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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-NFB-A04-S003-1218-01.CNF

Report Generated On	: 6/2/2017 10:03:27 PM
Sample Title	: NFB-A04-S003-1218-01
Sample Description	: 450 cc Soil
Sample Identification	:
Sample Type	:
Sample Geometry	:
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 100 - 8192
Peak Area Range (in channels)	: 100 - 8192
Identification Energy Tolerance	: 1.000 keV
Sample Size	: 7.961E+002 GWET
Sample Taken On	: 5/11/2017 3:15:00 PM
Acquisition Started	: 6/2/2017 8:03:20 PM
Live Time	: 7200.0 seconds
Real Time	: 7201.8 seconds
Dead Time	: 0.03 %

Energy Calibration Used Done On	: 5/10/2017
Efficiency Calibration Used Done On	: 12/14/2016
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: NFB-A04-S003-1218-01
Peak Analysis Performed on: 6/2/2017 10:03:27 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	254.05	63.38	0.35	2.99E+001	24.74	2.73E+002
M	2	294-	322	299.92	74.84	0.91	1.55E+002	20.65	4.45E+002
m	3	294-	322	309.14	77.15	0.91	3.17E+002	25.32	4.15E+002
	4	341-	355	349.16	87.15	0.64	2.94E+001	40.38	5.57E+002
	5	367-	384	371.92	92.84	1.46	1.51E+002	44.74	5.64E+002
	6	514-	522	517.08	129.11	0.55	2.90E+001	23.86	2.51E+002
	7	736-	750	744.43	185.93	1.25	1.73E+002	35.53	3.79E+002
M	8	948-	979	954.67	238.48	1.06	8.32E+002	32.96	2.75E+002
m	9	948-	979	967.06	241.57	1.06	2.32E+002	19.09	2.22E+002
	10	1174-	1188	1180.80	294.99	0.89	4.16E+002	30.33	1.75E+002
	11	1345-	1360	1353.34	338.11	1.22	1.75E+002	25.71	1.62E+002
	12	1400-	1417	1407.66	351.69	1.26	7.56E+002	34.54	1.34E+002
	13	1844-	1858	1851.66	462.65	1.24	5.83E+001	18.44	9.77E+001
	14	2034-	2053	2042.87	510.44	1.26	2.33E+002	27.29	1.44E+002
	15	2326-	2343	2332.20	582.75	1.17	3.28E+002	25.93	1.03E+002
	16	2428-	2446	2436.71	608.87	1.31	5.74E+002	29.45	8.71E+001
	17	3067-	3079	3073.41	767.99	0.40	2.61E+001	13.25	5.69E+001
	18	3634-	3654	3644.67	910.76	1.63	2.56E+002	21.11	5.25E+001
M	19	3852-	3887	3859.17	964.37	1.51	5.95E+001	9.63	4.01E+001
m	20	3852-	3887	3875.23	968.38	1.51	1.39E+002	13.17	3.81E+001
	21	4472-	4490	4481.80	1119.98	1.47	1.30E+002	16.81	4.50E+001
	22	4944-	4962	4954.63	1238.15	1.96	7.40E+001	12.72	2.60E+001
	23	5505-	5520	5511.94	1377.43	0.67	4.91E+001	9.22	1.19E+001
	24	5833-	5857	5845.29	1460.74	1.75	6.45E+002	28.04	3.43E+001
	25	6348-	6362	6355.33	1588.21	1.11	3.05E+001	7.62	9.46E+000
	26	6917-	6930	6923.24	1730.14	0.96	2.91E+001	7.36	8.92E+000
	27	7053-	7071	7062.16	1764.86	1.07	1.32E+002	13.63	1.62E+001
	28	7388-	7401	7394.24	1847.85	0.69	2.00E+001	6.74	8.96E+000

