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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        *****
*************************************************************************


Filename: ERT01,C:\GENIE2K\CAMFILES\SMP-HTC-A01-S005-4248-01.CNF

Report Generated On              : 6/14/2017  11:27:36 AM

Sample Title                     : HTC-A01-S005-4248-01
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                      :  9.732E+002 GWET

Sample Taken On                  : 5/13/2017   9:40:00 AM
Acquisition Started              : 6/14/2017   9:27:32 AM

Live Time                        :     7200.0 seconds
Real Time                        :     7202.1 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-A01-S005-4248-01
Peak Analysis Performed on: 6/14/2017 11:27:36 AM
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	293-	321	300.24	74.92	1.02	2.88E+002	27.37	6.90E+002
m	2	293-	321	309.24	77.17	1.02	4.46E+002	30.45	6.27E+002
M	3	343-	365	349.51	87.24	0.77	5.86E+001	43.91	6.16E+002
m	4	343-	365	360.04	89.87	0.78	3.68E+001	27.75	5.57E+002
	5	511-	524	516.94	129.08	0.68	7.71E+001	41.85	6.06E+002
	6	732-	757	744.76	186.02	1.09	3.00E+002	62.56	8.48E+002
	7	829-	842	837.47	209.19	1.29	8.60E+001	37.09	4.69E+002
M	8	948-	974	955.24	238.62	1.08	1.53E+003	43.96	4.37E+002
m	9	948-	974	966.89	241.53	1.08	2.33E+002	21.31	3.77E+002
	10	1073-	1091	1082.75	270.49	0.95	1.09E+002	37.59	3.86E+002
	11	1103-	1117	1109.08	277.07	0.61	4.36E+001	30.16	3.00E+002
	12	1174-	1189	1181.31	295.12	1.27	4.04E+002	34.90	2.68E+002
	13	1195-	1210	1200.91	300.02	0.84	9.62E+001	31.05	2.88E+002
M	14	1308-	1337	1312.11	327.81	0.74	3.90E+001	44.32	1.44E+002
m	15	1308-	1337	1331.39	332.63	0.75	4.65E+000	5.72	1.68E+002
	16	1345-	1361	1353.84	338.24	1.20	2.75E+002	34.33	2.89E+002
	17	1397-	1416	1408.16	351.81	1.15	7.38E+002	39.22	2.28E+002
	18	1847-	1859	1852.86	462.95	1.09	9.72E+001	20.72	1.26E+002
	19	2034-	2053	2043.42	510.58	1.24	3.35E+002	32.30	2.02E+002
	20	2325-	2341	2333.55	583.09	1.37	5.80E+002	31.70	1.36E+002
	21	2427-	2451	2438.06	609.20	1.57	6.32E+002	36.10	1.62E+002
	22	2638-	2656	2647.29	661.50	0.99	1.02E+002	21.75	1.10E+002
	23	2902-	2919	2910.17	727.19	0.77	1.06E+002	22.00	1.15E+002
	24	3065-	3081	3074.84	768.35	0.79	5.42E+001	19.15	9.98E+001
	25	3175-	3187	3180.49	794.75	0.56	5.87E+001	14.07	5.13E+001
	26	3435-	3451	3443.56	860.50	1.48	7.78E+001	15.52	5.22E+001
	27	3636-	3657	3646.33	911.18	1.36	4.13E+002	26.10	7.15E+001
	28	3732-	3746	3737.81	934.04	0.83	4.56E+001	12.75	4.04E+001
M	29	3850-	3886	3859.93	964.56	1.76	9.68E+001	11.71	5.25E+001
m	30	3850-	3886	3877.49	968.95	1.76	2.78E+002	18.13	5.25E+001
	31	4473-	4495	4483.35	1120.36	1.40	1.35E+002	22.17	9.04E+001
	32	5835-	5862	5848.08	1461.43	1.85	2.15E+003	48.29	4.10E+001
	33	6368-	6381	6374.86	1593.09	0.64	2.12E+001	8.06	1.58E+001
	34	6921-	6934	6927.83	1731.29	0.64	2.57E+001	5.92	3.33E+000
	35	7057-	7075	7066.33	1765.90	1.77	1.03E+002	13.53	2.37E+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-S005-4248-01
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	4.4526E-001	4.45E-001	1.3712E+001
