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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-S001-2430-01.CNF

Report Generated On              : 6/26/2017   9:12:51 PM

Sample Title                     : HTC-A02-S001-2430-01
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                      :  9.093E+002 GWET

Sample Taken On                  : 5/15/2017  10:32:00 AM
Acquisition Started              : 6/26/2017   7:12:46 PM

Live Time                        :     7200.0 seconds
Real Time                        :     7202.2 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-A02-S001-2430-01
Peak Analysis Performed on: 6/26/2017 9:12:51 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	288-	315	300.16	74.90	0.96	2.84E+002	26.35	6.11E+002
m	2	288-	315	309.07	77.13	0.96	5.31E+002	31.97	5.93E+002
M	3	342-	385	349.85	87.32	0.94	9.82E+001	22.42	6.64E+002
m	4	342-	385	360.34	89.94	0.95	8.88E+001	21.37	6.70E+002
m	5	342-	385	371.95	92.84	0.95	2.06E+002	24.65	5.67E+002
	6	508-	526	518.12	129.37	0.89	7.78E+001	52.76	8.00E+002
	7	739-	750	744.44	185.94	1.20	2.74E+002	36.50	4.21E+002
	8	830-	847	837.16	209.11	1.14	1.44E+002	43.31	5.29E+002
M	9	943-	974	954.98	238.56	1.09	1.51E+003	42.82	3.73E+002
m	10	943-	974	965.94	241.29	1.09	2.38E+002	20.75	3.24E+002
M	11	1174-	1207	1181.41	295.14	1.14	3.92E+002	25.11	2.67E+002
m	12	1174-	1207	1200.59	299.94	1.14	7.97E+001	15.46	2.69E+002
	13	1309-	1316	1312.82	327.99	0.38	6.43E+001	18.87	1.45E+002
	14	1346-	1360	1353.59	338.18	1.15	2.99E+002	32.12	2.55E+002
	15	1401-	1416	1408.00	351.77	1.28	7.17E+002	37.59	2.31E+002
	16	1843-	1860	1852.50	462.86	0.68	7.52E+001	26.02	1.85E+002
	17	2030-	2057	2043.26	510.54	1.12	3.93E+002	38.44	2.41E+002
	18	2323-	2344	2332.58	582.84	1.55	5.35E+002	35.58	1.93E+002
	19	2427-	2451	2437.47	609.06	1.32	5.24E+002	37.23	2.05E+002
	20	2899-	2917	2909.54	727.04	1.47	1.48E+002	20.25	7.76E+001
	21	3083-	3095	3089.10	771.91	0.26	2.50E+001	14.04	6.50E+001
	22	3172-	3187	3179.50	794.50	1.01	5.71E+001	18.24	9.19E+001
	23	3301-	3311	3305.46	825.98	0.30	2.40E+001	11.41	4.40E+001
	24	3436-	3453	3444.04	860.62	0.83	7.50E+001	17.80	7.40E+001
	25	3635-	3657	3645.54	910.98	1.40	3.92E+002	28.60	1.10E+002
M	26	3854-	3885	3859.81	964.53	1.38	5.98E+001	11.35	8.98E+001
m	27	3854-	3885	3876.96	968.81	1.38	2.16E+002	17.27	9.45E+001
	28	4472-	4494	4482.90	1120.25	0.87	1.37E+002	23.97	1.13E+002
	29	4949-	4963	4956.49	1238.61	0.86	5.26E+001	17.60	8.84E+001
	30	5505-	5523	5513.63	1377.85	0.91	5.26E+001	11.46	2.34E+001
	31	5833-	5860	5846.59	1461.06	1.87	2.42E+003	51.49	5.21E+001
	32	6367-	6380	6373.95	1592.86	0.53	1.68E+001	8.73	2.02E+001
	33	6481-	6494	6487.22	1621.17	0.55	1.79E+001	5.64	5.08E+000
	34	6518-	6531	6524.93	1630.59	0.52	2.35E+001	7.27	1.05E+001
	35	7055-	7071	7063.99	1765.31	1.23	8.63E+001	11.77	1.67E+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-S001-2430-01
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	5.3071E-001	5.31E-001	1.6517E+001
	Co-60	1173.23	99.85	7.0614E-002	5.49E-002	1.5057E-002
		1332.49	99.98	5.4877E-002		-1.5896E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	3.1038E+003	5.09E-002	6.6957E+002
		661.66	84.99	5.0875E-002		2.3145E-003
+	Tl-208	72.80	2.02	5.4096E+000	5.90E-002	7.8724E-001
		74.97*	3.41	1.8570E+000		3.1927E+000
		84.90	1.51	4.6774E+000		9.4360E-001
		277.36	6.31	7.2039E-001		3.0398E-001
		510.77*	22.60	2.6801E-001		3.5189E-001
		583.19*	84.50	5.9017E-002		2.4040E-001
		763.13	1.81	3.0698E+000		3.5108E-001
		860.56*	12.42	3.0357E-001		3.0340E-001
+	Bi-212	39.86	1.06	5.7472E+002	5.13E-001	2.7820E+002
		727.33*	6.74	5.1340E-001		9.7784E-001
		785.37	1.11	4.4828E+000		-3.6016E-001
		1620.74*	1.51	1.0674E+000		9.5352E-001
		1806.00	0.09	3.8688E+001		-1.5672E+001
+	Pb-212	74.81*	10.40	6.0890E-001	7.28E-002	1.0468E+000
		77.11*	17.50	3.2814E-001		1.0691E+000
		87.30*	7.81	5.8771E-001		3.3541E-001
