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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-S002-1824-01.CNF

Report Generated On	: 6/8/2017 11:34:54 AM
Sample Title	: HTC-A01-S002-1824-01
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	: 1.049E+003 GWET
Sample Taken On	: 5/13/2017 11:17:00 AM
Acquisition Started	: 6/8/2017 9:34:50 AM
Live Time	: 7200.0 seconds
Real Time	: 7201.5 seconds
Dead Time	: 0.02 %

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-S002-1824-01
Peak Analysis Performed on: 6/8/2017 11:34:54 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	295-	315	299.43	74.72	0.75	7.71E+001	16.52	2.93E+002
m	2	295-	315	309.13	77.14	0.75	1.39E+002	19.43	3.25E+002
	3	737-	754	743.59	185.72	0.93	1.50E+002	37.64	3.86E+002
M	4	947-	979	954.72	238.49	1.12	6.59E+002	29.86	2.42E+002
m	5	947-	979	967.18	241.60	1.12	1.35E+002	16.48	2.22E+002
M	6	1174-	1204	1181.04	295.05	1.05	1.98E+002	16.38	1.87E+002
m	7	1174-	1204	1199.35	299.63	1.06	2.51E+001	9.87	1.78E+002
	8	1347-	1357	1352.88	338.00	0.88	9.72E+001	18.68	1.04E+002
	9	1398-	1416	1407.56	351.66	0.97	4.24E+002	32.84	1.94E+002
	10	1544-	1558	1548.63	386.92	0.35	1.14E+000	17.99	1.10E+002
	11	2028-	2054	2042.77	510.41	1.33	2.86E+002	30.34	1.45E+002
	12	2324-	2340	2331.85	582.66	1.46	2.40E+002	23.78	1.04E+002
	13	2429-	2445	2436.34	608.77	1.48	3.34E+002	23.16	6.48E+001
	14	3635-	3654	3643.55	910.48	1.23	1.73E+002	20.05	6.38E+001
	15	3866-	3886	3874.83	968.28	1.10	1.11E+002	18.81	6.70E+001
	16	4529-	4540	4534.05	1133.03	1.27	9.94E+000	9.25	2.61E+001
	17	5833-	5856	5844.49	1460.54	1.66	1.16E+003	35.63	2.66E+001
	18	7053-	7070	7060.57	1764.46	0.83	6.56E+001	11.04	1.74E+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-S002-1824-01
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	3.3013E-001	3.30E-001	6.8320E+000
	Co-60	1173.23	99.85	4.2450E-002	4.04E-002	1.9973E-002
		1332.49	99.98	4.0370E-002		1.1351E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	2.1070E+003	3.84E-002	4.3002E+002
		661.66	84.99	3.8382E-002		2.6490E-002
+	Tl-208	72.80	2.02	3.4039E+000	3.43E-002	-4.3447E-001
		74.97*	3.41	1.1112E+000		7.4407E-001
		84.90	1.51	2.9111E+000		7.5986E-001
		277.36	6.31	4.9022E-001		1.3956E-001
		510.77*	22.60	1.8520E-001		1.5610E-001
		583.19*	84.50	3.4277E-002		9.0518E-002
		763.13	1.81	2.0104E+000		1.2134E+000
		860.56	12.42	3.0403E-001		1.5974E-001
	Bi-212	39.86	1.06	3.6831E+002	5.67E-001	4.5482E+001
		727.33	6.74	5.6693E-001		4.8900E-002
		785.37	1.11	3.1412E+000		1.6792E+000
		1620.74	1.51	2.2326E+000		1.3302E+000
		1806.00	0.09	2.3636E+001		-3.1701E+001
+	Pb-212	74.81*	10.40	3.6433E-001	5.09E-002	2.4397E-001
		77.11*	17.50	2.0809E-001		2.3909E-001
		87.30	7.81	5.4066E-001		2.5784E-001
		115.18	0.59	4.9376E+000		9.9077E-002
		238.63*	43.30	5.0889E-002		2.9844E-001
		300.09*	3.28	6.3224E-001		1.7528E-001
	Bi-214	76.86	0.43	1.4828E+001	1.10E-001	7.3368E-001
		89.81	0.24	1.6408E+001		-4.5767E+000
		386.77	0.30	9.3083E+000		-9.4432E-001
		454.77	0.29	9.7418E+000		1.9373E+000
		609.31	45.49	1.0953E-001		2.4165E-001
		665.45	1.53	2.0882E+000		9.4673E-001
		703.11	0.48	6.6379E+000		-3.9512E-001
		719.86	0.39	8.3428E+000		-9.5992E+000
		768.36	4.89	7.2072E-001		4.7346E-001
		786.10	0.31	1.0910E+001		1.3098E+000
		806.17	1.26	2.4997E+000		-7.7029E-002
		934.06	3.10	1.1230E+000		-2.1934E-001
		964.08	0.36	1.4629E+001		5.0583E+000
		1051.96	0.31	1.1522E+001		-6.9927E-001
		1120.29	14.91	3.2322E-001		-1.7403E-003