	Co-60	1173.23	99.85	6.0581E-002	4.77E-002	1.8622E-004
		1332.49	99.98	4.7702E-002		-2.2204E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
+	Cs-137	32.06	5.54	2.9534E+003	4.06E-002	1.3078E+002
		661.66*	84.99	4.0585E-002		4.5027E-002
+	Tl-208	72.80	2.02	5.0679E+000	4.21E-002	-1.0578E-001
		74.97*	3.41	1.8215E+000		2.9897E+000
		84.90	1.51	4.3792E+000		1.6997E+000
		277.36*	6.31	5.2737E-001		1.6480E-001
		510.77*	22.60	2.0937E-001		2.4016E-001
		583.19*	84.50	4.2118E-002		2.4148E-001
		763.13	1.81	2.6197E+000		-7.8344E-001
		860.56*	12.42	2.3224E-001		2.9105E-001
+	Bi-212	39.86	1.06	5.4033E+002	5.68E-001	9.7943E+001
		727.33*	6.74	5.6782E-001		6.4323E-001
		785.37	1.11	4.2585E+000		1.2395E+000
		1620.74	1.51	2.8797E+000		1.7390E+000
		1806.00	0.09	3.8087E+001		1.6287E+001
+	Pb-212	74.81*	10.40	5.9724E-001	7.26E-002	9.8029E-001
		77.11*	17.50	3.1129E-001		8.2965E-001
		87.30*	7.81	5.2493E-001		1.8521E-001
		115.18	0.59	6.8587E+000		1.8910E+000
		238.63*	43.30	7.2632E-002		7.6476E-001
		300.09*	3.28	1.0592E+000		7.2926E-001
+	Bi-214	76.86*	0.43	1.2388E+001	9.59E-002	3.3018E+001
		89.81*	0.24	1.4714E+001		3.4324E+000
		386.77	0.30	1.2741E+001		-1.5071E+000
		454.77	0.29	1.3089E+001		1.6349E+000
		609.31*	45.49	9.5896E-002		4.9224E-001
		665.45	1.53	3.0413E+000		8.0086E-001
		703.11	0.48	8.6073E+000		9.6177E-001
		719.86	0.39	1.0812E+001		-8.1134E-001
		768.36*	4.89	7.1836E-001		4.5810E-001
		786.10	0.31	1.4761E+001		5.5627E+000
		806.17	1.26	3.4629E+000		5.4406E-001
		934.06*	3.10	8.2064E-001		7.0501E-001
		964.08*	0.36	6.8295E+000		1.3130E+001
		1051.96	0.31	1.6037E+001		5.9013E+000
		1120.29*	14.91	3.3737E-001		5.0165E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.1834E+001	9.59E-002	-1.0687E+001
		1155.19	1.63	3.5363E+000		5.2610E-001
		1207.68	0.45	1.4920E+001		1.0001E+001
		1238.11	5.79	1.1738E+000		3.3730E-001
		1280.96	1.43	4.0213E+000		8.1391E-001
		1377.67	4.00	1.2320E+000		-1.5473E-001
		1385.31	0.76	6.1394E+000		-8.2412E+000
		1401.50	1.27	3.5045E+000		-3.6387E+000
		1407.98	2.15	2.2051E+000		1.0050E+000
		1509.23	2.11	1.8935E+000		-7.7571E-001
		1538.50	0.38	1.0604E+001		3.6555E+000
		1543.32	0.20	1.9394E+001		7.6059E+000
		1583.22	0.69	6.9565E+000		2.2760E+000
		1594.73	0.25	1.9453E+001		4.9734E+000
		1599.31	0.23	1.6936E+001		-3.4511E+000
		1661.28	1.15	2.9944E+000		-3.2946E+000
		1683.99	0.22	1.4667E+001		-6.4436E+000
		1729.59	2.92	1.2461E+000		1.8460E-001
		1764.49	15.40	4.0772E-001		5.9560E-001
		1847.42	2.11	2.1023E+000		2.3307E+000
		1873.16	0.22	1.3761E+001		-4.7411E+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	2.8172E+001	9.44E-002	7.2806E+000
		74.81*	6.44	9.3437E-001		1.5336E+000
		77.11*	10.80	4.8865E-001		1.3024E+000
		87.30*	4.84	8.2060E-001		2.8953E-001
		242.00*	7.43	3.7651E-001		6.7393E-001
		258.87	0.52	7.4729E+000		5.5520E+000
		274.80	0.47	8.8319E+000		7.6423E-001
		295.22*	19.30	1.6758E-001		4.9982E-001
		351.93*	37.60	9.4435E-002		5.0956E-001
		462.00*	0.22	1.1973E+001		1.3309E+001
		533.66	0.19	2.0528E+001		-7.7981E+000
		785.96	1.07	4.2739E+000		1.6106E+000
		839.04	0.59	8.0882E+000		6.3937E+000
