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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-S001-2430-01.CNF

Report Generated On	: 7/9/2017 5:32:04 PM
Sample Title	: HTC-A03-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	: 9.378E+002 GWET
Sample Taken On	: 5/15/2017 8:14:00 AM
Acquisition Started	: 7/9/2017 3:32:00 PM
Live Time	: 7200.0 seconds
Real Time	: 7202.0 seconds
Dead Time	: 0.03 %

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-A03-S001-2430-01
Peak Analysis Performed on: 7/9/2017 5:32:04 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	295-	319	300.49	74.98	0.92	2.04E+002	23.28	5.20E+002
m	2	295-	319	309.30	77.19	0.93	4.19E+002	28.27	4.73E+002
	3	343-	354	349.21	87.16	0.82	1.25E+002	38.33	5.37E+002
	4	736-	750	744.32	185.91	1.14	2.25E+002	37.14	4.01E+002
	5	833-	845	838.31	209.40	0.33	8.45E+001	31.21	3.36E+002
M	6	942-	977	955.04	238.57	1.10	1.25E+003	39.10	2.97E+002
m	7	942-	977	967.25	241.62	1.10	2.25E+002	19.75	2.71E+002
	8	1075-	1094	1081.19	270.10	0.75	1.53E+002	34.67	2.98E+002
	9	1175-	1190	1181.33	295.12	0.87	3.71E+002	31.75	2.10E+002
	10	1192-	1209	1200.69	299.96	0.92	1.07E+002	30.42	2.51E+002
	11	1307-	1318	1312.86	328.00	0.59	4.83E+001	21.23	1.60E+002
	12	1347-	1360	1353.79	338.23	1.09	2.86E+002	28.08	1.83E+002
	13	1401-	1420	1408.20	351.82	1.10	5.47E+002	38.10	2.53E+002
	14	1844-	1858	1853.39	463.08	1.23	7.92E+001	19.66	1.07E+002
	15	2032-	2062	2043.80	510.67	1.47	3.41E+002	36.56	2.02E+002
	16	2325-	2341	2333.14	582.98	1.33	4.41E+002	26.56	8.45E+001
	17	2427-	2448	2437.30	609.02	1.33	4.82E+002	32.47	1.52E+002
	18	2902-	2918	2909.75	727.09	1.12	9.08E+001	19.56	9.22E+001
	19	3068-	3079	3074.26	768.20	0.52	3.58E+001	13.76	5.82E+001
	20	3172-	3188	3180.48	794.75	1.19	4.54E+001	17.94	8.76E+001
	21	3435-	3451	3442.16	860.15	0.32	5.73E+001	17.17	7.37E+001
	22	3635-	3656	3645.99	911.09	1.50	3.03E+002	24.03	7.34E+001
	23	3730-	3745	3737.64	934.00	1.20	4.58E+001	13.17	4.22E+001
M	24	3852-	3887	3860.39	964.67	1.50	5.27E+001	9.43	5.11E+001
m	25	3852-	3887	3876.84	968.78	1.50	1.56E+002	14.76	7.12E+001
	26	4476-	4492	4483.02	1120.28	1.36	9.92E+001	17.88	6.98E+001
	27	5507-	5520	5513.32	1377.77	0.82	3.38E+001	9.00	1.72E+001
	28	5835-	5860	5846.91	1461.14	1.86	1.80E+003	43.89	3.05E+001
	29	6920-	6933	6926.16	1730.87	0.42	1.65E+001	7.23	1.25E+001
	30	7054-	7073	7063.62	1765.22	0.89	1.21E+002	12.46	9.81E+000
	31	7194-	7207	7200.68	1799.48	0.53	8.41E+000	5.67	8.59E+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-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	3.9440E-001	3.94E-001	1.1904E+001
	Co-60	1173.23	99.85	5.6909E-002	4.57E-002	-1.3751E-003
		1332.49	99.98	4.5655E-002		3.5347E-003
