.89	0.40	2.80E+001	9.30	2.10E+001
	34	5831-	5856	5844.57	1461.22	1.79	1.12E+003	35.13	2.62E+001
	35	6350-	6361	6355.29	1588.91	0.39	2.08E+001	7.05	1.13E+001
	36	7054-	7067	7060.39	1765.20	1.06	6.44E+001	10.05	1.26E+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-S018-1016-01
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	6.0050E-001	6.00E-001	1.1662E+001
	Co-60	1173.23	99.85	8.0702E-002	6.15E-002	4.3401E-003
		1332.49	99.98	6.1526E-002		-7.4931E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	9.9036E+002	7.93E-002	-4.2755E+002
		661.66	84.99	7.9263E-002		7.5250E-002
+	Tl-208	72.80	2.02	7.6932E+000	5.81E-002	-7.5419E+000
		74.97*	3.41	2.4626E+000		4.4683E+000
		84.90*	1.51	3.6128E+000		2.4920E+000
		277.36	6.31	8.3602E-001		3.5653E-001
		510.77*	22.60	3.1694E-001		4.0071E-001
		583.19*	84.50	5.8145E-002		3.1966E-001
		763.13	1.81	3.4810E+000		-5.2620E+000
		860.56*	12.42	4.2253E-001		3.7693E-001
+	Bi-212	39.86	1.06	5.4960E+002	6.07E-001	-1.2192E+002
		727.33*	6.74	6.0663E-001		9.1463E-001
		785.37	1.11	5.9908E+000		2.2813E+000
		1620.74	1.51	3.5674E+000		1.9019E-001
		1806.00	0.09	5.7811E+001		7.5822E-001
+	Pb-212	74.81*	10.40	8.0744E-001	9.93E-002	1.4651E+000
		77.11*	17.50	4.4104E-001		1.1664E+000
		87.30*	7.81	7.2545E-001		8.4901E-001
		115.18	0.59	9.3725E+000		-8.7083E-001
		238.63*	43.30	9.9307E-002		9.6169E-001
		300.09*	3.28	1.1655E+000		9.0650E-001
+	Bi-214	76.86*	0.43	1.7222E+001	1.28E-001	4.5545E+001
		89.81*	0.24	2.0836E+001		1.8377E+001
		386.77	0.30	1.6473E+001		8.5402E+000
		454.77	0.29	1.7103E+001		-6.0514E+000
		609.31*	45.49	1.2836E-001		5.8649E-001
		665.45	1.53	4.3248E+000		3.0519E+000
		703.11	0.48	1.3047E+001		-6.0600E+000
		719.86	0.39	1.5218E+001		6.3655E+000
		768.36	4.89	1.3776E+000		1.0084E+000
		786.10	0.31	2.0882E+001		-5.9285E+000
		806.17	1.26	5.0856E+000		3.7091E+000
		934.06	3.10	2.2222E+000		1.3226E+000
		964.08*	0.36	1.0181E+001		1.4410E+001
		1051.96	0.31	2.0550E+001		2.4887E+000
		1120.29*	14.91	4.2559E-001		7.8183E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.9725E+001	1.28E-001	2.5391E+001
		1155.19	1.63	4.6930E+000		3.2545E+000
		1207.68	0.45	1.7592E+001		2.7051E+000
		1238.11*	5.79	9.3500E-001		8.6966E-001
		1280.96	1.43	5.0829E+000		5.2518E-001
		1377.67*	4.00	1.0243E+000		7.4930E-001
		1385.31	0.76	8.2488E+000		-2.4104E+000
		1401.50	1.27	5.3705E+000		-7.8877E-001
		1407.98	2.15	3.3757E+000		2.7024E+000
		1509.23	2.11	2.9665E+000		1.3970E+000
		1538.50	0.38	1.4084E+001		-1.1023E+000
		1543.32	0.20	2.5650E+001		4.2737E+000
		1583.22	0.69	1.0883E+001		1.2846E+000
		1594.73	0.25	2.9341E+001		8.2602E+000
		1599.31	0.23	2.7479E+001		6.3882E-001
		1661.28	1.15	4.1095E+000		1.0929E+000
		1683.99	0.22	2.4366E+001		9.8681E+000
		1729.59	2.92	2.2342E+000		-3.9303E-001
		1764.49*	15.40	2.7762E-001		4.8945E-001