		115.18	0.59	7.1066E+000		2.4263E-001
		238.63*	43.30	7.2838E-002		8.1593E-001
		300.09*	3.28	9.0735E-001		6.5357E-001
+	Bi-214	76.86*	0.43	1.2926E+001	1.16E-001	4.2112E+001
		89.81*	0.24	1.7222E+001		8.8417E+000
		386.77	0.30	1.4293E+001		2.2656E-001
		454.77	0.29	1.4471E+001		-7.2539E+000
		609.31*	45.49	1.1604E-001		4.3719E-001
		665.45	1.53	2.8832E+000		-1.3110E-002
		703.11	0.48	9.3922E+000		-2.0848E+000
		719.86	0.39	1.1987E+001		6.9167E+000
		768.36	4.89	1.1056E+000		4.5163E-001
		786.10	0.31	1.5256E+001		-7.1114E+000
		806.17	1.26	3.6984E+000		-5.6374E-001
		934.06	3.10	1.6079E+000		-1.7471E-001
		964.08*	0.36	9.4364E+000		8.6715E+000
		1051.96	0.31	1.6997E+001		-4.4313E+000
		1120.29*	14.91	3.9871E-001		5.4555E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.6170E+001	1.16E-001	-1.1499E+001
		1155.19	1.63	3.9445E+000		-4.9931E-001
		1207.68	0.45	1.5914E+001		-6.6933E+000
		1238.11*	5.79	8.5932E-001		5.8548E-001
		1280.96	1.43	4.4560E+000		-8.9136E-001
		1377.67*	4.00	7.6679E-001		9.1773E-001
		1385.31	0.76	6.3019E+000		4.0446E-001
		1401.50	1.27	4.0192E+000		-1.7600E+000
		1407.98	2.15	2.3704E+000		-1.1012E-001
		1509.23	2.11	2.2607E+000		1.0841E+000
		1538.50	0.38	1.1026E+001		7.2752E+000
		1543.32	0.20	2.0289E+001		1.0302E+001
		1583.22	0.69	7.9781E+000		2.7585E-001
		1594.73	0.25	2.2468E+001		1.2160E+001
		1599.31	0.23	1.7846E+001		8.3944E-001
		1661.28	1.15	3.4872E+000		8.2981E-001
		1683.99	0.22	1.4696E+001		-3.7425E+000
		1729.59	2.92	1.4993E+000		9.6215E-001
		1764.49*	15.40	1.9986E-001		4.1956E-001
		1847.42	2.11	2.0169E+000		4.6800E-001
		1873.16	0.22	1.4512E+001		-2.0833E-002
>		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	3.0561E+001	9.46E-002	9.5300E+000
		74.81*	6.44	9.4286E-001		1.6210E+000
		77.11*	10.80	5.0984E-001		1.6611E+000
		87.30*	4.84	9.0934E-001		5.1897E-001
		242.00*	7.43	3.7401E-001		7.3601E-001
		258.87	0.52	7.7381E+000		2.0209E+000
		274.80	0.47	9.2310E+000		-6.1174E+000
		295.22*	19.30	1.4606E-001		5.1970E-001
		351.93*	37.60	9.4559E-002		5.2982E-001
		462.00*	0.22	1.7116E+001		1.1029E+001
		533.66	0.19	2.2779E+001		1.0282E+001
		785.96	1.07	4.4171E+000		-2.0590E+000
		839.04	0.59	8.7558E+000		8.5022E+000
+	Ra-224	81.07	0.13	5.5507E+001	7.07E-001	-3.2917E+001
		83.78	0.22	3.2054E+001		1.1992E+001
		240.99*	4.10	7.0686E-001		1.3910E+000
+	Ra-226	81.07	0.20	3.5392E+001	8.94E-001	-2.0989E+001
		83.78	0.33	2.0334E+001		7.6073E+000
		94.90	0.15	3.6639E+001		-3.4172E+000
		186.21*	3.59	8.9409E-001		1.2562E+000
+	Ac-228	99.50	1.26	3.8291E+000	2.00E-001	1.3214E+000
		129.07*	2.50	1.8883E+000		6.0024E-001
		209.25*	3.97	1.0980E+000		8.0745E-001
		270.24	3.55	1.2745E+000		-1.2186E-001
		328.00*	3.04	7.6181E-001		5.9596E-001
		338.32*	11.40	3.2304E-001		7.5170E-001
		409.46	2.02	2.1516E+000		8.4479E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	8.8646E-001	2.00E-001	5.7123E-001
		755.31	1.03	4.9050E+000		-3.4354E+000
		772.29*	1.52	1.9422E+000		7.6219E-001
		794.94*	4.31	8.7732E-001		6.2719E-001
		835.70	1.70	3.0943E+000		1.2874E+000
		911.20*	26.20	1.9983E-001		7.7391E-001
		964.79*	4.99	7.1589E-001		6.5786E-001
		968.96*	15.90	2.3107E-001		7.4912E-001
		1588.20	3.06	2.0995E+000		2.1597E+000
		1630.62*	1.52	1.4781E+000		1.2461E+000
	Th-228	84.37	1.26	5.6029E+000	5.60E+000	1.8315E+000
		131.61	0.13	3.5192E+001		2.9679E-001
		166.41	0.10	4.1687E+001		-8.5779E+000
		215.98	0.25	1.8077E+001		5.1809E+000
	Pa-234m	258.23	0.07	5.4078E+001	6.01E+000	-3.4890E+001
		742.81	0.09	4.8676E+001		-3.2456E+000
		766.36	0.32	1.7111E+001		1.1894E+001
		786.27	0.05	8.8385E+001		-2.0645E+001
		1001.03	0.85	6.0100E+000		1.4122E+000
		1737.77	0.02	1.6223E+002		-3.2913E+002
	Th-234	63.30	3.75	4.0618E+000	1.38E+000	1.7262E+000
		92.59	4.33	1.3844E+000		2.1105E+000
		112.81	0.22	1.9061E+001		-5.9910E-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 *****
****

