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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-A02-S001-3036-01.CNF

Report Generated On              : 6/27/2017   2:51:38 PM

Sample Title                     : HTC-A02-S001-3036-01
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                      :  8.977E+002 GWET

Sample Taken On                  : 5/15/2017  10:29:00 AM
Acquisition Started              : 6/27/2017  12:51:32 PM

Live Time                        :     7200.0 seconds
Real Time                        :     7202.8 seconds

Dead Time                        :   0.04 %


            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-A02-S001-3036-01
Peak Analysis Performed on: 6/27/2017 2:51:38 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	248-	260	253.66	63.28	0.85	6.36E+001	50.01	9.23E+002
M	2	294-	316	300.30	74.94	0.95	5.01E+002	34.60	1.14E+003
m	3	294-	316	309.32	77.19	0.96	9.19E+002	41.34	1.07E+003
M	4	322-	386	325.74	81.29	1.16	1.76E+001	16.93	8.29E+002
m	5	322-	386	336.71	84.04	1.16	2.07E+002	19.88	1.11E+003
m	6	322-	386	349.82	87.31	1.17	4.18E+002	24.49	1.07E+003
m	7	322-	386	360.62	90.01	1.17	2.51E+002	19.78	1.03E+003
m	8	322-	386	371.43	92.71	1.17	6.44E+002	25.68	9.95E+002
	9	513-	524	517.39	129.19	0.36	6.44E+001	45.04	7.82E+002
	10	738-	752	744.81	186.03	1.18	8.94E+002	56.25	7.86E+002
	11	831-	850	837.84	209.28	0.79	1.29E+002	57.38	9.01E+002
M	12	948-	978	955.36	238.65	1.08	1.41E+003	44.36	6.75E+002
m	13	948-	978	968.58	241.95	1.08	7.77E+002	34.44	5.73E+002
	14	1106-	1114	1109.74	277.23	0.62	3.93E+001	24.44	2.59E+002
	15	1176-	1193	1181.58	295.19	1.10	1.69E+003	56.53	4.40E+002
	16	1194-	1208	1200.89	300.01	1.20	1.37E+002	33.82	3.49E+002
	17	1266-	1275	1270.84	317.49	0.94	3.63E+001	23.11	2.20E+002
	18	1306-	1316	1312.35	327.87	0.51	6.72E+001	25.79	2.50E+002
	19	1349-	1359	1353.32	338.11	1.15	2.46E+002	29.68	2.64E+002
	20	1400-	1419	1408.20	351.82	1.08	3.01E+003	67.26	4.30E+002
	21	1847-	1863	1851.72	462.67	1.39	1.20E+002	28.74	2.24E+002
	22	1918-	1931	1924.81	480.93	0.34	3.52E+001	21.99	1.62E+002
	23	2032-	2053	2044.32	510.80	1.25	3.50E+002	38.81	3.08E+002
	24	2326-	2345	2333.54	583.08	1.13	5.34E+002	36.02	2.18E+002
	25	2427-	2449	2437.90	609.16	1.32	2.28E+003	56.19	2.25E+002
	26	2654-	2669	2663.57	665.56	0.37	5.07E+001	22.06	1.44E+002
	27	2806-	2817	2812.03	702.67	0.69	2.09E+001	15.92	9.21E+001
	28	2898-	2918	2910.43	727.26	1.31	1.19E+002	25.11	1.41E+002
	29	3061-	3082	3074.81	768.34	1.04	2.07E+002	29.50	1.77E+002
	30	3138-	3151	3144.92	785.86	0.95	4.51E+001	16.84	8.59E+001
	31	3173-	3185	3180.52	794.76	0.42	4.06E+001	16.20	8.44E+001
	32	3435-	3451	3442.83	860.32	0.38	5.98E+001	20.89	1.20E+002
	33	3636-	3655	3646.45	911.20	1.27	3.37E+002	30.24	1.65E+002
	34	3728-	3747	3737.74	934.02	1.17	1.27E+002	24.69	1.36E+002
M	35	3852-	3888	3860.84	964.78	1.46	8.47E+001	12.64	1.09E+002
m	36	3852-	3888	3877.91	969.05	1.47	2.20E+002	17.38	8.97E+001
	37	4473-	4493	4483.92	1120.50	1.36	4.68E+002	31.18	1.39E+002
	38	4948-	4965	4955.90	1238.46	1.06	1.53E+002	23.78	1.27E+002
	39	5120-	5135	5127.28	1281.29	1.31	5.93E+001	15.25	5.77E+001
	40	5504-	5525	5515.26	1378.26	1.03	1.32E+002	19.48	6.60E+001
M	41	5607-	5643	5612.14	1402.47	1.07	1.18E+001	10.95	5.02E+001
m	42	5607-	5643	5636.47	1408.55	1.07	2.32E+001	20.86	6.21E+001

Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
43	5835-	5863	5847.79	1461.36	1.73	2.32E+003	50.76	5.64E+001
44	6035-	6051	6043.10	1510.17	0.42	5.41E+001	13.03	3.69E+001
45	6352-	6365	6358.84	1589.08	1.16	3.30E+001	9.56	2.10E+001
46	6918-	6934	6925.61	1730.73	0.54	8.80E+001	11.90	1.70E+001
47	7054-	7078	7065.37	1765.66	2.05	4.02E+002	22.24	2.22E+001
48	7391-	7405	7398.23	1848.85	0.96	5.48E+001	9.33	1.13E+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-A02-S001-3036-01
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	5.6194E-001	5.62E-001	1.6036E+001
	Co-60	1173.23	99.85	7.0664E-002	6.05E-002	-2.1612E-002
		1332.49	99.98	6.0510E-002		5.6832E-003
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	3.9411E+003	6.44E-002	-1.2020E+003
		661.66	84.99	6.4408E-002		-7.6393E-003
+	Tl-208	72.80	2.02	7.1635E+000	6.11E-002	8.4905E-001
		74.97*	3.41	2.5587E+000		5.7029E+000
		84.90*	1.51	4.2709E+000		3.9922E+000
		277.36*	6.31	4.6640E-001		1.6265E-001
		510.77*	22.60	2.7903E-001		2.8850E-001
		583.19*	84.50	6.1119E-002		2.4331E-001
		763.13	1.81	3.7625E+000		-5.8836E-001
		860.56*	12.42	3.8093E-001		2.4523E-001
+	Bi-212	39.86	1.06	7.4160E+002	7.21E-001	-3.2944E+002
		727.33*	6.74	7.2060E-001		7.9625E-001
		785.37*	1.11	3.1956E+000		1.9315E+000
		1620.74	1.51	3.8159E+000		2.3204E+000
		1806.00	0.09	4.7670E+001		-3.2405E+000
+	Pb-212	74.81*	10.40	8.3897E-001	9.79E-002	1.8699E+000
		77.11*	17.50	4.4320E-001		1.8712E+000
		87.30*	7.81	7.5293E-001		1.4473E+000
		115.18	0.59	9.3021E+000		7.8189E-001
		238.63*	43.30	9.7893E-002		7.7525E-001
		300.09*	3.28	1.2490E+000		1.1372E+000
+	Bi-214	76.86*	0.43	1.7445E+001	1.18E-001	7.3655E+001
		89.81*	0.24	2.1563E+001		2.5346E+001
		386.77	0.30	1.7255E+001		1.1423E+001
		454.77	0.29	1.6934E+001		-2.8551E-001
		609.31*	45.49	1.1826E-001		1.9281E+000
		665.45*	1.53	2.6510E+000		1.3474E+000
		703.11*	0.48	6.4772E+000		1.8423E+000
		719.86	0.39	1.4142E+001		5.1112E+000
		768.36*	4.89	1.1233E+000		1.8988E+000
		786.10*	0.31	1.0964E+001		6.6267E+000
		806.17	1.26	4.5821E+000		2.1416E+000
		934.06*	3.10	1.7597E+000		2.1307E+000
		964.08*	0.36	1.0498E+001		1.2459E+001
		1051.96	0.31	2.0553E+001		1.5750E-001
		1120.29*	14.91	4.3277E-001		1.8902E+000