		1847.42	2.11	2.4958E+000		-2.6627E-001
		1873.16	0.22	2.2838E+001		-4.8439E+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	4.5900E+001	1.37E-001	-4.1267E+000
		74.81*	6.44	1.2394E+000		2.2489E+000
		77.11*	10.80	6.7930E-001		1.7965E+000
		87.30*	4.84	1.1127E+000		1.3022E+000
		242.00*	7.43	4.5051E-001		1.0341E+000
		258.87	0.52	9.1936E+000		-3.7655E-001
		274.80	0.47	1.0383E+001		-9.7260E+000
		295.22*	19.30	2.3170E-001		6.9031E-001
		351.93*	37.60	1.3733E-001		6.8648E-001
		462.00*	0.22	1.8186E+001		1.0923E+001
		533.66	0.19	2.8461E+001		1.0119E+001
		785.96	1.07	6.0835E+000		-2.2020E+000
		839.04	0.59	1.0935E+001		1.6813E+000
+	Ra-224	81.07	0.13	7.1074E+001	8.59E-001	7.3978E+000
		83.78*	0.22	2.5140E+001		1.7340E+001
		240.99*	4.10	8.5890E-001		1.9714E+000
+	Ra-226	81.07	0.20	4.4925E+001	1.24E+000	4.6760E+000
		83.78*	0.33	1.5809E+001		1.0905E+001
		94.90	0.15	4.5939E+001		-1.0278E+001
		186.21*	3.59	1.2359E+000		1.5513E+000
+	Ac-228	99.50	1.26	4.5179E+000	1.99E-001	-5.4103E-001
		129.07*	2.50	1.2596E+000		8.3318E-001
		209.25*	3.97	1.1485E+000		7.8721E-001
		270.24	3.55	1.5033E+000		-4.4315E-001
		328.00*	3.04	1.1445E+000		3.0618E-001
		338.32*	11.40	3.5873E-001		8.3933E-001
		409.46	2.02	2.8970E+000		1.2941E+000

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	9.5012E-001	1.99E-001	5.7068E-001
		755.31	1.03	6.2817E+000		1.6513E+000
		772.29	1.52	4.6691E+000		4.8196E+000
		794.94*	4.31	7.9372E-001		1.0829E+000
		835.70	1.70	4.1448E+000		2.0652E+000
		911.20*	26.20	1.9901E-001		9.5825E-001
		964.79*	4.99	7.7912E-001		1.1028E+000
		968.96*	15.90	2.4946E-001		1.0509E+000
		1588.20*	3.06	1.1263E+000		8.4323E-001
		1630.62	1.52	3.3258E+000		-2.7995E-001
	Th-228	84.37*	1.26	4.3296E+000	4.33E+000	2.9864E+000
		131.61	0.13	4.5954E+001		1.0816E+001
		166.41	0.10	5.0410E+001		1.5608E+001
		215.98	0.25	2.0694E+001		-1.0775E+001
	Pa-234m	258.23	0.07	6.5184E+001	7.88E+000	5.8282E+000
		742.81	0.09	6.3888E+001		3.0832E+001
		766.36	0.32	2.0183E+001		5.3552E+000
		786.27	0.05	1.2079E+002		1.0352E+000
		1001.03	0.85	7.8757E+000		1.6953E+000
		1737.77	0.02	2.5479E+002		-9.0465E+001
+	Th-234	63.30*	3.75	4.0791E+000	1.18E+000	3.5785E-001
		92.59*	4.33	1.1794E+000		1.3794E+000
		112.81	0.22	2.4186E+001		-1.0065E+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-S018-1016-01
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	0.975	1460.82*		10.55	1.16624E+001	4.84085E-001
Eu-152m	0.999	89.85*		69.90	6.46068E-002	1.04135E-002
Tl-208	0.858	72.80	@	2.02		
		74.97*	@	3.41	4.46829E+000	4.48841E-001
		84.90*	@	1.51	2.49196E+000	5.37270E-001
		277.36		6.31		
		510.77*	@	22.60	4.00706E-001	7.50640E-002
		583.19*		84.50	3.19658E-001	2.20917E-002
		763.13	@	1.81		
		860.56*		12.42	3.76931E-001	1.00712E-001
Bi-211	0.892	351.03*		13.00	1.99427E+000	1.41353E-001
Bi-212	0.569	39.86	@	1.06		