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	2.6877E+003	4.93E-002	-1.4369E+003
		661.66	84.99	4.9275E-002		4.1168E-003
+	Tl-208	72.80	2.02	4.8927E+000	3.59E-002	3.6475E-001
		74.97*	3.41	1.6786E+000		2.2453E+000
		84.90	1.51	4.1798E+000		-2.4417E-001
		277.36	6.31	6.5446E-001		5.2818E-001
		510.77*	22.60	2.5413E-001		2.6460E-001
		583.19*	84.50	3.5858E-002		1.9454E-001
		763.13	1.81	2.6813E+000		-7.2944E-001
		860.56*	12.42	2.9547E-001		2.2741E-001
+	Bi-212	39.86	1.06	5.2378E+002	5.31E-001	-2.2723E+001
		727.33*	6.74	5.3144E-001		5.8751E-001
		785.37	1.11	4.1982E+000		8.7286E-002
		1620.74	1.51	2.8482E+000		9.9525E-001
		1806.00	0.09	4.0450E+001		1.0628E+001
+	Pb-212	74.81*	10.40	5.5038E-001	6.44E-002	7.3621E-001
		77.11*	17.50	2.8782E-001		8.2636E-001
		87.30*	7.81	5.8261E-001		4.2103E-001
		115.18	0.59	6.5379E+000		-1.2347E+000
		238.63*	43.30	6.4410E-002		6.6179E-001
		300.09*	3.28	1.0926E+000		8.6531E-001
+	Bi-214	76.86*	0.43	1.1192E+001	9.20E-002	3.2135E+001
		89.81	0.24	2.3255E+001		-2.0318E+001
		386.77	0.30	1.1808E+001		-3.9298E+000
		454.77	0.29	1.2349E+001		2.1336E+000
		609.31*	45.49	9.2009E-002		3.8948E-001
		665.45	1.53	2.7439E+000		6.3517E-001
		703.11	0.48	8.9676E+000		5.8828E+000
		719.86	0.39	1.0393E+001		-3.5755E-001
		768.36*	4.89	5.2927E-001		3.1388E-001
		786.10	0.31	1.4028E+001		-5.5169E+000
		806.17	1.26	3.3473E+000		-8.2081E-001
		934.06*	3.10	8.8690E-001		7.3621E-001
		964.08*	0.36	6.9931E+000		7.4174E+000
		1051.96	0.31	1.5983E+001		-3.3798E+000
		1120.29*	14.91	2.7736E-001		3.8335E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	1.9316E+001	9.20E-002	-7.7983E+000
		1155.19	1.63	3.7092E+000		1.8927E+000
		1207.68	0.45	1.3752E+001		-4.1180E+000
		1238.11	5.79	1.1371E+000		-3.1169E-001
		1280.96	1.43	3.6826E+000		2.1595E-001
		1377.67*	4.00	5.8627E-001		5.7219E-001
		1385.31	0.76	5.6798E+000		4.7864E-001
		1401.50	1.27	3.5457E+000		-2.2953E+000
		1407.98	2.15	2.2378E+000		-4.3631E-001
		1509.23	2.11	1.9245E+000		-3.0940E-001
		1538.50	0.38	1.0035E+001		8.1655E+000
		1543.32	0.20	1.8890E+001		5.3664E+000
		1583.22	0.69	6.5434E+000		2.9801E+000
		1594.73	0.25	1.8659E+001		6.3166E+000
		1599.31	0.23	1.7843E+001		1.2741E+001
		1661.28	1.15	2.9772E+000		4.4922E-001
		1683.99	0.22	1.7155E+001		1.0115E+001
		1729.59	2.92	1.3293E+000		6.4385E-001
		1764.49*	15.40	1.6376E-001		5.8199E-001
		1847.42	2.11	1.8905E+000		-1.1082E+000
		1873.16	0.22	1.4487E+001		-1.5398E+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	2.6537E+001	1.04E-001	-1.0164E+001
		74.81*	6.44	8.4139E-001		1.1255E+000
		77.11*	10.80	4.4148E-001		1.2676E+000
		87.30*	4.84	8.8995E-001		6.4314E-001
		242.00*	7.43	3.3290E-001		6.7357E-001
