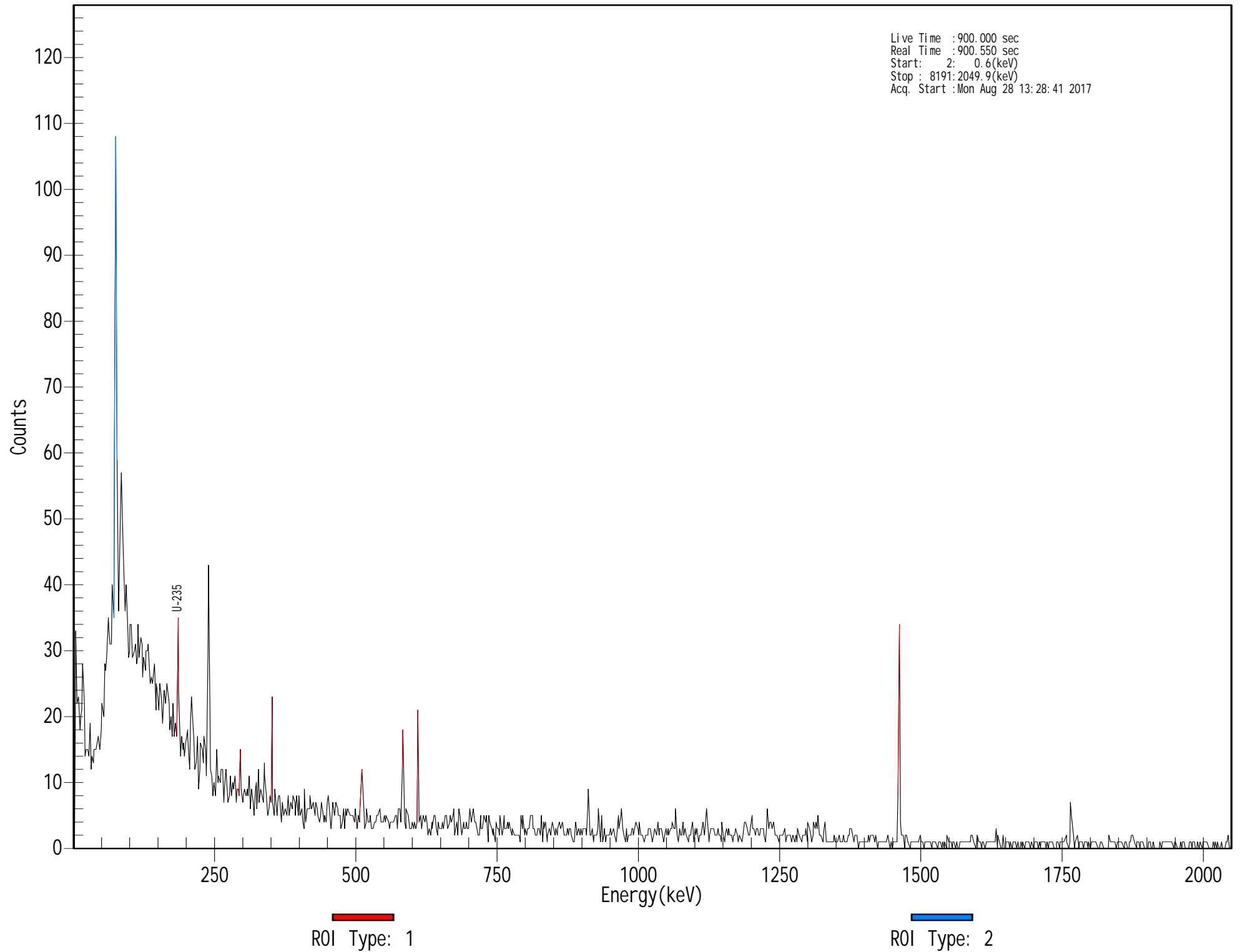


WEST 3H WEST WALL.CNF



***** 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\West 3H West Wall.CNF

Report Generated On : 10/4/2017 3:33:23 PM

Sample Title : Western 3H West Wall

Sample Description :

Sample Identification : Western 3H West

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 1:28:41 PM

Live Time : 900.0 seconds

Real Time : 900.5 seconds

Dead Time : 0.06 %

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: Western 3H West Wall

Peak Analysis Performed on: 10/4/2017 3:33:18 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-	312	308.07	77.20	0.68	8.68E+001	21.95	3.63E+002
F	2	734-	751	742.41	185.89	1.08	9.57E+001	12.80	2.18E+002
F	3	945-	957	953.68	238.76	0.80	1.18E+002	38.87	1.32E+002
F	4	1175-	1185	1179.95	295.39	0.86	3.69E+001	8.84	5.83E+001
F	5	2032-	2050	2041.04	510.87	1.47	4.94E+001	9.31	5.70E+001
F	6	2324-	2338	2330.77	583.37	1.16	5.73E+001	9.81	4.38E+001
F	7	2428-	2442	2434.96	609.45	1.04	5.56E+001	8.90	3.00E+001
F	8	5826-	5852	5839.96	1461.53	2.43	2.89E+002	17.32	6.00E+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: Western 3H West Wall