		727.33*		6.74	9.14626E-001	1.61596E-001
		785.37		1.11		
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.984	74.81*		10.40	1.46508E+000	1.53116E-001
		77.11*		17.50	1.16640E+000	9.92381E-002
		87.30*		7.81	8.49006E-001	1.14811E-001
		115.18	@	0.59		
		238.63*		43.30	9.61686E-001	5.32487E-002
		300.09*		3.28	9.06502E-001	2.67496E-001
Bi-214	0.606	76.86*	@	0.43	4.55453E+001	3.90567E+000
		89.81*	@	0.24	1.83771E+001	3.03455E+000
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	5.86488E-001	4.27406E-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		
		964.08*	@	0.36	1.44096E+001	2.34306E+000
		1051.96	@	0.31		
		1120.29*		14.91	7.81834E-001	1.13892E-001
		1133.66	@	0.25		
		1155.19	@	1.63		
		1207.68	@	0.45		
		1238.11*		5.79	8.69664E-001	2.28188E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.606	1280.96	@	1.43		
		1377.67*		4.00	7.49299E-001	2.49827E-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	4.89452E-001	8.57732E-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	2.24894E+000	2.37512E-001
		77.11*		10.80	1.79651E+000	1.58604E-001
		87.30*		4.84	1.30222E+000	1.77817E-001
		242.00*		7.43	1.03406E+000	9.74363E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	6.90310E-001	6.71696E-002
		351.93*		37.60	6.86483E-001	4.81688E-002
		462.00*	@	0.22	1.09229E+001	4.13474E+000
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.867	81.07	@	0.13		
		83.78*	@	0.22	1.73404E+001	3.79287E+000
		240.99*		4.10	1.97144E+000	1.85024E-001
Ra-226	0.869	81.07	@	0.20		
		83.78*	@	0.33	1.09047E+001	2.38467E+000
		94.90	@	0.15		
		186.21*		3.59	1.55130E+000	2.93619E-001
Ac-228	0.756	99.50	@	1.26		
		129.07*	@	2.50	8.33181E-001	1.89289E-001
		209.25*		3.97	7.87214E-001	2.58877E-001
		270.24		3.55		
		328.00*		3.04	3.06181E-001	2.47320E-001
		338.32*		11.40	8.39328E-001	1.03111E-001
		409.46	@	2.02		
		463.00*		4.45	5.70676E-001	2.16963E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	1.08288E+000	2.16900E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.756	835.70	@	1.70		
		911.20*		26.20	9.58255E-001	7.83347E-002
		964.79*		4.99	1.10275E+000	1.79541E-001
		968.96*		15.90	1.05085E+000	9.31076E-002
		1588.20*		3.06	8.43227E-001	2.89081E-001
		1630.62	@	1.52		
Th-231	0.837	81.23	@	0.90		
		84.21*		6.60	5.41896E-001	1.21362E-001
		89.95*	@	1.00	4.48374E+000	7.70190E-001
Th-234	0.927	63.30*		3.75	3.57854E-001	8.65235E-001
		92.59*		4.33	1.37944E+000	2.07781E-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		0.975	1.166244E+001	4.840853E-001
X	Cd-109		0.885		
	Eu-152m		0.999	5.720387E-002	1.053761E-002
X	Tm-170		0.998		
	Tl-208	@	0.858	3.230666E-001	2.140777E-002
	Bi-211		0.892	3.025346E-001	2.204421E-001
	Bi-212	@	0.569	9.146257E-001	1.615962E-001
	Pb-212	@	0.984	8.627751E-001	4.293961E-002
	Bi-214	@	0.606	5.989276E-001	3.538736E-002