		258.87	0.52	6.9896E+000		-1.1557E-002
		274.80	0.47	8.3388E+000		1.1602E+000
		295.22*	19.30	1.5423E-001		4.7631E-001
		351.93*	37.60	1.0403E-001		3.9050E-001
		462.00	0.22	1.7542E+001		9.1481E+000
		533.66	0.19	1.9415E+001		-2.5371E+000
		785.96	1.07	4.0615E+000		-1.5974E+000
		839.04	0.59	7.9125E+000		2.9042E+000
+	Ra-224	81.07	0.13	4.9075E+001	6.37E-001	-3.4040E+001
		83.78	0.22	2.8392E+001		4.8556E+000
		240.99*	4.10	6.3728E-001		1.2894E+000
+	Ra-226	81.07	0.20	3.0892E+001	9.02E-001	-2.1428E+001
		83.78	0.33	1.7781E+001		3.0410E+000
		94.90	0.15	3.2942E+001		2.6108E+001
		186.21*	3.59	9.0200E-001		9.5352E-001
+	Ac-228	99.50	1.26	3.4959E+000	1.60E-001	-3.7603E-001
		129.07	2.50	1.6782E+000		7.3637E-001
		209.25*	3.97	7.7777E-001		4.6479E-001
		270.24*	3.55	1.0791E+000		1.0732E+000
		328.00*	3.04	8.7419E-001		4.3958E-001
		338.32*	11.40	2.6393E-001		7.0704E-001
		409.46	2.02	2.0144E+000		7.9455E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	6.2811E-001	1.60E-001	5.9074E-001
		755.31	1.03	4.2526E+000		1.7371E-001
		772.29	1.52	3.2454E+000		-3.9340E-001
		794.94*	4.31	8.6320E-001		4.8927E-001
		835.70	1.70	2.9737E+000		1.4391E+000
		911.20*	26.20	1.5956E-001		5.8502E-001
		964.79*	4.99	5.3738E-001		5.6998E-001
		968.96*	15.90	1.9825E-001		5.3042E-001
		1588.20	3.06	1.7136E+000		1.3590E+000
		1630.62	1.52	2.9641E+000		-6.5093E-001
	Th-228	84.37	1.26	5.0426E+000	5.04E+000	7.3067E-001
		131.61	0.13	3.2644E+001		1.3094E+001
		166.41	0.10	3.8025E+001		1.0001E+001
		215.98	0.25	1.6104E+001		6.4928E+000
	Pa-234m	258.23	0.07	5.0213E+001	5.57E+000	1.7553E+001
		742.81	0.09	4.5385E+001		-7.0102E+000
		766.36	0.32	1.4564E+001		-5.4629E-001
		786.27	0.05	8.1469E+001		9.8740E+000
		1001.03	0.85	5.5710E+000		1.2998E-001
		1737.77	0.02	1.8013E+002		2.5153E+001
	Th-234	63.30	3.75	3.6977E+000	1.23E+000	8.8234E-001
		92.59	4.33	1.2333E+000		1.4160E+000
		112.81	0.22	1.7422E+001		-3.4951E+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-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	0.984	1460.82*	10.55	1.19040E+001	4.36215E-001
Tl-208	0.838	72.80 @	2.02		
		74.97* @	3.41	2.24535E+000	2.64808E-001
		84.90 @	1.51		
		277.36	6.31		
		510.77* @	22.60	2.64605E-001	5.80534E-002
		583.19*	84.50	1.94541E-001	1.33909E-002
		763.13 @	1.81		
		860.56*	12.42	2.27415E-001	6.84300E-002
Bi-212	0.575	39.86 @	1.06		
		727.33*	6.74	5.87511E-001	1.27866E-001
		785.37	1.11		
		1620.74	1.51		
		1806.00 @	0.09		
Pb-212	0.985	74.81*	10.40	7.36215E-001	8.93860E-002
		77.11*	17.50	8.26356E-001	6.53884E-002
		87.30*	7.81	4.21032E-001	1.30149E-001
		115.18 @	0.59		
		238.63*	43.30	6.61795E-001	3.03844E-002
		300.09*	3.28	8.65305E-001	2.46678E-001
