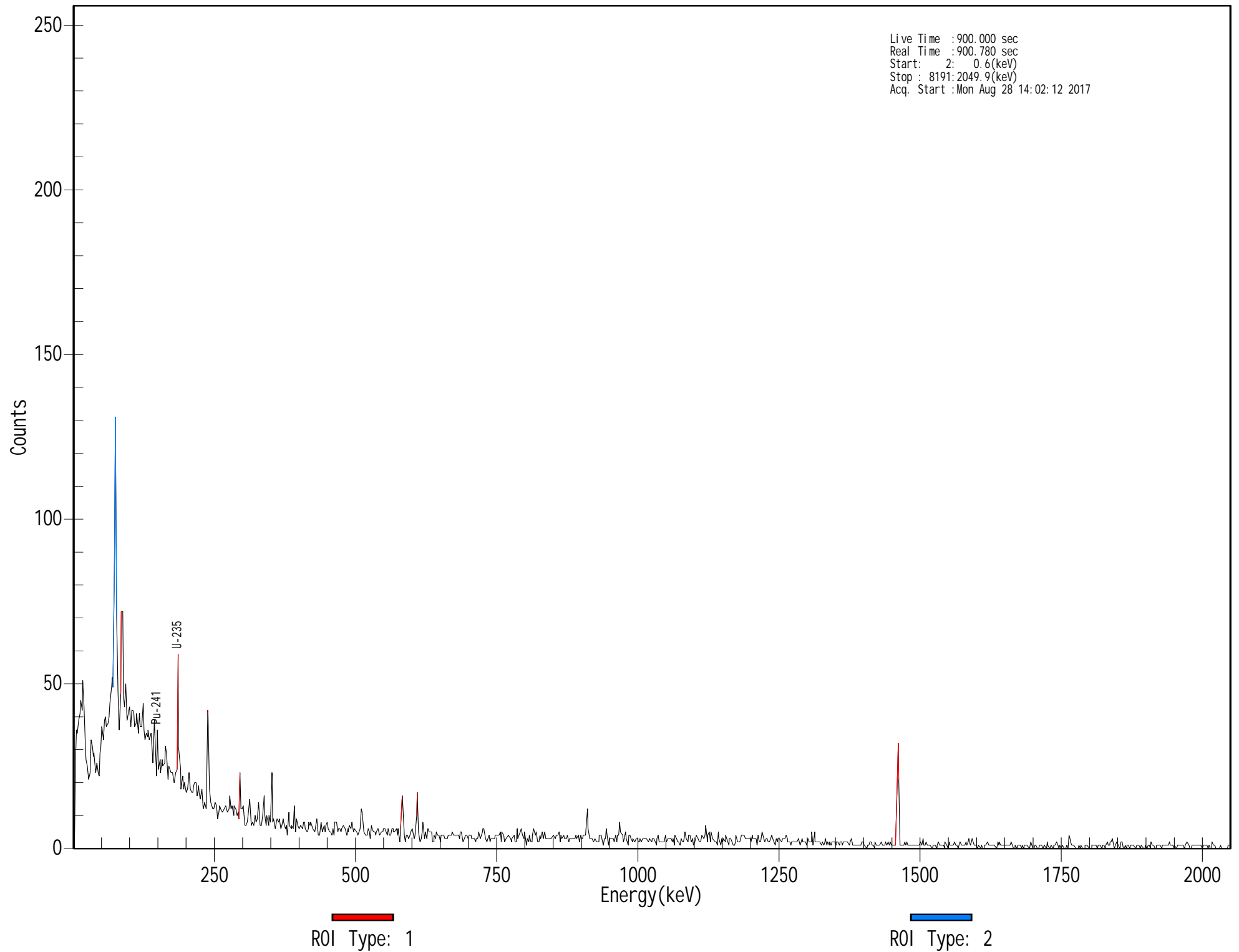


CENTRAL 3H WALL..CNF



***** G A M M A S P E C T R U M A N A L Y S I S *****

Filename: C:\GENIE2K\CAMFILES\UNC 2017\INSITU\Central 3H wall..CNF

Report Generated On : 10/4/2017 3:17:54 PM

Sample Title : Central 3H wall
Sample Description :
Sample Identification : Central 3H wall
Sample Type :
Sample Geometry : wall

Peak Locate Threshold : 3.00
Peak Locate Range (in channels) : 40 - 8192
Peak Area Range (in channels) : 40 - 8192
Identification Energy Tolerance : 1.000 keV

Sample Size : 1.000E+000 g

Sample Taken On : 8/28/2017 2:00:00 PM
Acquisition Started : 8/28/2017 2:02:12 PM

