This document was too large to scan as a whole document, therefore it required breaking into smaller sections.

DOCUMENT NUMBER: SD-WM-DP-062

SECTION 2 **OF** 2

TITLE: 105-KE SAND FILTER BACKWASH PIT (SFBWP) SECOND CAMPAIGN [Sec 2 of 2] [Pgs 703-1192]

DATE:

ORIGINATOR: Rice A D

CO: WHC

RECIPIENT:

CO:

REFERENCES:

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AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 1-6-94 AJ

13397 -7
30

WHC-SD-WM-DP-062, REV. 0

J1424-5982

BEST AVAILABLE COPY

EMDavis
1-6-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J 1401-5582
File ID: 9a1471.CNF

Counted on: 1/ 6/94 @13:50
Detector: AEA9
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1039.1	1039.1	300.146	300.146	16.000	8.088	8.000	2.074
2	1107.2	1107.2	254.117	254.046	14.000	6.515	7.000	1.427
3	216.1	216.1	228.994	227.310	10.000	3.756	5.000	0.981

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.424	5.480	5.470	0.010	0.04	47.48	1.3	355.0	0.160E-03
	Pu238		5.499	5.470	0.029				463.4	0.209E-03
2	Am243	0.480	5.276	5.258	0.018	0.03	53.83	1.3	382.1	0.172E-03
3	Pu239	0.076	5.143	5.135	0.008	0.02	8.55	5.3	60.1	0.271E-04
	Pu240		5.144	5.135	0.009				60.1	0.271E-04
		---					---			
Totals:		0.980	<--valid peaks only-->				109.86			

DETECTOR CALIBRATION
Energy(MEV) = 4.090 + (0.0046)*Channel
Energy range (MeV): 4.090 TO 6.445
Efficiency = 0.1423 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	53799.0	100.000
Smoothed	53799.0	100.000
Composite fit	52736.8	98.026
Residuals	1062.2	1.974

Analyzed by: _____
MB

Spectrum 9a1471.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 8480.5


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Raw Data Dump for AEA Spectrum: 9a1471.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.
11	0.	2.	1.	1.	0.	2.	3.	2.	1.	2.
21	2.	0.	3.	0.	2.	2.	2.	0.	1.	0.
31	1.	1.	2.	1.	3.	1.	2.	0.	2.	3.
41	3.	1.	2.	4.	1.	0.	0.	5.	1.	3.
51	2.	3.	0.	3.	4.	1.	2.	2.	2.	0.
61	1.	1.	3.	2.	3.	1.	4.	1.	0.	3.
71	2.	2.	2.	0.	2.	4.	3.	2.	3.	5.
81	4.	2.	0.	0.	2.	2.	1.	4.	1.	2.
91	4.	1.	1.	3.	2.	2.	3.	0.	1.	4.
101	0.	1.	5.	3.	4.	3.	3.	1.	1.	1.
111	5.	6.	3.	5.	5.	3.	2.	5.	4.	2.
121	0.	4.	5.	5.	3.	4.	8.	5.	9.	8.
131	6.	6.	7.	1.	5.	5.	2.	9.	3.	8.
141	6.	9.	3.	8.	6.	6.	4.	6.	7.	12.
151	12.	5.	10.	8.	6.	8.	9.	10.	12.	18.
161	14.	15.	14.	19.	9.	14.	17.	18.	18.	7.
171	18.	15.	18.	12.	19.	19.	23.	19.	21.	20.
181	29.	20.	20.	29.	22.	33.	31.	36.	33.	41.
191	35.	44.	60.	48.	63.	64.	54.	78.	72.	76.
201	85.	70.	101.	104.	127.	121.	117.	126.	119.	144.
211	149.	168.	190.	187.	190.	238.	247.	283.	294.	325.
221	339.	380.	382.	395.	412.	474.	461.	481.	517.	487.
231	463.	409.	332.	354.	368.	362.	408.	451.	472.	499.
241	552.	591.	710.	672.	752.	777.	840.	881.	962.	1047.
251	1088.	1131.	1170.	1226.	1243.	1195.	954.	758.	555.	377.
261	273.	188.	172.	180.	160.	164.	183.	174.	150.	163.
271	160.	140.	165.	172.	161.	198.	208.	236.	241.	257.
281	285.	301.	336.	368.	417.	422.	477.	539.	577.	597.
291	629.	691.	728.	769.	852.	924.	1029.	961.	1038.	1167.
301	1078.	1059.	871.	677.	511.	376.	315.	210.	180.	158.
311	136.	101.	63.	49.	37.	17.	8.	8.	3.	0.
321	1.	0.	1.	0.	1.	1.	0.	0.	0.	0.
331	1.	2.	0.	0.	1.	0.	3.	1.	2.	0.
341	0.	1.	2.	1.	4.	2.	1.	1.	2.	2.
351	2.	1.	3.	2.	0.	4.	3.	0.	5.	0.
361	0.	2.	5.	1.	1.	1.	1.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
421	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

D.H. Milian
1-6-94

Westinghouse-Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT **WHC-SD-WM-DP-062, REV. 0**

SAMPLE
J1402-5682
File ID: 10a2370.CNF

Counted on: 1/ 6/94 @ 4:17
Detector: AEA10
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1076.9	1076.9	253.666	253.666	14.000	7.621	7.000	1.435
2	7.7	7.7	151.374	150.569	34.000	46.700	17.000	5.164

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.987	5.276	5.273	0.003	0.04	59.54	1.2	426.3	0.192E-03
2	Np237	0.014	4.640	4.789	-.149	0.22	0.82	17.5	97.4	0.439E-04
	Np237		4.781	4.789	-.008				6.7	0.302E-05
Totals:		1.000	<--valid peaks only-->				60.37			

DETECTOR CALIBRATION
Energy(MEV) = 4.081 + (0.0047)*Channel
Energy range (MeV): 4.081 TO 6.488
Efficiency = 0.1411 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	28974.0	100.000
Smoothed	28974.0	100.000
Composite fit	28979.8	100.020
Residuals	-5.8	-0.020

Analyzed by: _____
ALJ

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                    Spectrum 10a2370.CNF
1 Legend:  Raw = ....  Modeled Peaks = 1,2,.., etc     Display Max.:    8045.9

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Raw Data Dump for AEA Spectrum: 10a2370.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	1.	4.
11	1.	0.	0.	0.	1.	0.	1.	1.	1.	0.
21	0.	0.	0.	1.	1.	1.	1.	0.	3.	2.
31	0.	2.	4.	0.	1.	3.	0.	0.	1.	0.
41	0.	0.	1.	0.	0.	0.	1.	2.	0.	0.
51	3.	2.	4.	1.	2.	4.	0.	2.	2.	2.
61	1.	0.	0.	1.	0.	1.	2.	0.	0.	3.
71	4.	1.	0.	4.	5.	1.	2.	0.	3.	1.
81	0.	3.	1.	3.	0.	2.	2.	3.	2.	0.
91	6.	1.	4.	1.	4.	5.	3.	4.	1.	0.
101	4.	1.	4.	4.	5.	1.	2.	2.	6.	2.
111	3.	5.	4.	3.	4.	5.	3.	2.	7.	3.
121	7.	1.	6.	6.	4.	7.	4.	7.	5.	5.
131	3.	5.	5.	7.	8.	11.	7.	4.	4.	11.
141	4.	7.	2.	7.	10.	12.	8.	14.	14.	9.
151	15.	17.	10.	10.	11.	11.	16.	8.	19.	15.
161	14.	18.	11.	20.	11.	20.	18.	14.	12.	21.
171	23.	24.	21.	15.	18.	24.	19.	28.	28.	24.
181	26.	28.	21.	37.	25.	25.	38.	34.	35.	43.
191	47.	42.	45.	39.	51.	46.	45.	52.	55.	53.
201	45.	77.	49.	86.	78.	77.	61.	80.	98.	99.
211	102.	122.	105.	94.	135.	135.	138.	156.	158.	159.
221	188.	176.	214.	241.	202.	245.	257.	270.	295.	335.
231	318.	318.	404.	397.	410.	442.	515.	513.	602.	591.
241	618.	713.	714.	780.	808.	871.	890.	914.	917.	951.
251	1060.	1089.	1070.	1172.	1094.	1080.	868.	653.	451.	313.
261	219.	146.	87.	116.	96.	85.	89.	86.	56.	45.
271	30.	18.	7.	6.	5.	1.	1.	1.	2.	0.
281	1.	1.	1.	2.	2.	2.	5.	4.	4.	2.
291	6.	4.	5.	1.	0.	5.	5.	5.	2.	7.
301	4.	4.	5.	7.	3.	4.	2.	1.	0.	2.
311	0.	0.	2.	1.	0.	0.	0.	2.	2.	0.
321	1.	1.	0.	0.	1.	0.	0.	1.	2.	1.
331	0.	2.	1.	0.	4.	1.	0.	1.	3.	0.
341	2.	0.	1.	0.	0.	0.	2.	0.	2.	1.
351	2.	2.	1.	1.	2.	4.	0.	2.	2.	1.
361	1.	2.	0.	2.	0.	1.	0.	0.	0.	1.
371	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

D.H. [illegible]
1-6-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT **WHC-SD-WM-DP-062, REV. 0**

SAMPLE
J1424-5782
File ID: 11a3343.CNF

Counted on: 1/ 6/94 @ 4:17
Detector: AEA11
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	594.6	594.6	299.500	299.500	14.000	9.342	7.000	1.727
2	1285.2	1285.2	253.440	253.337	14.000	7.423	7.000	1.442

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.339	5.480	5.481	-.0010	0.04	34.37	1.5	318.8	0.144E-0[illegible]
	Pu238		5.499	5.481	0.018				416.2	0.187E-03
2	Am243	0.683	5.276	5.269	0.007	0.03	69.26	1.1	609.9	0.275E-03
Totals:		1.022	<--valid peaks only-->				103.62			

DETECTOR CALIBRATION
Energy(MEV) = 4.103 + (0.0046)*Channel
Energy range (MeV): 4.103 TO 6.459
Efficiency = 0.1147 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	48671.0	100.000
Smoothed	48671.0	100.000
Composite fit	49742.3	102.201
Residuals	-1071.3	-2.201

Analyzed by: _____
ALJ

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-                Spectrum 11a3343.CNF
1 Legend:  Raw = ....  Modeled Peaks = 1,2,.., etc     Display Max.:   10169.8

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Raw Data Dump for AEA Spectrum: 11a3343.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	1.	4.	1.	1.	0.	0.	0.	0.	0.
21	0.	1.	1.	0.	0.	0.	1.	0.	0.	0.
31	0.	0.	0.	1.	1.	1.	0.	0.	1.	1.
41	1.	1.	0.	1.	1.	0.	2.	1.	1.	2.
51	1.	2.	0.	0.	1.	1.	1.	1.	2.	2.
61	1.	0.	1.	0.	1.	1.	0.	0.	0.	0.
71	0.	0.	2.	2.	0.	3.	0.	2.	0.	0.
81	2.	2.	1.	3.	0.	2.	2.	0.	3.	0.
91	0.	2.	0.	1.	1.	0.	0.	3.	1.	0.
101	2.	0.	1.	0.	1.	1.	4.	3.	0.	2.
111	3.	1.	0.	0.	0.	0.	6.	2.	3.	4.
121	1.	0.	3.	3.	3.	6.	2.	3.	3.	3.
131	4.	6.	7.	6.	2.	2.	2.	3.	2.	3.
141	2.	5.	3.	6.	2.	1.	6.	4.	6.	4.
151	10.	3.	4.	5.	8.	7.	5.	8.	9.	7.
161	9.	6.	13.	10.	10.	10.	9.	8.	9.	17.
171	14.	12.	18.	11.	12.	21.	13.	17.	13.	16.
181	18.	15.	21.	21.	22.	22.	23.	16.	23.	33.
191	26.	27.	26.	31.	34.	30.	38.	44.	41.	40.
201	37.	50.	48.	65.	53.	67.	64.	87.	74.	93.
211	96.	87.	130.	144.	141.	141.	144.	151.	172.	174.
221	195.	197.	224.	222.	242.	255.	282.	316.	316.	377.
231	392.	470.	473.	513.	545.	522.	597.	663.	719.	798.
241	818.	858.	907.	972.	1044.	1150.	1109.	1227.	1231.	1140.
251	1350.	1355.	1419.	1435.	1368.	1274.	1169.	855.	549.	398.
261	275.	205.	200.	171.	180.	156.	148.	142.	137.	162.
271	142.	117.	151.	152.	165.	156.	174.	202.	206.	243.
281	239.	252.	264.	305.	327.	310.	339.	403.	421.	427.
291	491.	450.	558.	512.	556.	546.	556.	617.	607.	633.
301	607.	573.	505.	393.	281.	207.	173.	125.	96.	85.
311	62.	46.	29.	26.	17.	8.	6.	2.	2.	0.
321	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
331	0.	0.	0.	0.	1.	2.	1.	0.	0.	0.
341	1.	1.	2.	2.	1.	2.	2.	0.	1.	1.
351	2.	4.	6.	1.	2.	0.	1.	3.	1.	5.
361	5.	2.	2.	6.	3.	6.	4.	3.	0.	2.
371	2.	3.	0.	0.	1.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
411	0.	1.	0.	0.	0.	2.	0.	0.	0.	0.
421	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
431	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
441	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