Bi-214	0.641	76.86* @	0.43	3.21351E+001	2.56603E+000
		89.81 @	0.24		
		386.77 @	0.30		
		454.77 @	0.29		
		609.31*	45.49	3.89479E-001	2.86340E-002
		665.45 @	1.53		
		703.11 @	0.48		
		719.86 @	0.39		
		768.36*	4.89	3.13876E-001	1.20961E-001
		786.10 @	0.31		
		806.17 @	1.26		
		934.06*	3.10	7.36214E-001	2.12151E-001
		964.08* @	0.36	7.41745E+000	1.36036E+000
		1051.96 @	0.31		
		1120.29*	14.91	3.83351E-001	6.97338E-002
		1133.66 @	0.25		
		1155.19 @	1.63		
		1207.68 @	0.45		
		1238.11	5.79		
		1280.96 @	1.43		
		1377.67*	4.00	5.72186E-001	1.53187E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.641	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	5.81986E-001	6.62080E-002
		1847.42	@	2.11		
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.939	53.28	@	1.20		
		74.81*		6.44	1.12547E+000	1.37715E-001
		77.11*		10.80	1.26755E+000	1.04654E-001
		87.30*		4.84	6.43139E-001	1.99179E-001
		242.00*		7.43	6.73568E-001	6.37094E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	4.76313E-001	4.38842E-002
		351.93*		37.60	3.90500E-001	3.07810E-002
		462.00	@	0.22		
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.829	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	1.28944E+000	1.21481E-001
Ra-226	0.764	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	9.53519E-001	2.06496E-001
Ac-228	0.739	99.50	@	1.26		
		129.07	@	2.50		
		209.25*		3.97	4.64786E-001	1.72937E-001
		270.24*		3.55	1.07320E+000	2.48236E-001
		328.00*		3.04	4.39580E-001	1.94526E-001
		338.32*		11.40	7.07036E-001	7.72121E-002
		409.46	@	2.02		
		463.00*		4.45	5.90737E-001	1.51279E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	4.89267E-001	1.94506E-001
		835.70	@	1.70		
		911.20*		26.20	5.85016E-001	5.24194E-002

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.739	964.79*	4.99	5.69985E-001	1.04640E-001
		968.96*	15.90	5.30420E-001	5.43466E-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

****
***** 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		0.984	1.190403E+001	4.362147E-001
X	Cd-109		0.885		
	Tl-208	@	0.838	1.943146E-001	1.303523E-002
X	Bi-211		0.904		
	Bi-212	@	0.575	5.875107E-001	1.278662E-001
	Pb-212	@	0.985	6.080465E-001	2.535216E-002
	Bi-214	@	0.641	4.189891E-001	2.360706E-002
	Pb-214	@	0.939	3.921783E-001	2.396598E-002
	Ra-224	@	0.829	5.386780E-001	1.289000E-001
	Ra-226	@	0.764	9.535186E-001	2.064956E-001
	Ac-228	@	0.739	5.815498E-001	2.867417E-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: 7/9/2017 5:32:04 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
29	1730.87	2.2857E-003	43.91	Sum	
31	1799.48	1.1683E-003	67.38	Sum	

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

Errors quoted at 1.000 sigma