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

Filename: HPGE

Report Generated On : 2/14/2019 3:08:31 PM

Sample Title : Fe F 0.1238 @ 6e14 fluence
Sample Description : In Rx @ 12:00:10 for 27 minute
Sample Identification :
Sample Type :
Sample Geometry :

Peak Locate Threshold : 3.00
Peak Locate Range (in channels) : 1 - 65535
Peak Area Range (in channels) : 1 - 65535
Identification Energy Tolerance : 0.500 keV

Sample Size : 1.000E+000

Sample Taken On :
Acquisition Started : 2/14/2019 2:39:03 PM

Live Time : 900.0 seconds
Real Time : 1107.9 seconds

Dead Time : 18.76 %

Energy Calibration Used Done On : 2/14/2019
Efficiency Calibration Used Done On : 7/27/2018
Efficiency ID : Disk Source

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

Detector Name: HPGE

Sample Title: Fe F 0.1238 @ 6e14 fluence

Peak Analysis Performed on: 2/14/2019 3:08:31 PM

Peak Analysis From Channel: 1

Peak Analysis To Channel: 4096

	Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
	1	106-	114	110.84	103.29	0.87	2.07E+003	344.86	5.47E+004
	2	144-	152	148.54	121.81	1.25	1.92E+003	337.97	5.25E+004
	3	169-	177	173.97	134.31	1.43	1.61E+003	333.02	5.11E+004
	4	187-	195	191.27	142.81	1.13	7.48E+003	339.73	5.05E+004
	5	288-	296	292.40	192.49	1.21	1.82E+004	348.98	4.85E+004
	6	347-	356	351.67	221.61	1.15	1.24E+003	355.30	5.53E+004
	7	547-	556	552.37	320.21	1.24	2.87E+003	334.85	4.83E+004
	8	578-	587	582.95	335.23	1.15	1.16E+003	331.44	4.81E+004
	9	601-	611	606.30	346.70	1.29	2.60E+003	349.01	5.00E+004
	10	734-	744	739.05	411.91	1.38	1.02E+004	343.08	4.50E+004
	11	873-	880	876.68	479.53	1.20	1.05E+003	256.14	3.20E+004
	12	887-	895	892.24	487.17	1.21	1.26E+003	280.60	3.63E+004
	13	935-	946	940.99	511.12	2.86	1.31E+005	526.06	5.84E+004
M	14	1023-	1054	1029.25	554.49	1.51	1.62E+004	206.96	4.18E+004
m	15	1023-	1054	1038.95	559.25	1.51	3.45E+004	262.64	4.18E+004
m	16	1023-	1054	1048.93	564.15	1.52	7.26E+003	178.77	4.18E+004
	17	1155-	1166	1161.08	619.25	1.51	1.02E+004	389.91	5.65E+004
	18	1177-	1188	1183.14	630.09	1.31	2.59E+003	386.51	5.85E+004
	19	1233-	1244	1238.47	657.27	1.67	2.96E+003	352.24	4.82E+004
	20	1292-	1302	1296.89	685.98	1.22	1.39E+003	305.12	3.84E+004
M	21	1308-	1328	1311.19	693.00	1.50	4.95E+002	137.23	2.72E+004
m	22	1308-	1328	1322.38	698.50	1.50	4.48E+003	175.57	3.30E+004
	23	1475-	1487	1481.55	776.70	1.59	1.43E+004	327.99	3.55E+004
	24	1500-	1512	1506.68	789.04	1.54	2.56E+003	306.60	3.47E+004
	25	1555-	1565	1561.36	815.91	1.25	4.24E+002	266.57	2.96E+004
M	26	1580-	1605	1586.01	828.02	1.73	4.01E+003	151.51	3.34E+004
m	27	1580-	1605	1599.01	834.41	1.74	1.04E+004	190.10	3.42E+004
	28	1618-	1630	1624.62	846.99	1.68	6.51E+005	878.07	4.57E+004
	29	1640-	1652	1646.22	857.60	2.42	2.11E+003	324.97	3.93E+004
M	30	1846-	1865	1849.05	957.25	1.15	7.94E+001	100.29	1.87E+004
m	31	1846-	1865	1861.56	963.40	1.15	2.65E+002	334.50	2.16E+004
M	32	2019-	2045	2025.96	1044.17	1.87	4.14E+003	181.90	3.51E+004
m	33	2019-	2045	2040.04	1051.09	1.88	4.59E+002	144.23	3.56E+004
	34	2115-	2127	2121.95	1091.33	1.52	7.37E+002	334.14	4.21E+004
	35	2131-	2144	2138.45	1099.44	1.83	9.44E+004	468.37	4.54E+004
	36	2206-	2213	2209.74	1134.46	0.95	-1.02E+002	238.45	2.82E+004
	37	2285-	2296	2289.42	1173.61	1.33	1.30E+003	271.16	2.88E+004
	38	2372-	2383	2376.62	1216.45	1.71	1.52E+003	246.71	2.36E+004
M	39	2523-	2553	2529.89	1291.76	1.91	6.28E+004	277.22	1.54E+004
m	40	2523-	2553	2546.13	1299.73	1.91	2.14E+003	105.46	1.50E+004
	41	2575-	2589	2582.60	1317.65	2.10	3.46E+003	236.98	1.83E+004
	42	2606-	2616	2610.31	1331.27	1.74	5.84E+002	180.88	1.35E+004

	Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
	43	2634-	2644	2640.03	1345.87	1.44	5.76E+002	180.90	1.35E+004
	44	2679-	2693	2686.70	1368.80	1.91	5.85E+005	806.94	2.30E+004
	45	2796-	2802	2799.21	1424.08	0.53	-2.58E+002	122.45	8.06E+003
	46	2813-	2824	2820.81	1434.69	1.81	5.03E+002	183.73	1.32E+004
	47	2895-	2910	2902.92	1475.03	2.21	2.36E+003	233.01	1.73E+004
	48	2997-	3011	3004.52	1524.95	2.13	8.42E+003	236.78	1.65E+004
M	49	3145-	3169	3150.33	1596.59	2.72	1.02E+003	108.91	1.50E+004
m	50	3145-	3169	3162.08	1602.36	2.72	2.39E+003	128.84	1.80E+004
	51	3418-	3433	3426.47	1732.26	2.12	4.03E+004	292.81	1.52E+004
	52	3579-	3594	3586.68	1810.98	2.12	7.88E+004	358.10	1.64E+004
	53	3703-	3718	3711.09	1872.11	1.50	5.13E+002	224.83	1.66E+004
	54	3988-	3998	3994.50	2011.35	2.52	4.80E+003	136.58	3.89E+003

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 1.000 sigma

***** A R E A C O R R E C T I O N R E P O R T *****
***** R E F E R E N C E P E A K / B K G . S U B T R A C T *****

Detector Name: HPGE

Sample Title: Fe F 0.1238 @ 6e14 fluence

Peak Analysis Performed on: 2/14/2019 3:08:31 PM

Ref. Peak Energy: 0.00; Reference Date:

Peak Ratio: 0.00; Uncertainty: 0.00

Background File : C:\GENIE2K\CAMFILES\1 hr background 2018.CNF

Corrected area is: Original * Peak Ratio - Background

Peak No.	Energy (keV)	Original Area	Orig. Area Uncert.	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
1	103.29	2.07E+003	344.86			2.07E+003	3.45E+002
2	121.81	1.92E+003	337.97			1.92E+003	3.38E+002
3	134.31	1.61E+003	333.02			1.61E+003	3.33E+002
4	142.81	7.48E+003	339.73			7.48E+003	3.40E+002
5	192.49	1.82E+004	348.98			1.82E+004	3.49E+002
6	221.61	1.24E+003	355.30			1.24E+003	3.55E+002
7	320.21	2.87E+003	334.85			2.87E+003	3.35E+002
8	335.23	1.16E+003	331.44			1.16E+003	3.31E+002
9	346.70	2.60E+003	349.01			2.60E+003	3.49E+002
10	411.91	1.02E+004	343.08			1.02E+004	3.43E+002
11	479.53	1.05E+003	256.14			1.05E+003	2.56E+002
12	487.17	1.26E+003	280.60			1.26E+003	2.81E+002
13	511.12	1.31E+005	526.06			1.31E+005	5.26E+002
M 14	554.49	1.62E+004	206.96			1.62E+004	2.07E+002
m 15	559.25	3.45E+004	262.64			3.45E+004	2.63E+002
m 16	564.15	7.26E+003	178.77			7.26E+003	1.79E+002
17	619.25	1.02E+004	389.91			1.02E+004	3.90E+002
18	630.09	2.59E+003	386.51			2.59E+003	3.87E+002
19	657.27	2.96E+003	352.24			2.96E+003	3.52E+002
20	685.98	1.39E+003	305.12			1.39E+003	3.05E+002
M 21	693.00	4.95E+002	137.23			4.95E+002	1.37E+002
m 22	698.50	4.48E+003	175.57			4.48E+003	1.76E+002
23	776.70	1.43E+004	327.99			1.43E+004	3.28E+002
24	789.04	2.56E+003	306.60			2.56E+003	3.07E+002
25	815.91	4.24E+002	266.57			4.24E+002	2.67E+002
M 26	828.02	4.01E+003	151.51			4.01E+003	1.52E+002
m 27	834.41	1.04E+004	190.10			1.04E+004	1.90E+002
28	846.99	6.51E+005	878.07			6.51E+005	8.78E+002
29	857.60	2.11E+003	324.97			2.11E+003	3.25E+002
M 30	957.25	7.94E+001	100.29			7.94E+001	1.00E+002
m 31	963.40	2.65E+002	334.50			2.65E+002	3.34E+002
M 32	1044.17	4.14E+003	181.90			4.14E+003	1.82E+002
m 33	1051.09	4.59E+002	144.23			4.59E+002	1.44E+002
34	1091.33	7.37E+002	334.14			7.37E+002	3.34E+002
35	1099.44	9.44E+004	468.37			9.44E+004	4.68E+002
36	1134.46	-1.02E+002	238.45			-1.02E+002	2.38E+002