D. H. Milici
1-6-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J1424-5782
File ID: 12a4331.CNF

Counted on: 1/ 6/94 @ 4:18
Detector: AEA12
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	630.7	630.7	293.053	293.053	22.000	16.769	11.000	2.179
2	1242.6	1242.6	247.418	247.018	22.000	14.449	11.000	2.471

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
	Am241	0.397	5.480	5.477	0.003	0.08	50.89	1.3	399.9	0.180E-03
	Pu238		5.499	5.477	0.022				522.0	0.235E-03
2	Am243	0.635	5.276	5.261	0.015	0.07	81.47	1.1	607.8	0.274E-03
	Pu240		5.144	5.261	-.117				601.7	0.271E-03
Totals:		1.032	<--valid peaks only-->				132.37			

DETECTOR CALIBRATION
Energy(MEV) = 4.100 + (0.0047)*Channel
Energy range (MeV): 4.100 TO 6.506
Efficiency = 0.1354 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	61550.0	100.000
Smoothed	61550.0	100.000
Composite fit	63542.9	103.238
Residuals	-1992.9	-3.238

Analyzed by: _____
ALJ

Spectrum 12a4331.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 10688.5


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Raw Data Dump for AEA Spectrum: 12a4331.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
11	2.	1.	0.	0.	1.	1.	0.	1.	0.	0.
21	1.	1.	0.	0.	1.	0.	0.	1.	1.	1.
31	1.	1.	0.	1.	0.	3.	1.	1.	0.	0.
41	0.	1.	0.	0.	0.	1.	0.	1.	1.	0.
51	0.	0.	1.	3.	3.	0.	1.	0.	2.	1.
61	0.	0.	0.	0.	0.	2.	0.	1.	1.	1.
71	0.	3.	0.	1.	1.	1.	2.	1.	0.	0.
81	1.	1.	1.	0.	0.	0.	0.	1.	1.	0.
91	1.	1.	3.	0.	1.	0.	2.	1.	0.	1.
101	0.	2.	0.	0.	1.	0.	1.	2.	0.	1.
111	0.	0.	1.	0.	4.	1.	0.	0.	3.	2.
121	1.	2.	2.	2.	2.	1.	1.	1.	1.	1.
131	1.	1.	1.	1.	3.	1.	7.	1.	1.	5.
141	5.	2.	0.	3.	2.	0.	2.	4.	1.	3.
151	2.	3.	2.	2.	3.	6.	2.	3.	1.	2.
161	1.	5.	4.	7.	6.	7.	10.	10.	16.	7.
171	10.	7.	8.	17.	8.	17.	9.	20.	12.	11.
181	18.	19.	24.	20.	17.	30.	34.	32.	34.	32.
191	25.	41.	33.	49.	46.	51.	55.	72.	60.	87.
201	81.	88.	91.	86.	117.	117.	129.	135.	140.	150.
211	183.	194.	210.	251.	252.	281.	327.	294.	352.	358.
221	405.	458.	492.	487.	560.	606.	631.	649.	775.	810.
231	901.	902.	935.	1033.	1064.	1090.	1143.	1222.	1260.	1267.
241	1304.	1437.	1333.	1392.	1293.	1429.	1337.	1406.	1388.	1339.
251	1274.	1264.	1186.	1027.	794.	608.	431.	346.	263.	241.
261	216.	183.	235.	206.	222.	223.	216.	237.	242.	251.
271	287.	283.	331.	339.	348.	359.	358.	376.	440.	469.
281	453.	540.	549.	570.	539.	581.	608.	578.	614.	601.
291	620.	615.	665.	652.	610.	589.	550.	555.	491.	435.
301	355.	261.	203.	141.	106.	79.	73.	60.	37.	43.
311	18.	10.	5.	5.	2.	1.	0.	1.	1.	1.
321	2.	1.	0.	1.	2.	1.	1.	1.	0.	1.
331	0.	0.	0.	0.	0.	4.	1.	1.	3.	1.
341	2.	0.	5.	2.	4.	4.	2.	9.	8.	3.
351	1.	7.	2.	5.	5.	2.	4.	6.	6.	4.
361	0.	3.	5.	2.	2.	2.	5.	2.	2.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
401	2.	0.	0.	0.	1.	1.	0.	0.	0.	0.
411	0.	0.	0.	0.	1.	1.	0.	0.	1.	0.
421	0.	0.	2.	0.	1.	1.	1.	2.	4.	3.
431	3.	0.	0.	2.	2.	0.	0.	0.	0.	1.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J 1424-5782
File ID: 3a3574.CNF

Counted on: 1/ 6/94 @13:47
Detector: AEA3
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	472.0	472.0	302.716	302.716	20.000	11.851	10.000	3.001
2	1043.2	1043.2	257.131	257.077	16.000	9.378	8.000	2.278

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.310	5.480	5.468	0.012	0.05	23.59	1.8	184.3	0.830E-04
	Pu238		5.499	5.468	0.031				240.6	0.108E-03
2	Am243	0.666	5.276	5.259	0.017	0.04	50.74	1.3	376.3	0.170E-03
Totals:		0.975	<--valid peaks only-->				74.33			

DETECTOR CALIBRATION
Energy(MEV) = 4.076 + (0.0046)*Channel
Energy range (MeV): 4.076 TO 6.431
Efficiency = 0.1362 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	36590.0	100.000
Smoothed	36590.0	100.000
Composite fit	35680.0	97.513
Residuals	910.0	2.487

Analyzed by: _____
MB

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 7011.2


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Raw Data Dump for AEA Spectrum: 3a3574.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
21	0.	2.	1.	0.	0.	0.	0.	1.	0.	0.
31	0.	0.	0.	3.	1.	1.	0.	0.	1.	2.
41	0.	0.	0.	1.	0.	0.	0.	0.	0.	2.
51	1.	0.	0.	0.	0.	1.	1.	0.	0.	0.
61	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
81	1.	1.	0.	0.	1.	2.	0.	1.	3.	0.
91	1.	1.	2.	2.	2.	1.	2.	2.	0.	3.
101	0.	1.	2.	1.	0.	1.	1.	5.	2.	1.
111	1.	0.	1.	3.	1.	1.	0.	2.	3.	2.
121	0.	1.	2.	0.	2.	4.	3.	4.	3.	2.
131	2.	7.	2.	2.	7.	3.	2.	4.	5.	5.
141	4.	4.	3.	7.	9.	1.	8.	8.	2.	3.
151	6.	6.	3.	3.	6.	7.	7.	6.	5.	5.
161	8.	12.	10.	9.	7.	8.	6.	5.	8.	0.
171	13.	16.	13.	12.	10.	12.	11.	13.	16.	14.
181	20.	12.	15.	25.	27.	18.	19.	12.	23.	12.
191	18.	24.	24.	30.	30.	21.	30.	38.	26.	38.
201	33.	41.	34.	33.	39.	51.	40.	34.	43.	59.
211	55.	54.	67.	75.	76.	54.	80.	82.	100.	90.
221	95.	107.	111.	127.	127.	130.	132.	145.	157.	174.
231	210.	214.	221.	268.	275.	266.	318.	322.	341.	365.
241	399.	422.	487.	525.	574.	620.	636.	725.	734.	800.
251	864.	793.	1002.	1021.	1036.	1177.	1112.	1141.	1061.	970.
261	837.	685.	508.	375.	282.	228.	170.	160.	142.	118.
271	129.	112.	95.	97.	86.	99.	103.	103.	104.	92.
281	102.	104.	131.	143.	160.	162.	176.	231.	194.	242.
291	270.	264.	296.	295.	313.	341.	407.	394.	453.	479.
301	469.	522.	484.	487.	464.	420.	330.	274.	273.	191.
311	146.	124.	84.	86.	56.	47.	31.	30.	11.	8.
321	6.	5.	3.	1.	0.	0.	0.	1.	2.	2.
331	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
341	4.	0.	2.	1.	3.	2.	1.	2.	2.	1.
351	2.	2.	2.	0.	0.	2.	3.	3.	4.	0.
361	5.	3.	6.	8.	3.	2.	2.	3.	3.	2.
371	1.	2.	5.	2.	1.	1.	1.	1.	0.	0.
381	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
421	0.	0.	0.	0.	0.	0.	1.	0.	1.	1.
431	0.	0.	1.	1.	2.	0.	2.	1.	0.	0.
441	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

SHH-M Mallea
1-5-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT WHC-SD-WM-DP-062, REV. 0

SAMPLE
J1424-5982
File ID: 5a5004.CNF

Counted on: 1/ 6/94 @ 6:49
Detector: AEA5
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1114.3	1114.3	299.416	299.416	20.000	17.610	10.000	3.984
2	1652.5	1652.5	253.533	253.395	22.000	15.741	11.000	3.762
3	28.4	28.4	153.645	153.356	110.000	1.000	55.000	0.100
4?	5.8	5.8	106.486	106.118	14.000	1.727	7.000	6.983
5?	5.8	5.8	98.530	98.102	8.000	1.308	4.000	0.550

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.399	5.480	5.496	-.016	0.08	64.95	1.1	508.8	0.229E-03
	Pu238		5.499	5.496	0.003				664.2	0.299E-03
2	Am243	0.560	5.276	5.279	-.003	0.07	91.11	1.0	677.7	0.305E-03
	Pu240		5.144	5.279	-.135				670.9	0.302E-03
3	Np237	0.014	4.781	4.809	-.028	0.00	2.26	6.1	19.1	0.860E-05
4		????		4.587			0.08	105.		
5		????		4.549			0.14	54.2		
Totals:		0.973	<--valid peaks only-->				158.31			

DETECTOR CALIBRATION
Energy(MEV) = 4.088 + (0.0047)*Channel
Energy range (MeV): 4.088 TO 6.495
Efficiency = 0.1358 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	78081.0	100.000
Smoothed	78081.0	100.000
Composite fit	76102.0	97.465
Residuals	1979.0	2.535

Analyzed by: _____

Spectrum 5a5004.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 13193.9


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Raw Data Dump for AEA Spectrum: 5a5004.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	5.	2.	4.
21	11.	5.	4.	2.	4.	4.	4.	4.	5.	4.
31	2.	2.	0.	8.	6.	4.	4.	3.	1.	4.
41	8.	7.	10.	6.	13.	3.	7.	8.	4.	6.
51	5.	6.	6.	9.	4.	6.	6.	3.	8.	6.
61	10.	2.	6.	3.	6.	7.	4.	7.	7.	8.
71	6.	4.	7.	7.	11.	5.	8.	7.	6.	7.
81	6.	4.	8.	5.	6.	4.	13.	8.	6.	8.
91	3.	13.	6.	4.	8.	9.	10.	16.	16.	8.
101	9.	8.	15.	6.	12.	17.	9.	14.	11.	8.
111	7.	11.	10.	13.	14.	16.	5.	12.	9.	14.
121	15.	14.	11.	15.	19.	17.	18.	17.	13.	9.
131	14.	10.	17.	16.	12.	26.	18.	14.	18.	21.
141	22.	13.	22.	16.	23.	27.	17.	28.	16.	33.
151	30.	37.	23.	37.	32.	26.	28.	23.	30.	28.
161	37.	25.	32.	42.	27.	30.	29.	39.	31.	43.
171	29.	40.	34.	35.	36.	56.	38.	42.	52.	41.
181	38.	54.	39.	41.	67.	56.	59.	59.	64.	43.
191	60.	59.	70.	82.	65.	84.	83.	76.	88.	72.
201	81.	83.	102.	100.	112.	102.	132.	95.	103.	143.
211	133.	140.	154.	166.	165.	176.	187.	218.	185.	209.
221	206.	223.	228.	286.	297.	352.	313.	329.	385.	378.
231	393.	522.	522.	570.	579.	590.	721.	707.	796.	916.
241	920.	1052.	1111.	1174.	1342.	1354.	1452.	1513.	1570.	1721.
251	1680.	1765.	1825.	1760.	1824.	1604.	1526.	1396.	1279.	1109.
261	990.	849.	705.	570.	511.	440.	393.	337.	311.	301.
271	281.	266.	303.	239.	286.	280.	325.	326.	322.	367.
281	396.	420.	392.	464.	556.	599.	618.	651.	757.	766.
291	823.	911.	946.	961.	1075.	1154.	1117.	1200.	1133.	1129.
301	1132.	1126.	1010.	885.	809.	718.	642.	490.	464.	372.
311	277.	225.	186.	136.	99.	82.	54.	46.	19.	25.
321	24.	4.	6.	4.	2.	1.	2.	3.	0.	1.
331	1.	1.	4.	0.	0.	0.	3.	2.	0.	2.
341	2.	3.	3.	3.	0.	2.	2.	5.	4.	3.
351	3.	2.	6.	1.	3.	1.	2.	1.	7.	2.
361	2.	1.	1.	1.	5.	3.	4.	6.	3.	0.
371	1.	1.	0.	1.	0.	1.	0.	0.	0.	1.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	1.	0.	0.	0.	0.	1.	2.	0.	1.
421	1.	1.	0.	0.	0.	1.	0.	1.	0.	2.
431	0.	0.	2.	0.	0.	0.	0.	0.	0.	1.
441	1.	0.	0.	1.	1.	0.	0.	0.	0.	0.
451	1.	0.	0.	0.	1.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
471	0.	1.	0.	1.	1.	0.	0.	1.	0.	0.
481	1.	1.	0.	3.	1.	1.	2.	1.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J 1424-5982
File ID: 2a2512.CNF

