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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-A01-S004-4248-01.CNF

Report Generated On	: 6/12/2017 3:43:19 PM
Sample Title	: HTC-A01-S004-4248-01
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	: 8.830E+002 GWET
Sample Taken On	: 5/13/2017 2:00:00 PM
Acquisition Started	: 6/12/2017 1:43:12 PM
Live Time	: 7200.0 seconds
Real Time	: 7204.9 seconds
Dead Time	: 0.07 %

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: HTC-A01-S004-4248-01
Peak Analysis Performed on: 6/12/2017 3:43:19 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-	320	300.02	74.87	0.92	5.02E+002	35.51	1.19E+003
m	2	294-	320	308.98	77.11	0.92	9.12E+002	41.41	1.06E+003
M	3	332-	386	337.88	84.33	1.24	2.50E+002	31.44	1.05E+003
m	4	332-	386	349.60	87.26	1.24	4.28E+002	34.27	1.18E+003
m	5	332-	386	360.50	89.98	1.25	3.26E+002	32.27	1.09E+003
m	6	332-	386	372.33	92.94	1.25	5.13E+002	36.32	1.14E+003
	7	503-	522	516.85	129.06	0.86	2.54E+002	69.64	1.31E+003
	8	736-	752	744.23	185.88	1.23	3.93E+002	60.15	1.03E+003
	9	834-	848	837.24	209.13	1.16	2.70E+002	49.53	7.47E+002
M	10	941-	975	954.76	238.50	1.10	3.72E+003	64.96	5.56E+002
m	11	941-	975	965.12	241.09	1.10	4.28E+002	26.96	4.71E+002
	12	1075-	1089	1081.18	270.09	0.68	2.65E+002	39.63	4.50E+002
	13	1105-	1115	1109.83	277.25	0.71	1.47E+002	30.02	3.14E+002
	14	1172-	1190	1180.93	295.02	1.11	5.78E+002	47.11	4.85E+002
	15	1193-	1206	1200.59	299.94	1.22	1.74E+002	35.59	3.97E+002
	16	1299-	1320	1312.08	327.80	1.13	2.28E+002	44.98	4.79E+002
	17	1346-	1360	1353.21	338.08	1.24	7.65E+002	41.04	3.19E+002
	18	1396-	1420	1407.75	351.71	1.31	1.06E+003	55.25	4.81E+002
	19	1628-	1647	1637.54	409.14	1.19	9.07E+001	36.43	3.52E+002
	20	1845-	1858	1851.90	462.71	1.07	1.77E+002	27.89	2.18E+002
	21	2028-	2056	2042.72	510.40	1.42	5.87E+002	49.47	4.02E+002
	22	2323-	2340	2332.36	582.79	1.00	1.30E+003	44.20	2.00E+002
	23	2426-	2445	2436.84	608.90	1.32	7.99E+002	41.61	2.66E+002
	24	2900-	2919	2908.74	726.84	1.30	2.93E+002	28.48	1.48E+002
	25	3169-	3190	3179.30	794.45	1.17	1.78E+002	24.89	1.18E+002
	26	3335-	3349	3341.85	835.08	0.55	2.86E+001	17.78	9.84E+001
	27	3432-	3451	3441.80	860.06	0.80	1.58E+002	22.00	9.26E+001
	28	3633-	3656	3644.31	910.67	1.25	9.23E+002	36.95	1.09E+002
M	29	3849-	3886	3859.62	964.48	1.51	1.38E+002	14.62	1.13E+002
m	30	3849-	3886	3875.76	968.51	1.51	5.57E+002	25.63	1.08E+002
	31	4050-	4061	4055.19	1013.36	0.80	9.17E-001	11.72	5.31E+001
	32	4470-	4491	4481.47	1119.89	1.42	1.94E+002	24.86	1.11E+002
	33	4616-	4628	4621.83	1154.97	0.49	1.76E+001	13.90	6.64E+001
	34	5504-	5517	5511.08	1377.21	1.00	4.22E+001	10.89	2.78E+001
	35	5833-	5858	5845.07	1460.68	1.76	2.37E+003	50.80	5.06E+001
M	36	6348-	6379	6355.59	1588.27	1.45	8.28E+001	10.80	3.38E+001
m	37	6348-	6379	6372.44	1592.48	1.45	4.18E+001	7.99	2.81E+001
	38	6479-	6494	6485.94	1620.85	1.26	3.93E+001	8.06	8.70E+000
	39	6915-	6928	6921.43	1729.69	1.05	3.77E+001	9.55	1.93E+001
	40	7050-	7071	7061.46	1764.68	1.82	1.58E+002	15.84	2.46E+001
	41	7387-	7401	7393.51	1847.67	0.48	1.84E+001	8.49	1.76E+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: HTC-A01-S004-4248-01
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	5.2327E-001	5.23E-001	1.6651E+001
	Co-60	1173.23	99.85	7.3773E-002	6.25E-002	1.5862E-002
		1332.49	99.98	6.2495E-002		-8.8058E-003
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	5.9117E+003	6.77E-002	1.0162E+003
		661.66	84.99	6.7687E-002		3.9019E-002
