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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-HTC-A03-S002-4248-01.CNF

Report Generated On              : 7/10/2017   6:16:23 PM

Sample Title                     : HTC-A03-S002-4248-01
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                      :  1.067E+003 GWET

Sample Taken On                  : 5/15/2017   9:15:00 AM
Acquisition Started              : 7/10/2017   4:16:18 PM

Live Time                        :     7200.0 seconds
Real Time                        :     7202.4 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: HTC-A03-S002-4248-01
Peak Analysis Performed on: 7/10/2017 6:16:23 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	294-	317	300.49	74.98	0.93	2.42E+002	25.40	6.85E+002
m	2	294-	317	309.22	77.17	0.93	4.83E+002	31.24	6.21E+002
M	3	356-	383	360.00	89.86	1.25	5.00E+001	22.94	6.86E+002
m	4	356-	383	372.55	92.99	1.25	2.38E+002	30.16	8.42E+002
	5	736-	754	744.90	186.05	1.23	3.36E+002	51.18	6.71E+002
	6	830-	842	837.81	209.27	0.61	1.07E+002	35.00	4.26E+002
M	7	946-	976	955.23	238.62	1.08	1.60E+003	43.93	3.83E+002
m	8	946-	976	967.31	241.64	1.08	2.90E+002	22.08	3.28E+002
	9	1071-	1088	1081.91	270.28	1.52	1.62E+002	36.59	3.62E+002
	10	1106-	1115	1110.56	277.44	0.53	6.14E+001	21.97	1.86E+002
	11	1175-	1190	1181.25	295.10	1.07	4.07E+002	36.40	3.03E+002
	12	1195-	1207	1201.13	300.07	0.39	5.03E+001	25.55	2.29E+002
	13	1307-	1317	1312.07	327.80	1.10	6.19E+001	22.27	1.81E+002
	14	1346-	1359	1353.83	338.23	0.86	2.89E+002	31.63	2.59E+002
	15	1399-	1417	1408.21	351.82	1.22	6.80E+002	39.37	2.58E+002
	16	1845-	1858	1852.32	462.82	0.69	8.11E+001	21.21	1.34E+002
	17	2031-	2056	2043.48	510.59	1.54	3.58E+002	36.60	2.31E+002
	18	2327-	2341	2333.12	582.98	1.09	5.36E+002	30.31	1.31E+002
	19	2425-	2449	2437.70	609.11	1.41	5.54E+002	34.24	1.50E+002
	20	2903-	2918	2910.18	727.20	1.62	1.45E+002	20.70	9.42E+001
	21	3136-	3149	3143.14	785.42	0.63	2.58E+001	16.28	8.62E+001
	22	3174-	3189	3180.92	794.86	1.10	6.68E+001	18.23	8.82E+001
	23	3434-	3450	3442.96	860.35	1.51	5.94E+001	17.25	7.56E+001
	24	3635-	3654	3646.10	911.12	1.66	4.50E+002	28.46	1.04E+002
M	25	3852-	3887	3861.00	964.83	1.48	8.40E+001	11.49	6.62E+001
m	26	3852-	3887	3877.55	968.96	1.48	2.41E+002	17.95	9.30E+001
	27	4475-	4489	4482.35	1120.11	0.94	1.09E+002	18.03	7.39E+001
	28	5834-	5860	5847.59	1461.31	1.99	2.44E+003	50.99	3.70E+001
	29	6035-	6048	6041.92	1509.88	0.31	4.00E+000	8.94	2.40E+001
	30	7054-	7073	7063.65	1765.23	0.47	1.10E+002	12.75	1.50E+001
	31	7392-	7405	7398.33	1848.87	1.02	2.45E+001	5.85	3.50E+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 *****
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Detector Name: ERT01
Sample Geometry:
Sample Title: HTC-A03-S002-4248-01