Peak Locate Performed on: 10/4/2017 3:33:18 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	308.06	0.3215	77.20	4.83
2	742.27	0.2947	185.89	3.45
3	953.65	0.2199	238.76	7.00
4	1179.93	0.2884	295.39	3.76
5	2040.99	0.2653	510.87	3.07
6	2330.65	0.2060	583.37	5.20
7	2435.00	0.2078	609.45	5.51
8	5840.28	0.1248	1461.53	8.78

? = 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: Western 3H West 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	0.923	1460.82*	10.66	3.82535E+003	5.28423E+002
Pb-212	0.998	74.82	10.28		
		77.11*	17.10	1.01282E+003	5.19578E+002
		86.83	2.07		
		87.35	3.97		
		89.78	1.46		
		115.18	0.60		
		238.63*	43.60	1.47606E+002	1.82858E+002
		300.09	3.30		
Ra-226	0.986	81.07	0.20		
		83.79	0.32		
		186.21*	3.64	2.93944E+003	8.31219E+002

* = 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	0.923	3.825347E+003	5.284230E+002
Pb-212	0.998	2.429598E+002	1.724875E+002
Ra-226	0.986	2.939445E+003	8.312187E+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 1.960 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 3:33:18 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 4	295.39	4.0950E-002	47.02	Tol.	PB-214
F 5	510.87	5.4926E-002	36.92		
F 6	583.37	6.3695E-002	33.54		
F 7	609.45	6.1769E-002	31.39	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: Western 3H West 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	2.041E+002	2.04E+002	3.825E+003	8.419E+00
	Pb-210	46.54	4.25	1.303E+004	1.30E+004	-8.817E+002	6.250E+00
	BI-212	727.33	6.67	5.388E+002	5.39E+002	2.092E+002	2.537E+00
		785.37	1.10	2.631E+003		-1.867E+003	1.216E+00
		1078.62	0.56	6.296E+003		1.907E+003	2.899E+00
		1620.50	1.47	2.050E+003		-4.999E+002	8.828E+00
+	Pb-212	74.82	10.28	2.960E+003	1.86E+002	4.483E+003	1.453E+00
		77.11*	17.10	1.066E+003		1.013E+003	5.173E+00
		86.83	2.07	1.035E+004		-6.762E+003	5.059E+00
		87.35	3.97	5.295E+003		-1.492E+003	2.589E+00
		89.78	1.46	1.354E+004		6.902E+003	6.615E+00
		115.18	0.60	2.664E+004		-4.448E+003	1.300E+00
		238.63*	43.60	1.862E+002		1.476E+002	9.007E+00
		300.09	3.30	1.776E+003		-1.055E+003	8.523E+00
	BI-214	76.86	0.55	5.202E+004	9.56E+001	7.364E+002	2.551E+00
		79.29	0.91	2.623E+004		9.233E+003	1.283E+00
		609.32	45.49	9.558E+001		1.056E+002	4.561E+00
		665.45	1.53	2.104E+003		-7.654E+002	9.858E+00
		768.36	4.89	6.827E+002		2.664E+002	3.193E+00
		806.18	1.26	2.551E+003		4.631E+000	1.188E+00
		934.06	3.11	1.091E+003		6.048E+002	5.059E+00
		1120.29	14.92	3.021E+002		1.545E+002	1.413E+00
		1155.21	1.63	2.373E+003		6.706E+002	1.095E+00
		1238.11	5.83	8.549E+002		-7.777E+001	3.999E+00
		1280.98	1.43	2.730E+003		-2.579E+002	1.249E+00
		1377.67	3.99	1.046E+003		1.499E+002	4.778E+00
		1385.31	0.79	4.889E+003		2.882E+003	2.216E+00
		1401.52	1.33	2.281E+003		-1.575E+003	1.003E+00
		1407.99	2.39	1.499E+003		2.080E+002	6.728E+00
		1509.21	2.13	1.188E+003		-8.864E+002	5.016E+00
		1583.20	0.70	6.063E+003		2.210E+003	2.740E+00
		1661.27	1.05	3.031E+003		4.596E+002	1.312E+00
		1729.59	2.88	8.960E+002		-1.666E+002	3.716E+00
		1764.49	15.30	3.297E+002		2.697E+002	1.503E+00
		1847.43	2.03	1.780E+003		6.932E+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	5.246E+003	1.54E+002	7.946E+003	2.575E+00
		77.11	9.70	2.910E+003		-4.806E+001	1.427E+00
		86.83	1.70	1.260E+004		-8.234E+003	6.160E+00
		87.35	2.24	9.385E+003		-2.644E+003	4.588E+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	2.411E+004	1.54E+002	1.229E+004	1.178E+00
