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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-BOX-050-WH.CNF

Report Generated On                : 7/17/2017   1:08:48 PM

Sample Title                       : NFB-BOX-050-WH
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                        :  9.041E+002 GWET

Sample Taken On                    : 12/7/2017  12:00:00 PM
Acquisition Started                : 7/17/2017  11:08:43 AM

Live Time                          :     7200.0 seconds
Real Time                          :     7202.3 seconds

Dead Time                          :   0.03 %


            Energy Calibration Used Done On       : 5/10/2017
            Efficiency Calibration Used Done On   : 12/14/2016
            Efficiency ID                         : ERT0101
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****
***** P E A K A N A L Y S I S R E P O R T *****
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Detector Name: ERT01
Sample Title: NFB-BOX-050-WH
Peak Analysis Performed on: 7/17/2017 1:08:48 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	292-	321	300.55	75.00	0.92	2.89E+002	26.91	6.84E+002
m	2	292-	321	309.22	77.17	0.92	5.27E+002	32.29	6.62E+002
M	3	343-	381	349.17	87.15	1.19	2.26E+002	27.84	7.72E+002
m	4	343-	381	360.12	89.89	1.20	2.16E+002	26.36	8.18E+002
m	5	343-	381	372.07	92.87	1.20	3.13E+002	28.95	7.43E+002
	6	513-	522	517.32	129.17	1.01	9.14E+001	34.75	4.93E+002
	7	640-	647	643.59	160.73	0.61	3.43E+001	25.59	3.08E+002
	8	737-	750	744.28	185.90	0.99	3.41E+002	41.98	5.15E+002
	9	833-	841	837.32	209.15	0.81	1.31E+002	28.45	3.18E+002
M	10	947-	977	955.03	238.57	1.10	1.78E+003	46.56	4.33E+002
m	11	947-	977	967.26	241.62	1.10	2.89E+002	22.28	3.45E+002
	12	1074-	1095	1080.90	270.02	0.95	1.38E+002	43.96	4.76E+002
	13	1173-	1191	1181.46	295.16	1.27	3.90E+002	40.83	3.77E+002
	14	1193-	1211	1201.09	300.06	0.64	1.23E+002	36.53	3.58E+002
	15	1307-	1318	1312.48	327.90	0.80	7.61E+001	24.37	2.06E+002
	16	1346-	1359	1353.50	338.15	1.30	3.65E+002	31.38	2.25E+002
	17	1393-	1419	1407.99	351.77	1.17	8.12E+002	47.90	3.39E+002
M	18	1621-	1645	1625.81	406.21	0.77	1.32E+001	13.26	1.40E+002
m	19	1621-	1645	1638.87	409.47	0.77	2.53E+001	25.03	1.32E+002
	20	1845-	1860	1852.44	462.85	0.86	1.47E+002	24.09	1.44E+002
	21	2032-	2053	2043.27	510.54	1.29	3.88E+002	37.12	2.64E+002
	22	2324-	2342	2333.18	582.99	1.24	6.81E+002	35.96	1.82E+002
	23	2428-	2446	2437.57	609.08	1.46	6.21E+002	33.44	1.47E+002
	24	2658-	2667	2662.33	665.25	1.12	2.97E+001	12.61	5.73E+001
	25	2900-	2917	2908.95	726.89	1.49	1.72E+002	22.53	1.03E+002
M	26	3063-	3096	3073.76	768.08	1.05	4.25E+001	9.83	7.59E+001
m	27	3063-	3096	3089.93	772.12	1.05	3.89E+001	9.68	7.92E+001
	28	3171-	3187	3179.97	794.62	0.51	8.49E+001	17.44	7.01E+001
	29	3434-	3451	3443.10	860.38	1.35	9.67E+001	17.76	6.73E+001
	30	3636-	3653	3645.43	910.95	1.57	5.08E+002	28.02	8.54E+001