Peak No.	Energy (keV)	Original Area	Orig. Area Uncert.	Ambient Background	Backgr. Uncert.	Corrected Area	Corrected Uncert.
37	1173.61	1.30E+003	271.16			1.30E+003	2.71E+002
38	1216.45	1.52E+003	246.71			1.52E+003	2.47E+002
M 39	1291.76	6.28E+004	277.22			6.28E+004	2.77E+002
m 40	1299.73	2.14E+003	105.46			2.14E+003	1.05E+002
41	1317.65	3.46E+003	236.98			3.46E+003	2.37E+002
42	1331.27	5.84E+002	180.88			5.84E+002	1.81E+002
43	1345.87	5.76E+002	180.90			5.76E+002	1.81E+002
44	1368.80	5.85E+005	806.94			5.85E+005	8.07E+002
45	1424.08	-2.58E+002	122.45			-2.58E+002	1.22E+002
46	1434.69	5.03E+002	183.73			5.03E+002	1.84E+002
47	1475.03	2.36E+003	233.01			2.36E+003	2.33E+002
48	1524.95	8.42E+003	236.78			8.42E+003	2.37E+002
M 49	1596.59	1.02E+003	108.91			1.02E+003	1.09E+002
m 50	1602.36	2.39E+003	128.84			2.39E+003	1.29E+002
51	1732.26	4.03E+004	292.81			4.03E+004	2.93E+002
52	1810.98	7.88E+004	358.10			7.88E+004	3.58E+002
53	1872.11	5.13E+002	224.83			5.13E+002	2.25E+002
54	2011.35	4.80E+003	136.58			4.80E+003	1.37E+002

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 1.000 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: Fe F 0.1238 @ 6e14 fluence
 Nuclide Library Used: C:\GENIE2K\CAMFILES\STDLIB-key lines.NLB

..... IDENTIFIED NUCLIDES

Nuclide Name	Id Confidence	Energy (keV)	Yield (%)	Activity (uCi/)	Activity Uncertainty
Na-24	0.954	1368.53*	100.00	6.69154E-001	1.35893E-002
K-42	0.949	1524.67*	17.90	5.98747E-002	2.08305E-003
Cr-51	0.989	320.08*	9.83	6.96219E-003	8.38424E-004
Ti-51	0.973	320.00*	95.00	1.78602E-003	2.13573E-004
Mn-54	0.893	834.83*	99.97	6.74371E-003	1.73352E-004
Mn-56	0.962	846.75*	98.90	4.53858E-001	8.26027E-003
		1810.69*	27.20	4.36812E-001	1.81628E-002
Co-57	0.791	122.06*	85.58	2.85452E-004	5.06356E-005
		136.48	10.60		
Fe-59	0.980	1099.25*	56.50	1.49497E-001	3.87542E-003
		1291.59*	43.20	1.55525E-001	4.80313E-003
Cu-64	0.999	1345.90*	0.49	1.32296E-001	4.30298E-002
Ga-72	0.849	629.97*	26.13	4.72109E-003	7.11204E-004
		834.13*	95.45	7.11687E-003	1.82944E-004
		894.33	10.14		
As-76	0.985	559.10*	44.70	3.21423E-002	7.23785E-004
Br-82	0.977	554.32*	70.60	9.48752E-003	2.34843E-004
		619.07*	43.10	1.10055E-002	4.78614E-004
		698.33*	28.20	8.44427E-003	3.71065E-004
		776.49*	83.31	1.02911E-002	3.04940E-004
		827.81*	24.20	1.07220E-002	4.48803E-004
		1043.97*	27.30	1.28259E-002	6.08140E-004
		1317.47*	26.90	1.40804E-002	1.00575E-003
		1474.82*	16.58	1.74600E-002	1.76056E-003
Sb-122	0.995	564.24*	70.68	4.31305E-003	1.42098E-004
La-140	0.705	328.77	20.50		
		487.03*	45.50	9.94015E-004	2.22941E-004
		815.85*	23.50	1.14326E-003	7.19690E-004
		1596.49*	95.49	1.40495E-003	1.52815E-004
Eu-152m	0.443	121.77*	7.00	3.52993E-003	7.61174E-003
		841.63	14.20		
		963.38*	11.60	1.77680E-003	4.42794E-003
Sm-153	0.994	103.20*	29.25	9.11983E-004	1.54112E-004
W-187	0.990	479.53*	23.40	1.59760E-003	3.95587E-004
		685.81*	29.20	2.48329E-003	5.58773E-004
Au-198	0.992	411.80*	96.00	3.22705E-003	1.31288E-004