+	Ra-224	81.07	0.13	5.1842E+001	7.04E-001	-2.0862E+001
		83.78	0.22	2.9631E+001		1.2402E+001
		240.99*	4.10	7.0429E-001		1.2607E+000
+	Ra-226	81.07	0.20	3.3397E+001	1.50E+000	-1.3439E+001
		83.78	0.33	1.8992E+001		7.9490E+000
		94.90	0.15	3.5109E+001		2.8802E+001
		186.21*	3.59	1.4955E+000		1.3102E+000
+	Ac-228	99.50	1.26	3.6442E+000	1.49E-001	-7.9402E-002
		129.07*	2.50	1.3786E+000		5.5057E-001
		209.25*	3.97	8.7862E-001		4.4525E-001
		270.24*	3.55	1.1312E+000		7.2161E-001
		328.00*	3.04	7.0065E-001		3.3426E-001
		338.32*	11.40	3.3117E-001		6.3917E-001
		409.46	2.02	1.9734E+000		5.8682E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	6.1376E-001	1.49E-001	6.8226E-001
		755.31	1.03	4.6092E+000		2.4361E+000
		772.29	1.52	3.4152E+000		1.2605E+000
		794.94*	4.31	5.8467E-001		5.9575E-001
		835.70	1.70	2.7887E+000		4.1924E-001
		911.20*	26.20	1.4871E-001		7.5459E-001
		964.79*	4.99	5.1282E-001		9.8588E-001
		968.96*	15.90	1.6153E-001		8.9069E-001
		1588.20	3.06	1.8106E+000		1.1891E+000
		1630.62	1.52	2.5016E+000		-5.5418E-001
	Th-228	84.37	1.26	5.2438E+000	5.24E+000	2.7126E+000
		131.61	0.13	3.2845E+001		-3.4744E+000
		166.41	0.10	3.8734E+001		-7.8355E+000
		215.98	0.25	1.6548E+001		2.7852E+000
	Pa-234m	258.23	0.07	5.2768E+001	5.57E+000	2.9473E+000
		742.81	0.09	4.5749E+001		5.4691E+000
		766.36	0.32	1.5127E+001		6.0713E+000
		786.27	0.05	8.5188E+001		4.0252E+001
		1001.03	0.85	5.5726E+000		-1.3905E+000
		1737.77	0.02	1.8576E+002		8.8007E+000
	Th-234	63.30	3.75	3.8941E+000	1.31E+000	3.7293E-002
		92.59	4.33	1.3121E+000		1.6344E+000
		112.81	0.22	1.8429E+001		-3.2058E-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: HTC-A01-S005-4248-01
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	0.942	1460.82*		10.55	1.37115E+001	4.84829E-001
Cs-137	0.994	32.06	@	5.54		
		661.66*		84.99	4.50267E-002	9.65029E-003
Eu-152m	1.000	89.85*		69.90	1.20350E-002	9.07416E-003
Tl-208	0.934	72.80	@	2.02		
		74.97*	@	3.41	2.98973E+000	2.98161E-001
		84.90	@	1.51		
		277.36*		6.31	1.64802E-001	1.14124E-001
		510.77*	@	22.60	2.40163E-001	4.85848E-002
		583.19*		84.50	2.41475E-001	1.53602E-002
		763.13	@	1.81		
		860.56*		12.42	2.91051E-001	5.84830E-002
TL-208e	0.952	1592.53*		99.16	1.57129E-002	6.06533E-003
Bi-211	0.907	351.03*		13.00	1.47787E+000	9.57173E-002
Bi-212	0.579	39.86	@	1.06		
		727.33*		6.74	6.43232E-001	1.35563E-001
		785.37		1.11		
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.986	74.81*		10.40	9.80286E-001	1.01770E-001
		77.11*		17.50	8.29651E-001	6.61655E-002
		87.30*		7.81	1.85210E-001	1.39111E-001
		115.18	@	0.59		
		238.63*		43.30	7.64759E-001	3.36962E-002
		300.09*		3.28	7.29257E-001	2.36697E-001
Bi-214	0.456	76.86*	@	0.43	3.30177E+001	2.65688E+000
		89.81*	@	0.24	3.43244E+000	2.59092E+000
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	4.92242E-001	3.16414E-002
		665.45	@	1.53		
		703.11	@	0.48		
		719.86	@	0.39		
		768.36*		4.89	4.58096E-001	1.62388E-001
		786.10	@	0.31		
		806.17	@	1.26		
		934.06*		3.10	7.05006E-001	1.98035E-001
		964.08*	@	0.36	1.31295E+001	1.67374E+000
		1051.96	@	0.31		
		1120.29*		14.91	5.01649E-001	8.34928E-002
		1133.66	@	0.25		