	31	3730-	3744	3735.94	933.57	0.61	4.59E+001	14.24	5.41E+001
M	32	3853-	3888	3859.65	964.49	1.49	6.14E+001	11.43	8.61E+001
m	33	3853-	3888	3876.77	968.77	1.49	3.02E+002	19.48	8.02E+001
	34	4473-	4490	4482.06	1120.04	0.72	1.50E+002	19.43	6.98E+001
	35	4950-	4962	4955.67	1238.40	0.78	4.50E+001	15.60	7.50E+001
	36	5507-	5522	5513.45	1377.80	0.37	4.33E+001	11.55	2.97E+001
	37	5834-	5860	5846.63	1461.07	1.68	2.10E+003	47.01	2.56E+001
	38	6481-	6494	6487.60	1621.26	0.81	2.60E+001	7.69	1.20E+001
	39	6917-	6930	6923.68	1730.25	0.34	2.77E+001	7.49	1.03E+001
	40	7053-	7073	7063.64	1765.23	1.45	1.30E+002	13.35	1.32E+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: NFB-BOX-050-WH
Nuclide Library Used: C:\GENIE2K\CAMFILES\ERT_LIBRARY_LMDA.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	K-40	1460.82*	10.55	3.8759E-001	3.88E-001	1.4420E+001
	Co-60	1173.23	99.85	6.1102E-002	5.13E-002	2.1945E-002
		1332.49	99.98	5.1261E-002		-1.8402E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	3.1427E+003	5.49E-002	7.9625E+002
		661.66	84.99	5.4907E-002		-1.9806E-003
+	Tl-208	72.80	2.02	4.7233E+000	4.54E-002	3.7270E-001
		74.97*	3.41	1.6357E+000		2.7092E+000
		84.90	1.51	4.1338E+000		2.0869E-001
		277.36	6.31	6.1955E-001		2.4607E-001
		510.77*	22.60	2.1599E-001		2.8806E-001
		583.19*	84.50	4.5353E-002		2.5713E-001
		763.13	1.81	2.4367E+000		2.3945E-001
		860.56*	12.42	2.4187E-001		3.2739E-001
+	Bi-212	39.86	1.06	5.0606E+002	4.85E-001	6.5045E+001
		727.33*	6.74	4.8461E-001		9.4675E-001
		785.37	1.11	3.8528E+000		2.8467E+000
		1620.74*	1.51	1.3136E+000		1.1560E+000
		1806.00	0.09	3.2798E+001		1.0209E+000
+	Pb-212	74.81*	10.40	5.3633E-001	6.54E-002	8.8830E-001
		77.11*	17.50	2.8937E-001		8.8624E-001
		87.30*	7.81	5.3161E-001		6.4899E-001
		115.18	0.59	6.3132E+000		-2.3788E-001
		238.63*	43.30	6.5383E-002		8.1070E-001
		300.09*	3.28	1.1291E+000		8.4345E-001
+	Bi-214	76.86*	0.43	1.3699E+001	8.92E-002	4.1954E+001
		89.81*	0.24	1.9128E+001		2.1612E+001
		386.77	0.30	1.4155E+001		-2.7615E+000
		454.77	0.29	1.5112E+001		2.3284E+000
		609.31*	45.49	8.9155E-002		5.1991E-001
		665.45*	1.53	1.4647E+000		7.8335E-001
		703.11	0.48	9.9667E+000		-3.9050E+000
		719.86	0.39	1.1923E+001		-3.1662E+000
		768.36*	4.89	5.4589E-001		3.8694E-001
		786.10	0.31	1.5766E+001		5.5120E+000
		806.17	1.26	3.9054E+000		1.2229E+000
		934.06*	3.10	1.0155E+000		7.6405E-001
		964.08*	0.36	9.2991E+000		8.9565E+000
		1051.96	0.31	1.8513E+001		4.1026E+000
		1120.29*	14.91	2.9177E-001		6.0212E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.4078E+001	8.92E-002	1.4095E+001
		1155.19	1.63	3.8222E+000		2.0673E+000
		1207.68	0.45	1.4806E+001		-4.9040E+000
		1238.11*	5.79	7.6249E-001		5.0298E-001
		1280.96	1.43	4.2151E+000		2.7003E+000
		1377.67*	4.00	8.2129E-001		7.5976E-001
		1385.31	0.76	6.2749E+000		-5.6250E-001
		1401.50	1.27	4.0240E+000		-2.1032E+000