Counted on: 1/ 6/94 @13:46
Detector: AEA2
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	975.3	975.3	293.616	293.616	28.000	25.881	14.000	3.768
2	1351.1	1351.1	247.706	247.290	26.000	24.505	13.000	3.709
3?	8.4	8.4	126.461	128.025	12.000	0.849	6.000	0.038

PEAK RESULTS
Peak Error Limit: 25%

Peak I	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.428	5.480	5.467	0.013	0.12	79.00	1.0	630.0	0.284E-03
	Pu238		5.499	5.467	0.032				822.5	0.370E-03
2	Am243	0.573	5.276	5.249	0.027	0.12	105.77	1.0	800.9	0.361E-03
	Pu240		5.144	5.249	-.105				792.9	0.357E-03
3		????		4.688			1.16	10.7		
Totals:		1.001	<--valid peaks only-->				184.77			

DETECTOR CALIBRATION
Energy(MEV) = 4.087 + (0.0047)*Channel
Energy range (MeV): 4.087 TO 6.493
Efficiency = 0.1334 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	88569.0	100.000
Smoothed	88569.0	100.000
Composite fit	89249.7	100.769
Residuals	-680.7	-0.769

Analyzed by: _____
MB

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                    Spectrum 2a2512.CNF
1 Legend:  Raw = ....  Modeled Peaks = 1,2,.., etc     Display Max.:    11261.8