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.456	1155.19	@	1.63		
		1207.68	@	0.45		
		1238.11		5.79		
		1280.96	@	1.43		
		1377.67		4.00		
		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		
		1764.49		15.40		
		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	1.53364E+000	1.60916E-001
		77.11*		10.80	1.30237E+000	1.08305E-001
		87.30*		4.84	2.89530E-001	2.17535E-001
		242.00*		7.43	6.73934E-001	6.59153E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	4.99823E-001	4.64288E-002
		351.93*		37.60	5.09562E-001	3.26054E-002
		462.00*	@	0.22	1.33092E+001	2.92084E+000
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.844	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	1.26066E+000	1.22846E-001
Ra-226	0.772	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	1.31018E+000	3.32155E-001
Ac-228	0.803	99.50	@	1.26		
		129.07*	@	2.50	5.50573E-001	2.99639E-001
		209.25*		3.97	4.45247E-001	1.93069E-001
		270.24*		3.55	7.21607E-001	2.51101E-001
		328.00*		3.04	3.34262E-001	3.80275E-001
		338.32*		11.40	6.39171E-001	8.55059E-002
		409.46	@	2.02		
		463.00*		4.45	6.82264E-001	1.51661E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.803	755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	5.95750E-001	1.44859E-001
		835.70	@	1.70		
		911.20*		26.20	7.54588E-001	5.63880E-002
		964.79*		4.99	9.85881E-001	1.25941E-001
		968.96*		15.90	8.90692E-001	6.76920E-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		0.942	1.371155E+001	4.848287E-001
X	Cd-109		0.903		
	Cs-137	@	0.994	4.502671E-002	9.650295E-003
	Eu-152m		1.000	1.029277E-002	9.074133E-003
	Tl-208	@	0.934	2.430383E-001	1.460012E-002
	TL-208e		0.952	1.571288E-002	6.065335E-003
	Bi-211		0.907	3.241453E-001	1.516922E-001
	Bi-212	@	0.579	6.432320E-001	1.355629E-001
	Pb-212	@	0.986	6.845576E-001	2.832886E-002
	Bi-214	@	0.456	4.968965E-001	2.874286E-002
	Pb-214	@	0.942	3.977983E-001	4.125349E-002
	Ra-224	@	0.844	5.165396E-001	1.442565E-001
	Ra-226	@	0.772	1.310176E+000	3.321549E-001
	Ac-228	@	0.803	7.628663E-001	3.162017E-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: 6/14/2017 11:27:36 AM
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 15	332.63	6.4630E-004	122.99		
34	1731.29	3.5656E-003	23.07	Sum	
35	1765.90	1.4354E-002	13.10		

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

Errors quoted at 1.000 sigma