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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-S002-3642-01.CNF

Report Generated On	: 6/8/2017 7:46:44 PM
Sample Title	: HTC-A01-S002-3642-01
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	: 1.021E+003 GWET
Sample Taken On	: 5/13/2017 11:11:00 AM
Acquisition Started	: 6/8/2017 5:46:40 PM
Live Time	: 7200.0 seconds
Real Time	: 7202.4 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-A01-S002-3642-01
Peak Analysis Performed on: 6/8/2017 7:46:45 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	251-	259	253.87	63.33	0.90	3.17E+001	29.56	3.83E+002
M	2	291-	318	300.15	74.90	1.04	2.86E+002	26.24	6.46E+002
m	3	291-	318	308.96	77.10	1.04	4.54E+002	29.82	5.91E+002
M	4	343-	378	350.27	87.42	1.01	1.31E+002	24.02	6.98E+002
m	5	343-	378	360.16	89.90	1.01	5.20E+001	20.84	6.86E+002
m	6	343-	378	372.15	92.89	1.02	2.01E+002	26.82	6.71E+002
	7	737-	753	743.23	185.63	1.05	3.06E+002	44.32	5.28E+002
	8	832-	843	837.38	209.16	0.93	9.63E+001	31.69	3.62E+002
M	9	949-	973	954.72	238.49	1.14	1.42E+003	41.85	3.18E+002
m	10	949-	973	966.44	241.42	1.15	2.38E+002	21.09	3.50E+002
	11	1076-	1089	1082.07	270.32	0.41	1.45E+002	27.88	2.29E+002
M	12	1172-	1205	1180.90	295.02	1.06	4.01E+002	24.92	2.49E+002
m	13	1172-	1205	1200.29	299.86	1.06	5.13E+001	14.40	2.46E+002
	14	1307-	1321	1311.77	327.72	1.31	7.19E+001	25.96	2.08E+002
	15	1346-	1361	1353.16	338.07	1.07	2.98E+002	31.78	2.37E+002
	16	1398-	1417	1407.84	351.73	1.17	7.07E+002	39.11	2.35E+002
	17	1844-	1858	1851.32	462.57	1.02	6.61E+001	22.04	1.45E+002
	18	2027-	2054	2043.17	510.51	1.60	3.47E+002	38.08	2.45E+002
	19	2325-	2339	2332.17	582.74	1.34	4.83E+002	29.04	1.25E+002
	20	2428-	2446	2436.70	608.86	1.35	5.56E+002	31.59	1.31E+002
	21	2901-	2915	2908.25	726.71	0.72	9.32E+001	19.13	9.48E+001
	22	3170-	3186	3178.60	794.28	1.40	5.73E+001	17.85	8.27E+001
	23	3434-	3450	3441.54	859.99	0.99	7.23E+001	17.22	7.17E+001
	24	3633-	3654	3644.87	910.81	1.24	3.53E+002	25.18	7.45E+001
	25	3729-	3742	3735.82	933.54	0.93	4.69E+001	13.41	4.81E+001
	26	3796-	3807	3801.60	949.98	0.55	2.00E+000	11.72	5.40E+001
M	27	3852-	3886	3859.35	964.41	1.62	6.07E+001	9.92	4.95E+001
m	28	3852-	3886	3875.81	968.53	1.62	2.15E+002	16.24	5.50E+001
	29	4472-	4492	4480.83	1119.73	0.46	1.17E+002	21.76	9.76E+001
	30	5833-	5856	5845.04	1460.68	1.83	1.88E+003	46.01	5.99E+001
	31	7051-	7072	7062.12	1764.85	1.92	1.15E+002	12.53	1.11E+001
	32	7387-	7400	7393.12	1847.57	1.20	1.89E+001	6.38	7.08E+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-A01-S002-3642-01
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	4.7805E-001	4.78E-001	1.1382E+001
	Co-60	1173.23	99.85	5.4822E-002	4.61E-002	-3.4011E-002
		1332.49	99.98	4.6110E-002		-1.0476E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	2.5559E+003	4.74E-002	-1.3051E+003
		661.66	84.99	4.7449E-002		2.0882E-002
+	Tl-208	72.80	2.02	4.6710E+000	3.70E-002	4.6739E-002
		74.97*	3.41	1.6728E+000		2.8158E+000
		84.90	1.51	4.1153E+000		8.0625E-001
		277.36	6.31	6.0867E-001		5.3859E-001
		510.77*	22.60	2.3657E-001		2.4551E-001
		583.19*	84.50	3.6954E-002		1.8991E-001
		763.13	1.81	2.4473E+000		-8.2529E-001