Live Time : 900.0 seconds
Real Time : 900.8 seconds

Dead Time : 0.09 %

Energy Calibration Used Done On : 4/13/2017
Efficiency Calibration Used Done On : 10/4/2017
Efficiency ID : UNC-2017-001

***** P E A K A N A L Y S I S R E P O R T *****

Detector Name: 8566

Sample Title: Central 3H wall

Peak Analysis Performed on: 10/4/2017 3:03:39 PM

Peak Analysis From Channel: 40

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	284-	313	308.07	77.20	0.74	7.19E+001	15.04	5.17E+002
F	2	592-	599	595.07	149.02	0.48	3.51E+001	11.48	1.58E+002
F	3	732-	749	741.74	185.73	1.24	1.72E+002	61.17	3.02E+002
F	4	946-	960	953.12	238.62	1.10	1.54E+002	52.10	1.74E+002
F	5	1175-	1185	1179.63	295.31	0.54	2.91E+001	7.23	8.58E+001
F	6	1246-	1253	1249.73	312.85	0.37	1.59E+001	6.31	4.72E+001
F	7	2320-	2337	2329.05	582.94	1.08	6.76E+001	27.57	4.95E+001
F	8	2426-	2441	2433.73	609.14	1.45	6.78E+001	9.74	2.93E+001
F	9	5824-	5850	5836.80	1460.74	2.57	3.47E+002	18.78	3.00E+000

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 1.000 sigma

***** P E A K L O C A T E R E P O R T *****

Detector Name: 8566

Sample Title: Central 3H wall

Peak Locate Performed on: 10/4/2017 3:03:39 PM

Peak Locate From Channel: 40

Peak Locate To Channel: 8192

Peak Search Sensitivity: 3.00

Peak No.	Centroid Channel	Centroid Uncertainty	Energy (keV)	Peak Significance
1	308.05	0.3377	77.20	4.21
2	595.06	0.3905	149.02	3.07
3	741.61	0.2775	185.73	4.53
4	953.15	0.2304	238.62	5.39
5	1179.64	0.3223	295.31	3.51
6	1249.57	0.3351	312.85	3.06
7	2328.88	0.2157	582.94	4.98
8	2434.11	0.2124	609.14	4.55
9	5836.95	0.1222	1460.74	8.67

? = Adjacent peak noted

Errors quoted at 1.960 sigma

 ***** 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: Central 3H wall
 Nuclide Library Used: C:\GENIE2K\CAMFILES\UNC 2017 NLB 0328201

..... IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (pCi/g)	Activity Uncertainty
K-40	0.999	1460.82*	10.66	2.93066E+003	6.33293E+002
Pb-212	1.000	74.82	10.28		
		77.11*	17.10	8.38140E+002	3.61548E+002
		86.83	2.07		
		87.35	3.97		
		89.78	1.46		
		115.18	0.60		
		238.63*	43.60	2.29094E+002	2.39311E+002
		300.09	3.30		
Ra-226	0.968	81.07	0.20		
		83.79	0.32		
		186.21*	3.64	5.29885E+003	3.72592E+003

* = Energy line found in the spectrum.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 1.000 keV

Nuclide confidence index threshold = 0.60

Errors quoted at 1.960 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/g)	Wt mean Activity Uncertainty
K-40	0.999	2.930661E+003	6.332935E+002
Pb-212	1.000	4.146392E+002	1.995563E+002
Ra-226	0.968	5.298845E+003	3.725923E+003

? = 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 1.960 sigma

***** U N I D E N T I F I E D P E A K S *****

Peak Locate Performed on: 10/4/2017 3:03:39 PM
 Peak Locate From Channel: 40
 Peak Locate To Channel: 8192

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
F 2	149.02	3.9029E-002	64.08		
F 5	295.31	3.2278E-002	48.79	Tol.	PB-214
F 6	312.85	1.7639E-002	77.95		
F 7	582.94	7.5160E-002	79.89		
F 8	609.14	7.5386E-002	28.14	Tol.	BI-214

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 1.960 sigma

***** N U C L I D E M D A R E P O R T *****

Detector Name: 8566
Sample Geometry: wall
Sample Title: Central 3H wall
Nuclide Library Used: C:\GENIE2K\CAMFILES\UNC 2017 NLB 0328201