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.7725E+001	1.18E-001	6.4389E+000
		1155.19	1.63	4.9090E+000		2.4337E+000
		1207.68	0.45	1.7773E+001		3.2836E+000
		1238.11*	5.79	1.0941E+000		1.7257E+000
		1280.96*	1.43	2.9918E+000		2.7765E+000
		1377.67*	4.00	1.3404E+000		2.3322E+000
		1385.31	0.76	8.9440E+000		-4.8255E+000
		1401.50*	1.27	2.7777E+000		6.6434E-001
		1407.98*	2.15	1.8190E+000		7.7293E-001
		1509.23*	2.11	1.8767E+000		1.9246E+000
		1538.50	0.38	1.4970E+001		1.5318E+001
		1543.32	0.20	2.7481E+001		3.9432E+000
		1583.22	0.69	9.2745E+000		9.9266E-001
		1594.73	0.25	2.6823E+001		2.0556E+001
		1599.31	0.23	2.5388E+001		8.7539E+000
		1661.28	1.15	4.6528E+000		4.8146E+000
		1683.99	0.22	2.0339E+001		-1.3144E+001
		1729.59	2.92	2.2707E+000		1.3246E+000
		1764.49	15.40	7.4306E-001		2.0757E+000
		1847.42	2.11	2.7860E+000		2.1779E+000
		1873.16	0.22	2.0984E+001		5.9583E+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	3.8455E+001	1.39E-001	-3.5285E+000
		74.81*	6.44	1.2982E+000		2.8934E+000
		77.11*	10.80	6.8810E-001		2.9053E+000
		87.30*	4.84	1.1641E+000		2.2378E+000
		242.00*	7.43	5.0169E-001		2.4355E+000
		258.87	0.52	1.0013E+001		8.7115E+000
		274.80	0.47	1.1417E+001		-1.4796E+001
		295.22*	19.30	2.4592E-001		2.2647E+000
		351.93*	37.60	1.3923E-001		2.2716E+000
		462.00*	0.22	1.8736E+001		1.7739E+001
		533.66	0.19	2.5899E+001		-7.4930E+000
		785.96*	1.07	3.1764E+000		1.9199E+000
		839.04	0.59	1.0523E+001		4.2634E+000
+	Ra-224	81.07*	0.13	4.5889E+001	9.49E-001	4.1958E+000
		83.78*	0.22	2.9719E+001		2.7780E+001
		240.99*	4.10	9.4887E-001		4.6064E+000
+	Ra-226	81.07*	0.20	2.9238E+001	1.30E+000	2.6734E+000
		83.78*	0.33	1.8839E+001		1.7610E+001
		94.90	0.15	4.8956E+001		1.7492E+000
		186.21*	3.59	1.2953E+000		4.7974E+000
+	Ac-228	99.50	1.26	4.7670E+000	2.28E-001	1.1511E+000
		129.07*	2.50	1.6346E+000		5.0377E-001
		209.25*	3.97	1.4998E+000		7.3192E-001
		270.24	3.55	1.6638E+000		9.3352E-001
		328.00*	3.04	1.0941E+000		6.3175E-001
		338.32*	11.40	3.0523E-001		6.2694E-001
		409.46	2.02	2.6332E+000		3.1639E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	9.7107E-001	2.28E-001	9.1940E-001
		755.31	1.03	5.4595E+000		-2.4287E-001
		772.29	1.52	4.8390E+000		9.3890E-001
		794.94*	4.31	8.0151E-001		4.5171E-001
		835.70	1.70	3.7939E+000		1.7839E+000
		911.20*	26.20	2.3437E-001		6.7395E-001
		964.79*	4.99	7.9702E-001		9.4588E-001
		968.96*	15.90	2.2843E-001		7.7494E-001
		1588.20*	3.06	1.0078E+000		8.6967E-001
		1630.62	1.52	3.6965E+000		7.2801E-001
+	Th-228	84.37*	1.26	5.1183E+000	5.12E+000	4.7843E+000
		131.61	0.13	4.3689E+001		-5.0851E+000
		166.41	0.10	5.3465E+001		1.3877E+001
		215.98	0.25	2.2148E+001		1.9524E+000
	Pa-234m	258.23	0.07	7.0646E+001	7.20E+000	3.9890E+001
		742.81	0.09	5.9702E+001		3.5843E+001
		766.36	0.32	2.2158E+001		3.3520E+001
		786.27	0.05	1.0533E+002		5.3296E+001
		1001.03	0.85	7.1994E+000		3.4889E+000
		1737.77	0.02	2.7374E+002		-7.9242E+001
+	Th-234	63.30*	3.75	4.4558E+000	1.17E+000	5.6375E-001
		92.59*	4.33	1.1716E+000		3.0842E+000
		112.81	0.22	2.4502E+001		-1.7641E+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-A02-S001-3036-01
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	0.954	1460.82*		10.55	1.60356E+001	5.61001E-001
Eu-152m	0.996	89.85*		69.90	8.90081E-002	7.42256E-003
Tl-208	0.954	72.80	@	2.02		