	Pb-214	@	0.945	5.823429E-001	5.908639E-002
	Ra-224	@	0.867	8.612022E-001	2.152798E-001
	Ra-226	@	0.869	1.551304E+000	2.924719E-001
	Ac-228	@	0.756	9.255768E-001	4.290250E-002
X	Th-228		0.501		
	Th-231	@	0.837	3.676390E-001	1.180190E-001
	Th-234	@	0.927	1.323739E+000	2.020367E-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: 11/10/2016 2:51:43 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 8	126.05	4.1740E-003	42.91	Sum	
11	194.47	4.0944E-005	6342.25	Tol.	Np-237
30	1001.21	1.8648E-003	65.42	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: C:\GENIE2K\CAMFILES\SMP-N002-S018-1622-01.CNF,C:\GENIE2K\CAMF

Report Generated On	: 11/10/2016 2:57:03 PM
Sample Title	: N002-S018-1622-01
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	: 4.641E+002 GWET
Sample Taken On	: 9/19/2016 2:00:00 PM
Acquisition Started	: 11/10/2016 9:36:18 AM
Live Time	: 7200.0 seconds
Real Time	: 7201.7 seconds
Dead Time	: 0.02 %

Energy Calibration Used Done On	: 10/24/2016
Efficiency Calibration Used Done On	: 9/27/2016
Efficiency ID	: ERT0101

Changed Sample Date

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

Detector Name: ERT01
Sample Title: N002-S018-1622-01
Peak Analysis Performed on: 11/10/2016 2:57:03 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	244-	258	254.31	63.53	0.53	3.08E+001	34.06	3.90E+002
M	2	294-	315	300.05	74.97	0.88	2.26E+002	21.74	3.97E+002
m	3	294-	315	309.05	77.22	0.88	3.28E+002	24.98	3.95E+002
M	4	342-	384	349.30	87.28	1.11	1.50E+002	21.02	4.42E+002
m	5	342-	384	360.23	90.02	1.11	7.50E+001	17.93	4.17E+002
m	6	342-	384	372.20	93.01	1.12	2.34E+002	23.14	3.90E+002
	7	738-	751	744.02	185.97	1.09	2.48E+002	31.04	2.59E+002
	8	805-	813	808.58	202.11	0.42	5.65E+000	19.27	1.71E+002
	9	832-	844	837.54	209.35	0.92	1.09E+002	27.45	2.44E+002
M	10	947-	978	954.91	238.70	1.13	1.29E+003	38.85	2.19E+002
m	11	947-	978	967.00	241.72	1.14	2.20E+002	18.29	1.80E+002
	12	1035-	1042	1038.33	259.55	0.49	1.11E+001	15.20	1.08E+002
	13	1073-	1088	1081.93	270.46	0.81	1.25E+002	26.58	1.94E+002
	14	1172-	1189	1180.96	295.21	1.16	3.14E+002	29.78	1.76E+002
	15	1191-	1205	1200.16	300.02	0.62	8.04E+001	23.16	1.58E+002
	16	1253-	1263	1256.74	314.16	0.48	3.06E+001	16.52	1.01E+002
	17	1304-	1316	1312.36	328.07	1.11	6.52E+001	20.30	1.32E+002
	18	1343-	1362	1353.08	338.25	0.99	2.43E+002	29.12	1.72E+002
	19	1400-	1419	1407.77	351.92	1.07	5.50E+002	34.03	1.73E+002
	20	1578-	1588	1582.46	395.60	0.31	2.40E+001	14.49	7.80E+001
	21	1633-	1644	1637.69	409.41	1.08	5.55E+001	15.65	7.45E+001
	22	1843-	1860	1852.32	463.07	1.14	1.16E+002	20.04	8.76E+001
	23	2031-	2056	2042.75	510.68	1.82	3.13E+002	30.15	1.41E+002
	24	2323-	2341	2332.35	583.09	1.19	4.11E+002	26.91	9.27E+001
	25	2428-	2445	2436.67	609.17	1.12	4.47E+002	27.82	9.96E+001
	26	2901-	2916	2908.59	727.16	1.22	1.04E+002	16.30	5.37E+001