+	Tl-208	72.80	2.02	7.5151E+000	5.67E-002	9.8786E-003
		74.97*	3.41	2.6278E+000		5.7513E+000
		84.90*	1.51	4.1458E+000		4.8094E+000
		277.36*	6.31	5.4241E-001		6.0994E-001
		510.77*	22.60	3.4362E-001		6.6842E-001
		583.19*	84.50	5.6725E-002		6.0096E-001
		763.13	1.81	3.5008E+000		7.7486E-002
		860.56*	12.42	3.5629E-001		6.5169E-001
+	Bi-212	39.86	1.06	1.0850E+003	7.28E-001	5.8053E+002
		727.33*	6.74	7.2754E-001		1.9622E+000
		785.37	1.11	5.6061E+000		3.2578E+000
		1620.74*	1.51	1.4217E+000		2.1266E+000
		1806.00	0.09	4.6536E+001		2.8370E-001
+	Pb-212	74.81*	10.40	8.6163E-001	8.95E-002	1.8858E+000
		77.11*	17.50	4.4375E-001		1.8710E+000
		87.30*	7.81	7.9499E-001		1.4879E+000
		115.18	0.59	9.2936E+000		2.3286E+000
		238.63*	43.30	8.9544E-002		2.0668E+000
		300.09*	3.28	1.3046E+000		1.4494E+000
+	Bi-214	76.86*	0.43	1.7695E+001	1.24E-001	7.4608E+001
		89.81*	0.24	2.2511E+001		3.3423E+001
		386.77	0.30	1.6622E+001		-6.7392E+000
		454.77	0.29	1.8324E+001		4.5787E+000
		609.31*	45.49	1.2420E-001		6.8534E-001
		665.45	1.53	3.7336E+000		2.3884E+000
		703.11	0.48	1.2397E+001		1.1432E+001
		719.86	0.39	1.4732E+001		7.5241E+000
		768.36	4.89	1.2752E+000		4.0905E-001
		786.10	0.31	1.9431E+001		1.3327E+001
		806.17	1.26	4.3131E+000		7.2683E-001
		934.06	3.10	1.8684E+000		1.0147E+000
		964.08*	0.36	1.0830E+001		2.0552E+001
		1051.96	0.31	1.9315E+001		-3.9389E+000
		1120.29*	14.91	4.0448E-001		7.9554E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.6949E+001	1.24E-001	-1.0176E+001
		1155.19*	1.63	2.4698E+000		6.7448E-001
		1207.68	0.45	1.7448E+001		7.2417E+000
		1238.11	5.79	1.4819E+000		1.7483E+000
		1280.96	1.43	5.3666E+000		4.7383E+000
		1377.67*	4.00	7.7847E-001		7.5687E-001
		1385.31	0.76	6.6449E+000		-4.9532E+000
		1401.50	1.27	4.7500E+000		1.0665E+000
		1407.98	2.15	2.9033E+000		9.5260E-001
		1509.23	2.11	2.5455E+000		-1.1769E+000
		1538.50	0.38	1.3643E+001		6.6216E+000
		1543.32	0.20	2.4196E+001		-2.9212E-001
		1583.22	0.69	1.0849E+001		-1.0226E+000
		1594.73	0.25	3.0979E+001		-4.6636E+000
		1599.31	0.23	2.5708E+001		-1.4701E+001
		1661.28	1.15	4.6128E+000		-4.7085E-001
		1683.99	0.22	1.9076E+001		7.1019E+000
		1729.59*	2.92	1.0254E+000		1.0522E+000
		1764.49*	15.40	2.6213E-001		8.1644E-001
		1847.42*	2.11	1.4468E+000		7.2479E-001
		1873.16	0.22	1.9394E+001		-1.0936E+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	5.1713E+001	1.62E-001	-1.6390E+001
		74.81*	6.44	1.3507E+000		2.9561E+000
		77.11*	10.80	6.9797E-001		2.9429E+000
		87.30*	4.84	1.2452E+000		2.3306E+000
		242.00*	7.43	4.6250E-001		1.3617E+000
		258.87	0.52	9.9265E+000		4.4113E+000
		274.80	0.47	1.2139E+001		6.7093E+000
		295.22*	19.30	2.6055E-001		7.8798E-001
		351.93*	37.60	1.6193E-001		8.1164E-001
		462.00*	0.22	1.7616E+001		2.6634E+001
		533.66	0.19	2.6861E+001		-1.3062E+000
		785.96	1.07	5.6261E+000		3.8586E+000
		839.04	0.59	1.0599E+001		7.6201E+000
+	Ra-224	81.07	0.13	7.3398E+001	8.63E-001	3.7424E+000
		83.78*	0.22	2.8848E+001		3.3466E+001
		240.99*	4.10	8.6344E-001		2.5421E+000
+	Ra-226	81.07	0.20	4.7378E+001	1.56E+000	2.4157E+000
		83.78*	0.33	1.8526E+001		2.1492E+001
		94.90	0.15	4.9281E+001		-2.6357E+000
		186.21*	3.59	1.5589E+000		1.9815E+000
+	Ac-228	99.50	1.26	4.9517E+000	2.07E-001	1.7746E+000
		129.07*	2.50	2.4980E+000		1.9992E+000
		209.25*	3.97	1.2523E+000		1.5400E+000
		270.24*	3.55	1.2447E+000		1.9311E+000
		328.00*	3.04	1.8835E+000		2.1541E+000
		338.32*	11.40	3.6718E-001		1.9545E+000
		409.46*	2.02	2.6476E+000		1.4441E+000