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............1...........2...............
....2.............1...
.......................1
.................................1.
.........................................1.
.................................1
...............1
..1
```

Raw Data Dump for AEA Spectrum: 2a2512.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	6.	3.	1.	3.
21	7.	1.	2.	3.	2.	1.	4.	5.	3.	4.
31	1.	3.	2.	6.	8.	2.	1.	5.	7.	4.
41	3.	2.	7.	2.	4.	2.	6.	3.	8.	2.
51	8.	11.	3.	3.	3.	9.	3.	2.	8.	8.
61	10.	7.	4.	4.	6.	1.	4.	9.	5.	5.
71	7.	10.	7.	13.	8.	6.	1.	4.	5.	7.
81	12.	12.	8.	4.	10.	4.	2.	11.	8.	9.
91	8.	4.	13.	10.	6.	10.	11.	7.	14.	10.
101	12.	9.	9.	13.	18.	14.	6.	9.	11.	16.
111	12.	10.	10.	18.	10.	19.	13.	13.	13.	22.
121	13.	16.	14.	10.	26.	20.	9.	21.	20.	13.
131	13.	20.	12.	11.	22.	12.	16.	22.	24.	21.
141	21.	31.	23.	18.	22.	26.	23.	36.	13.	22.
151	30.	31.	29.	23.	36.	31.	29.	33.	31.	37.
161	41.	44.	33.	38.	37.	49.	49.	63.	52.	52.
171	62.	51.	73.	69.	59.	82.	67.	69.	83.	86.
181	81.	81.	85.	85.	87.	95.	107.	116.	112.	129.
191	157.	150.	155.	135.	138.	155.	168.	173.	183.	174.
201	197.	224.	230.	256.	268.	267.	295.	319.	298.	345.
211	376.	364.	359.	392.	453.	448.	489.	489.	536.	583.
221	579.	624.	659.	640.	684.	672.	764.	790.	842.	866.
231	950.	921.	972.	1013.	1025.	1111.	1163.	1160.	1224.	1242.
241	1311.	1330.	1388.	1490.	1445.	1552.	1628.	1528.	1487.	1494.
251	1451.	1391.	1401.	1233.	1148.	1115.	1038.	956.	836.	744.
261	648.	599.	531.	474.	446.	437.	403.	432.	374.	467.
271	385.	418.	462.	442.	535.	517.	558.	578.	606.	586.
281	618.	700.	716.	770.	828.	842.	825.	920.	937.	995.
291	985.	967.	1024.	965.	1019.	941.	906.	889.	834.	786.
301	726.	645.	570.	488.	392.	384.	334.	242.	220.	154.
311	125.	92.	61.	54.	27.	32.	26.	17.	11.	5.
321	9.	4.	2.	6.	3.	0.	1.	1.	1.	2.
331	1.	2.	4.	5.	0.	2.	2.	3.	6.	4.
341	4.	8.	3.	3.	1.	5.	5.	6.	2.	1.
351	3.	8.	3.	5.	4.	1.	4.	3.	3.	3.
361	1.	1.	1.	3.	5.	1.	2.	3.	3.	1.
371	1.	2.	1.	1.	1.	0.	0.	0.	1.	0.
381	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	1.	2.	0.	0.	0.	0.	0.
401	1.	1.	0.	0.	0.	0.	1.	0.	0.	1.
411	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
421	0.	0.	0.	0.	1.	3.	0.	1.	0.	1.
431	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
441	2.	1.	0.	0.	0.	0.	0.	0.	1.	0.
451	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
461	0.	0.	2.	1.	1.	0.	1.	0.	0.	1.
471	1.	1.	0.	1.	0.	3.	1.	1.	2.	1.
481	1.	0.	2.	1.	0.	1.	0.	1.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

2395

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

WHC-SD-WM-DP-062, REV. 0

Lab Segment Serial No. J1425	Customer ID: KEDHA
Analysis: Am 241	Sample Prep: Direct

Instrument: WB 537237	Procedure/ Rev: LA-503-156 D-0
Technologist: Teresa Mix	Date: 1-5-94
Starting Time: 1800	Temperature 25°C
Ending Time: 0100	Chemist: L. Fritts

Comments:

	Description	Lab ID		Description	Lab ID
1	LMCS	J1415-5582	11		
2	Blank	J1416-5682	12		
3	Sample	J1425-5782	13		
4	Sample dup.	J1425-5782	14		
5	Sample trip.	J1425-5782	15		
6	Spike	J1425-5982	16		
7	Spike dup	J1425-5982	17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	63B43	100-10-1ml		
Spike	78B43	100 ml		

A-6000-881 (03/92)

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-503-156

DATE START: January 5, 1994

PREPARED BY: L.L. Fritts 1-13-94

DATE COMPLETE: January 13, 1994

	UNITS:	uCi/mL									
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	RESULT #3	AVERAGE	2*SD	PREC	%REC	DET LIM	% CT ER
STD 63B43	J1415	Am-241	3.31E+1						123.5	1.71E-3	5.4
BLANK	J1416	Am-241	<3.73E-3						3.1	3.73E-3	58.6
KE64A	J1425	Am-241	2.82E-2	2.53E-2	2.24E-2	2.53E-2	5.80E-3	22.9	33.1	3.73E-3	6.0
									57.5	3.73E-3	4.7
									7.6	3.73E-3	8.9
KE64A	J1425	241 Spike	101.4	104.9							

NARRATIVE: [X] NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH

LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in uCi/L.

The results for the spike are in percent recovery.

41084 Batch 2395

Serial No	Sample Point	Date	Time Issued	Priority
J 1415.-5582	BECHTOLD	12-15-93	11:23	22

Determination	Method-Standard	Result Units	Charge Code	Returns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? .100ml - 10 - 1ml	STD

Remarks, Calculations, Results

EDP R201 AR001

STD# 63B43 RESULT 3.31 E+1

STD VAL 2.679 E+1 %REC 123.5

.100ml 78B43

"AEA" - 480MIN
ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs 1-6-94	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr.
1-5-94	01:00	

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			STANDARD
Serial No.	Spike (Tracer) Book Number		78B43
J1415-5582	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2395	Volume of Sample in mL	(SS)	1
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	683
T MIX	Am-243 Area Peak Height from AEA	(C243)	708
Date	Total AT Count	(ATOT)	6832
01/05/94	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	1

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))

µCi/mL = µCi/L / (1000mL/L)

Tracer % Rec = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

Am-241 µCi/L	=	3.31E+01
Am-241 µCi/mL	=	3.31E-02
Relative counting error	=	5.4%
Am-243 Tracer Recovery	=	30.6%

Data Entry by:		Date:	11-Jan-94
Approved by:		Date:	13 Jan 1994

Form 3 Rev. 1.2

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#2 1-6-94 AJ

WHC-SD-WM-DP-062, REV. 0

6832-1
30

J1415-5582

PLACE ANALYTICAL DATA IN BOX BELOW. DO NOT WRITE IN SPACE

16914

Serial No.	Sample Point	Date	Time Issued	Priority
J 1416.-5682	BECHTOLD	12-15-93	11:24	22

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? ~~1ml~~ 1ml-10ml-.05ml	BLK

Remarks, Calculations, Results

REAGENT BLANK

COUNT AS uCi/L

.100 ml 78B43 $< 3.73 \times 10^{-3}$ uCi/ml

1.13.94 "AEA" - 480MIN ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa M	[illegible]	Eric Bach		
Hrs	Hrs 1-6-94	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr.	
1-5-94	01:00	[illegible]	[illegible]

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			BLANK
Serial No.	Spike (Tracer) Book Number		78B43
J1416-5682	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2395	Volume of Sample in mL	(SS)	0.05
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	3
T MIX	Am-243 Area Peak Height from AEA	(C243)	100
Date	Total AT Count	(ATOT)	449
01/05/94	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	3

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))

µCi/mL = µCi/L / (1000mL/L)

Tracer % Rec = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

NOTE: Reported result is a LESS THAN value using 5% of the Am-243 peak as the Am-241 peak.

Am-241 µCi/L	=	< 3.73E+00
Am-241 µCi/mL	=	< 3.73E-03
Relative counting error	=	58.6%
Am-243 Tracer Recovery	=	3.1%

Data Entry by:	[illegible]	Date:	13-Jan-94
Approved by:	[illegible]	Date:	13 Jan 1994

Form 3 Rev. 1.2

Page 1 of 1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 1-6-94 AJ

WHC-SD-WM-DP-062, REV. 0

449/30 -3

J1416-5682

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#7442

Serial No.	Sample Point	Date	Time Issued	Priority
J 1425.-5782	BECHTOLD	12-16-93	13:17	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? 1ml - 10ml - .050ml	KE64A

Remarks, Calculations, Results

COUNT AS uCI/L SAm

"AEA" - 480MIN
ATTACH PRINTOUT

.100ml 78B43 2.82×10^{-2} uCi/ml

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa M	1-6-94	Em Bauer		
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr.	
1-5-93	01:00		

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1425-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2395	Volume of Sample in mL	(SS)	0.05
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	380
T MIX	Am-243 Area Peak Height from AEA	(C243)	1005
Date	Total AT Count	(ATOT)	5365
01/05/94	AT Count Time in Minutes	(MIN CT'd)	30
	Background in CPM	(BKG)	7

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))
µCi/mL = µCi/L / (1000mL/L)
Tracer % Rec = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

Am-241 µCi/L	=	2.82E+01
Am-241 µCi/mL	=	2.82E-02
Relative counting error	=	6.0%
Am-243 Tracer Recovery	=	33.1%

Data Entry by:	Date: 13-Jan-94
Approved by:	Date: 13 Jan 1994

Form 3 Rev. 1.2

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 1-6-94 AJ

5365/30 -7

WHC-SD-WM-DP-062, REV. 0

J1425-5782

7656

Serial No	Sample Point	Date	Time Issued	Priority
J 1425.-5782	BECHTOLD	12-16-93	13:17	22

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? 1ml - 10ml - .050ml	KE64A

Remarks, Calculations, Results

COUNT AS uCI/L

Dup

"AEA" - 480MIN
ATTACH PRINTOUT

.100 ml 78B43

2.53×10^{-2} uCi/ml

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs 1-6-94	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-5-94	01:00	

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1425-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2395	Volume of Sample in mL	(SS)	0.05
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	617
T MIX	Am-243 Area Peak Height from AEA	(C243)	1822
Date	Total AT Count	(ATOT)	8737
01/05/94	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	1

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))
µCi/mL = µCi/L / (1000mL/L)
Tracer % Rec = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

Am-241 µCi/L	=	2.53E+01
Am-241 µCi/mL	=	2.53E-02
Relative counting error	=	4.7%
Am-243 Tracer Recovery	=	57.5%

Data Entry by:		Date:	11-Jan-94
Approved by:		Date:	13 Jan 1994

Form 3 Rev. 1.2

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#2 1-6-94 AB

WHC-SD-WM-DP-062, REV. 0

8737/30 -1

J1425-5782

ID 2371

Serial No	Sample Point	Date	Time Issued	Priority
J 1425.-5782	BECHTOLD	12-16-93	13:17	22

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? 1ml - 10ml - .050ml	KE64A

Remarks, Calculations Results

COUNT AS uCI/L TRIP

.100ml 78B43

"AEA" - 480MIN
ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0 2.24×10^{-2} uCi/ml

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa Mix	[illegible]	[illegible]		
Hrs	Hrs	Hrs	Hrs	Hrs
	1-6-94			

Date	Time Completed	Lab Unit Mgr	
1-5-94	01:00	[illegible]	[illegible]

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1425-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2395	Volume of Sample in mL	(SS)	0.05
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	165
T MIX	Am-243 Area Peak Height from AEA	(C243)	551
Date	Total AT Count	(ATOT)	1206
01/05/94	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	3

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))

µCi/mL = µCi/L / (1000mL/L)

Tracer % Rec = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

Am-241 µCi/L	=	2.24E+01
Am-241 µCi/mL	=	2.24E-02
Relative counting error	=	8.9%
Am-243 Tracer Recovery	=	7.6%

Data Entry by:	[illegible]	Date:	11-Jan-94
Approved by:	[illegible]	Date:	13 Jan 1994

Form 3 Rev. 1.2

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 1-6-94 AG

WHC-SD-WM-DP-062, REV. 0

1206/30 - 3

J1425-5782

LABORATORY DATA SHEET RECEIVED NOT WRITE IN SPACE

11 3344

Serial No	Sample Point	Date	Time Issued	Priority
J 1425.-5982	BECHTOLD	12-16-93	13:17	22

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? 1ml-10ml-.050ml	KE64A

Remarks Calculations Results

SAMPLE SPIKED ID 63B43 SK, 100ml-10ml-1ml

SPIKE ID 78B43

SPIKE VOLUME .200 ml

COUNT AS uCI/L

"AEA" - 480MIN

ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

101.4%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa M	1-6-94	Em Barela		
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit No.	
1-5-94	01:00		

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			CHK EXT NO.
Serial No.	Spike (Tracer) Book Number		78B43
J1425-5982	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.2
2395	Volume of Sample in mL	(SS)	0.05
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	1482
T MIX	Am-243 Area Peak Height from AEA	(C243)	2533
Date	Total AT Count	(ATOT)	10947
01/05/94	AT Count Time in Minutes	(MIN CT'd)	30
	Background in CPM	(BKG)	7

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))

µCi/mL = µCi/L / (1000mL/L)

Tracer % Rec = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

$$\frac{(87.4-28.2)\left(\frac{101}{1}\Big/\frac{11}{.05}\right)(100)}{26.796} = 101.4\%$$

2.10.94

Am-241 µCi/L	=	8.74E+01
Am-241 µCi/mL	=	8.74E-02
Relative counting error	=	3.3%
Am-243 Tracer Recovery	=	30.0%

Data Entry by:		Date:	12-Jan-94
Approved by:		Date:	13 Jan 1994

Form 3 Rev. 1.2

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 1-6-94 AJ

10947-7
30

WHC-SD-WM-DP-062, REV. 0

J1425-5982

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

ID 4332

Serial No	Sample Point	Date	Time Issued	Priority
J 1425 -5982	BECHTOLD	12-16-93	13:17	22

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
1ml-10ml-.050ml	KE64A

Remarks, Calculations, Results:
SAMPLE SPIKED ID 63843 spike 1ml-10ml-1ml
SPIKE ID 78843
SPIKE VOLUME
COUNT AS uCI/L .200ml

"AEA" - 480MIN
ATTACH PRINTOUT

104.9%

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa M	[illegible]	[illegible]		
Hrs	Hrs 1-6-94	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-5-94	01:00	[illegible]	[illegible]

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

Serial No.			CHK EXT NO.
	Spike (Tracer) Book Number		78843
J1425-5982	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.2
2395	Volume of Sample in mL	(SS)	0.05
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	1903
T MIX	Am-243 Area Peak Height from AEA	(C243)	3287
Date	Total AT Count	(ATOT)	12711
01/05/94	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	3

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))
µCi/mL = µCi/L / (1000mL/L)
Tracer % Rec = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

[illegible] 2.10.94

