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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-S005-3642-01.CNF

Report Generated On	: 6/13/2017 7:55:15 PM
Sample Title	: HTC-A01-S005-3642-01
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	: 1.081E+003 GWET
Sample Taken On	: 5/13/2017 9:43:00 AM
Acquisition Started	: 6/13/2017 5:55:11 PM
Live Time	: 7200.0 seconds
Real Time	: 7202.3 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-A01-S005-3642-01
Peak Analysis Performed on: 6/13/2017 7:55:15 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	296-	317	300.27	74.93	0.89	2.39E+002	26.32	6.01E+002
m	2	296-	317	309.22	77.17	0.89	3.98E+002	30.10	6.77E+002
M	3	343-	379	349.65	87.27	1.17	1.65E+002	26.23	7.60E+002
m	4	343-	379	360.68	90.03	1.18	1.46E+002	25.12	7.95E+002
m	5	343-	379	372.78	93.05	1.18	2.30E+002	28.19	7.71E+002
	6	737-	755	744.62	185.98	1.04	2.19E+002	51.54	7.14E+002
	7	830-	842	838.02	209.32	1.11	1.25E+002	35.37	4.28E+002
M	8	949-	974	955.34	238.64	1.02	1.47E+003	43.57	4.55E+002
m	9	949-	974	967.33	241.64	1.03	2.15E+002	21.15	3.90E+002
	10	1077-	1091	1081.17	270.09	1.26	1.18E+002	33.98	3.55E+002
M	11	1172-	1208	1181.80	295.24	1.06	4.35E+002	25.45	2.34E+002
m	12	1172-	1208	1200.64	299.95	1.06	9.06E+001	15.22	2.37E+002
	13	1284-	1292	1288.07	321.80	0.68	2.70E+000	18.11	1.52E+002
	14	1307-	1323	1312.46	327.90	0.77	9.39E+001	30.10	2.59E+002
	15	1345-	1359	1354.01	338.28	1.19	3.25E+002	32.64	2.56E+002
	16	1400-	1416	1408.46	351.89	1.11	7.32E+002	40.00	2.78E+002
	17	1845-	1860	1853.22	463.04	1.11	1.12E+002	23.06	1.40E+002
	18	2028-	2057	2043.94	510.71	1.68	4.40E+002	39.10	2.29E+002
	19	2326-	2344	2333.67	583.11	1.40	5.22E+002	32.47	1.55E+002
	20	2432-	2445	2438.23	609.25	1.23	5.72E+002	29.95	1.18E+002
	21	2902-	2920	2910.20	727.20	0.74	1.31E+002	21.90	1.03E+002
	22	3071-	3080	3075.33	768.47	0.71	3.36E+001	13.57	6.64E+001
	23	3174-	3189	3181.23	794.94	0.74	7.20E+001	17.87	8.20E+001
	24	3438-	3450	3444.51	860.74	1.25	7.30E+001	14.48	5.20E+001
	25	3638-	3657	3646.66	911.26	1.12	3.86E+002	26.94	9.67E+001
	26	3732-	3746	3738.90	934.31	1.02	4.52E+001	13.87	5.08E+001
M	27	3854-	3889	3860.90	964.80	1.45	6.71E+001	10.44	5.31E+001
m	28	3854-	3889	3878.27	969.14	1.45	2.68E+002	18.17	6.39E+001
	29	4473-	4495	4484.57	1120.67	1.24	1.46E+002	21.36	8.01E+001
	30	4949-	4963	4956.85	1238.70	0.98	6.77E+001	16.91	7.53E+001
	31	5511-	5522	5516.59	1378.59	0.99	3.36E+001	9.62	2.34E+001
	32	5836-	5862	5848.89	1461.64	1.79	2.37E+003	50.11	3.34E+001
	33	6037-	6050	6043.34	1510.23	1.03	1.95E+001	7.19	1.15E+001
M	34	6353-	6382	6359.29	1589.20	1.45	4.14E+001	7.42	1.49E+001
m	35	6353-	6382	6374.95	1593.11	1.45	2.77E+001	6.10	1.13E+001
	36	7055-	7077	7066.75	1766.00	1.79	1.39E+002	13.66	1.18E+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-S005-3642-01
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	3.6495E-001	3.65E-001	1.3586E+001