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	9.0123E-001	2.07E-001	1.3626E+000
		755.31	1.03	6.2145E+000		4.5002E+000
		772.29	1.52	4.1749E+000		1.9769E+000
		794.94*	4.31	1.1207E+000		1.9915E+000
		835.70*	1.70	2.3970E+000		8.4075E-001
		911.20*	26.20	2.0703E-001		1.8696E+000
		964.79*	4.99	8.1163E-001		1.5402E+000
		968.96*	15.90	2.5062E-001		1.9629E+000
		1588.20*	3.06	1.0819E+000		2.1872E+000
		1630.62	1.52	3.6918E+000		2.3185E+000
	Th-228	84.37*	1.26	4.9683E+000	4.97E+000	5.7637E+000
		131.61	0.13	4.6314E+001		2.5906E-001
		166.41	0.10	5.2693E+001		-1.2231E+001
		215.98	0.25	2.3302E+001		6.3342E+000
	Pa-234m	258.23	0.07	7.0395E+001	6.86E+000	1.0464E+001
		742.81	0.09	5.9041E+001		2.7390E+001
		766.36	0.32	1.9261E+001		-5.7742E+000
		786.27	0.05	1.1279E+002		7.6136E+001
		1001.03	0.85	6.8563E+000		6.2752E-001
		1737.77	0.02	2.2181E+002		-1.3949E+002
	Th-234	63.30	3.75	6.2964E+000	1.87E+000	5.2544E+000
		92.59	4.33	1.8742E+000		4.3657E+000
		112.81	0.22	2.4752E+001		-9.2335E+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-A01-S004-4248-01
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	0.997	1460.82*		10.55	1.66505E+001	5.77729E-001
Eu-152m	0.997	89.85*		69.90	1.17158E-001	1.20391E-002
Tm-170	0.999	84.25*		2.48	3.34521E+000	4.47110E-001
Tl-208	0.933	72.80	@	2.02		
		74.97*	@	3.41	5.75133E+000	4.41914E-001
		84.90*	@	1.51	4.80942E+000	6.18653E-001
		277.36*		6.31	6.09941E-001	1.26668E-001
		510.77*	@	22.60	6.68418E-001	8.27712E-002
		583.19*		84.50	6.00962E-001	2.77726E-002
		763.13	@	1.81		
		860.56*		12.42	6.51685E-001	9.18851E-002
TL-208e	1.000	1592.53*		99.16	3.41231E-002	6.85866E-003
Bi-211	0.929	351.03*		13.00	2.35357E+000	1.49628E-001
Bi-212	0.752	39.86	@	1.06		
		727.33*		6.74	1.96225E+000	2.00395E-001
		785.37		1.11		
		1620.74*		1.51	2.12659E+000	4.41811E-001
		1806.00	@	0.09		
Pb-212	0.985	74.81*		10.40	1.88577E+000	1.54771E-001
		77.11*		17.50	1.87099E+000	1.14732E-001
		87.30*		7.81	1.48794E+000	1.34529E-001
		115.18	@	0.59		
		238.63*		43.30	2.06675E+000	7.71075E-002
		300.09*		3.28	1.44944E+000	3.00817E-001
Bi-214	0.610	76.86*	@	0.43	7.46081E+001	4.64446E+000
		89.81*	@	0.24	3.34234E+001	3.63783E+000
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	6.85337E-001	4.10423E-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	2.05521E+001	2.33553E+000
		1051.96	@	0.31		
		1120.29*		14.91	7.95537E-001	1.03904E-001
		1133.66	@	0.25		
		1155.19*	@	1.63	6.74484E-001	5.33880E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.610	1207.68	@	0.45		
		1238.11		5.79		
		1280.96	@	1.43		
		1377.67*		4.00	7.56868E-001	1.96746E-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	1.05219E+000	2.68969E-001
		1764.49*		15.40	8.16437E-001	8.95197E-002
		1847.42*	@	2.11	7.24792E-001	3.35411E-001
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.931	53.28	@	1.20		
		74.81*		6.44	2.95612E+000	2.46747E-001
		77.11*		10.80	2.94287E+000	1.93330E-001
		87.30*		4.84	2.33065E+000	2.15291E-001
		242.00*		7.43	1.36170E+000	9.80499E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	7.87985E-001	6.96078E-002
		351.93*		37.60	8.11639E-001	5.09548E-002
		462.00*	@	0.22	2.66344E+001	4.43271E+000
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.954	81.07	@	0.13		
		83.78*	@	0.22	3.34665E+001	4.47822E+000
		240.99*		4.10	2.54214E+000	1.81800E-001
Ra-226	0.866	81.07	@	0.20		
		83.78*	@	0.33	2.14922E+001	2.87427E+000
		94.90	@	0.15		
		186.21*		3.59	1.98154E+000	3.55115E-001
Ac-228	0.886	99.50	@	1.26		
		129.07*	@	2.50	1.99922E+000	5.52055E-001
		209.25*		3.97	1.54003E+000	2.90352E-001
		270.24*		3.55	1.93112E+000	3.00462E-001
		328.00*		3.04	2.15413E+000	4.37068E-001
		338.32*		11.40	1.95448E+000	1.40817E-001
		409.46*	@	2.02	1.44407E+000	5.83815E-001
		463.00*		4.45	1.36264E+000	2.31844E-001
		755.31	@	1.03		