		860.56*	12.42	2.5636E-001		2.5606E-001
+	Bi-212	39.86	1.06	4.8954E+002	4.59E-001	-2.5251E+002
		727.33*	6.74	4.5920E-001		5.3789E-001
		785.37	1.11	3.7138E+000		2.2520E+000
		1620.74	1.51	2.5025E+000		3.6735E-001
		1806.00	0.09	3.2520E+001		-3.0429E+001
+	Pb-212	74.81*	10.40	5.4850E-001	5.93E-002	9.2325E-001
		77.11*	17.50	2.8738E-001		8.0132E-001
		87.30*	7.81	5.2709E-001		3.9031E-001
		115.18	0.59	6.2562E+000		-1.8004E+000
		238.63*	43.30	5.9281E-002		6.7238E-001
		300.09*	3.28	7.6117E-001		3.6848E-001
+	Bi-214	76.86*	0.43	1.1502E+001	7.46E-002	3.2071E+001
		89.81*	0.24	1.5533E+001		4.6195E+000
		386.77	0.30	1.1574E+001		-5.3750E-001
		454.77	0.29	1.2580E+001		4.9143E+000
		609.31*	45.49	7.4552E-002		4.1231E-001
		665.45	1.53	2.6051E+000		1.4599E+000
		703.11	0.48	8.2848E+000		2.5485E+000
		719.86	0.39	1.0267E+001		1.1134E+000
		768.36	4.89	9.1186E-001		1.9270E-001
		786.10	0.31	1.2884E+001		4.8264E-001
		806.17	1.26	3.1566E+000		-4.6469E-001
		934.06*	3.10	8.3000E-001		6.9197E-001
		964.08*	0.36	6.3264E+000		7.8348E+000
		1051.96	0.31	1.4367E+001		3.8559E+000
		1120.29*	14.91	3.2122E-001		4.1678E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	1.9693E+001	7.46E-002	-2.1460E+000
		1155.19	1.63	3.3122E+000		1.7698E+000
		1207.68	0.45	1.3192E+001		-9.6830E+000
		1238.11	5.79	1.1188E+000		7.0597E-001
		1280.96	1.43	3.6098E+000		-1.9984E+000
		1377.67	4.00	1.2150E+000		2.1334E-001
		1385.31	0.76	5.8258E+000		-4.0417E+000
		1401.50	1.27	3.4381E+000		5.5932E-001
		1407.98	2.15	2.1018E+000		-1.2278E+000
		1509.23	2.11	1.9121E+000		1.8223E+000
		1538.50	0.38	9.6726E+000		1.6620E+000
		1543.32	0.20	1.8348E+001		-2.1880E+000
		1583.22	0.69	6.3283E+000		1.9274E+000
		1594.73	0.25	1.8452E+001		7.2789E+000
		1599.31	0.23	1.7562E+001		5.4757E+000
		1661.28	1.15	3.1323E+000		1.6590E+000
		1683.99	0.22	1.4653E+001		2.1493E+000
		1729.59	2.92	1.2532E+000		5.0376E-001
		1764.49*	15.40	1.6290E-001		5.0536E-001
		1847.42*	2.11	8.3075E-001		6.4377E-001
		1873.16	0.22	1.5063E+001		1.5936E+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	2.7043E+001	9.12E-002	2.4417E+001
		74.81*	6.44	8.6300E-001		1.4526E+000
		77.11*	10.80	4.5368E-001		1.2650E+000
		87.30*	4.84	8.2867E-001		6.1362E-001
		242.00*	7.43	3.4608E-001		6.5581E-001
		258.87	0.52	6.9176E+000		1.2111E+000
		274.80	0.47	7.9362E+000		1.8330E-001
		295.22*	19.30	1.2565E-001		4.7282E-001
		351.93*	37.60	9.1231E-002		4.6503E-001
		462.00*	0.22	1.2779E+001		8.6271E+000
		533.66	0.19	1.8110E+001		-1.9108E+000
		785.96	1.07	3.7304E+000		1.3974E-001
		839.04	0.59	7.3921E+000		5.0017E-001
+	Ra-224	81.07	0.13	4.7249E+001	6.44E-001	-2.3216E+001
		83.78	0.22	2.7721E+001		1.0593E+001
		240.99*	4.10	6.4372E-001		1.2198E+000
+	Ra-226	81.07	0.20	3.0612E+001	9.80E-001	-1.5041E+001
		83.78	0.33	1.7868E+001		6.8278E+000
		94.90	0.15	3.3134E+001		1.3024E-001
		186.21*	3.59	9.8033E-001		1.2797E+000
+	Ac-228	99.50	1.26	3.3453E+000	1.44E-001	8.2229E-001
		129.07	2.50	1.6408E+000		1.1362E+000
		209.25*	3.97	7.0064E-001		4.7235E-001
		270.24*	3.55	7.5138E-001		9.1285E-001
		328.00*	3.04	9.4889E-001		5.8423E-001
		338.32*	11.40	2.7916E-001		6.5659E-001
		409.46	2.02	1.9034E+000		1.2255E+000