		241.99	7.25	1.322E+003		-2.112E+003	6.428E+00
		258.76	0.53	1.296E+004		-1.719E+003	6.239E+00
		295.22	18.42	3.326E+002		1.577E+002	1.599E+00
		351.93	35.60	1.540E+002		6.566E+001	7.393E+00
		785.96	1.06	2.687E+003		-1.540E+003	1.240E+00
		839.07	0.58	5.412E+003		-1.380E+003	2.511E+00
+	Ra-226	81.07	0.20	1.097E+005	2.77E+003	-1.045E+005	5.358E+00
		83.79	0.32	6.971E+004		6.343E+004	3.410E+00
		186.21*	3.64	2.774E+003		2.939E+003	1.345E+00
	AC-228	89.96	1.90	1.042E+004	1.59E+002	4.220E+003	5.093E+00
		93.35	3.10	5.874E+003		1.827E+003	2.869E+00
		99.51	1.26	1.288E+004		-2.987E+003	6.280E+00
		105.60	0.74	2.224E+004		1.392E+004	1.086E+00
		129.07	2.42	5.653E+003		9.638E+002	2.756E+00
		153.98	0.72	1.580E+004		-1.457E+003	7.680E+00
		209.25	3.89	2.291E+003		1.294E+003	1.110E+00
		214.85	0.76	1.060E+004		4.901E+003	5.124E+00
		270.24	3.46	1.778E+003		1.608E+003	8.544E+00
		328.00	2.95	1.606E+003		-2.294E+002	7.663E+00
		338.32	11.27	4.641E+002		5.117E+002	2.226E+00
		409.46	1.92	2.111E+003		3.446E+002	1.004E+00
		463.00	4.40	8.382E+002		-1.440E+002	3.974E+00
		562.50	0.87	3.679E+003		6.584E+002	1.732E+00
		674.75	2.10	1.388E+003		3.059E+002	6.475E+00
		726.86	0.62	5.690E+003		4.844E+003	2.683E+00
		755.32	1.00	3.145E+003		-1.041E+003	1.470E+00
		772.29	1.49	2.077E+003		1.143E+003	9.693E+00
		794.95	4.25	7.299E+002		2.376E+002	3.402E+00
		830.49	0.54	5.861E+003		3.929E+003	2.730E+00
		835.71	1.61	1.790E+003		-7.258E+002	8.275E+00
		840.38	0.91	3.178E+003		-3.866E+003	1.469E+00
		904.20	0.77	4.433E+003		-1.016E+004	2.067E+00
		911.20	25.80	1.590E+002		8.037E+001	7.504E+00
		964.77	4.99	8.402E+002		7.197E+002	3.958E+00
		968.97	15.80	2.677E+002		3.756E+002	1.262E+00
		1247.08	0.50	8.242E+003		-2.752E+003	3.811E+00
		1459.14	0.83	1.378E+004		4.771E+004	6.670E+00
		1495.91	0.86	3.222E+003		-1.424E+002	1.394E+00
		1588.20	3.22	1.234E+003		3.738E+002	5.559E+00
		1630.63	1.51	2.365E+003		1.718E+003	1.049E+00
	TH-230	67.67	0.38	6.848E+004	6.85E+004	-5.263E+004	3.336E+00
	PA-234	742.81	0.11	2.868E+004	4.13E+003	-2.744E+004	1.335E+00
		766.42	0.32	1.052E+004		2.277E+003	4.921E+00
		1001.03	0.84	4.125E+003		1.765E+003	1.907E+00
	TH-234	63.29	3.70	8.107E+003	8.11E+003	1.521E+003	3.949E+00
		92.38	2.13	9.221E+003		3.344E+003	4.506E+00
		92.80	2.10	9.288E+003		6.874E+003	4.539E+00
		112.81	0.21	7.731E+004		1.616E+004	3.774E+00
	U-234	53.20	0.12	2.966E+005	2.97E+005	-2.225E+005	1.431E+00
		120.90	0.04	4.378E+005		2.023E+005	2.136E+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	6.033E+003	1.18E+003	2.444E+003	2.951E+00
	93.35	5.54	3.437E+003		1.069E+003	1.679E+00
	104.82	0.69	2.526E+004		1.602E+004	1.234E+00
	105.60	1.31	1.314E+004		8.222E+003	6.415E+00
	108.58	0.50	3.258E+004		-1.063E+004	1.589E+00
	109.19	1.66	9.804E+003		-1.924E+003	4.784E+00
	143.76	10.96	1.181E+003		-4.488E+002	5.749E+00
	163.36	5.08	2.220E+003		9.831E+002	1.078E+00
	194.94	0.63	1.507E+004		3.032E+002	7.300E+00
	202.12	1.08	8.451E+003		-4.962E+002	4.091E+00
	205.32	5.02	1.815E+003		-8.659E+002	8.788E+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\West 3H West 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	^	3.83E+003	13.814			
Pb-212	77.1		1.01E+003	51.300	6.862[134.08]	9.33	-1.705
	238.6	^	1.48E+002	123.88	1.000[175.19]		[1.953]
Ra-226	186.2	^	2.94E+003	28.278			