	Co-60	1173.23	99.85	5.4532E-002	4.61E-002	5.6351E-003
		1332.49	99.98	4.6145E-002		2.5626E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
	Cs-137	32.06	5.54	2.6628E+003	4.30E-002	7.0700E+001
		661.66	84.99	4.3012E-002		-1.3206E-002
+	Tl-208	72.80	2.02	4.6096E+000	4.22E-002	-1.3144E+000
		74.97*	3.41	1.5306E+000		2.2293E+000
		84.90	1.51	4.0714E+000		6.7285E-001
		277.36	6.31	6.0785E-001		2.0546E-001
		510.77*	22.60	2.2333E-001		3.5459E-001
		583.19*	84.50	4.2189E-002		1.9539E-001
		763.13	1.81	2.4557E+000		-1.2448E+000
		860.56*	12.42	1.9225E-001		2.4583E-001
+	Bi-212	39.86	1.06	4.7517E+002	4.91E-001	-3.0397E+002
		727.33*	6.74	4.9130E-001		7.1668E-001
		785.37	1.11	3.7885E+000		9.6198E-002
		1620.74	1.51	2.6252E+000		2.3064E+000
		1806.00	0.09	3.0420E+001		-1.5047E+001
+	Pb-212	74.81*	10.40	5.0186E-001	6.66E-002	7.3096E-001
		77.11*	17.50	2.9082E-001		6.6572E-001
		87.30*	7.81	5.2346E-001		4.6861E-001
		115.18	0.59	6.4641E+000		5.2501E-002
		238.63*	43.30	6.6633E-002		6.6046E-001
		300.09*	3.28	7.0890E-001		6.1782E-001
+	Bi-214	76.86*	0.43	1.1581E+001	6.06E-002	2.6511E+001
		89.81*	0.24	1.5738E+001		1.2229E+001
		386.77	0.30	1.2190E+001		-3.5900E+000
		454.77	0.29	1.1981E+001		2.6826E+000
		609.31*	45.49	6.0643E-002		4.0098E-001
		665.45	1.53	2.4432E+000		-8.2714E-001
		703.11	0.48	8.4509E+000		7.4975E-001
		719.86	0.39	1.0368E+001		-4.8895E+000
		768.36*	4.89	4.5472E-001		2.5594E-001
		786.10	0.31	1.2936E+001		2.6040E+000
		806.17	1.26	3.2800E+000		1.5436E+000
		934.06*	3.10	8.2380E-001		6.2950E-001
		964.08*	0.36	6.1828E+000		8.1928E+000
		1051.96	0.31	1.4298E+001		-8.8018E-001
		1120.29*	14.91	2.8392E-001		4.8935E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Bi-214	1133.66	0.25	2.2213E+001	6.06E-002	-2.5014E+000
		1155.19	1.63	3.3313E+000		1.2395E+000
		1207.68	0.45	1.3039E+001		-1.2360E+000
		1238.11*	5.79	6.6837E-001		6.3341E-001
		1280.96	1.43	3.7215E+000		2.3233E+000
		1377.67*	4.00	5.6376E-001		4.9260E-001
		1385.31	0.76	5.6494E+000		-2.4982E+000
		1401.50	1.27	3.4671E+000		-2.9889E+000
		1407.98	2.15	2.2070E+000		2.0015E-002
		1509.23	2.11	1.7841E+000		-1.0115E-001
		1538.50	0.38	8.0938E+000		3.4373E+000
		1543.32	0.20	1.5386E+001		7.2792E+000
		1583.22	0.69	6.8258E+000		-6.6301E-002
		1594.73	0.25	1.9366E+001		-9.3914E-001
		1599.31	0.23	1.6373E+001		-1.7257E+000
		1661.28	1.15	2.9836E+000		1.7023E+000
		1683.99	0.22	1.4298E+001		5.0382E+000
		1729.59	2.92	1.1938E+000		1.9830E-001
		1764.49	15.40	3.9054E-001		6.3154E-001
		1847.42	2.11	1.7910E+000		-3.4104E-001
		1873.16	0.22	1.5421E+001		6.7736E+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	2.6529E+001	8.84E-002	-5.7229E+000
		74.81*	6.44	7.8566E-001		1.1443E+000
		77.11*	10.80	4.5682E-001		1.0457E+000
		87.30*	4.84	8.1882E-001		7.3302E-001
		242.00*	7.43	3.4501E-001		5.5952E-001
		258.87	0.52	6.7806E+000		-1.3126E+000
		274.80	0.47	8.1955E+000		5.1126E-001
		295.22*	19.30	1.1500E-001		4.8448E-001