		1407.98	2.15	2.5625E+000		1.0428E+000
		1509.23	2.11	2.3819E+000		-8.8584E-001
		1538.50	0.38	9.3846E+000		3.6221E+000
		1543.32	0.20	1.8212E+001		1.0393E+001
		1583.22	0.69	8.4254E+000		8.2049E+000
		1594.73	0.25	2.1337E+001		4.0738E+000
		1599.31	0.23	1.7802E+001		-4.4080E-001
		1661.28	1.15	3.4146E+000		1.4035E+000
		1683.99	0.22	1.6358E+001		1.9095E+000
		1729.59*	2.92	7.4983E-001		7.5576E-001
		1764.49*	15.40	1.9457E-001		6.4843E-001
		1847.42	2.11	2.0933E+000		-7.4353E-003
		1873.16	0.22	1.5235E+001		-4.9932E+000
>		2118.55	1.14	0.0000E+000		0.0000E+000
>		2204.21	5.08	0.0000E+000		0.0000E+000
+	Pb-214	53.28	1.20	3.0925E+001	1.37E-001	-1.3439E+000
		74.81*	6.44	9.9811E-001		1.6531E+000
		77.11*	10.80	5.4034E-001		1.6549E+000
		87.30*	4.84	9.8855E-001		1.2068E+000
		242.00*	7.43	3.8847E-001		8.9949E-001
		258.87	0.52	8.0137E+000		-9.1176E-001
		274.80	0.47	9.7288E+000		6.7117E+000
		295.22*	19.30	2.2501E-001		5.1884E-001
		351.93*	37.60	1.3705E-001		6.0349E-001
		462.00*	0.22	1.4664E+001		2.1615E+001
		533.66	0.19	2.2200E+001		1.0924E+000
		785.96	1.07	4.5649E+000		1.5959E+000
		839.04	0.59	9.0644E+000		-6.3728E-002
+	Ra-224	81.07	0.13	4.7651E+001	6.11E-001	-1.0921E+001
		83.78	0.22	2.7832E+001		8.6697E+000
		240.99*	4.10	6.1089E-001		1.4145E+000
+	Ra-226	81.07	0.20	3.6515E+001	1.03E+000	-8.3685E+000
		83.78	0.33	2.1219E+001		6.6098E+000
		94.90	0.15	3.8900E+001		-8.1657E+000
		186.21*	3.59	1.0300E+000		1.6417E+000
+	Ac-228	99.50	1.26	3.3881E+000	1.37E-001	1.1716E+000
		129.07*	2.50	1.0213E+000		5.9088E-001
		209.25*	3.97	5.7973E-001		6.1556E-001
		270.24*	3.55	1.1968E+000		8.2758E-001
		328.00*	3.04	8.4210E-001		5.9048E-001
		338.32*	11.40	2.4917E-001		7.6670E-001
		409.46*	2.02	1.0244E+000		3.3105E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	6.3201E-001	1.37E-001	9.3161E-001
		755.31	1.03	4.1996E+000		2.6042E+000
		772.29*	1.52	1.5629E+000		9.9308E-001
		794.94*	4.31	6.5732E-001		7.7990E-001
		835.70	1.70	2.7868E+000		2.7549E+000
		911.20*	26.20	1.3662E-001		8.4243E-001
		964.79*	4.99	5.8706E-001		5.6544E-001
		968.96*	15.90	1.7865E-001		8.7623E-001
		1588.20	3.06	1.7325E+000		1.4572E+000
		1630.62	1.52	2.4717E+000		-6.1156E-001
	Th-228	84.37	1.26	4.9349E+000	4.93E+000	4.6752E-001
		131.61	0.13	3.1770E+001		2.7914E+000
		166.41	0.10	3.6839E+001		9.5789E+000
		215.98	0.25	1.6028E+001		3.9532E+000
	Pa-234m	258.23	0.07	5.7207E+001	6.64E+000	1.8619E+001
		742.81	0.09	4.8859E+001		-1.6765E+001
		766.36	0.32	1.6128E+001		5.4152E-001
		786.27	0.05	9.1699E+001		2.7942E+001
		1001.03	0.85	6.6410E+000		3.6742E+000
		1737.77	0.02	1.7634E+002		-8.4235E+001
	Th-234	63.30	3.75	4.2332E+000	1.49E+000	2.0071E+000
		92.59	4.33	1.4880E+000		2.7158E+000
		112.81	0.22	2.0672E+001		-5.4456E+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: NFB-BOX-050-WH
Nuclide Library Used: C:\GENIE2K\CAMFILES\ERT_LIBRARY_LMDA.NLB