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 *****
****

Detector Name: ERT01
Sample Geometry:
Sample Title: NFB-A04-S003-1218-01
Nuclide Library Used: C:\GENIE2K\CAMFILES\ERT_LIBRARY_LMDA.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	K-40	1460.82*	10.55	4.8973E-001	4.90E-001	4.9266E+000
	Co-60	1173.23	99.85	5.0771E-002	4.88E-002	1.4852E-002
		1332.49	99.98	4.8793E-002		1.1894E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	2.8778E+003	5.31E-002	-1.2563E+003
		661.66	84.99	5.3065E-002		4.2124E-002
+	Tl-208	72.80	2.02	4.9605E+000	4.62E-002	-5.4928E-001
		74.97*	3.41	1.7827E+000		1.9537E+000
		84.90	1.51	4.1396E+000		-3.9977E-001
		277.36	6.31	6.6982E-001		3.4653E-001
		510.77*	22.60	2.2518E-001		1.1128E-001
		583.19*	84.50	4.6194E-002		1.6382E-001
		763.13	1.81	2.7471E+000		9.6773E-001
		860.56	12.42	3.6452E-001		1.9996E-001
	Bi-212	39.86	1.06	5.2197E+002	7.11E-001	-1.8034E+002
		727.33	6.74	7.1130E-001		6.8251E-001
		785.37	1.11	4.2799E+000		1.4490E+000
		1620.74	1.51	3.0140E+000		9.2186E-002
		1806.00	0.09	4.3313E+001		2.8385E+001
+	Pb-212	74.81*	10.40	5.8451E-001	7.09E-002	6.4058E-001
		77.11*	17.50	3.0793E-001		7.1426E-001
		87.30*	7.81	7.2434E-001		1.1278E-001
		115.18	0.59	6.5419E+000		-1.1969E+000
		238.63*	43.30	7.0851E-002		4.9855E-001
		300.09	3.28	1.3940E+000		-5.1167E-002
+	Bi-214	76.86*	0.43	1.2374E+001	7.84E-002	2.8703E+001
		89.81	0.24	2.4392E+001		-2.4545E+000
		386.77	0.30	1.2661E+001		-1.6192E+000
		454.77	0.29	1.3550E+001		4.8244E-001
		609.31*	45.49	7.8371E-002		5.4633E-001
		665.45	1.53	2.8732E+000		4.1882E-001
		703.11	0.48	8.3910E+000		2.1128E+000
		719.86	0.39	1.0463E+001		-1.1760E+001
		768.36*	4.89	6.1537E-001		2.6980E-001
		786.10	0.31	1.4926E+001		1.1205E+000
		806.17	1.26	3.5860E+000		3.2283E+000
		934.06	3.10	1.5439E+000		5.9306E-002
		964.08*	0.36	7.3457E+000		9.8609E+000
		1051.96	0.31	1.4226E+001		-7.6903E+000
		1120.29*	14.91	2.7392E-001		5.9192E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	1.8654E+001	7.84E-002	-1.0322E+001
		1155.19	1.63	3.4388E+000		3.2879E+000
		1207.68	0.45	1.1704E+001		3.1403E+000
		1238.11*	5.79	5.8808E-001		9.3939E-001
		1280.96	1.43	3.8007E+000		8.5681E-001
		1377.67*	4.00	6.0956E-001		9.7686E-001
		1385.31	0.76	6.2617E+000		-3.3948E+000
		1401.50	1.27	3.9757E+000		-3.7260E+000
		1407.98	2.15	2.4610E+000		-6.9375E-001
		1509.23	2.11	2.3304E+000		3.3573E-001
		1538.50	0.38	1.2116E+001		2.1994E-001
		1543.32	0.20	2.2062E+001		1.1786E+001
		1583.22	0.69	7.6139E+000		7.2175E+000
		1594.73	0.25	2.1853E+001		-5.4266E-001
		1599.31	0.23	2.0384E+001		9.6190E+000
		1661.28	1.15	3.6228E+000		5.7125E-001
		1683.99	0.22	1.5805E+001		-8.7062E+000
		1729.59*	2.92	8.0579E-001		9.0117E-001
		1764.49*	15.40	2.3132E-001		7.4830E-001
		1847.42*	2.11	1.1405E+000		8.7499E-001
		1873.16	0.22	1.8229E+001		-5.8262E+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	2.8910E+001	8.67E-002	1.6072E+001
		74.81*	6.44	9.2338E-001		1.0119E+000
		77.11*	10.80	4.8810E-001		1.1322E+000
		87.30*	4.84	1.1434E+000		1.7802E-001
		242.00*	7.43	3.5527E-001		8.1836E-001
		258.87	0.52	7.4288E+000		6.3449E-001
		274.80	0.47	8.5961E+000		-1.3621E+001
		295.22*	19.30	1.6198E-001		6.2884E-001