		74.97*	@	3.41	5.70288E+000	4.29437E-001
		84.90*	@	1.51	3.99222E+000	3.99220E-001
		277.36*		6.31	1.62648E-001	1.01431E-001
		510.77*	@	22.60	2.88503E-001	6.35285E-002
		583.19*		84.50	2.43313E-001	1.83184E-002
		763.13	@	1.81		
		860.56*		12.42	2.45229E-001	8.58267E-002
Bi-211	0.904	351.03*		13.00	6.59445E+000	2.80029E-001
Bi-212	0.765	39.86	@	1.06		
		727.33*		6.74	7.96251E-001	1.69582E-001
		785.37*		1.11	1.93150E+000	7.23779E-001
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.986	74.81*		10.40	1.86989E+000	1.50784E-001
		77.11*		17.50	1.87125E+000	1.14213E-001
		87.30*		7.81	1.44733E+000	1.04226E-001
		115.18	@	0.59		
		238.63*		43.30	7.75250E-001	3.55726E-002
		300.09*		3.28	1.13724E+000	2.83714E-001
Bi-214	0.669	76.86*	@	0.43	7.36545E+001	4.56436E+000
		89.81*	@	0.24	2.53463E+001	2.30095E+000
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	1.92813E+000	7.40829E-002
		665.45*	@	1.53	1.34740E+000	5.87200E-001
		703.11*	@	0.48	1.84228E+000	1.40225E+000
		719.86	@	0.39		
		768.36*		4.89	1.89883E+000	2.74637E-001
		786.10*	@	0.31	6.62666E+000	2.70277E+000
		806.17	@	1.26		
		934.06*		3.10	2.13070E+000	4.17212E-001
		964.08*	@	0.36	1.24589E+001	1.92483E+000
		1051.96	@	0.31		
		1120.29*		14.91	1.89017E+000	1.34069E-001
		1133.66	@	0.25		
		1155.19	@	1.63		
		1207.68	@	0.45		
		1238.11*		5.79	1.72567E+000	2.72395E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.669	1280.96*	@	1.43	2.77645E+000	7.18327E-001
		1377.67*		4.00	2.33223E+000	3.50929E-001
		1385.31	@	0.76		
		1401.50*	@	1.27	6.64339E-001	6.17012E-001
		1407.98*	@	2.15	7.72927E-001	6.96430E-001
		1509.23*	@	2.11	1.92458E+000	4.67673E-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		
		1847.42	@	2.11		
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.960	53.28	@	1.20		
		74.81*		6.44	2.89336E+000	2.37426E-001
		77.11*		10.80	2.90526E+000	1.90084E-001
		87.30*		4.84	2.23776E+000	1.66623E-001
		242.00*		7.43	2.43553E+000	1.37459E-001
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	2.26470E+000	1.08161E-001
		351.93*		37.60	2.27156E+000	9.37358E-002
		462.00*	@	0.22	1.77387E+001	4.36304E+000
		533.66	@	0.19		
		785.96*	@	1.07	1.91987E+000	7.33400E-001
		839.04	@	0.59		
Ra-224	0.870	81.07*	@	0.13	4.19582E+000	4.05000E+000
		83.78*	@	0.22	2.77800E+001	2.96075E+000
		240.99*		4.10	4.60637E+000	2.57088E-001
Ra-226	0.940	81.07*	@	0.20	2.67339E+000	2.58021E+000
		83.78*	@	0.33	1.76099E+001	1.87514E+000
		94.90	@	0.15		
		186.21*		3.59	4.79738E+000	3.59878E-001
Ac-228	0.758	99.50	@	1.26		
		129.07*	@	2.50	5.03773E-001	3.53082E-001
		209.25*		3.97	7.31917E-001	3.27322E-001
		270.24		3.55		
		328.00*		3.04	6.31751E-001	2.44350E-001
		338.32*		11.40	6.26939E-001	8.13746E-002
		409.46	@	2.02		
		463.00*		4.45	9.19396E-001	2.28462E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	4.51709E-001	1.81322E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.758	835.70	@	1.70		
		911.20*		26.20	6.73951E-001	6.67155E-002
		964.79*		4.99	9.45880E-001	1.46340E-001
		968.96*		15.90	7.74943E-001	6.81138E-002
		1588.20*		3.06	8.69668E-001	2.55223E-001
		1630.62	@	1.52		
Th-228	0.490	84.37*		1.26	4.78433E+000	4.84420E-001
		131.61	@	0.13		
		166.41	@	0.10		
		215.98		0.25		
Th-234	0.943	63.30*		3.75	5.63751E-001	9.53088E-001
		92.59*		4.33	3.08425E+000	2.12158E-001
		112.81	@	0.22		