		351.93*	37.60	8.8434E-002		4.5499E-001
		462.00	0.22	1.7278E+001		1.6618E+001
		533.66	0.19	1.9220E+001		9.0509E+000
		785.96	1.07	3.7456E+000		7.5395E-001
		839.04	0.59	7.8209E+000		3.9116E+000
+	Ra-224	81.07	0.13	4.8422E+001	6.45E-001	6.3396E+000
		83.78	0.22	2.7825E+001		1.0072E+001
		240.99*	4.10	6.4497E-001		1.0460E+000
+	Ra-226	81.07	0.20	3.1214E+001	1.11E+000	4.0866E+000
		83.78	0.33	1.7845E+001		6.4598E+000
		94.90	0.15	3.2554E+001		4.0419E+000
		186.21*	3.59	1.1132E+000		8.0024E-001
+	Ac-228	99.50	1.26	3.3385E+000	1.49E-001	-1.7436E+000
		129.07	2.50	1.6766E+000		7.1678E-001
		209.25*	3.97	7.3948E-001		5.8356E-001
		270.24*	3.55	9.0906E-001		7.0124E-001
		328.00*	3.04	1.0431E+000		7.2458E-001
		338.32*	11.40	2.7029E-001		6.7888E-001
		409.46	2.02	1.8762E+000		-3.5357E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	6.1893E-001	1.49E-001	7.0821E-001
		755.31	1.03	4.0070E+000		-2.2377E+000
		772.29	1.52	2.9836E+000		1.9913E+000
		794.94*	4.31	6.9325E-001		6.5838E-001
		835.70	1.70	2.7712E+000		1.5936E+000
		911.20*	26.20	1.4935E-001		6.3541E-001
		964.79*	4.99	4.6396E-001		6.1479E-001
		968.96*	15.90	1.5956E-001		7.7481E-001
		1588.20*	3.06	6.0688E-001		8.9491E-001
		1630.62	1.52	2.4033E+000		-7.3236E-001
	Th-228	84.37	1.26	4.8365E+000	4.84E+000	7.3126E-001
		131.61	0.13	3.1970E+001		7.2873E+000
		166.41	0.10	3.5676E+001		3.4522E+000
		215.98	0.25	1.5582E+001		-5.3764E+000
	Pa-234m	258.23	0.07	4.8119E+001	5.22E+000	-1.9676E+001
		742.81	0.09	4.3004E+001		7.1278E+000
		766.36	0.32	1.4189E+001		4.5460E+000
		786.27	0.05	7.5242E+001		1.7825E+001
		1001.03	0.85	5.2194E+000		2.8658E+000
		1737.77	0.02	1.6323E+002		-7.9019E+001
	Th-234	63.30	3.75	3.5543E+000	1.22E+000	1.9227E+000
		92.59	4.33	1.2156E+000		-1.1264E-001
		112.81	0.22	1.7484E+001		1.8396E+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 *****
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Sample Title: HTC-A01-S005-3642-01
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	0.899	1460.82*		10.55	1.35860E+001	4.69206E-001
Eu-152m	0.995	89.85*		69.90	4.28727E-002	7.46351E-003
Tl-208	0.844	72.80	@	2.02		
		74.97*	@	3.41	2.22931E+000	2.54833E-001
		84.90	@	1.51		
		277.36		6.31		
		510.77*	@	22.60	3.54593E-001	5.31716E-002
		583.19*		84.50	1.95386E-001	1.37645E-002
		763.13	@	1.81		
		860.56*		12.42	2.45831E-001	4.91407E-002
TL-208e	0.948	1592.53*		99.16	1.85282E-002	4.22862E-003
Bi-211	0.889	351.03*		13.00	1.31953E+000	8.71422E-002
Bi-212	0.579	39.86	@	1.06		
		727.33*		6.74	7.16680E-001	1.22173E-001
		785.37		1.11		
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.986	74.81*		10.40	7.30956E-001	8.61751E-002
		77.11*		17.50	6.65720E-001	5.73691E-002
		87.30*		7.81	4.68608E-001	7.71452E-002
		115.18	@	0.59		
		238.63*		43.30	6.60464E-001	2.95293E-002
		300.09*		3.28	6.17825E-001	1.05874E-001
Bi-214	0.558	76.86*	@	0.43	2.65108E+001	2.30221E+000