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	3.8684E-001	3.87E-001	1.4195E+001
	Co-60	1173.23	99.85	5.7243E-002	4.51E-002	-4.3390E-002
		1332.49	99.98	4.5148E-002		-2.7251E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	2.7146E+003	4.88E-002	9.1573E+001
		661.66	84.99	4.8778E-002		-5.4341E-003
+	Tl-208	72.80	2.02	4.7464E+000	3.75E-002	1.8169E+000
		74.97*	3.41	1.6925E+000		2.3448E+000
		84.90	1.51	4.1391E+000		3.6837E+000
		277.36*	6.31	3.4696E-001		2.1692E-001
		510.77*	22.60	2.2238E-001		2.5666E-001
		583.19*	84.50	3.7503E-002		2.0827E-001
		763.13	1.81	2.5387E+000		-4.8897E-001
		860.56*	12.42	2.6032E-001		2.0776E-001
+	Bi-212	39.86	1.06	5.0454E+002	4.62E-001	1.7991E+002
		727.33*	6.74	4.6159E-001		8.2499E-001
		785.37*	1.11	2.7283E+000		9.4195E-001
		1620.74	1.51	2.5826E+000		1.7852E+000
		1806.00	0.09	3.1604E+001		8.2636E+000
+	Pb-212	74.81*	10.40	5.5494E-001	6.38E-002	7.6881E-001
		77.11*	17.50	2.8977E-001		8.3953E-001
		87.30	7.81	7.7820E-001		3.6093E-001
		115.18	0.59	6.6243E+000		1.0351E+000
		238.63*	43.30	6.3769E-002		7.4918E-001
		300.09*	3.28	8.2834E-001		3.5650E-001
+	Bi-214	76.86*	0.43	1.1257E+001	8.41E-002	3.2615E+001
		89.81*	0.24	1.4877E+001		4.2529E+000
		386.77	0.30	1.1654E+001		3.9427E+000
		454.77	0.29	1.1894E+001		-4.9876E+000
		609.31*	45.49	8.4124E-002		3.9386E-001
		665.45	1.53	2.6069E+000		-5.1734E-001
		703.11	0.48	8.0985E+000		-8.9065E-001
		719.86	0.39	1.0455E+001		-5.5661E+000
		768.36	4.89	9.3000E-001		6.9573E-001
		786.10*	0.31	9.2386E+000		3.1897E+000
		806.17	1.26	3.4868E+000		2.0314E+000
		934.06	3.10	1.4797E+000		2.7501E-001
		964.08*	0.36	6.9564E+000		1.0392E+001
		1051.96	0.31	1.6025E+001		2.1845E+000
		1120.29*	14.91	2.4147E-001		3.7094E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.1575E+001	8.41E-002	3.9873E+000
		1155.19	1.63	3.3830E+000		-8.0259E-001
		1207.68	0.45	1.2579E+001		-2.8336E+000
		1238.11	5.79	1.1431E+000		6.3256E-001
		1280.96	1.43	3.8980E+000		3.4089E+000
		1377.67	4.00	1.1504E+000		1.3878E-001
		1385.31	0.76	5.6521E+000		-6.5766E+000
		1401.50	1.27	3.2761E+000		-2.5201E+000
		1407.98	2.15	2.0899E+000		-4.0664E-001
		1509.23*	2.11	1.2945E+000		1.1977E-001
		1538.50	0.38	8.2033E+000		9.4177E-001
		1543.32	0.20	1.5443E+001		-7.8047E+000
		1583.22	0.69	6.3166E+000		4.8582E+000
		1594.73	0.25	1.7751E+001		1.8072E+001
		1599.31	0.23	1.4347E+001		-1.4770E+001
		1661.28	1.15	2.7879E+000		-1.4595E+000
		1683.99	0.22	1.4028E+001		8.4223E+000
		1729.59	2.92	1.3699E+000		7.4806E-001
		1764.49*	15.40	1.7076E-001		4.6257E-001
		1847.42	2.11	1.6477E+000		1.4603E+000
		1873.16	0.22	1.3094E+001		1.1530E+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	2.6638E+001	8.97E-002	7.9820E-001
		74.81*	6.44	8.4752E-001		1.1742E+000
		77.11*	10.80	4.4404E-001		1.2865E+000
		87.30	4.84	1.1876E+000		5.5079E-001