		351.93*	37.60	8.6650E-002		6.3764E-001
		462.00*	0.22	1.3516E+001		9.7613E+000
		533.66	0.19	2.0294E+001		-8.5149E+000
		785.96	1.07	4.3216E+000		3.2443E-001
		839.04	0.59	7.7051E+000		5.8808E-001
+	Ra-224	81.07	0.13	5.0259E+001	6.58E-001	-2.0122E+001
		83.78	0.22	2.8073E+001		1.5885E+000
		240.99*	4.10	6.5815E-001		1.5160E+000
+	Ra-226	81.07	0.20	3.2694E+001	1.03E+000	-1.3090E+001
		83.78	0.33	1.8169E+001		1.0280E+000
		94.90	0.15	3.4494E+001		-1.3783E+000
		186.21*	3.59	1.0339E+000		7.9189E-001
+	Ac-228	99.50	1.26	3.4963E+000	1.53E-001	-6.1022E-001
		129.07*	2.50	9.5809E-001		2.5094E-001
		209.25	3.97	1.0920E+000		1.7977E-001
		270.24	3.55	1.2492E+000		6.7758E-001
		328.00	3.04	1.3744E+000		5.3927E-001
		338.32*	11.40	2.9590E-001		4.9220E-001
		409.46	2.02	1.9076E+000		3.6872E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	6.8619E-001	1.53E-001	4.9556E-001
		755.31	1.03	4.2968E+000		8.3043E-001
		772.29	1.52	3.2203E+000		-2.8648E-001
		794.94	4.31	1.1506E+000		9.1391E-001
		835.70	1.70	2.8034E+000		8.8748E-001
		911.20*	26.20	1.5349E-001		5.6124E-001
		964.79*	4.99	5.4625E-001		7.3329E-001
		968.96*	15.90	1.6811E-001		5.4073E-001
		1588.20*	3.06	7.8816E-001		8.8808E-001
		1630.62	1.52	3.0550E+000		2.3111E+000
	Th-228	84.37	1.26	4.9985E+000	5.00E+000	9.1556E-001
		131.61	0.13	3.2683E+001		1.9262E+001
		166.41	0.10	3.9737E+001		8.9665E+000
		215.98	0.25	1.6508E+001		-3.9031E+000
	Pa-234m	258.23	0.07	5.2797E+001	5.45E+000	1.8403E-001
		742.81	0.09	4.4564E+001		-3.2499E+000
		766.36	0.32	1.5461E+001		7.9874E+000
		786.27	0.05	8.7248E+001		1.5957E+001
		1001.03	0.85	5.4464E+000		5.2702E-001
		1737.77	0.02	1.9187E+002		-9.4897E+000
+	Th-234	63.30*	3.75	2.6180E+000	1.27E+000	-7.8582E-002
		92.59*	4.33	1.2749E+000		4.5579E-001
		112.81	0.22	1.7888E+001		-3.2626E-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 *****
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Sample Title: NFB-A04-S003-1218-01
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	0.999	1460.82*		10.55	4.92657E+000	2.58333E-001
Tl-208	0.695	72.80	@	2.02		
		74.97*	@	3.41	1.95367E+000	2.67007E-001
		84.90	@	1.51		
		277.36		6.31		
		510.77*	@	22.60	1.11281E-001	4.95525E-002
		583.19*		84.50	1.63822E-001	1.42285E-002
		763.13	@	1.81		
		860.56		12.42		
Bi-211	0.933	351.03*		13.00	1.84777E+000	1.08481E-001
Pb-212	0.920	74.81*		10.40	6.40578E-001	8.94763E-002
		77.11*		17.50	7.14263E-001	6.42109E-002
		87.30*		7.81	1.12776E-001	1.55010E-001
		115.18	@	0.59		
		238.63*		43.30	4.98552E-001	2.61661E-002
		300.09		3.28		
Bi-214	0.718	76.86*	@	0.43	2.87030E+001	2.59862E+000
		89.81	@	0.24		
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	5.46329E-001	3.23406E-002
		665.45	@	1.53		
		703.11	@	0.48		
		719.86	@	0.39		
		768.36*		4.89	2.69801E-001	1.37071E-001
		786.10	@	0.31		
		806.17	@	1.26		
		934.06		3.10		
		964.08*	@	0.36	9.86093E+000	1.64362E+000
		1051.96	@	0.31		
		1120.29*		14.91	5.91917E-001	7.78893E-002
		1133.66	@	0.25		
		1155.19	@	1.63		
		1207.68	@	0.45		
		1238.11*		5.79	9.39393E-001	1.63807E-001
		1280.96	@	1.43		
		1377.67*		4.00	9.76856E-001	1.85873E-001
		1385.31	@	0.76		
		1401.50	@	1.27		
		1407.98	@	2.15		
		1509.23	@	2.11		