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.886	772.29	@	1.52		
		794.94*		4.31	1.99147E+000	2.89300E-001
		835.70*	@	1.70	8.40755E-001	5.24078E-001
		911.20*		26.20	1.86958E+000	1.03737E-001
		964.79*		4.99	1.54017E+000	1.75483E-001
		968.96*		15.90	1.96285E+000	1.18309E-001
		1588.20*		3.06	2.18720E+000	3.03368E-001
		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 *****
****

	Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/GWET)	Wt mean Activity Uncertainty
	K-40		0.997	1.665052E+001	5.777290E-001
X	Mn-54		0.991		
X	Cd-109		0.908		
	Eu-152m		0.997	1.146427E-001	1.199765E-002
	Tm-170		0.999	2.471558E+000	4.347136E-001
	Tl-208	@	0.933	6.017257E-001	2.560405E-002
	TL-208e		1.000	3.412309E-002	6.858660E-003
	Bi-211		0.929	6.845484E-001	2.342900E-001
	Bi-212	@	0.752	1.990290E+000	1.824997E-001
	Pb-212	@	0.985	1.668927E+000	5.436835E-002
	Bi-214	@	0.610	7.176910E-001	3.446401E-002
	Pb-214	@	0.931	5.755696E-001	6.329412E-002
	Ra-224	@	0.954	1.467612E+000	2.145993E-001
	Ra-226	@	0.866	1.981538E+000	3.535673E-001
	Ac-228	@	0.886	1.853639E+000	4.954565E-002
X	Th-228		0.503		
X	Th-231		0.836		

? = 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: 6/12/2017 3:43:19 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 6	92.94	6.0634E-002	8.43	Tol.	Yb-169 Th-227 Th-234
31	1013.36	1.2731E-004	1278.63	Tol.	Pm-148x

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

Errors quoted at 1.000 sigma