$$\frac{(86.5-25.3)\left(\frac{101}{1}\Big/\frac{11}{.05}\right)(100)}{26.796} = 104.9\%$$

Am-241 µCi/L	=	8.65E+01
Am-241 µCi/mL	=	8.65E-02
Relative counting error	=	2.9%
Am-243 Tracer Recovery	=	35.4%

Data Entry by:	[illegible]	Date:	12-Jan-94
Approved by:	[illegible]	Date:	13 Jan 1994

Form 3 Rev. 1.2

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 1-6-94 AG

WHC-SD-WM-DP-062, REV. 0

12711/30 -3

J1425-5982

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT **WHC-SD-WM-DP-062, REV. 0**

SAMPLE
J 1415-5582
File ID: 4a4084.CNF

Counted on: 1/ 6/94 @13:48
Detector: AEA4
Geometry number: 1
Count time: 28806. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	588.4	588.4	302.811	302.811	14.000	6.736	7.000	1.472
2	590.8	590.8	257.547	257.451	14.000	5.467	7.000	1.130
3	13.3	13.3	159.863	159.661	90.000	361.273	45.000	104.562

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.476	5.499	5.507	-.008	0.03	28.80	1.7	538.3	0.242E-03
	Am241		5.480	5.507	-.027				412.3	0.186E-03
2	Am243	0.481	5.276	5.293	-.017	0.03	29.13	1.7	396.0	0.178E-03
3	Np237	0.042	4.640	4.834	-.194	1.70	2.51	20.9	564.0	0.254E-03
	Np237		4.781	4.834	-.053				38.9	0.175E-04
Totals:		0.999	<--valid peaks only-->				60.44			

DETECTOR CALIBRATION
Energy(MEV) = 4.083 + (0.0047)*Channel
Energy range (MeV): 4.083 TO 6.490
Efficiency = 0.0743 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	29046.0	100.000
Smoothed	29046.0	100.000
Composite fit	29016.1	99.897
Residuals	29.9	0.103

Analyzed by: _____
MB

Spectrum 4a4084.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 4093.0


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Raw Data Dump for AEA Spectrum: 4a4084.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	2.	2.	0.
21	2.	0.	1.	2.	0.	1.	1.	1.	3.	3.
31	2.	0.	2.	1.	1.	1.	1.	6.	0.	3.
41	0.	1.	4.	1.	3.	1.	3.	5.	1.	6.
51	0.	3.	3.	4.	4.	4.	4.	7.	3.	4.
61	5.	1.	2.	2.	2.	6.	7.	3.	1.	3.
71	6.	1.	3.	3.	2.	3.	3.	7.	4.	6.
81	5.	5.	2.	4.	3.	3.	1.	2.	9.	7.
91	2.	8.	3.	4.	6.	4.	4.	6.	8.	3.
101	5.	6.	2.	7.	11.	4.	4.	8.	6.	6.
111	4.	5.	4.	4.	3.	8.	2.	4.	6.	2.
121	9.	8.	5.	4.	8.	9.	3.	5.	2.	11.
131	8.	10.	12.	10.	12.	9.	7.	10.	11.	11.
141	8.	8.	7.	11.	9.	10.	14.	11.	10.	19.
151	15.	13.	14.	17.	15.	8.	10.	15.	10.	22.
161	17.	8.	16.	9.	12.	15.	16.	13.	25.	11.
171	16.	21.	20.	15.	24.	13.	23.	28.	18.	20.
181	18.	27.	29.	22.	20.	37.	18.	27.	26.	24.
191	28.	20.	28.	27.	36.	33.	31.	31.	32.	29.
201	34.	35.	40.	37.	39.	37.	48.	51.	39.	53.
211	49.	45.	58.	48.	67.	68.	64.	59.	58.	77.
221	75.	103.	87.	90.	97.	91.	100.	98.	128.	126.
231	148.	168.	165.	168.	189.	201.	196.	266.	253.	277.
241	276.	273.	326.	343.	348.	350.	380.	429.	419.	378.
251	397.	457.	468.	540.	612.	607.	708.	708.	660.	574.
261	430.	322.	219.	158.	120.	106.	106.	92.	89.	98.
271	98.	108.	112.	101.	102.	118.	105.	123.	155.	168.
281	167.	149.	191.	208.	238.	267.	279.	260.	302.	329.
291	342.	336.	383.	380.	402.	382.	394.	455.	495.	552.
301	557.	620.	683.	594.	555.	464.	344.	226.	166.	106.
311	87.	79.	37.	39.	30.	28.	17.	13.	4.	4.
321	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
351	0.	0.	0.	2.	0.	1.	1.	0.	0.	0.
361	1.	1.	2.	0.	1.	1.	0.	1.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
471	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J 1416-5682
File ID: 6a6914.CNF

Counted on: 1/ 6/94 @13:48
Detector: AEA6
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	85.1	85.1	255.164	255.164	22.000	18.278	11.000	4.768

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.919	5.276	5.290	-.014	0.09	4.68	4.1	33.2	0.150E-04
	Pu240		5.144	5.290	-.146				32.9	0.148E-04
Totals:		0.919	<--valid peaks only-->				4.68			

DETECTOR CALIBRATION
Energy(MEV) = 4.091 + (0.0047)*Channel
Energy range (MeV): 4.091 TO 6.497
Efficiency = 0.1423 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	2445.0	100.000
Smoothed	2446.8	100.072
Composite fit	2247.8	91.934
Residuals	197.2	8.066

Analyzed by: _____
MB

Spectrum 6a6914.CNT

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 650.9


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Raw Data Dump for AEA Spectrum: 6a6914.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
41	0.	0.	1.	1.	0.	0.	1.	0.	0.	1.
51	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
61	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
71	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
81	0.	0.	1.	0.	1.	0.	0.	1.	1.	0.
91	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.
101	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
111	0.	0.	0.	0.	0.	0.	0.	1.	1.	2.
121	0.	0.	0.	2.	0.	0.	1.	0.	0.	0.
131	0.	1.	0.	1.	0.	0.	0.	0.	0.	1.
141	1.	0.	1.	0.	1.	0.	0.	2.	1.	0.
151	1.	0.	0.	0.	2.	1.	1.	0.	1.	2.
161	0.	1.	0.	1.	0.	1.	1.	0.	1.	3.
171	0.	1.	1.	1.	0.	1.	1.	3.	1.	0.
181	1.	0.	0.	2.	2.	3.	2.	0.	1.	1.
191	1.	0.	2.	3.	0.	1.	2.	1.	4.	5.
201	0.	5.	1.	2.	2.	1.	6.	5.	5.	2.
211	4.	4.	5.	0.	8.	2.	2.	3.	3.	5.
221	8.	5.	14.	13.	5.	7.	9.	15.	21.	13.
231	12.	19.	17.	18.	22.	37.	37.	26.	27.	38.
241	43.	54.	43.	55.	59.	63.	80.	80.	79.	78.
251	80.	100.	76.	89.	91.	76.	93.	77.	79.	62.
261	52.	34.	42.	33.	38.	25.	26.	21.	12.	16.
271	7.	9.	6.	2.	5.	2.	3.	5.	3.	4.
281	4.	3.	2.	1.	2.	3.	0.	2.	2.	3.
291	0.	1.	3.	2.	2.	1.	1.	0.	2.	0.
301	1.	2.	2.	1.	2.	0.	1.	1.	1.	0.
311	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.
321	0.	0.	0.	1.	0.	0.	0.	1.	0.	0.
331	1.	1.	0.	0.	0.	1.	0.	0.	1.	1.
341	0.	4.	0.	3.	1.	0.	2.	0.	1.	0.
351	0.	0.	2.	1.	0.	0.	0.	0.	2.	0.
361	0.	0.	1.	0.	1.	1.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.
431	0.	0.	1.	2.	0.	1.	0.	0.	0.	0.
441	0.	0.	0.	1.	0.	0.	1.	0.	0.	1.
451	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	2.	0.	0.	0.	1.	1.	2.	0.	2.
471	1.	2.	1.	1.	0.	1.	2.	2.	1.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	1.	0.	0.	0.	1.	4.	7.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J 1425-5782
File ID: 7a7442.CNF

Counted on: 1/ 6/94 @13:49
Detector: AEA7
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	351.3	351.3	301.945	301.945	20.000	16.631	10.000	5.173
2	941.0	941.0	256.174	256.122	22.000	16.911	11.000	5.609

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.273	5.480	5.499	-.019	0.08	17.47	2.1	174.2	0.785E-04
	Pu238		5.499	5.499	0.000				227.4	0.102E-03
2	Am243	0.718	5.276	5.284	-.008	0.08	45.92	1.3	434.7	0.196E-03
	Pu240		5.144	5.284	-.140				430.3	0.194E-03
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Totals:		0.991	<--valid peaks only-->				63.39			

DETECTOR CALIBRATION
Energy(MEV) = 4.080 + (0.0047)*Channel
Energy range (MeV): 4.080 TO 6.486
Efficiency = 0.1067 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	30705.0	100.000
Smoothed	30705.0	100.000
Composite fit	30429.1	99.102
Residuals	275.9	0.898

Analyzed by: _____
MB

Spectrum 7a7442.CNF

1 Legend: ·Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 6744.4


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Raw Data Dump for AEA Spectrum: 7a7442.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
21	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
51	1.	1.	2.	1.	1.	0.	1.	1.	0.	1.
61	0.	1.	1.	0.	1.	0.	0.	1.	0.	0.
71	0.	0.	1.	0.	0.	2.	0.	0.	2.	0.
81	0.	0.	3.	0.	1.	1.	1.	0.	1.	1.
91	0.	0.	1.	0.	0.	1.	0.	2.	0.	1.
101	0.	1.	2.	2.	2.	0.	0.	1.	1.	0.
111	0.	0.	0.	0.	1.	2.	2.	1.	0.	5.
121	0.	0.	2.	2.	1.	2.	1.	2.	4.	4.
131	2.	2.	1.	1.	0.	5.	0.	2.	3.	1.
141	3.	3.	2.	0.	4.	3.	3.	0.	2.	5.
151	0.	1.	2.	4.	3.	1.	2.	2.	1.	1.
161	2.	3.	2.	3.	0.	4.	2.	3.	3.	4.
171	6.	5.	4.	1.	5.	2.	6.	2.	5.	1.
181	4.	4.	4.	4.	6.	7.	8.	4.	7.	10.
191	2.	8.	6.	10.	10.	7.	14.	14.	9.	10.
201	9.	8.	18.	14.	20.	18.	21.	12.	18.	17.
211	21.	23.	21.	28.	28.	30.	26.	45.	39.	38.
221	40.	61.	55.	75.	53.	68.	63.	83.	92.	95.
231	92.	117.	140.	133.	183.	180.	221.	237.	281.	299.
241	326.	373.	411.	490.	547.	595.	606.	718.	773.	758.
251	854.	880.	942.	966.	992.	1005.	970.	948.	880.	871.
261	752.	670.	618.	502.	419.	335.	296.	236.	164.	138.
271	110.	91.	92.	80.	62.	44.	55.	55.	57.	65.
281	75.	61.	78.	83.	100.	88.	134.	145.	136.	182.
291	204.	224.	248.	269.	252.	293.	316.	321.	332.	352.
301	380.	368.	375.	335.	313.	297.	289.	216.	213.	163.
311	128.	123.	90.	72.	60.	63.	43.	31.	16.	15.
321	10.	12.	7.	5.	4.	1.	0.	0.	0.	1.
331	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
341	2.	0.	2.	0.	0.	0.	1.	1.	0.	0.
351	2.	0.	4.	3.	1.	0.	2.	0.	1.	2.
361	1.	2.	1.	2.	2.	4.	0.	0.	6.	1.
371	4.	2.	0.	2.	1.	2.	4.	1.	1.	0.
381	2.	0.	1.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	1.	0.	0.	0.	0.	0.	2.	0.	0.
431	0.	1.	0.	1.	0.	0.	0.	0.	0.	1.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
481	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	1.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J 1425-5782
File ID: 8a8656.CNF

Counted on: 1/ 6/94 @13:49
Detector: AEA8
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	569.2	569.2	298.498	298.498	18.000	13.516	9.000	3.111
2	1640.5	1640.5	253.363	253.311	16.000	9.349	8.000	2.175
3	18.1	18.1	150.133	152.260	80.000	439.100	40.000	135.764
4?	0.0	0.1	134.532	134.532	0.000	0.100	0.000	0.100
5?	0.0	0.1	113.191	113.191	0.000	0.100	0.000	0.100

PEAK RESULTS
Peak Error Limit: 25%

Pe. ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.263	5.480	5.495	-.015	0.06	30.88	1.6	255.4	0.115E-03
	Pu238		5.499	5.495	0.004				333.5	0.150E-03
2	Am243	0.697	5.276	5.283	-.007	0.04	81.82	1.0	642.7	0.289E-03
3	Np237	0.032	4.640	4.808	-.168	2.06	3.77	22.5	488.0	0.220E-03
	Np237		4.781	4.808	-.027				33.7	0.152E-04
4		????		4.724			0.00	*****		
5		????		4.624			0.00	8193.		
		---					---			
Totals:		0.992	<--valid peaks only-->				116.46			

DETECTOR CALIBRATION
Energy(MEV) = 4.092 + (0.0047)*Channel
Energy range (MeV): 4.092 TO 6.498
Efficiency = 0.1286 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	56342.0	100.000
Smoothed	56342.0	100.000
Composite fit	55909.4	99.232
Residuals	432.6	0.768

Analyzed by: _____
MB

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1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 12535.7


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Raw Data Dump for AEA Spectrum: 8a8656.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	6.	4.	5.
21	1.	6.	1.	2.	1.	2.	2.	0.	2.	3.
31	2.	4.	2.	1.	1.	3.	0.	5.	2.	3.
41	3.	4.	4.	2.	6.	3.	4.	5.	2.	5.
51	4.	5.	1.	2.	8.	4.	4.	5.	5.	10.
61	6.	4.	5.	6.	5.	6.	5.	5.	10.	8.
71	8.	4.	3.	3.	5.	7.	4.	5.	3.	4.
81	7.	10.	4.	5.	9.	6.	4.	8.	4.	6.
91	11.	8.	9.	12.	10.	5.	9.	12.	11.	5.
101	6.	4.	9.	9.	9.	10.	10.	7.	8.	6.
111	8.	11.	15.	9.	10.	7.	12.	7.	6.	8.
121	10.	12.	11.	10.	9.	11.	22.	10.	11.	12.
131	16.	13.	16.	14.	17.	15.	14.	10.	18.	7.
141	7.	14.	18.	19.	13.	13.	19.	16.	14.	27.
151	11.	17.	19.	12.	18.	12.	21.	18.	20.	26.
161	25.	28.	22.	26.	24.	33.	31.	26.	31.	33.
171	37.	24.	36.	35.	24.	34.	38.	28.	37.	43.
181	29.	36.	37.	27.	42.	42.	49.	44.	50.	47.
191	52.	53.	56.	59.	59.	60.	44.	88.	55.	69.
201	82.	73.	89.	84.	84.	87.	109.	118.	125.	108.
211	122.	116.	136.	142.	159.	153.	175.	188.	186.	203.
221	224.	223.	254.	306.	309.	303.	351.	410.	406.	434.
231	433.	470.	517.	542.	560.	635.	627.	711.	724.	846.
241	835.	903.	978.	1073.	1205.	1143.	1295.	1348.	1372.	1600.
251	1644.	1777.	1788.	1822.	1667.	1569.	1357.	1134.	816.	657.
261	470.	399.	331.	267.	209.	185.	174.	203.	159.	153.
271	148.	144.	128.	139.	146.	158.	138.	181.	181.	216.
281	205.	229.	241.	220.	255.	295.	339.	357.	362.	375.
291	425.	447.	510.	502.	547.	559.	602.	579.	617.	562.
301	536.	508.	484.	379.	327.	268.	186.	169.	123.	92.
311	71.	52.	51.	30.	15.	16.	13.	3.	5.	0.
321	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	1.	1.	0.	2.	0.	1.	1.	1.	1.	0.
341	2.	1.	1.	0.	0.	2.	0.	1.	0.	2.
351	1.	2.	2.	0.	1.	0.	1.	0.	0.	0.
361	0.	1.	4.	5.	3.	2.	2.	5.	2.	5.
371	0.	1.	0.	1.	1.	0.	0.	0.	0.	0.
381	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
411	0.	0.	0.	0.	1.	1.	0.	1.	0.	0.
421	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
431	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
481	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
J 1425-5782
File ID: 10a2371.CNF

Counted on: 1/ 6/94 @13:51
Detector: AEA10
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	132.6	132.6	303.056	303.056	12.000	4.734	6.000	2.736
2	422.2	422.2	257.187	257.186	10.000	3.230	5.000	2.162

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.229	5.499	5.505	-.006	0.02	3.53	4.8	34.7	0.157E-04
	Am241		5.480	5.505	-.025				26.6	0.120E-04
2	Am243	0.613	5.276	5.290	-.014	0.02	9.45	2.9	67.7	0.305E-04
Totals:		0.842	<--valid peaks only-->				12.98			

DETECTOR CALIBRATION
Energy(MEV) = 4.081 + (0.0047)*Channel
Energy range (MeV): 4.081 TO 6.488
Efficiency = 0.1411 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	7399.0	100.000
Smoothed	7399.0	100.000
Composite fit	6232.3	84.232
Residuals	1166.7	15.768

Analyzed by: _____
MB

Spectrum 10a2371.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 2016.0

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Raw Data Dump for AEA Spectrum: 10a2371.CNF

1	[illegible]	0.	0.	0.	0.	0.	0.	0.	1.	0.
11	0.	0.	1.	0.	1.	1.	0.	0.	0.	0.
21	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.
31	0.	1.	1.	2.	0.	0.	0.	0.	0.	1.
41	0.	0.	0.	0.	0.	1.	0.	1.	0.	2.
5	0.	0.	0.	1.	1.	0.	1.	0.	0.	0.
61	0.	2.	0.	3.	0.	2.	1.	0.	0.	1.
71	0.	1.	0.	2.	1.	2.	2.	1.	0.	1.
81	0.	1.	0.	1.	0.	0.	0.	4.	0.	2.
91	1.	1.	0.	1.	1.	0.	2.	0.	1.	1.
101	2.	2.	0.	0.	1.	2.	0.	0.	0.	1.
111	2.	1.	0.	1.	1.	2.	0.	0.	1.	0.
121	1.	1.	3.	2.	0.	3.	0.	1.	1.	3.
131	3.	0.	0.	4.	0.	3.	3.	3.	4.	3.
141	0.	2.	1.	4.	0.	2.	0.	3.	1.	2.
151	1.	1.	1.	2.	4.	4.	2.	2.	4.	2.
161	0.	5.	3.	1.	2.	2.	1.	4.	2.	4.
171	3.	2.	4.	1.	1.	3.	3.	3.	4.	3.
181	2.	3.	5.	2.	3.	6.	5.	1.	4.	7.
191	3.	5.	3.	4.	4.	6.	5.	2.	3.	7.
201	5.	5.	7.	2.	8.	8.	7.	10.	9.	8.
211	6.	7.	7.	4.	12.	22.	11.	10.	12.	15.