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.718	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	9.01175E-001	2.30072E-001
		1764.49*		15.40	7.48300E-001	8.52037E-002
		1847.42*	@	2.11	8.74993E-001	2.96409E-001
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.938	53.28	@	1.20		
		74.81*		6.44	1.01195E+000	1.42185E-001
		77.11*		10.80	1.13217E+000	1.05219E-001
		87.30*		4.84	1.78017E-001	2.44707E-001
		242.00*		7.43	8.18360E-001	7.32294E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	6.28836E-001	5.06194E-002
		351.93*		37.60	6.37640E-001	3.68856E-002
		462.00*	@	0.22	9.76133E+000	3.12818E+000
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.837	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	1.51604E+000	1.35062E-001
Ra-226	0.766	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	7.91887E-001	2.31478E-001
Ac-228	0.517	99.50	@	1.26		
		129.07*	@	2.50	2.50937E-001	2.06534E-001
		209.25		3.97		
		270.24		3.55		
		328.00		3.04		
		338.32*		11.40	4.92199E-001	7.60777E-002
		409.46	@	2.02		
		463.00*		4.45	4.95560E-001	1.59774E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94		4.31		
		835.70	@	1.70		
		911.20*		26.20	5.61244E-001	5.21657E-002
		964.79*		4.99	7.33295E-001	1.22375E-001
		968.96*		15.90	5.40727E-001	5.52476E-002
		1588.20*		3.06	8.88080E-001	2.25463E-001
		1630.62	@	1.52		

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Th-234	0.938	63.30*	3.75	-7.85821E-002	5.49245E-001
		92.59*	4.33	4.55793E-001	2.76686E-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		0.999	4.926566E+000	2.583335E-001
X	Cd-109		0.882		
	Tl-208	@	0.695	1.622083E-001	1.414625E-002
	Bi-211		0.933	3.605935E-001	1.636666E-001
	Pb-212	@	0.920	4.506069E-001	2.348537E-002
	Bi-214	@	0.718	5.813223E-001	2.686408E-002
	Pb-214	@	0.938	5.132045E-001	4.330515E-002
	Ra-224	@	0.837	5.653094E-001	1.559991E-001
	Ra-226	@	0.766	7.918873E-001	2.314775E-001
	Ac-228	@	0.517	5.537525E-001	3.034336E-002
	Th-234	@	0.938	4.557925E-001	2.766855E-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: 6/2/2017 10:03:27 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

All peaks were identified.