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	6.5139E-001	1.44E-001	4.3975E-001
		755.31	1.03	4.0346E+000		-4.5717E-001
		772.29	1.52	2.9666E+000		-1.0356E-001
		794.94*	4.31	7.4912E-001		5.5077E-001
		835.70	1.70	2.6269E+000		1.7005E+000
		911.20*	26.20	1.4384E-001		6.1133E-001
		964.79*	4.99	4.7236E-001		5.8499E-001
		968.96*	15.90	1.5637E-001		6.5176E-001
		1588.20	3.06	1.6038E+000		1.0931E+000
		1630.62	1.52	2.7002E+000		-7.9471E-001
	Th-228	84.37	1.26	4.8864E+000	4.89E+000	1.5354E+000
		131.61	0.13	3.0917E+001		1.0328E+001
		166.41	0.10	3.6417E+001		1.1040E+001
		215.98	0.25	1.5513E+001		3.1760E+000
	Pa-234m	258.23	0.07	4.9168E+001	5.26E+000	-5.4736E+000
		742.81	0.09	4.0783E+001		2.0361E+001
		766.36	0.32	1.3861E+001		5.2082E+000
		786.27	0.05	7.3826E+001		-2.0739E+001
		1001.03	0.85	5.2569E+000		-2.4776E+000
		1737.77	0.02	1.4449E+002		-1.5411E+002
+	Th-234	63.30*	3.75	2.3974E+000	8.57E-001	-3.2265E-002
		92.59*	4.33	8.5652E-001		5.9518E-001
		112.81	0.22	1.7494E+001		1.7351E+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-S002-3642-01
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	0.997	1460.82*		10.55	1.13821E+001	4.18228E-001
Eu-152m	1.000	89.85*		69.90	1.61842E-002	6.49949E-003
Tl-208	0.819	72.80	@	2.02		
		74.97*	@	3.41	2.81577E+000	2.72063E-001
		84.90	@	1.51		
		277.36		6.31		
		510.77*	@	22.60	2.45510E-001	5.39237E-002
		583.19*		84.50	1.89907E-001	1.30508E-002
		763.13	@	1.81		
		860.56*		12.42	2.56064E-001	6.13383E-002
Bi-211	0.924	351.03*		13.00	1.34805E+000	8.98305E-002
Bi-212	0.542	39.86	@	1.06		
		727.33*		6.74	5.37886E-001	1.11737E-001
		785.37		1.11		
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.984	74.81*		10.40	9.23246E-001	9.30960E-002
		77.11*		17.50	8.01317E-001	6.22014E-002
		87.30*		7.81	3.90312E-001	7.35741E-002
		115.18	@	0.59		
		238.63*		43.30	6.72377E-001	2.99736E-002
		300.09*		3.28	3.68483E-001	1.04185E-001
Bi-214	0.549	76.86*	@	0.43	3.20714E+001	2.51314E+000
		89.81*	@	0.24	4.61947E+000	1.86254E+000
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	4.12313E-001	2.64095E-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	6.91968E-001	1.98297E-001
		964.08*	@	0.36	7.83484E+000	1.31924E+000
		1051.96	@	0.31		
		1120.29*		14.91	4.16782E-001	7.79262E-002
		1133.66	@	0.25		
		1155.19	@	1.63		
		1207.68	@	0.45		
		1238.11		5.79		