	27	3172-	3187	3179.32	794.85	0.38	5.18E+001	15.27	6.02E+001
	28	3634-	3653	3644.67	911.20	1.34	2.96E+002	21.30	4.50E+001
M	29	3853-	3884	3859.50	964.91	1.55	4.67E+001	9.72	5.53E+001
m	30	3853-	3884	3875.58	968.93	1.56	1.87E+002	15.33	4.97E+001
	31	4473-	4490	4481.88	1120.52	1.23	9.17E+001	16.59	5.63E+001
	32	5832-	5859	5845.08	1461.34	1.60	1.38E+003	38.54	2.43E+001
	33	7056-	7072	7063.40	1765.95	1.59	5.64E+001	10.99	2.06E+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-S018-1622-01
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	7.4157E-001	7.42E-001	1.7964E+001
	Co-60	1173.23	99.85	1.0523E-001	7.75E-002	1.5927E-002
		1332.49	99.98	7.7524E-002		-1.4818E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	1.2392E+003	8.65E-002	-1.1570E+001
		661.66	84.99	8.6534E-002		-2.9535E-002
+	Tl-208	72.80	2.02	9.0544E+000	7.97E-002	-2.1929E+000
		74.97*	3.41	3.0320E+000		5.1140E+000
		84.90	1.51	7.2341E+000		2.1107E+000
		277.36	6.31	1.0615E+000		6.7198E-001
		510.77*	22.60	4.2026E-001		4.4782E-001
		583.19*	84.50	7.9697E-002		3.7190E-001
		763.13	1.81	4.7558E+000		-2.1969E+000
		860.56	12.42	7.2067E-001		1.6278E-001
+	Bi-212	39.86	1.06	6.7695E+002	8.35E-001	3.0538E+002
		727.33*	6.74	8.3450E-001		1.4077E+000
		785.37	1.11	7.8703E+000		3.6433E+000
		1620.74	1.51	5.1463E+000		3.0108E+000
		1806.00	0.09	6.3709E+001		-7.9830E+000
+	Pb-212	74.81*	10.40	9.9414E-001	1.03E-001	1.6768E+000
		77.11*	17.50	5.3268E-001		1.3112E+000
		87.30*	7.81	9.0666E-001		9.6196E-001
		115.18	0.59	1.0835E+001		2.2425E+000
		238.63*	43.30	1.0278E-001		1.2535E+000
		300.09*	3.28	1.5161E+000		1.1948E+000
	Bi-214	76.86	0.43	3.8983E+001	2.87E-001	-3.3396E-001
		89.81	0.24	3.9065E+001		-4.6344E+001
		386.77	0.30	2.0049E+001		3.7505E+000
		454.77	0.29	2.1730E+001		7.2147E+000
		609.31	45.49	2.8727E-001		7.6874E-001
		665.45	1.53	4.9651E+000		2.8042E+000
		703.11	0.48	1.6989E+001		1.3129E+001
		719.86	0.39	1.8065E+001		2.1608E+000
		768.36	4.89	1.8334E+000		1.5527E+000
		786.10	0.31	2.7709E+001		5.2281E+000
		806.17	1.26	6.3060E+000		3.7804E+000
		934.06	3.10	2.6536E+000		6.6221E-001
		964.08	0.36	3.6361E+001		-7.3625E-001
		1051.96	0.31	2.7713E+001		1.3456E+001
		1120.29	14.91	7.9289E-001		5.6943E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
	Bi-214	1133.66	0.25	3.5349E+001	2.87E-001	-9.7029E+000
		1155.19	1.63	6.3360E+000		3.3695E-001
		1207.68	0.45	2.2820E+001		4.7784E+000
		1238.11	5.79	2.0130E+000		1.2017E+000
		1280.96	1.43	6.8976E+000		-2.6096E-001
		1377.67	4.00	2.2367E+000		1.0197E+000
		1385.31	0.76	1.1248E+001		-6.0383E+000
		1401.50	1.27	5.8583E+000		-4.4546E+000
		1407.98	2.15	3.7480E+000		1.1035E+000
		1509.23	2.11	3.6837E+000		1.5974E-001
		1538.50	0.38	1.7429E+001		8.5230E+000
		1543.32	0.20	3.0548E+001		-1.6813E+001
		1583.22	0.69	1.2426E+001		9.7279E+000
		1594.73	0.25	3.6495E+001		2.5939E+001