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
	Bi-214	1133.66	0.25	1.6312E+001	1.10E-001	-7.9235E-001
		1155.19	1.63	2.8067E+000		2.1506E+000
		1207.68	0.45	9.8968E+000		-4.1831E+000
		1238.11	5.79	8.2780E-001		4.9665E-001
		1280.96	1.43	2.9329E+000		-2.2010E-001
		1377.67	4.00	9.9881E-001		5.8655E-001
		1385.31	0.76	4.3665E+000		-1.2279E+000
		1401.50	1.27	2.7805E+000		-3.6467E-001
		1407.98	2.15	1.6692E+000		-1.3789E-001
		1509.23	2.11	1.6575E+000		1.0494E+000
		1538.50	0.38	8.7363E+000		2.0293E+000
		1543.32	0.20	1.6150E+001		7.7885E+000
		1583.22	0.69	5.5194E+000		3.9677E+000
		1594.73	0.25	1.4861E+001		1.7960E+000
		1599.31	0.23	1.3637E+001		1.0496E-001
		1661.28	1.15	2.6002E+000		1.0756E+000
		1683.99	0.22	1.2181E+001		2.6367E+000
		1729.59	2.92	1.0996E+000		3.3191E-001
		1764.49	15.40	3.0852E-001		3.8881E-001
		1847.42	2.11	1.6135E+000		-3.6565E-001
		1873.16	0.22	1.1793E+001		3.7780E+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	1.9886E+001	7.96E-002	-1.5241E+000
		74.81*	6.44	5.7343E-001		3.8399E-001
		77.11*	10.80	3.2862E-001		3.7757E-001
		87.30	4.84	8.5028E-001		4.0550E-001
		242.00*	7.43	2.6994E-001		3.6085E-001
		258.87	0.52	5.4503E+000		-1.7012E+000
		274.80	0.47	6.5553E+000		-1.2012E+000
		295.22*	19.30	1.0643E-001		2.2759E-001
		351.93*	37.60	7.9565E-002		2.6944E-001
		462.00	0.22	1.3182E+001		-6.8677E+000
		533.66	0.19	1.5005E+001		1.8218E+000
		785.96	1.07	3.1588E+000		3.7923E-001
		839.04	0.59	5.7515E+000		4.8889E+000
+	Ra-224	81.07	0.13	3.6737E+001	5.02E-001	-2.7750E+001
		83.78	0.22	2.0539E+001		-7.5768E+000
		240.99*	4.10	5.0193E-001		6.7096E-001
+	Ra-226	81.07	0.20	2.3809E+001	8.41E-001	-1.7985E+001
		83.78	0.33	1.3243E+001		-4.8855E+000
		94.90	0.15	2.4589E+001		1.8943E+001
		186.21*	3.59	8.4110E-001		4.8494E-001
	Ac-228	99.50	1.26	2.5232E+000	2.06E-001	-8.9925E-001
		129.07	2.50	1.2194E+000		-1.5808E-002
		209.25	3.97	8.0888E-001		5.1618E-001
		270.24	3.55	9.2136E-001		2.0007E-003
		328.00	3.04	1.0700E+000		6.5214E-001
		338.32	11.40	2.9353E-001		2.9545E-001
		409.46	2.02	1.4795E+000		1.0352E+000

Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
Ac-228	463.00	4.45	7.0092E-001	2.06E-001	3.1365E-001
	755.31	1.03	3.3957E+000		1.0890E+000
	772.29	1.52	2.3064E+000		5.3790E-001
	794.94	4.31	8.6493E-001		2.1401E-001
	835.70	1.70	2.0171E+000		8.2351E-001
	911.20	26.20	2.0590E-001		3.6485E-001
	964.79	4.99	1.0837E+000		2.3237E-001
	968.96	15.90	3.3446E-001		3.9641E-001
	1588.20	3.06	1.3792E+000		7.1460E-001
	1630.62	1.52	1.9542E+000		1.3496E-001
Th-228	84.37	1.26	3.5305E+000	3.53E+000	8.8758E-001
	131.61	0.13	2.3238E+001		7.3378E+000
	166.41	0.10	2.8183E+001		9.4513E+000
	215.98	0.25	1.1813E+001		-7.5615E+000
Pa-234m	258.23	0.07	3.9051E+001	4.31E+000	1.1000E+001
	742.81	0.09	3.4840E+001		1.4852E+001
	766.36	0.32	1.1013E+001		2.2827E+000
	786.27	0.05	6.3268E+001		2.5419E+001
	1001.03	0.85	4.3118E+000		1.3459E+000
	1737.77	0.02	1.0547E+002		-2.6343E+002
Th-234	63.30	3.75	2.7455E+000	9.05E-001	1.7352E+000
	92.59	4.33	9.0520E-001		9.6874E-001
	112.81	0.22	1.3194E+001		2.6683E+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-S002-1824-01
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	0.987	1460.82*		10.55	6.83195E+000	2.82196E-001
Tl-208	0.686	72.80	@	2.02		
		74.97*	@	3.41	7.44072E-001	1.60941E-001
		84.90	@	1.51		
		277.36		6.31		
		510.77*	@	22.60	1.56103E-001	4.19424E-002
		583.19*		84.50	9.05183E-002	9.70305E-003
		763.13	@	1.81		
		860.56		12.42		
Bi-211	0.938	351.03*		13.00	7.81038E-001	6.78954E-002
Pb-212	0.830	74.81*		10.40	2.43970E-001	5.32373E-002
		77.11*		17.50	2.39086E-001	3.47736E-002
		87.30		7.81		
		115.18	@	0.59		
		238.63*		43.30	2.98445E-001	1.71693E-002
		300.09*		3.28	1.75282E-001	6.92186E-002
Pb-214	0.845	53.28	@	1.20		
		74.81*		6.44	3.83988E-001	8.39941E-002
		77.11*		10.80	3.77574E-001	5.56322E-002
		87.30		4.84		
		242.00*		7.43	3.60851E-001	4.59229E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	2.27590E-001	2.03323E-002
		351.93*		37.60	2.69438E-001	2.32660E-002
		462.00	@	0.22		
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.832	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	6.70964E-001	8.52028E-002
Ra-226	0.745	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	4.84935E-001	1.85278E-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		0.987	6.831954E+000	2.821963E-001
Tl-208	@	0.686	8.885906E-002	9.658381E-003
Bi-211		0.938	2.430101E-001	8.636751E-002
Pb-212	@	0.830	2.474799E-001	1.457675E-002
Pb-214	@	0.845	1.856060E-001	1.883153E-002
Ra-224	@	0.832	3.258500E-001	9.175305E-002
Ra-226	@	0.745	4.849352E-001	1.852785E-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: 6/8/2017 11:34:54 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
8	338.00	1.3504E-002	19.21	Tol.	Ra-223 Ac-228
10	386.92	1.5766E-004	1585.25	Tol.	Bi-206 Bi-214
13	608.77	4.6416E-002	6.93	Tol.	Bi-214
14	910.48	2.3322E-002	12.00	Tol.	Ac-228
15	968.28	1.5413E-002	16.95	Tol.	Sb-124 Ac-228
16	1133.03	1.3812E-003	92.98	Tol.	Bi-214
18	1764.46	8.3840E-003	18.43	Tol.	Bi-214

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

Errors quoted at 1.000 sigma