		242.00*	7.43	3.2103E-001		7.6472E-001
		258.87	0.52	6.5726E+000		1.1701E-002
		274.80	0.47	8.0541E+000		2.3543E+000
		295.22*	19.30	1.6224E-001		4.5929E-001
		351.93*	37.60	8.9740E-002		4.2813E-001
		462.00*	0.22	1.1495E+001		1.0127E+001
		533.66	0.19	1.9451E+001		9.0967E+000
		785.96*	1.07	2.6766E+000		9.2411E-001
		839.04	0.59	7.1652E+000		-7.9650E-001
+	Ra-224	81.07	0.13	4.9383E+001	6.15E-001	-2.5376E+001
		83.78	0.22	2.8239E+001		-3.0469E+001
		240.99*	4.10	6.1516E-001		1.4654E+000
+	Ra-226	81.07	0.20	3.1056E+001	1.09E+000	-1.5958E+001
		83.78	0.33	1.7668E+001		-1.9064E+001
		94.90	0.15	3.2995E+001		8.9891E-002
		186.21*	3.59	1.0935E+000		1.3700E+000
+	Ac-228	99.50	1.26	3.5605E+000	1.60E-001	2.3826E+000
		129.07	2.50	1.6710E+000		-2.1354E-002
		209.25*	3.97	7.6567E-001		5.1909E-001
		270.24*	3.55	1.0052E+000		1.0021E+000
		328.00*	3.04	7.9770E-001		4.9596E-001
		338.32*	11.40	2.7531E-001		6.2865E-001
		409.46	2.02	1.9780E+000		5.4915E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	6.0365E-001	1.60E-001	5.3181E-001
		755.31	1.03	4.3461E+000		7.6326E-001
		772.29	1.52	3.1635E+000		1.9860E+000
		794.94*	4.31	7.4489E-001		6.3397E-001
		835.70	1.70	2.7058E+000		2.2449E+000
		911.20*	26.20	1.5962E-001		7.7050E-001
		964.79*	4.99	5.3508E-001		7.9933E-001
		968.96*	15.90	1.9819E-001		7.2070E-001
		1588.20	3.06	1.6723E+000		1.1933E+000
		1630.62	1.52	2.3791E+000		2.3218E-001
	Th-228	84.37	1.26	4.9223E+000	4.92E+000	-1.5782E+000
		131.61	0.13	3.1933E+001		1.4592E+001
		166.41	0.10	3.7395E+001		1.5588E+001
		215.98	0.25	1.6068E+001		5.5441E+000
	Pa-234m	258.23	0.07	4.6716E+001	5.38E+000	4.4968E+000
		742.81	0.09	4.1747E+001		6.4644E+000
		766.36	0.32	1.3804E+001		5.2982E+000
		786.27	0.05	8.0889E+001		4.9209E+001
		1001.03	0.85	5.3769E+000		2.3638E+000
		1737.77	0.02	1.5840E+002		-1.9120E+002
	Th-234	63.30	3.75	3.6098E+000	1.23E+000	1.5796E+000
		92.59	4.33	1.2275E+000		2.2139E+000
		112.81	0.22	1.7377E+001		-7.3358E+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: HTC-A03-S002-4248-01
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	0.962	1460.82*		10.55	1.41948E+001	4.87821E-001
Eu-152m	1.000	89.85*		69.90	1.49623E-002	6.87749E-003
Tl-208	0.931	72.80	@	2.02		
		74.97*	@	3.41	2.34476E+000	2.55894E-001
		84.90	@	1.51		
		277.36*		6.31	2.16919E-001	7.80337E-002
		510.77*	@	22.60	2.56663E-001	5.12710E-002
		583.19*		84.50	2.08271E-001	1.36200E-002
		763.13	@	1.81		
		860.56*		12.42	2.07764E-001	6.05159E-002
Bi-211	0.904	351.03*		13.00	1.24430E+000	8.56843E-002
Bi-212	0.768	39.86	@	1.06		
		727.33*		6.74	8.24990E-001	1.20692E-001
		785.37*		1.11	9.41949E-001	5.95583E-001
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.832	74.81*		10.40	7.68811E-001	8.67851E-002
		77.11*		17.50	8.39532E-001	6.44104E-002
		87.30		7.81		
		115.18	@	0.59		