221	21.	16.	21.	23.	15.	16.	13.	22.	19.	20.
231	19.	30.	22.	29.	23.	41.	35.	35.	27.	37.
241	44.	49.	51.	53.	67.	78.	114.	121.	132.	125.
251	154.	165.	206.	257.	331.	478.	551.	525.	382.	237.
261	119.	66.	40.	47.	41.	27.	34.	25.	30.	32.
271	28.	25.	15.	13.	8.	10.	6.	13.	11.	10.
281	12.	9.	18.	15.	9.	14.	17.	24.	17.	23.
291	20.	28.	43.	43.	53.	59.	52.	63.	77.	89.
301	114.	155.	165.	159.	121.	69.	51.	31.	30.	40.
31	25.	18.	10.	11.	6.	9.	5.	1.	0.	1.
321	1.	0.	0.	0.	0.	0.	0.	1.	0.	0.
331	0.	0.	0.	2.	2.	0.	0.	0.	2.	0.
341	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
351	0.	1.	2.	1.	1.	1.	0.	0.	1.	0.
361	1.	1.	0.	2.	1.	0.	1.	0.	1.	0.
371	2.	2.	0.	2.	2.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
421	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
431	1.	0.	0.	0.	0.	0.	0.	1.	0.	0.
441	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J 1425-5982
File ID: 11a3344.CNF

Counted on: 1/ 6/94 @13:51
Detector: AEA11
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1351.7	1351.7	300.146	300.146	16.000	8.066	8.000	2.636
2	2250.4	2250.4	254.085	254.062	14.000	6.466	7.000	2.134

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.363	5.480	5.484	-.0040	04	53.93	1.2	500.2	0.225E-03
	Pu238		5.499	5.484	0.015				653.0	0.294E-03
2	Am243	0.571	5.276	5.272	0.0040	03	84.83	1.0	747.0	0.337E-03
Totals:		0.934	<--valid peaks only-->				138.75			

DETECTOR CALIBRATION
Energy(MEV) = 4.103 + (0.0046)*Channel
Energy range (MeV): 4.103 TO 6.459
Efficiency = 0.1147 CPM/DPM

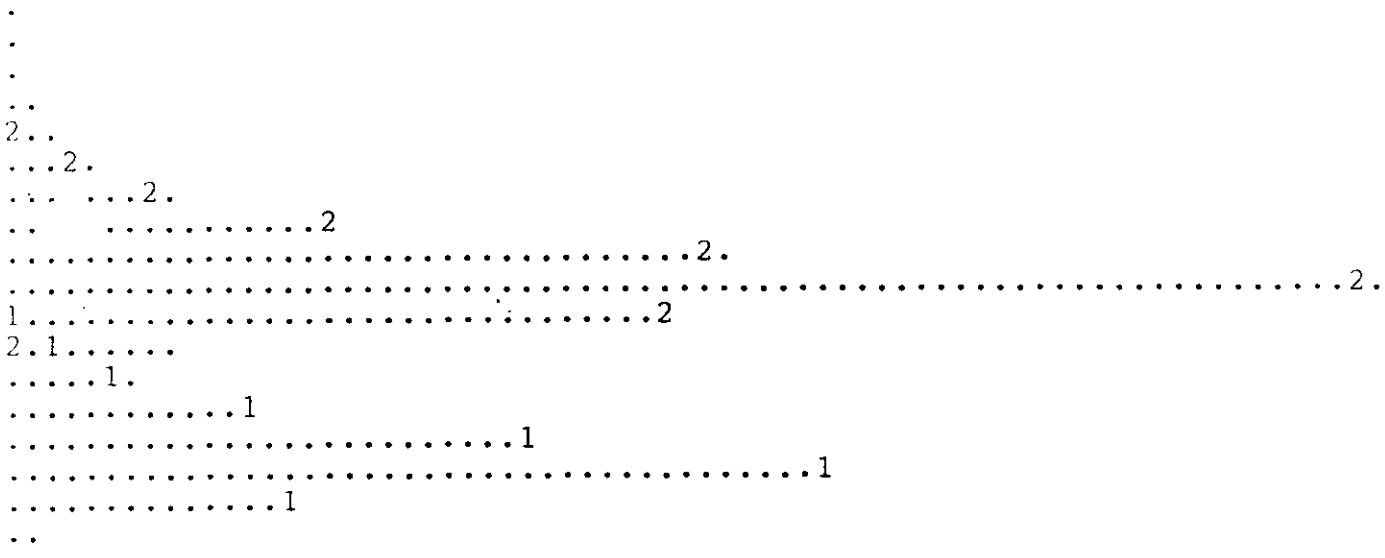
TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	71289.0	100.000
Smoothed	71289.0	100.000
Composite fit	66611.6	93.439
Residuals	4677.4	6.561

Analyzed by: _____
MB

Spectrum 11a3344.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 16147.3



Raw Data Dump for AEA Spectrum: La3344.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	3.	2.
11	2.	2.	3.	1.	4.	1.	2.	2.	4.	2.
21	3.	1.	8.	5.	2.	4.	4.	2.	2.	4.
31	1.	4.	0.	3.	2.	2.	5.	4.	1.	3.
41	2.	1.	2.	4.	2.	3.	7.	3.	4.	2.
51	1.	9.	2.	3.	5.	2.	4.	3.	2.	2.
61	6.	3.	0.	3.	2.	6.	3.	3.	2.	4.
71	4.	4.	10.	2.	5.	4.	4.	5.	7.	7.
81	7.	3.	2.	4.	5.	12.	6.	7.	6.	3.
91	7.	6.	8.	8.	6.	5.	4.	5.	7.	3.
101	10.	6.	15.	8.	6.	5.	9.	5.	9.	6.
111	9.	10.	5.	6.	6.	10.	12.	8.	6.	7.
121	7.	13.	9.	10.	6.	10.	13.	13.	9.	13.
131	4.	17.	9.	15.	10.	13.	13.	8.	11.	9.
141	10.	19.	14.	16.	14.	20.	17.	16.	15.	14.
151	17.	12.	21.	20.	14.	24.	19.	23.	20.	19.
161	18.	21.	23.	17.	20.	26.	19.	30.	19.	17.
171	24.	34.	30.	36.	30.	25.	27.	27.	40.	32.
181	33.	35.	32.	31.	42.	47.	52.	50.	50.	58.
191	43.	49.	52.	45.	62.	53.	72.	60.	71.	58.
201	55.	75.	66.	75.	68.	94.	79.	79.	87.	113.
211	93.	99.	108.	116.	142.	131.	140.	159.	162.	167.
221	187.	179.	197.	190.	202.	237.	264.	280.	279.	296.
231	332.	349.	400.	419.	440.	467.	558.	570.	660.	682.
241	800.	907.	1001.	1029.	1217.	1287.	1457.	1577.	1695.	1910.
251	2010.	2224.	2422.	2533.	2502.	2178.	1934.	1444.	907.	620.
261	416.	355.	314.	250.	246.	260.	233.	229.	218.	214.
271	180.	174.	193.	185.	211.	210.	203.	205.	228.	227.
281	255.	289.	313.	395.	407.	448.	482.	511.	574.	616.
291	691.	776.	911.	969.	1039.	1145.	1302.	1268.	1452.	1477.
301	1482.	1349.	1119.	893.	706.	483.	387.	297.	222.	207.
311	173.	106.	91.	62.	44.	19.	12.	3.	3.	0.
321	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
331	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.
341	0.	0.	0.	1.	0.	1.	1.	1.	1.	0.
351	0.	0.	0.	0.	1.	1.	0.	2.	0.	3.
361	0.	1.	1.	0.	2.	0.	2.	4.	1.	3.
371	0.	2.	1.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J 1425-5982
File ID: 12a4332.CNF

Counted on: 1/ 6/94 @13:52
Detector: AEA12
Geometry number: 1
Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1620.0	1620.0	299.167	299.167	14.000	6.459	7.000	2.347
2	2767.4	2767.4	253.460	253.448	10.000	5.000	5.000	1.801
3	104.3	104.3	181.907	181.792	86.000	1.000	43.000	0.100
4	16.6	16.6	109.129	108.023	82.000	265.219	41.000	91.922
5?	2.8	2.8	88.476	87.742	6.000	0.255	3.000	3.009
6?	7.1	7.1	74.855	74.003	16.000	4.819	8.000	8.173
7?	5.7	5.7	71.366	68.892	14.000	0.200	7.000	17.892
8?	11.9	11.9	41.160	40.274	58.000	87.579	29.000	38.567
9?	2.5	2.5	33.725	32.595	4.000	0.000	2.000	3.758

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.325	5.499	5.506	-.007	0.03	57.99	1.2	594.9	0.268E-03
	Am241		5.480	5.506	-.026				455.6	0.205E-03
2	Am243	0.526	5.276	5.291	-.015	0.02	93.86	0.9	700.2	0.315E-03
3		0.047		4.954	0.00		8.35	3.1	61.6	0.278E-04
4	Np237	0.015	4.640	4.608	0.032	1.25	2.68	11.3	330.2	0.149E-03
5		????		4.512			0.01	763.		
6		????		4.448			0.16	67.4		
7		????		4.424			0.03	304.		
8		????		4.289			1.09	14.0		
9		????		4.253			0.00	1000.		
		---					---			
Totals:		0.913	<--valid peaks only-->				162.88			

DETECTOR CALIBRATION
Energy(MEV) = 4.100 + (0.0047)*Channel
Energy range (MeV): 4.100 TO 6.506
Efficiency = 0.1354 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery

Raw spectrum	85597.0	100.000
Smoothed	85597.0	100.000
Composite fit	78797.6	92.056
Residuals	6799.4	7.944

Analyzed by: _____
MB

Spectrum 12a4332.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 19221.7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Raw Data Dump for AEA Spectrum: 12a4332.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	4.	10.
11	16.	12.	9.	8.	10.	8.	12.	11.	11.	11.
21	10.	9.	16.	9.	10.	10.	7.	15.	11.	13.
31	7.	16.	18.	16.	11.	15.	14.	11.	10.	12.
41	15.	13.	13.	10.	12.	14.	10.	14.	13.	14.
51	11.	15.	21.	19.	20.	16.	12.	17.	14.	21.
61	13.	13.	15.	15.	15.	22.	8.	13.	22.	26.
71	19.	14.	26.	13.	22.	26.	15.	21.	13.	19.
81	18.	24.	19.	13.	20.	16.	29.	27.	27.	17.
91	24.	24.	24.	13.	24.	25.	24.	21.	21.	21.
101	30.	33.	33.	20.	26.	31.	28.	23.	31.	34.
111	25.	25.	22.	31.	31.	22.	38.	31.	33.	30.
121	32.	37.	38.	33.	37.	38.	34.	41.	44.	38.
131	44.	40.	38.	50.	55.	33.	46.	47.	40.	44.
141	45.	42.	42.	43.	53.	38.	52.	53.	51.	56.
151	61.	59.	49.	46.	64.	51.	50.	57.	62.	55.
161	63.	66.	71.	64.	71.	60.	64.	61.	62.	71.
171	82.	77.	64.	71.	82.	70.	74.	87.	88.	105.
181	103.	110.	95.	101.	78.	92.	87.	91.	113.	107.
191	113.	125.	119.	119.	118.	133.	104.	127.	142.	111.
201	148.	161.	132.	115.	142.	155.	176.	182.	139.	141.
211	167.	168.	170.	145.	207.	203.	209.	201.	219.	248.
221	237.	259.	253.	268.	308.	333.	341.	389.	360.	380.
231	438.	458.	450.	487.	545.	591.	682.	736.	779.	875.
241	947.	1025.	1136.	1250.	1407.	1514.	1633.	1842.	1959.	2242.
251	2463.	2824.	3107.	3287.	2964.	2272.	1509.	915.	605.	447.
261	351.	363.	327.	349.	328.	274.	272.	286.	220.	220.
271	193.	190.	186.	192.	210.	215.	235.	275.	245.	295.
281	333.	325.	385.	409.	451.	525.	549.	619.	697.	772.
291	903.	931.	980.	1100.	1132.	1334.	1489.	1755.	1903.	1780.
301	1623.	1218.	877.	604.	454.	401.	312.	285.	215.	181.
311	141.	84.	63.	25.	19.	4.	1.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
331	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
341	0.	0.	1.	1.	0.	0.	0.	0.	1.	0.
351	2.	1.	1.	2.	0.	1.	1.	2.	2.	3.
361	0.	1.	4.	2.	2.	2.	3.	5.	3.	0.
371	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.
421	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
431	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
441	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Batch 2396

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

WHC-SD-WM-DP-062, REV. 0

Lab Segment Serial No. J1426	Customer ID: KE65A
Analysis: Am241	Sample Prep: Direct

Instrument: WB537237	Procedure/ Rev: LA-503-156 A-0
Technologist: Teresa Mix	Date: 1-3-94
Starting Time: 16:30	Temperature 25°C
Ending Time: 01:30	Chemist: L. Fritts

Comments:

	Description	Lab ID		Description	Lab ID
1	LMCS-STD	J1418-5582	11		
2	Blank	J1421-5682	12		
3	Sample	J1426-5782	13		
4	Sample Dup	J1426-5782	14		
5	Sample Trip	J1426-5782	15		
6	Spike	J1426-5982	16		
7	Spike Dup	J1426-5982	17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	63B43	.100ml-10ml-1ml		
Spike	78B43	.100ml		

A-6000-881 (03/92)

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-503-156

DATE START: January 3, 1994

PREPARED BY: L.L. Fritts LLFritts 1-10-94

DATE COMPLETE: January 7, 1994

	UNITS:	uCi/mL									
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	RESULT #3	AVERAGE	2*SD	PREC	%REC	DET LIM	% CT ER
STD 63B43	J1418	Am-241	2.92E+1						108.9	4.46E-3	11.8
BLANK	J1421	Am-241	<1.87E-2						4.1	1.87E-2	98.7
KE65D	J1426	Am-241	1.80E-2	1.69E-2	1.77E-2	1.75E-2	1.14E-3	6.5	38.3	4.88E-3	8.3
									48.4	3.86E-3	8.2
									48.6	3.84E-3	6.6
KE65D	J1426	Spike	89.5	115.5						5.36E-3	4.6
										4.44E-3	4.2

NARRATIVE: [X] NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH

LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in uCi/L.

The results for the spike are in percent recovery.

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#2 2506 : Batch 2396

Serial No	Sample Point	Date	Time Issued	Priority
J 1418.-5582	BECHTOLD	12-16-93	9:11	22

Determination	Method-Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? .100ml- 10ml- 1ml :100mL Spike 78B43	STD

Remarks, Calculations, Results:

EDP R201 AR001

STD#63B43 RESULT 29.2

STD VAL 2.6791 E+1 %REC 108.92%

"AEA" - 480MIN ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa Mix	Raymond			
Hrs	Hrs	Hrs	Hrs	
	1-4-94	Rabb		1-6-94 AKMcFarland
Date	Time Completed	Lab Unit Mgr		
1-3-94	01:30	LL Fitts		1-6-94 AKMcFarland

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			STANDARD
Serial No.	Spike (Tracer) Book Number		78B43
J1418-5582	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2396	Volume of Sample in mL	(SS)	1.000
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	514
Teresa Mix	Am-243 Area Peak Height from AEA	(C243)	604
Date	Cm-243/244 Area Peak Height from AEA	(CM)	5
01/03/~~93~~ 94	Total AT Count	(ATOT)	8132
Sample Type	AT Count Time in Minutes	(MIN CT'd)	30
LIQUID	Background in CPM	(BKG)	3
	Am 241 µCi/L =		2.9181E+01

LLF 1.6.94

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Tracer % Recovery = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100

Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	2.92E-02	
Cm 243/244 µCi/mL	=	< 4.46E-03	
Relative counting error (Am-241)	=	11.8%	
Relative counting error (Cm-243/244)	=	88.0%	
Am-243 Tracer Recovery	=	38.4%	4.46E-03

Data Entry by:	CA Clark	Date:	05-Jan-94
Approved by:	LL Fitts	Date:	6 Jan 1994

Form 6 Rev. 1.0

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 1-4-94 VR

$\frac{8/32}{30}$ -3

WHC-SD-WM-DP-062, REV. 0

J1418-5582

#2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

ID 2368

Serial No.	Sample Point	Date	Time Issued	Priority
J 1421.-5682	BECHTOLD	12-16-93	9:13	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? /ml -10mL - .100mL	BLK

Remarks, Calculations, Results

REAGENT BLANK .100mL Spike 78B43 "AEA" - 480MIN

COUNT AS uCI/L ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

< 1.87 E-2 uCi/mL

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa Mix	Raymond	Raymond		
Hrs	Hrs	Hrs	Hrs	Hrs
	1-4-94	1-5-94		

Date	Time Completed	Lab Unit Mgr.	
1-3-94	01:30	LL Fitts	1-6-94 KM McFarlane

54-5800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			BLANK
Serial No.	Spike (Tracer) Book Number		78B43
J1421-5682	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2396	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	4
Teresa Mix	Am-243 Area Peak Height from AEA	(C243)	268
Date	Cm-243/244 Area Peak Height from AEA	(CM)	2
01/03/93 94	Total AT Count	(ATOT)	684
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	7
	Am 241 µCi/L = <		1.8673E+01

227 1.6.94

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100

Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

NOTE: Am 241 Result is a LESS THAN Value

Am 241 µCi/mL	=	< 1.87E-02	Detection Level in µCi/mL
Cm 243/244 µCi/mL	=	< 1.87E-02	
Relative counting error (Am-241)	=	98.7%	
Relative counting error (Cm-243/244)	=	139.1%	
Am-243 Tracer Recovery	=	4.1%	1.87E-02

Data Entry by:	CA Clark	Date:	05-Jan-94
Approved by:	LL Fitts	Date:	6 Jan 1994

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

WHC-SD-WM-DP-062, REV. 0

#1 R 1-4-94

684/30 -7

J1421-5682
#10

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#7 3568.

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5782	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? 1ml-10-.1ml	KE65A

Remarks, Calculations, Results:
COUNT AS uCI/L
.1ml 78B43

SAM

"AEA" - 480MIN
ATTACH PRINTOUT

1.80E-2 uC/mL

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa Mix	Raymond			
Hrs	Hrs	Hrs	Hrs	Hrs
	1-4-94	Lab		

Date	Time Completed	Lab Unit Mgr	
1-3-~~93~~ 94 2-10-94	01:30		1-6-94

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1426-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2396	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	818
Teresa Mix	Am-243 Area Peak Height from AEA	(C243)	1699
Date	Cm-243/244 Area Peak Height from AEA	(CM)	8
01/03/~~93~~ 94	Total AT Count	(ATOT)	6619
Sample Type	AT Count Time in Minutes	(MIN CT'd)	30
LIQUID	Background in CPM	(BKG)	7
	Am 241 µCi/L =		1.7980E+01

1-6-94

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Tracer % Recovery = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100
Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	1.80E-02	
Cm 243/244 µCi/mL	=	< 4.88E-03	
Relative counting error (Am-241)	=	8.3%	
Relative counting error (Cm-243/244)	=	69.5%	
Am-243 Tracer Recovery	=	38.3%	4.88E-03

Data Entry by:	C.A. Clark	Date:	05-Jan-94
Approved by:		Date:	6 Jan 1994

Form 6 Rev. 1.0

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 R 1-4-94

6619/30 - 7

J1426-5782

#3

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#4 4078

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5782	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? 1ml-10-.1ml	KE65A