Sample Title: HTC-A02-S001-2430-01
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	0.991	1460.82*		10.55	1.65169E+001	5.71531E-001
Eu-152m	0.999	89.85*		69.90	3.10460E-002	7.52470E-003
Tl-208	0.832	72.80	@	2.02		
		74.97*	@	3.41	3.19272E+000	3.11381E-001
		84.90	@	1.51		
		277.36		6.31		
		510.77*	@	22.60	3.51894E-001	6.24347E-002
		583.19*		84.50	2.40397E-001	1.78888E-002
		763.13	@	1.81		
		860.56*		12.42	3.03403E-001	7.24025E-002
TL-208e	0.983	1592.53*		99.16	1.34978E-002	7.06173E-003
Bi-211	0.916	351.03*		13.00	1.53800E+000	9.87225E-002
Bi-212	0.764	39.86	@	1.06		
		727.33*		6.74	9.77837E-001	1.36847E-001
		785.37		1.11		
		1620.74*		1.51	9.53524E-001	3.01883E-001
		1806.00	@	0.09		
Pb-212	0.986	74.81*		10.40	1.04684E+000	1.06469E-001
		77.11*		17.50	1.06910E+000	7.80332E-002
		87.30*		7.81	3.35415E-001	7.78443E-002
		115.18	@	0.59		
		238.63*		43.30	8.15928E-001	3.57495E-002
		300.09*		3.28	6.53569E-001	1.28643E-001
Bi-214	0.601	76.86*	@	0.43	4.21119E+001	3.10670E+000
		89.81*	@	0.24	8.84170E+000	2.16633E+000
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	4.37192E-001	3.36118E-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	8.67150E+000	1.68334E+000
		1051.96	@	0.31		
		1120.29*		14.91	5.45553E-001	9.64850E-002
		1133.66	@	0.25		
		1155.19	@	1.63		
		1207.68	@	0.45		

