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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-EAST PILE-BOWLING ALLEY.CNF

Report Generated On	: 7/25/2017 6:26:55 PM
Sample Title	: NFB-EAST PILE-BOWLING ALLEY
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	: 1.064E+003 GWET
Sample Taken On	: 7/25/2017 3:10:00 PM
Acquisition Started	: 7/25/2017 4:26:51 PM
Live Time	: 7200.0 seconds
Real Time	: 7201.5 seconds
Dead Time	: 0.02 %

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-EAST PILE-BOWLING ALLEY
Peak Analysis Performed on: 7/25/2017 6:26:55 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	732-	752	744.18	185.87	1.11	7.64E+001	32.52	2.69E+002
2	831-	844	838.34	209.40	0.89	2.10E+001	19.89	1.35E+002
3	950-	961	954.95	238.55	0.79	2.81E+002	26.85	1.71E+002
4	1171-	1188	1181.79	295.24	0.88	9.93E+001	19.60	8.77E+001
5	1347-	1360	1354.50	338.40	0.84	5.13E+001	16.94	8.57E+001
6	1400-	1417	1408.34	351.86	1.25	1.45E+002	21.35	9.56E+001
7	1716-	1725	1720.89	429.97	0.51	9.85E+000	8.46	2.71E+001
8	2036-	2059	2043.98	510.72	1.50	1.40E+002	23.81	1.07E+002
9	2325-	2343	2333.47	583.07	1.23	1.60E+002	16.99	3.80E+001
10	2428-	2446	2437.54	609.07	0.69	1.59E+002	16.94	3.79E+001
11	2658-	2667	2662.95	665.41	0.39	1.14E+001	8.61	2.76E+001
12	3638-	3654	3646.38	911.19	1.02	8.89E+001	11.96	1.71E+001
13	3871-	3885	3877.03	968.83	0.91	4.87E+001	11.67	3.03E+001
14	5835-	5860	5848.17	1461.46	1.91	6.98E+002	27.22	9.91E+000
15	7060-	7073	7066.83	1766.03	0.87	1.40E+001	7.25	1.40E+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-EAST PILE-BOWLING ALLEY
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	2.3790E-001	2.38E-001	4.0005E+000
	Co-60	1173.23	99.85	3.1104E-002	3.11E-002	1.4831E-004
		1332.49	99.98	3.1458E-002		-3.3763E-003
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	1.6949E+003	2.84E-002	4.8397E+002
		661.66	84.99	2.8421E-002		-5.5159E-003
+	Tl-208	72.80	2.02	2.4563E+000	2.17E-002	-1.0643E+000
		74.97	3.41	1.5019E+000		2.7170E+000
		84.90	1.51	2.0746E+000		-8.6031E-002
		277.36	6.31	3.4397E-001		7.3232E-002
		510.77*	22.60	1.5507E-001		-3.8343E-002
		583.19*	84.50	2.1688E-002		5.7189E-002
		763.13	1.81	1.4384E+000		-6.1917E-002
		860.56	12.42	2.1801E-001		2.4926E-002
	Bi-212	39.86	1.06	2.8123E+002	4.05E-001	3.2019E+001
		727.33	6.74	4.0533E-001		1.3533E-001
		785.37	1.11	2.3488E+000		2.1384E-001
		1620.74	1.51	1.5233E+000		7.6782E-001
		1806.00	0.09	2.2723E+001		-2.9019E+000
	Pb-212	74.81	10.40	4.8770E-001	7.96E-002	6.0748E-001
		77.11	17.50	2.6699E-001		3.4759E-001
		87.30	7.81	3.7899E-001		-1.0358E-001
		115.18	0.59	3.5170E+000		-6.6825E-001
		238.63	43.30	7.9563E-002		1.7572E-001
		300.09	3.28	6.9153E-001		2.3810E-001
	Bi-214	76.86	0.43	1.1064E+001	7.70E-002	1.4404E+001
		89.81	0.24	1.2216E+001		-1.2104E+001
		386.77	0.30	6.8732E+000		-4.3810E+000
		454.77	0.29	7.3975E+000		1.0419E+000
		609.31	45.49	7.7031E-002		7.3567E-002
		665.45	1.53	1.5635E+000		5.0463E-001
		703.11	0.48	5.4133E+000		1.9799E+000
		719.86	0.39	6.0830E+000		-7.5891E-001
		768.36	4.89	5.3211E-001		1.8455E-002
		786.10	0.31	8.3780E+000		-1.8416E+000
		806.17	1.26	2.0954E+000		-7.6744E-001
		934.06	3.10	9.3592E-001		-2.1504E-001
		964.08	0.36	1.0285E+001		-4.1598E+000
		1051.96	0.31	9.8706E+000		-1.2157E+000
		1120.29	14.91	2.5152E-001		2.2811E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
	Bi-214	1133.66	0.25	1.2424E+001	7.70E-002	1.2411E+001
		1155.19	1.63	2.0621E+000		1.9421E-001
		1207.68	0.45	7.7018E+000		2.5618E-001
		1238.11	5.79	6.6020E-001		3.0994E-001
		1280.96	1.43	2.2805E+000		1.0176E+000
		1377.67	4.00	6.8281E-001		-1.2880E-001
		1385.31	0.76	3.3758E+000		2.8785E-001
		1401.50	1.27	1.8960E+000		-9.3306E-001
		1407.98	2.15	1.3313E+000		5.2057E-001
		1509.23	2.11	1.1438E+000		-2.0251E-001
		1538.50	0.38	6.1737E+000		7.4855E-001
		1543.32	0.20	1.1200E+001		3.2870E+000
		1583.22	0.69	3.5370E+000		-2.4165E-001
		1594.73	0.25	1.2971E+001		9.5964E+000
		1599.31	0.23	1.2887E+001		3.1442E+000
		1661.28	1.15	2.0220E+000		5.6446E-001
		1683.99	0.22	1.0835E+001		-3.4608E+000
		1729.59	2.92	7.7724E-001		-4.9590E-001
		1764.49	15.40	2.2573E-001		1.4948E-001
		1847.42	2.11	9.7377E-001		-6.4197E-001
		1873.16	0.22	9.4064E+000		5.5195E-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	1.5390E+001	7.59E-002	7.3254E+000
		74.81	6.44	7.8756E-001		9.8097E-001
		77.11	10.80	4.3260E-001		5.6319E-001
		87.30	4.84	6.1152E-001		-1.6713E-001
		242.00	7.43	4.6045E-001		6.0391E-002
		258.87	0.52	4.1070E+000		-2.7884E-001
		274.80	0.47	4.7519E+000		-5.0191E-001
		295.22	19.30	1.2723E-001		2.9857E-002
		351.93	37.60	7.5894E-002		7.1330E-002
		462.00	0.22	9.9668E+000		3.0563E+000
		533.66	0.19	1.2036E+001		6.0979E+000
		785.96	1.07	2.4258E+000		-5.3322E-001
		839.04	0.59	4.5504E+000		6.2930E-001
	Ra-224	81.07	0.13	2.6265E+001	8.44E-001	-3.7310E+001
		83.78	0.22	1.4455E+001		-9.6774E+000
		240.99	4.10	8.4416E-001		1.7016E+000
+	Ra-226	81.07	0.20	1.7464E+001	7.38E-001	-2.4809E+001
		83.78	0.33	9.5626E+000		-6.4021E+000
		94.90	0.15	1.8571E+001		1.7429E+001
		186.21*	3.59	7.3751E-001		1.2776E-001
	Ac-228	99.50	1.26	1.8199E+000	1.36E-001	1.3077E-001
		129.07	2.50	8.6009E-001		3.0320E-001
		209.25	3.97	5.7049E-001		-3.7337E-002
		270.24	3.55	6.4598E-001		3.5003E-001
		328.00	3.04	7.3603E-001		1.9024E-001
		338.32	11.40	2.2274E-001		1.3421E-001
		409.46	2.02	1.0861E+000		1.6283E-001

Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
Ac-228	463.00	4.45	5.0768E-001	1.36E-001	2.5900E-001
	755.31	1.03	2.3625E+000		-3.4477E-001
	772.29	1.52	1.6444E+000		9.9227E-001
	794.94	4.31	6.6180E-001		1.7861E-001
	835.70	1.70	1.5818E+000		-4.1436E-001
	911.20	26.20	1.3628E-001		1.5865E-001
	964.79	4.99	7.5358E-001		-3.2309E-001
	968.96	15.90	2.3429E-001		1.8402E-001
	1588.20	3.06	9.3230E-001		-4.1487E-001
	1630.62	1.52	1.6561E+000		3.3217E-001
Th-228	84.37	1.26	2.4721E+000	2.47E+000	-6.9122E-001
	131.61	0.13	1.5954E+001		-5.1769E+000
	166.41	0.10	2.0694E+001		3.1126E+000
	215.98	0.25	8.4995E+000		-3.5597E+000
Pa-234m	258.23	0.07	2.8423E+001	2.94E+000	-1.1299E+001
	742.81	0.09	2.6256E+001		-8.8317E+000
	766.36	0.32	8.1232E+000		2.1653E+000
	786.27	0.05	4.8444E+001		-1.4997E+001
	1001.03	0.85	2.9369E+000		-6.0081E-001
	1737.77	0.02	1.0848E+002		-3.1983E+001
Th-234	63.30	3.75	1.9772E+000	6.83E-001	3.6130E-001
	92.59	4.33	6.8255E-001		7.9308E-001
	112.81	0.22	1.0029E+001		6.1176E+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

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*********************************************************************
*****  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-EAST PILE-BOWLING ALLEY
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	0.937	1460.82*		10.55	4.00049E+000	1.93876E-001
Tl-208	0.675	72.80	@	2.02		
		74.97	@	3.41		
		84.90	@	1.51		
		277.36		6.31		
		510.77*	@	22.60	-3.83431E-002	3.18487E-002
		583.19*		84.50	5.71894E-002	6.65586E-003
		763.13	@	1.81		
		860.56		12.42		
Bi-211	0.896	351.03*		13.00	2.55370E-001	4.08320E-002
Ra-226	0.761	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	1.27763E-001	1.57823E-001

* = 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		0.937	4.000489E+000	1.938761E-001
Tl-208	@	0.675	5.718938E-002	6.655860E-003
Bi-211		0.896	2.553698E-001	4.083200E-002
Ra-226	@	0.761	1.277629E-001	1.578231E-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: 7/25/2017 6:26:55 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
2	209.40	2.9147E-003	94.77	Tol.	Ac-228 Np-239
3	238.55	3.5909E-002	10.47	Tol.	Pb-212
4	295.24	1.3792E-002	19.74	Tol.	Ru-103 Ir-192 Pb-214
5	338.40	7.1274E-003	33.02	Tol.	Ra-223 Ac-228
7	429.97	1.3682E-003	85.88	Tol.	Rh-106
10	609.07	2.2098E-002	10.65	Tol.	Bi-214
11	665.41	1.5776E-003	75.76	Tol.	Bi-214
12	911.19	1.1604E-002	14.51	Tol.	Ac-228
13	968.83	6.7572E-003	24.00	Tol.	Sb-124 Ac-228
15	1766.03	1.9444E-003	51.78		

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

Errors quoted at 1.000 sigma