Remarks, Calculations, Results:

COUNT AS uCI/L DUP "AEA" - 480MIN

.1ml 78843 ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0 1.69 E-2 uCi/mL

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa Mix	Raymond			
Hrs	Hrs	Hrs	Hrs	Hrs
	1-4-94			

Date	Time Completed	Lab Unit Mgr.	
1-3-94	01:30		1-6-94

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78843
J1426-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2396	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	830
Teresa Mix	Am-243 Area Peak Height from AEA	(C243)	1829
Date	Cm-243/244 Area Peak Height from AEA	(CM)	7
01/03/~~95~~ 94	Total AT Count	(ATOT)	8041
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	3
	Am 241 µCi/L =		1.6947E+01

1.6.94

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100

Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	1.69E-02	
Cm 243/244 µCi/mL	=	< 3.86E-03	
Relative counting error (Am-241)	=	8.2%	
Relative counting error (Cm-243/244)	=	74.2%	
Am-243 Tracer Recovery	=	48.4%	3.86E-03

Data Entry by:	C.A. Clark	Date:	05-Jan-94
Approved by:		Date:	6 Jan 1994

Form 6 Rev. 1.0

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 R 1-4-94

8041/30 -3

J1426-5782

#4

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

1468

Serial No	Sample Point	Date	Time Issued	Priority
J 1426.-5782	BECHTOLD	12-16-93	13:18	22

Determination	Method-Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? / mL - 10 mL - .100 mL	KE65A

Remarks, Calculations, Results

COUNT AS uCI/L TRIP

.1 mL 78B43

"AEA" - 480MIN
ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

1.77 E-2 uCi/mL

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa Mij	Raymond	Raymond		
Hrs	Hrs	Hrs	Hrs	Hrs
	1-4-94	1-5-94		

Date	Time Completed	Lab Unit Mgr	
1-3-94	01:30		1-6-94

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1426-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2396	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	1290
T MIX	Am-243 Area Peak Height from AEA	(C243)	2715
Date	Cm-243/244 Area Peak Height from AEA	(CM)	14
01/03/94	Total AT Count	(ATOT)	8139
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	1
	Am 241 µCi/L =		1.7744E+01

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100
Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	1.77E-02	
Cm 243/244 µCi/mL	=	< 3.84E-03	
Relative counting error (Am-241)	=	6.6%	
Relative counting error (Cm-243/244)	=	52.5%	
Am-243 Tracer Recovery	=	48.6%	3.84E-03

Data Entry by:		Date:	06-Jan-94
Approved by:		Date:	6 Jan 1994

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#2 VR 1-4-94

8139/30 - 1

J1426-5782
#9

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#8 8653

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5982	BECHTOLD	12-16-93	13:18	22

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? 1-10-.100 mL + .200 mL Spike	KE65A

Remarks, Calculations, Results:

SAMPLE SPIKED ID 78B43 SK

SPIKE ID 63B43

SPIKE VOLUME 1-10-1 mL

COUNT AS uCI/L 89.5 %

"AEA" - 480MIN
ATTACH PRINTOUT

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa Mix	Raymond	Raymond		
Hrs	Hrs	Hrs	Hrs	Hrs
	1-4-94	1-5-94		

Date	Time Completed	Lab Unit Mgr.	
1-3-94	01:30	[illegible]	1-6-94 [illegible]

54-6800-061 (R-10-83)

WHC-SD-WM-DP-062, REV. 0

AM-241: LA-503-156 (D-0) **LIQUID**

			CHK EXT NO.
Serial No.	Spike (Tracer) Book Number		78B43
J1426-5982	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.200
2396	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	2884
Teresa Mix	Am-243 Area Peak Height from AEA	(C243)	4886
Date	Cm-243/244 Area Peak Height from AEA	(CM)	8
01/03/~~93~~ 94	Total AT Count	(ATOT)	25268
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	7
	Am 241 µCi/L =		4.4087E+01

TTT 1.6.94

$$\left(4.41E{+}1 - 1.80E{+}1\right)\left(\frac{10L}{1}/\frac{11}{1}\right)\left(100\right) = 89.5\%$$

26.791

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100

Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	4.41E-02	
Cm 243/244 µCi/mL	=	< 5.36E-03	
Relative counting error (Am-241)	=	4.6%	
Relative counting error (Cm-243/244)	=	69.4%	
Am-243 Tracer Recovery	=	69.7%	5.36E-03

Data Entry by:	CA Clark	Date:	05-Jan-94
Approved by:	[illegible]	Date:	6 Jan 1994

Form 6 Rev. 1.0

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

1 VR 1-4-94
25268/30 - 7

J1426-5982

#8

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#12 4329

Serial No	Sample Point	Date	Time Issued	Priority
J 1426.-5982	BECHTOLD	12-16-93	13:18	22

Determination	Method-Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? 1mL - 10mL - .100mL + .200mL Spike	KE65A

Remarks, Calculations, Results:

SAMPLE SPIKED ID SFDUP 78343

SPIKE ID 63043

SPIKE VOLUME .100mL-10mL-1mL

COUNT AS uCI/L

"AEA" - 480MIN ATTACH PRINTOUT

~~115.7%~~ 115.5% 1-10-94

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa Mix	Raymond	Raymond		
Hrs	Hrs	Hrs	Hrs	Hrs
	1-4-94	1-5-94		
Date	Time Completed	Lab Unit Mgr		
1-3-94	01:30		1-6-94	

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

Serial No.			CHK EXT NO.
J1426-5982	Spike (Tracer) Book Number		78B43
	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.200
2396	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	3697
Teresa Mix	Am-243 Area Peak Height from AEA	(C243)	5461
Date	Cm-243/244 Area Peak Height from AEA	(CM)	13
01/03/~~93~~94	Total AT Count	(ATOT)	31911
Sample Type	AT Count Time in Minutes	(MIN CT'd)	30
LIQUID	Background in CPM	(BKG)	1
	Am 241 µCi/L =		5.0564E+01

1-6-94

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Tracer % Recovery = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100

Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

$(5.06E+1 - 1.69E+1)\left(\frac{101}{1}\right)\left(\frac{11}{1}\right) = 26.791$

calc 1/5/93

Am 241 µCi/mL	=	5.06E-02	Detection Level in µCi/mL
Cm 243/244 µCi/mL	=	< 4.44E-03	
Relative counting error (Am-241)	=	4.2%	
Relative counting error (Cm-243/244)	=	54.4%	
Am-243 Tracer Recovery	=	84.1%	4.44E-03

Data Entry by:	CA Clark	Date:	05-Jan-94
Approved by:		Date:	6 Jan 1994

Form 6 Rev. 1.0

759

Page 1 of 1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#2 VL 1-4-94

31911_1
30

J1426-5982
#12

WHC-SD-WM-DP-062, REV. 0

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

Fullerton 1-4-94

SAMPLE
J1418-5582
File ID: 2a2506.CNF

WHC-SD-WM-DP-062, REV. 0

Counted on: 1/ 4/94 @ 3:33
Detector: AEA2
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	484.1	484.1	300.696	300.696	20.000	17.516	10.000	3.472
2	513.8	513.8	253.684	253.460	22.000	18.109	11.000	1.094
3	739.3	739.3	229.326	228.963	18.000	10.459	9.000	4.864
4?	0.0	0.1	159.468	159.468	0.000	0.100	0.000	0.100

PEAK RESULTS
Peak Error Limit: 25%

P.	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.271	5.480	5.477	0.003	0.08	30.22	1.6	244.7	0.110E-03
	Pu238		5.499	5.477	0.022				319.5	0.144E-03
2	Am243	0.670	5.276	5.260	0.016	0.08	74.65	1.1	573.9	0.258E-03
	Pu240		5.144	5.260	-.116				568.1	0.256E-03
3	Pu239	0.246	5.143	5.147	-.004	0.05	27.44	3.0	208.8	0.941E-04
	Pu240		5.144	5.147	-.003				208.8	0.941E-04
4		????		4.828			0.00	*****		
Totals:		1.188	<--valid peaks only-->				132.32			

DETECTOR CALIBRATION
Energy(MEV) = 4.094 + (0.0046)*Channel
Energy range (MeV): 4.094 TO 6.449
Efficiency = 0.1314 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	53484.0	100.000
Smoothed	53484.0	100.000
Composite fit	63516.7	118.758
Residuals	-10032.7	-18.758

Analyzed by: _____
VR

Spectrum 2a2306.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 8363.4


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4    2
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..       2
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3.....      2
..3........  2
.......3........2........
...................2..3.......................
.....................2.......................3.......................
1.....................3.2.......................
13.........................2..
.1.............................2..
..1....................2.....
.....2......
........1
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.............................1
...................1
....1
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Raw Data Dump for AEA Spectrum: 2a2506.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	1.	0.	1.	2.
21	1.	1.	4.	1.	2.	0.	0.	4.	5.	2.
31	4.	0.	6.	3.	5.	5.	1.	3.	1.	6.
41	2.	2.	4.	2.	1.	6.	5.	4.	7.	3.
	6.	4.	1.	8.	3.	4.	1.	5.	3.	3.
61	3.	8.	6.	2.	6.	0.	6.	9.	5.	4.
71	4.	5.	6.	4.	2.	2.	3.	5.	9.	5.
81	8.	2.	4.	11.	1.	9.	10.	10.	7.	5.
91	10.	6.	8.	5.	9.	5.	9.	7.	5.	4.
101	5.	5.	8.	15.	5.	10.	4.	5.	10.	6.
111	6.	7.	11.	8.	6.	13.	10.	8.	11.	13.
121	7.	10.	13.	12.	10.	14.	16.	11.	12.	16.
131	14.	12.	18.	17.	8.	9.	20.	9.	27.	18.
141	18.	13.	18.	13.	20.	17.	27.	18.	12.	19.
151	20.	16.	15.	27.	24.	28.	28.	26.	28.	28.
161	28.	22.	27.	23.	29.	31.	42.	28.	42.	30.
171	24.	32.	31.	31.	42.	34.	33.	46.	41.	48.
181	53.	44.	54.	50.	50.	57.	55.	63.	66.	83.
191	77.	89.	76.	82.	97.	95.	110.	120.	140.	151.
201	160.	170.	168.	174.	185.	188.	232.	250.	266.	310.
211	342.	376.	431.	442.	486.	571.	569.	643.	711.	732.
221	803.	853.	911.	1007.	1000.	1051.	1087.	1142.	1193.	1068.
231	1123.	1061.	926.	896.	781.	766.	643.	545.	512.	458.
241	462.	437.	468.	374.	435.	408.	474.	455.	464.	512.
251	520.	587.	550.	604.	576.	460.	573.	512.	463.	460.
261	387.	349.	290.	246.	220.	189.	172.	152.	118.	133.
271	118.	112.	114.	111.	138.	108.	125.	143.	147.	164.
281	179.	183.	191.	225.	236.	239.	302.	306.	294.	340.
291	381.	384.	390.	388.	435.	481.	474.	445.	492.	484.
301	514.	505.	445.	443.	408.	357.	299.	263.	251.	185.
3	180.	139.	107.	93.	75.	50.	39.	31.	21.	14.
321	13.	4.	6.	5.	2.	1.	1.	1.	0.	1.
331	2.	0.	2.	2.	0.	0.	1.	2.	0.	3.
341	3.	1.	1.	1.	2.	0.	2.	9.	1.	1.
351	3.	4.	5.	6.	5.	0.	3.	1.	3.	6.
361	5.	3.	1.	0.	2.	1.	1.	1.	2.	2.
371	3.	1.	0.	0.	0.	0.	1.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	1.	0.	1.	1.	0.	0.	0.	1.	0.
421	1.	0.	0.	0.	0.	0.	0.	1.	2.	0.
431	1.	0.	0.	1.	1.	0.	2.	1.	0.	0.
441	1.	0.	0.	0.	0.	0.	0.	1.	0.	0.
451	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
461	1.	0.	0.	0.	1.	0.	0.	0.	1.	0.
471	0.	2.	0.	0.	2.	1.	0.	1.	2.	1.
481	1.	2.	2.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
J1421-5682
File ID: 10a2368.CNF

Results
1-5-94

Counted on: 1/ 5/94 @ 2:50
Detector: AEA10
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	221.6	221.6	255.629	255.629	12.000	6.227	6.000	3.565

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Peak Centroid Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.926	5.276	5.281	-.005	0.03	6.46	3.5	46.0	0.207E-04
Totals:		0.926	<--valid peaks only-->				6.46			

DETECTOR CALIBRATION
Energy(MEV) = 4.079 + (0.0047)*Channel
Energy range (MeV): 4.079 TO 6.486
Efficiency = 0.1417 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	3348.0	100.000
Smoothed	3348.0	100.000
Composite fit	3098.8	92.557
Residuals	249.2	7.443

Analyzed by: _____
VR

Spectrum 10a2368.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 1406.9


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1.
.    1
.....................1
.......................................................................1..
.......................................... 1
..1......
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Raw Data Dump for AEA Spectrum: 10a2368.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	1.	0.	0.	0.	0.	0.	1.	0.	0.	0.
21	0.	1.	1.	0.	0.	0.	0.	0.	0.	1.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
81	0.	0.	0.	1.	0.	0.	0.	1.	0.	1.
91	0.	0.	0.	0.	2.	1.	1.	0.	0.	2.
101	1.	0.	0.	0.	0.	1.	1.	0.	2.	0.
111	0.	0.	0.	0.	0.	0.	0.	2.	1.	0.
121	2.	0.	1.	0.	1.	0.	1.	0.	1.	0.
131	0.	1.	1.	0.	1.	0.	0.	0.	0.	1.
141	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
151	0.	1.	0.	1.	1.	1.	0.	0.	0.	0.
161	1.	0.	0.	1.	2.	3.	2.	0.	0.	0.
171	1.	0.	0.	0.	1.	0.	0.	0.	0.	0.
181	0.	0.	1.	1.	1.	0.	0.	1.	0.	1.
191	0.	3.	1.	1.	1.	0.	0.	0.	0.	0.
201	1.	3.	0.	0.	1.	0.	1.	4.	0.	1.
211	3.	0.	1.	1.	3.	1.	2.	2.	1.	2.
221	2.	4.	3.	3.	4.	5.	6.	5.	4.	7.
231	8.	5.	6.	6.	6.	12.	11.	16.	15.	21.
241	30.	32.	46.	53.	56.	67.	84.	105.	110.	160.
251	190.	180.	213.	225.	240.	238.	268.	181.	141.	107.
261	69.	48.	26.	28.	23.	18.	16.	11.	20.	18.
271	10.	3.	2.	5.	1.	0.	0.	0.	0.	0.
281	0.	0.	4.	0.	0.	1.	0.	0.	0.	1.
291	1.	2.	3.	2.	3.	1.	2.	0.	2.	2.
301	3.	4.	3.	1.	1.	2.	1.	1.	1.	0.
311	1.	4.	1.	1.	2.	1.	0.	0.	0.	1.
321	0.	0.	0.	1.	1.	1.	0.	2.	1.	0.
331	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
341	1.	1.	1.	1.	1.	0.	0.	1.	0.	1.
351	0.	1.	2.	2.	0.	1.	1.	1.	0.	0.
361	2.	2.	0.	0.	1.	0.	0.	1.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
J1426-5782
File ID: 3a3568.CNF

Rubbin
1-4-94

Counted on: 1/ 4/94 @ 3:33
Detector: AEA3
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	717.4	717.4	304.417	304.417	18.000	9.642	9.000	2.649
2	1511.9	1511.9	258.456	258.422	16.000	7.640	8.000	1.978
3?	11.0	11.0	192.502	191.445	8.000	5.509	4.000	6.214
4?	9.4	9.4	180.486	179.348	10.000	2.169	5.000	0.224

PEAK RESULTS
Peak Error Limit: 25%

Pk ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.317	5.480	5.505	-.025	0.05	32.72	1.6	232.4	0.105E-03
	Pu238		5.499	5.505	-.006				303.4	0.137E-03
2	Am243	0.658	5.276	5.284	-.008	0.04	67.92	1.1	458.0	0.206E-03
3		????		4.963			0.26	40.7		
4		????		4.905			0.75	12.7		
Totals:		0.975	<--valid peaks only-->				100.64			

DETECTOR CALIBRATION
Energy(MEV) = 4.044 + (0.0048)*Channel
Energy range (MeV): 4.044 TO 6.502
Efficiency = 0.1498 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	49564.0	100.000
Smoothed	49564.0	100.000
Composite fit	48802.9	98.464
Residuals	761.1	1.536

Analyzed by: _____
VR