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.601	1238.11*		5.79	5.85478E-001	1.96443E-001
		1280.96	@	1.43		
		1377.67*		4.00	9.17729E-001	2.01674E-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		
		1764.49*		15.40	4.19560E-001	6.31451E-002
		1847.42	@	2.11		
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.938	53.28	@	1.20		
		74.81*		6.44	1.62101E+000	1.66698E-001
		77.11*		10.80	1.66108E+000	1.27405E-001
		87.30*		4.84	5.18973E-001	1.20845E-001
		242.00*		7.43	7.36005E-001	6.90810E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	5.19700E-001	3.76781E-002
		351.93*		37.60	5.29822E-001	3.35916E-002
		462.00*	@	0.22	1.10293E+001	3.85686E+000
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.873	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	1.39100E+000	1.30036E-001
Ra-226	0.766	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	1.25623E+000	2.11161E-001
Ac-228	0.764	99.50	@	1.26		
		129.07*	@	2.50	6.00235E-001	4.07902E-001
		209.25*		3.97	8.07450E-001	2.45077E-001
		270.24		3.55		
		328.00*		3.04	5.95957E-001	1.77402E-001
		338.32*		11.40	7.51702E-001	8.84322E-002
		409.46	@	2.02		
		463.00*		4.45	5.71229E-001	2.00774E-001
		755.31	@	1.03		
		772.29*	@	1.52	7.62187E-001	4.29429E-001

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.764	794.94*	4.31	6.27191E-001	2.01867E-001
		835.70 @	1.70		
		911.20*	26.20	7.73909E-001	6.45568E-002
		964.79*	4.99	6.57859E-001	1.27821E-001
		968.96*	15.90	7.49125E-001	6.65921E-002
		1588.20	3.06		
		1630.62* @	1.52	1.24611E+000	3.89795E-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		0.991	1.651686E+001	5.715308E-001
X	Cd-109		0.922		
	Eu-152m		0.999	2.944933E-002	7.520613E-003
	Tl-208	@	0.832	2.438721E-001	1.724020E-002
	TL-208e		0.983	1.349775E-002	7.061729E-003
	Bi-211		0.916	2.756220E-001	1.386356E-001
	Bi-212	@	0.764	9.736925E-001	1.246384E-001
	Pb-212	@	0.986	6.979269E-001	2.838277E-002
	Bi-214	@	0.601	4.547263E-001	2.774592E-002
	Pb-214	@	0.938	4.348735E-001	3.441253E-002
	Ra-224	@	0.873	5.691204E-001	1.444002E-001
	Ra-226	@	0.766	1.256234E+000	2.111610E-001
	Ac-228	@	0.764	7.338616E-001	3.455236E-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: 6/26/2017 9:12:51 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	5	92.84	1.8054E-002	19.50	Tol.	Yb-169 Th-234
	23	825.98	3.3333E-003	47.54	Tol.	Pa-234

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

Errors quoted at 1.000 sigma