* = Energy line found in the spectrum.

@ = Energy line not used for Weighted Mean Activity

Energy Tolerance : 0.500 keV

Nuclide confidence index threshold = 0.30

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 (uCi/)	Wt mean Activity Uncertainty
	Na-24	0.954	6.691540E-001	1.358930E-002
	K-42	0.949	5.987468E-002	2.083053E-003
?	Cr-51	0.989	6.962189E-003	8.384244E-004
?	Ti-51	0.973	1.786023E-003	2.135731E-004
	Mn-54	0.893	2.270162E-003	6.958519E-004
	Mn-56	0.962	4.509363E-001	7.519182E-003
	Co-57	0.791	1.417691E-004	1.882383E-004
	Fe-59	0.980	1.518737E-001	3.016086E-003
	Cu-64	0.999	1.322964E-001	4.302984E-002
	Ga-72	0.849	4.721093E-003	7.112040E-004
	As-76	0.985	3.214229E-002	7.237853E-004
	Br-82	0.977	1.009285E-002	1.421425E-004
	Sb-122	0.995	4.313049E-003	1.420981E-004
	La-140	0.705	1.269711E-003	1.241570E-004
	Eu-152m	0.443	1.776796E-003	4.427943E-003
	Sm-153	0.994	9.119826E-004	1.541121E-004
	W-187	0.990	1.893303E-003	3.228659E-004
	Au-198	0.992	3.227046E-003	1.312880E-004

? = 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: 2/14/2019 3:08:31 PM
 Peak Locate From Channel: 1
 Peak Locate To Channel: 4096

Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
3	134.31	1.7938E+000	20.63		
4	142.81	8.3085E+000	4.54		
5	192.49	2.0181E+001	1.92		
6	221.61	1.3742E+000	28.73		
8	335.23	1.2877E+000	28.60		
9	346.70	2.8837E+000	13.45	D-Esc.	
13	511.12	1.4506E+002	0.40	Tol.	Tl-208
19	657.27	3.2880E+000	11.90	Tol.	Ag-110m
M 21	693.00	5.4986E-001	27.73		
24	789.04	2.8429E+000	11.98	D-Esc.	
29	857.60	2.3490E+000	15.37	S-Esc.	
M 30	957.25	8.8233E-002	126.30		
m 33	1051.09	5.0998E-001	31.42	Sum	
34	1091.33	8.1941E-001	45.31	Tol.	Nb-96
36	1134.46	-1.1316E-001	-234.14		
37	1173.61	1.4480E+000	20.81	Sum	
38	1216.45	1.6878E+000	16.24		
m 40	1299.73	2.3727E+000	4.94	S-Esc.	
42	1331.27	6.4894E-001	30.97	Sum	
45	1424.08	-2.8691E-001	-47.42		
46	1434.69	5.5899E-001	36.52	Sum	
m 50	1602.36	2.6596E+000	5.38		
51	1732.26	4.4742E+001	0.73		
53	1872.11	5.7035E-001	43.80	Sum	
54	2011.35	5.3315E+000	2.85		

M = First peak in a multiplet region

m = Other peak in a multiplet region

F = Fitted singlet

Errors quoted at 1.000 sigma