* = 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		0.954	1.603563E+001	5.610007E-001
X	Cd-109		0.920		
	Eu-152m		0.996	8.225215E-002	7.386100E-003
X	Tm-170		0.992		
	Tl-208	@	0.954	2.405251E-001	1.752913E-002
	Bi-211		0.904	1.335322E+000	3.424515E-001
	Bi-212	@	0.765	7.316969E-001	1.646091E-001
	Pb-212	@	0.986	7.094113E-001	3.234516E-002
	Bi-214	@	0.669	1.923848E+000	5.962119E-002
	Pb-214	@	0.960	1.811591E+000	7.558318E-002
	Ra-224	@	0.870	1.180068E+000	2.887450E-001
	Ra-226	@	0.940	4.797375E+000	3.508329E-001
	Ac-228	@	0.758	7.022148E-001	3.535425E-002
	Th-228	@	0.490	2.989478E+000	4.908216E-001
X	Th-231		0.996		
	Th-234	@	0.943	2.965251E+000	2.070897E-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: 6/27/2017 2:51:38 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
17	317.49	5.0401E-003	63.68	Sum	
22	480.93	4.8946E-003	62.39	Sum	
46	1730.73	1.2222E-002	13.52	Sum	
47	1765.66	5.5077E-002	5.62		
48	1848.85	7.6042E-003	17.05	Sum	

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

Errors quoted at 1.000 sigma