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

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
K-40	0.990	1460.82*		10.55	1.44202E+001	5.09111E-001
Eu-152m	1.000	89.85*		69.90	7.39554E-002	9.27370E-003
Tl-208	0.840	72.80	@	2.02		
		74.97*	@	3.41	2.70917E+000	2.64880E-001
		84.90	@	1.51		
		277.36		6.31		
		510.77*	@	22.60	2.88056E-001	5.05119E-002
		583.19*		84.50	2.57126E-001	1.59064E-002
		763.13	@	1.81		
		860.56*		12.42	3.27395E-001	6.06314E-002
Bi-211	0.916	351.03*		13.00	1.72413E+000	1.20191E-001
Bi-212	0.751	39.86	@	1.06		
		727.33*		6.74	9.46747E-001	1.27632E-001
		785.37		1.11		
		1620.74*		1.51	1.15597E+000	3.44603E-001
		1806.00	@	0.09		
Pb-212	0.985	74.81*		10.40	8.88295E-001	9.05513E-002
		77.11*		17.50	8.86241E-001	6.54912E-002
		87.30*		7.81	6.48994E-001	8.43457E-002
		115.18	@	0.59		
		238.63*		43.30	8.10702E-001	3.42436E-002
		300.09*		3.28	8.43448E-001	2.52252E-001
Bi-214	0.763	76.86*	@	0.43	4.19544E+001	3.13278E+000
		89.81*	@	0.24	2.16119E+001	2.81875E+000
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	5.19912E-001	3.19400E-002
		665.45*	@	1.53	7.83351E-001	3.33017E-001
		703.11	@	0.48		
		719.86	@	0.39		
		768.36*		4.89	3.86940E-001	8.99482E-002
		786.10	@	0.31		
		806.17	@	1.26		
		934.06*		3.10	7.64050E-001	2.37875E-001
		964.08*	@	0.36	8.95650E+000	1.70700E+000
		1051.96	@	0.31		
		1120.29*		14.91	6.02117E-001	7.92274E-002
		1133.66	@	0.25		
		1155.19	@	1.63		
		1207.68	@	0.45		
		1238.11*		5.79	5.02980E-001	1.75002E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.763	1280.96	@	1.43		
		1377.67*		4.00	7.59757E-001	2.03739E-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	7.55761E-001	2.05867E-001
		1764.49*		15.40	6.48431E-001	7.34958E-002
		1847.42	@	2.11		
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.942	53.28	@	1.20		
		74.81*		6.44	1.65311E+000	1.70380E-001
		77.11*		10.80	1.65487E+000	1.28359E-001
		87.30*		4.84	1.20682E+000	1.58499E-001
		242.00*		7.43	8.99491E-001	7.60716E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	5.18838E-001	5.71842E-002
		351.93*		37.60	6.03487E-001	4.16327E-002
		462.00*	@	0.22	2.16154E+001	3.72452E+000
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.829	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	1.41451E+000	1.19037E-001
Ra-226	0.763	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	1.64168E+000	2.44907E-001
Ac-228	0.863	99.50	@	1.26		
		129.07*	@	2.50	5.90884E-001	2.25579E-001
		209.25*		3.97	6.15561E-001	1.36078E-001
		270.24*		3.55	8.27577E-001	2.65840E-001
		328.00*		3.04	5.90484E-001	1.91289E-001
		338.32*		11.40	7.66695E-001	7.55825E-002
		409.46*	@	2.02	3.31048E-001	3.28487E-001
		463.00*		4.45	9.31609E-001	1.63869E-001
		755.31	@	1.03		
		772.29*	@	1.52	9.93076E-001	2.51246E-001
		794.94*		4.31	7.79905E-001	1.63259E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.863	835.70	@	1.70		
		911.20*		26.20	8.42435E-001	5.70061E-002
		964.79*		4.99	5.65435E-001	1.07866E-001
		968.96*		15.90	8.76230E-001	6.59852E-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		0.990	1.442021E+001	5.091113E-001
X	Cd-109		0.882		
	Eu-152m		1.000	7.211245E-002	9.252358E-003
	Tl-208	@	0.840	2.602487E-001	1.523301E-002
	Bi-211		0.916	6.205977E-001	1.838899E-001
	Bi-212	@	0.751	9.719852E-001	1.196868E-001
	Pb-212	@	0.985	7.272889E-001	2.797925E-002
	Bi-214	@	0.763	5.385419E-001	2.556290E-002
	Pb-214	@	0.942	3.862634E-001	4.950636E-002
	Ra-224	@	0.829	8.070833E-001	1.411845E-001
	Ra-226	@	0.763	1.641681E+000	2.449069E-001
	Ac-228	@	0.863	7.959735E-001	2.974220E-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: 7/17/2017 1:08:48 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	92.87	3.2858E-002	12.49	Tol.	Yb-169 Th-234
	7	160.73	4.7574E-003	74.70		
M	18	406.21	1.8281E-003	100.75		

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

Errors quoted at 1.000 sigma