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/g)	Nuclide MDA (pCi/g)	Activity (pCi/g)	Dec. Leve (pCi/g
+	K-40	1460.82*	10.66	8.007E+002	8.01E+002	2.931E+003	3.825E+00
	Pb-210	46.54	4.25	1.648E+004	1.65E+004	-5.682E+003	7.973E+00
	BI-212	727.33	6.67	5.668E+002	5.67E+002	1.220E+002	2.677E+00
		785.37	1.10	3.007E+003		-1.156E+003	1.405E+00
		1078.62	0.56	7.496E+003		1.183E+003	3.499E+00
		1620.50	1.47	2.304E+003		1.042E+003	1.009E+00
+	Pb-212	74.82	10.28	3.378E+003	2.09E+002	6.939E+003	1.662E+00
		77.11*	17.10	1.265E+003		8.381E+002	6.170E+00
		86.83	2.07	1.191E+004		1.148E+004	5.841E+00
		87.35	3.97	6.011E+003		-6.300E+002	2.947E+00
		89.78	1.46	1.490E+004		3.873E+003	7.295E+00
		115.18	0.60	2.984E+004		-3.464E+003	1.460E+00
		238.63*	43.60	2.087E+002		2.291E+002	1.013E+00
		300.09	3.30	1.996E+003		-4.747E+002	9.622E+00
	BI-214	76.86	0.55	5.769E+004	9.40E+001	-3.314E+003	2.835E+00
		79.29	0.91	2.805E+004		1.507E+004	1.374E+00
		609.32	45.49	9.402E+001		1.096E+002	4.483E+00
		665.45	1.53	2.194E+003		6.990E+001	1.031E+00
		768.36	4.89	6.960E+002		-2.781E+002	3.260E+00
		806.18	1.26	2.372E+003		-3.413E+003	1.098E+00
		934.06	3.11	1.213E+003		2.089E+002	5.667E+00
		1120.29	14.92	3.412E+002		1.685E+002	1.609E+00
		1155.21	1.63	2.789E+003		1.252E+003	1.303E+00
		1238.11	5.83	8.826E+002		-1.364E+002	4.137E+00
		1280.98	1.43	2.886E+003		1.719E+002	1.327E+00
		1377.67	3.99	9.670E+002		-1.740E+002	4.384E+00
		1385.31	0.79	4.748E+003		-5.895E+002	2.146E+00
		1401.52	1.33	2.686E+003		-3.839E+002	1.206E+00
		1407.99	2.39	1.525E+003		2.647E+002	6.856E+00
		1509.21	2.13	1.706E+003		7.841E+002	7.607E+00
		1583.20	0.70	6.063E+003		5.138E+002	2.740E+00
		1661.27	1.05	3.213E+003		2.110E+002	1.402E+00
		1729.59	2.88	9.411E+002		-9.347E+002	3.942E+00
		1764.49	15.30	3.380E+002		3.699E+002	1.544E+00
		1847.43	2.03	1.780E+003		-5.929E+002	7.771E+00
>		2118.51	1.16	0.000E+000		0.000E+000	0.000E+00
>		2204.06	4.92	0.000E+000		0.000E+000	0.000E+00
>		2447.70	1.55	0.000E+000		0.000E+000	0.000E+00
	PB-214	74.82	5.80	5.988E+003	1.64E+002	1.230E+004	2.945E+00
		77.11	9.70	3.223E+003		1.339E+002	1.584E+00
		86.83	1.70	1.450E+004		1.398E+004	7.112E+00
		87.35	2.24	1.065E+004		-1.117E+003	5.223E+00