		1599.31	0.23	3.1791E+001		-6.6798E+000
		1661.28	1.15	6.4087E+000		3.6822E+000
		1683.99	0.22	3.0100E+001		5.3438E+000
		1729.59	2.92	2.5210E+000		5.7699E-001
		1764.49	15.40	7.1273E-001		7.8116E-001
		1847.42	2.11	3.2995E+000		5.8687E-001
		1873.16	0.22	2.7611E+001		1.0139E+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	5.4304E+001	1.63E-001	8.4682E+000
		74.81*	6.44	1.5250E+000		2.5722E+000
		77.11*	10.80	8.1990E-001		2.0182E+000
		87.30*	4.84	1.3897E+000		1.4745E+000
		242.00*	7.43	5.0158E-001		1.2140E+000
		258.87*	0.52	5.8196E+000		8.9710E-001
		274.80	0.47	1.3436E+001		5.9512E-002
		295.22*	19.30	2.7079E-001		7.4671E-001
		351.93*	37.60	1.6255E-001		7.4281E-001
		462.00	0.22	3.3044E+001		2.4397E+001
		533.66	0.19	3.6127E+001		2.1977E+000
		785.96	1.07	8.0067E+000		-5.4654E-001
		839.04	0.59	1.5917E+001		9.3138E+000
+	Ra-224	81.07	0.13	8.8465E+001	9.57E-001	-1.8666E+001
		83.78	0.22	4.8641E+001		1.8399E+001
		240.99*	4.10	9.5688E-001		2.3159E+000
+	Ra-226	81.07	0.20	5.5881E+001	1.38E+000	-1.1791E+001
		83.78	0.33	3.0568E+001		1.1563E+001
		94.90	0.15	5.5311E+001		8.1512E+000
		186.21*	3.59	1.3775E+000		2.0463E+000
+	Ac-228	99.50	1.26	5.5778E+000	2.55E-001	3.1702E+000
		129.07	2.50	2.9117E+000		2.0344E+000
		209.25*	3.97	1.2319E+000		1.1091E+000
		270.24*	3.55	1.4824E+000		1.6161E+000
		328.00*	3.04	1.5167E+000		1.1075E+000
		338.32*	11.40	5.4135E-001		1.1218E+000
		409.46*	2.02	1.9870E+000		1.6517E+000

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	1.2000E+000	2.55E-001	1.7191E+000
		755.31	1.03	7.8650E+000		1.7880E+000
		772.29	1.52	6.0360E+000		2.8713E+000
		794.94*	4.31	1.4684E+000		1.1647E+000
		835.70	1.70	5.6613E+000		6.1870E-001
		911.20*	26.20	2.5532E-001		1.1813E+000
		964.79*	4.99	1.1456E+000		1.0354E+000
		968.96*	15.90	3.4255E-001		1.3049E+000
		1588.20	3.06	3.4321E+000		2.7967E+000
		1630.62	1.52	5.6416E+000		2.6067E+000
	Th-228	84.37	1.26	8.5339E+000	8.53E+000	2.3332E+000
		131.61	0.13	5.5768E+001		4.6851E+001
		166.41	0.10	5.9814E+001		-2.7209E+000
		215.98	0.25	2.5010E+001		-6.0890E+000
	Pa-234m	258.23	0.07	7.7625E+001	1.06E+001	-5.5402E+000
		742.81	0.09	7.9205E+001		4.8247E+000
		766.36	0.32	2.6579E+001		5.5290E+000
		786.27	0.05	1.6027E+002		6.0485E+001
		1001.03	0.85	1.0565E+001		7.7506E+000
		1737.77	0.02	2.8549E+002		-3.3848E+001
+	Th-234	63.30*	3.75	6.5917E+000	1.39E+000	-1.1371E-001
		92.59*	4.33	1.3866E+000		1.5504E+000
		112.81	0.22	2.8443E+001		-1.5232E+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: N002-S018-1622-01
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	0.957	1460.82*		10.55	1.79638E+001	6.98772E-001
Eu-152m	0.995	89.85*		69.90	4.84954E-002	1.17039E-002
Tl-208	0.712	72.80	@	2.02		
		74.97*	@	3.41	5.11395E+000	5.23443E-001
		84.90	@	1.51		
		277.36		6.31		
		510.77*	@	22.60	4.47823E-001	9.73281E-002