		238.63*		43.30	7.49176E-001	3.23441E-002
		300.09*		3.28	3.56497E-001	1.81523E-001
Bi-214	0.520	76.86*	@	0.43	3.26155E+001	2.52663E+000
		89.81*	@	0.24	4.25292E+000	1.96082E+000
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	3.93862E-001	2.69742E-002
		665.45	@	1.53		
		703.11	@	0.48		
		719.86	@	0.39		
		768.36		4.89		
		786.10*	@	0.31	3.18968E+000	2.08118E+000
		806.17	@	1.26		
		934.06		3.10		
		964.08*	@	0.36	1.03918E+001	1.48173E+000
		1051.96	@	0.31		
		1120.29*		14.91	3.70937E-001	6.19428E-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	0.520	1280.96	@	1.43		
		1377.67		4.00		
		1385.31	@	0.76		
		1401.50	@	1.27		
		1407.98	@	2.15		
		1509.23*	@	2.11	1.19765E-001	2.67754E-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	4.62574E-001	5.89348E-002
		1847.42	@	2.11		
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.867	53.28	@	1.20		
		74.81*		6.44	1.17415E+000	1.33738E-001
		77.11*		10.80	1.28650E+000	1.03254E-001
		87.30		4.84		
		242.00*		7.43	7.64721E-001	6.40381E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	4.59288E-001	4.39906E-002
		351.93*		37.60	4.28133E-001	2.91680E-002
		462.00*	@	0.22	1.01273E+001	2.70223E+000
		533.66	@	0.19		
		785.96*	@	1.07	9.24113E-001	5.88317E-001
		839.04	@	0.59		
Ra-224	0.826	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	1.46538E+000	1.22093E-001
Ra-226	0.773	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	1.36997E+000	2.50422E-001
Ac-228	0.740	99.50	@	1.26		
		129.07	@	2.50		
		209.25*		3.97	5.19092E-001	1.71019E-001
		270.24*		3.55	1.00206E+000	2.30690E-001
		328.00*		3.04	4.95961E-001	1.80024E-001
		338.32*		11.40	6.28654E-001	7.50774E-002
		409.46	@	2.02		
		463.00*		4.45	5.31808E-001	1.43140E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	6.33971E-001	1.74904E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.740	835.70	@	1.70		
		911.20*		26.20	7.70499E-001	5.75055E-002
		964.79*		4.99	7.99331E-001	1.14163E-001
		968.96*		15.90	7.20701E-001	6.06605E-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		0.962	1.419480E+001	4.878210E-001
Eu-152m		1.000	1.355223E-002	6.876753E-003
Tl-208	@	0.931	2.066931E-001	1.298651E-002
Bi-211		0.904	1.365795E-001	1.411931E-001
Bi-212	@	0.768	8.098267E-001	1.174524E-001
Pb-212	@	0.832	6.794288E-001	2.725518E-002
Bi-214	@	0.520	4.007957E-001	2.275137E-002
Pb-214	@	0.867	3.811394E-001	3.911638E-002
Ra-224	@	0.826	7.350298E-001	1.421472E-001
Ra-226	@	0.773	1.369966E+000	2.504220E-001
Ac-228	@	0.740	7.046825E-001	2.983671E-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: 7/10/2017 6:16:23 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 4	92.99	2.2537E-002	18.95	Tol.	Yb-169 Th-227 Th-234
31	1848.87	3.4028E-003	23.87	Sum	

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

Errors quoted at 1.000 sigma