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Bi-214	0.549	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	5.05363E-001	6.07520E-002
		1847.42*	@	2.11	6.43774E-001	2.18747E-001
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.938	53.28	@	1.20		
		74.81*		6.44	1.45261E+000	1.48131E-001
		77.11*		10.80	1.26504E+000	1.02623E-001
		87.30*		4.84	6.13624E-001	1.16251E-001
		242.00*		7.43	6.55813E-001	6.24039E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	4.72822E-001	3.35119E-002
		351.93*		37.60	4.65028E-001	3.06359E-002
		462.00*	@	0.22	8.62710E+000	2.91019E+000
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.860	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	1.21983E+000	1.15621E-001
Ra-226	0.733	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	1.27972E+000	2.26935E-001
Ac-228	0.722	99.50	@	1.26		
		129.07	@	2.50		
		209.25*		3.97	4.72350E-001	1.56898E-001
		270.24*		3.55	9.12848E-001	1.79433E-001
		328.00*		3.04	5.84233E-001	2.12817E-001
		338.32*		11.40	6.56587E-001	7.67738E-002
		409.46	@	2.02		
		463.00*		4.45	4.39750E-001	1.49154E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	5.50767E-001	1.73121E-001

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.722	835.70	@	1.70		
		911.20*		26.20	6.11325E-001	5.01054E-002
		964.79*		4.99	5.84985E-001	9.86181E-002
		968.96*		15.90	6.51760E-001	5.54510E-002
		1588.20		3.06		
		1630.62	@	1.52		
Th-234	0.936	63.30*		3.75	-3.22653E-002	5.05446E-001
		92.59*		4.33	5.95179E-001	1.34205E-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

****
***** 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		0.997	1.138207E+001	4.182278E-001
X	Cd-109		0.942		
	Eu-152m		1.000	1.467985E-002	6.498498E-003
	Tl-208	@	0.819	1.929086E-001	1.266313E-002
	Bi-211		0.924	1.688864E-001	1.244577E-001
	Bi-212	@	0.542	5.378861E-001	1.117366E-001
	Pb-212	@	0.984	5.753224E-001	2.398451E-002
	Bi-214	@	0.549	4.293883E-001	2.291225E-002
	Pb-214	@	0.938	4.067684E-001	3.048280E-002
	Ra-224	@	0.860	4.632310E-001	1.279124E-001
	Ra-226	@	0.733	1.279719E+000	2.269348E-001
	Ac-228	@	0.722	6.187851E-001	2.765350E-002
	Th-234	@	0.936	5.951795E-001	1.342049E-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 7:46:44 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
26	949.98	2.7778E-004	586.12	S-Esc.	

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

Errors quoted at 1.000 sigma