		583.19*		84.50	3.71901E-001	2.76238E-002
		763.13	@	1.81		
		860.56		12.42		
Bi-211	0.880	351.03*		13.00	2.15803E+000	1.61719E-001
Bi-212	0.571	39.86	@	1.06		
		727.33*		6.74	1.40772E+000	2.24548E-001
		785.37		1.11		
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.986	74.81*		10.40	1.67679E+000	1.78314E-001
		77.11*		17.50	1.31118E+000	1.15936E-001
		87.30*		7.81	9.61961E-001	1.42314E-001
		115.18	@	0.59		
		238.63*		43.30	1.25349E+000	6.83610E-002
		300.09*		3.28	1.19477E+000	3.47715E-001
Pb-214	0.953	53.28	@	1.20		
		74.81*		6.44	2.57223E+000	2.76321E-001
		77.11*		10.80	2.01818E+000	1.84680E-001
		87.30*		4.84	1.47451E+000	2.19920E-001
		242.00*		7.43	1.21397E+000	1.15491E-001
		258.87*	@	0.52	8.97104E-001	1.23482E+000
		274.80	@	0.47		
		295.22*		19.30	7.46712E-001	7.72908E-002
		351.93*		37.60	7.42811E-001	5.51649E-002
		462.00	@	0.22		
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.813	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	2.31593E+000	2.19467E-001
Ra-226	0.771	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ra-226	0.771	186.21*		3.59	2.04631E+000	3.38510E-001
Ac-228	0.783	99.50	@	1.26		
		129.07	@	2.50		
		209.25*		3.97	1.10910E+000	2.86726E-001
		270.24*		3.55	1.61606E+000	3.52709E-001
		328.00*		3.04	1.10749E+000	3.49706E-001
		338.32*		11.40	1.12182E+000	1.46730E-001
		409.46*	@	2.02	1.65173E+000	4.72575E-001
		463.00*		4.45	1.71908E+000	3.16091E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	1.16468E+000	3.46450E-001
		835.70	@	1.70		
		911.20*		26.20	1.18134E+000	9.80705E-002
		964.79*		4.99	1.03538E+000	2.19908E-001
		968.96*		15.90	1.30493E+000	1.18654E-001
		1588.20		3.06		
		1630.62	@	1.52		
Th-234	0.925	63.30*		3.75	-1.13706E-001	1.39280E+000
		92.59*		4.33	1.55039E+000	2.48586E-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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***** 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		0.957	1.796380E+001	6.987716E-001
X	Cd-109		0.914		
	Eu-152m		0.995	4.849536E-002	1.170391E-002
	Tl-208	@	0.712	3.725468E-001	2.741783E-002
	Bi-211		0.880	4.120881E-001	2.555527E-001
	Bi-212	@	0.571	1.407723E+000	2.245480E-001
	Pb-212	@	0.986	1.085863E+000	5.366962E-002
	Pb-214	@	0.953	6.009668E-001	6.896964E-002
	Ra-224	@	0.813	1.169445E+000	2.543237E-001
	Ra-226	@	0.771	2.046311E+000	3.385096E-001
	Ac-228	@	0.783	1.216828E+000	5.883901E-002
	Th-234	@	0.925	1.550394E+000	2.485859E-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: 11/10/2016 2:57:03 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
8	202.11	7.8429E-004	341.33		
16	314.16	4.2440E-003	54.06	Sum	
20	395.60	3.3344E-003	60.34	Sum	
25	609.17	6.2137E-002	6.22	Sum	
31	1120.52	1.2731E-002	18.10	Sum	
33	1765.95	7.8319E-003	19.49		

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

Errors quoted at 1.000 sigma