		89.81*	@	0.24	1.22286E+001	2.17354E+000
		386.77	@	0.30		
		454.77	@	0.29		
		609.31*		45.49	4.00979E-001	2.40979E-002
		665.45	@	1.53		
		703.11	@	0.48		
		719.86	@	0.39		
		768.36*		4.89	2.55944E-001	1.03456E-001
		786.10	@	0.31		
		806.17	@	1.26		
		934.06*		3.10	6.29504E-001	1.93799E-001
		964.08*	@	0.36	8.19282E+000	1.31674E+000
		1051.96	@	0.31		
		1120.29*		14.91	4.89352E-001	7.26371E-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	0.558	1238.11*		5.79	6.33406E-001	1.59307E-001
		1280.96	@	1.43		
		1377.67*		4.00	4.92602E-001	1.41903E-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		
		1847.42	@	2.11		
		1873.16	@	0.22		
		2118.55	@	1.14		
		2204.21	@	5.08		
Pb-214	0.941	53.28	@	1.20		
		74.81*		6.44	1.14430E+000	1.36024E-001
		77.11*		10.80	1.04570E+000	9.34237E-002
		87.30*		4.84	7.33024E-001	1.21470E-001
		242.00*		7.43	5.59515E-001	5.83837E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	4.84477E-001	3.28070E-002
		351.93*		37.60	4.54992E-001	2.96999E-002
		462.00	@	0.22		
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.825	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	1.04596E+000	1.08789E-001
Ra-226	0.769	81.07	@	0.20		
		83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	8.00242E-001	2.46003E-001
Ac-228	0.773	99.50	@	1.26		
		129.07	@	2.50		
		209.25*		3.97	5.83559E-001	1.66850E-001
		270.24*		3.55	7.01243E-001	2.04818E-001
		328.00*		3.04	7.24584E-001	2.34874E-001
		338.32*		11.40	6.78881E-001	7.56560E-002
		409.46	@	2.02		
		463.00*		4.45	7.08206E-001	1.52384E-001
		755.31	@	1.03		
		772.29	@	1.52		

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ac-228	0.773	794.94*	4.31	6.58382E-001	1.65502E-001
		835.70 @	1.70		
		911.20*	26.20	6.35412E-001	5.11444E-002
		964.79*	4.99	6.14793E-001	9.89382E-002
		968.96*	15.90	7.74814E-001	6.04784E-002
		1588.20*	3.06	8.94905E-001	1.65864E-001
		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

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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		0.899	1.358597E+001	4.692060E-001
X	Cd-109		0.911		
	Eu-152m		0.995	4.143243E-002	7.454816E-003
	Tl-208	@	0.844	1.978558E-001	1.315241E-002
	TL-208e		0.948	1.852822E-002	4.228617E-003
	Bi-211		0.889	1.705663E-001	1.211350E-001
	Bi-212	@	0.579	7.166798E-001	1.221730E-001
	Pb-212	@	0.986	5.552498E-001	2.356075E-002
	Bi-214	@	0.558	4.108018E-001	2.166723E-002
	Pb-214	@	0.941	3.961779E-001	2.976579E-002
	Ra-224	@	0.825	3.053423E-001	1.215259E-001
	Ra-226	@	0.769	8.002423E-001	2.460028E-001
	Ac-228	@	0.773	6.855237E-001	2.801944E-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: 6/13/2017 7:55:15 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	93.05	2.1344E-002	18.75	Tol.	Yb-169 Th-227 Th-234
	13	321.80	3.7522E-004	670.21		
	33	1510.23	2.7016E-003	36.95		
	36	1766.00	1.9338E-002	9.81		

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

Errors quoted at 1.000 sigma