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/g)	Nuclide MDA (pCi/g)	Activity (pCi/g)	Dec. Leve (pCi/g)
	PB-214	89.78	0.82	2.653E+004	1.64E+002	6.896E+003	1.299E+00
		241.99	7.25	1.403E+003		1.446E+002	6.834E+00
		258.76	0.53	1.349E+004		-1.471E+003	6.506E+00
		295.22	18.42	3.852E+002		2.430E+002	1.861E+00
		351.93	35.60	1.645E+002		1.155E+002	7.918E+00
		785.96	1.06	3.275E+003		1.632E+002	1.535E+00
		839.07	0.58	5.842E+003		6.181E+001	2.726E+00
+	Ra-226	81.07	0.20	1.166E+005	3.25E+003	-4.300E+004	5.702E+00
		83.79	0.32	7.430E+004		8.695E+004	3.639E+00
		186.21*	3.64	3.247E+003		5.299E+003	1.582E+00
	AC-228	89.96	1.90	1.212E+004	1.83E+002	-6.202E+003	5.936E+00
		93.35	3.10	6.736E+003		1.066E+003	3.296E+00
		99.51	1.26	1.550E+004		-9.357E+002	7.580E+00
		105.60	0.74	2.642E+004		2.210E+003	1.293E+00
		129.07	2.42	6.512E+003		-3.317E+003	3.181E+00
		153.98	0.72	1.796E+004		-1.329E+004	8.749E+00
		209.25	3.89	2.545E+003		-2.264E+003	1.235E+00
		214.85	0.76	1.305E+004		1.244E+004	6.337E+00
		270.24	3.46	2.019E+003		-4.951E+002	9.731E+00
		328.00	2.95	2.006E+003		-5.748E+001	9.642E+00
		338.32	11.27	5.270E+002		1.223E+002	2.535E+00
		409.46	1.92	2.475E+003		5.928E+002	1.183E+00
		463.00	4.40	9.290E+002		4.246E+002	4.414E+00
		562.50	0.87	4.651E+003		1.062E+002	2.211E+00
		674.75	2.10	1.691E+003		6.385E+002	7.962E+00
		726.86	0.62	6.330E+003		2.739E+003	2.993E+00
		755.32	1.00	3.688E+003		1.781E+002	1.735E+00
		772.29	1.49	2.363E+003		1.365E+003	1.108E+00
		794.95	4.25	9.024E+002		7.203E+002	4.249E+00
		830.49	0.54	7.020E+003		3.577E+003	3.297E+00
		835.71	1.61	2.238E+003		-6.252E+002	1.047E+00
		840.38	0.91	3.650E+003		-2.240E+003	1.697E+00
		904.20	0.77	5.585E+003		-8.913E+003	2.634E+00
		911.20	25.80	1.831E+002		1.317E+002	8.678E+00
		964.77	4.99	9.580E+002		9.658E+002	4.532E+00
		968.97	15.80	3.023E+002		3.001E+002	1.429E+00
		1247.08	0.50	1.057E+004		-4.519E+003	4.954E+00
		1459.14	0.83	1.579E+004		5.833E+004	7.660E+00
		1495.91	0.86	3.921E+003		-5.686E+002	1.730E+00
		1588.20	3.22	1.435E+003		1.256E+003	6.524E+00
		1630.63	1.51	2.173E+003		-2.521E+003	9.445E+00
	TH-230	67.67	0.38	8.334E+004	8.33E+004	-1.446E+004	4.079E+00
	PA-234	742.81	0.11	3.058E+004	4.68E+003	-1.013E+004	1.430E+00
		766.42	0.32	1.079E+004		-3.120E+003	5.057E+00
		1001.03	0.84	4.683E+003		7.390E+002	2.186E+00
	TH-234	63.29	3.70	9.203E+003	9.20E+003	-4.807E+003	4.497E+00
		92.38	2.13	9.858E+003		5.381E+002	4.825E+00
		92.80	2.10	9.806E+003		-4.505E+003	4.798E+00
		112.81	0.21	8.442E+004		-5.539E+004	4.129E+00
	U-234	53.20	0.12	3.943E+005	3.94E+005	-7.332E+004	1.919E+00
		120.90	0.04	4.790E+005		-2.866E+005	2.342E+00

Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/g)	Nuclide MDA (pCi/g)	Activity (pCi/g)	Dec. Leve (pCi/g
U-235	89.96	3.43	6.590E+003	1.32E+003	-3.373E+003	3.229E+00
	93.35	5.54	3.701E+003		5.859E+002	1.811E+00
	104.82	0.69	2.833E+004		1.598E+004	1.387E+00
	105.60	1.31	1.466E+004		1.226E+003	7.175E+00
	108.58	0.50	3.754E+004		1.981E+004	1.837E+00
	109.19	1.66	1.115E+004		-9.196E+003	5.455E+00
	143.76	10.96	1.321E+003		4.172E+002	6.448E+00
	163.36	5.08	2.477E+003		7.403E+002	1.207E+00
	194.94	0.63	1.675E+004		9.746E+002	8.142E+00
	202.12	1.08	9.388E+003		-1.489E+002	4.560E+00
	205.32	5.02	2.021E+003		1.422E+003	9.819E+00

+ = Nuclide identified during the nuclide identification

* = Energy line found in the spectrum

> = MDA value not calculated

@ = Half-life too short to be able to perform the decay correction

*** LINE ACTIVITY CONSISTENCY EVALUATOR ***

=====
Analysis using Key Line Activities
=====

Filename: C:\GENIE2K\CAMFILES\UNC 2017\INSITU\Central 3H wall..CNF

Equation used to calculate plot: $\ln(\text{Ratio}) = A + B \cdot \ln(\text{Energy})$
where: Ratio = Activity/KL Activity

Notes:

'^' Denotes Key Line energy

* All uncertainties quoted at 1.96 sigma

Nuclide	Energy (keV)	Activity (pCi/g)	Activity %Uncert*	Ratio[%Uncert]	A	B [uncert]
-----	-----	-----	-----	-----	-----	-----
K-40	1460.8	^ 2.93E+003	21.609			
Pb-212	77.1	8.38E+002	43.137	3.659[113.01]	6.29	-1.148
	238.6	^ 2.29E+002	104.46	1.000[147.72]		[1.646]
Ra-226	186.2	^ 5.30E+003	70.316			