```
Spectrum 3a5bbt.CNF
1 Legend:  Raw = ....  Modelled Peaks = 1,2,.., etc      Display Max.:    10441.3

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1.............................................................2.
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```

Raw Data Dump for AEA Spectrum: 3a3568.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	1.	4.	0.	0.	1.	2.	0.	0.	2.	1.
31	1.	1.	0.	0.	1.	2.	0.	0.	1.	0.
41	0.	1.	0.	0.	2.	1.	1.	2.	0.	1.
[illegible]	0.	0.	3.	2.	2.	0.	1.	2.	0.	3.
61	1.	2.	3.	1.	2.	3.	3.	1.	4.	1.
71	1.	1.	1.	2.	1.	2.	1.	2.	2.	5.
81	0.	4.	4.	2.	2.	5.	0.	2.	2.	1.
91	1.	2.	4.	2.	2.	0.	2.	0.	5.	4.
101	0.	3.	1.	2.	3.	3.	2.	3.	0.	6.
111	0.	3.	1.	1.	3.	4.	6.	5.	2.	3.
121	1.	2.	3.	4.	3.	5.	5.	4.	4.	4.
131	3.	5.	5.	4.	6.	4.	6.	4.	2.	2.
141	4.	6.	9.	8.	7.	5.	5.	8.	7.	8.
151	9.	8.	8.	12.	10.	8.	5.	2.	9.	12.
161	8.	8.	6.	7.	7.	13.	5.	14.	8.	9.
171	12.	11.	11.	10.	12.	16.	13.	11.	19.	17.
181	17.	17.	14.	12.	8.	12.	17.	29.	22.	19.
191	19.	32.	30.	21.	15.	27.	20.	26.	27.	30.
201	44.	28.	38.	36.	38.	35.	52.	48.	47.	46.
211	56.	82.	81.	82.	86.	78.	99.	97.	106.	95.
221	120.	126.	141.	154.	173.	192.	186.	219.	202.	262.
231	305.	297.	317.	297.	362.	370.	428.	360.	380.	446.
241	460.	519.	521.	589.	703.	696.	765.	840.	904.	980.
251	994.	1067.	1142.	1214.	1393.	1433.	1610.	1699.	1698.	1548.
261	1422.	1129.	904.	674.	447.	341.	259.	226.	200.	195.
271	167.	176.	136.	126.	140.	122.	100.	90.	124.	88.
281	118.	148.	150.	164.	199.	187.	232.	234.	247.	280.
291	320.	356.	387.	400.	402.	470.	482.	495.	563.	600.
301	625.	693.	746.	818.	727.	761.	638.	569.	432.	336.
3[illegible]	285.	230.	154.	124.	118.	89.	67.	53.	35.	30.
321	15.	7.	3.	3.	2.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	1.	1.	0.	0.	0.	1.	0.	0.
351	0.	0.	2.	2.	2.	2.	0.	2.	0.	2.
361	3.	5.	2.	3.	8.	2.	1.	5.	4.	4.
371	4.	2.	6.	3.	1.	3.	4.	1.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
421	0.	2.	1.	0.	1.	0.	0.	2.	0.	1.
431	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
441	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
J1426-5782
File ID: 4a4078.CNF

R Willis
1-4-94

WHC-SD-WM-DP-062, REV. 0

Counted on: 1/ 4/94 @ 3:34
Detector: AEA4
Geometry number: 1
Count time: 28806. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	710.2	710.2	302.860	302.860	12.000	5.541	6.000	2.434
2	1528.0	1528.0	257.536	257.532	10.000	4.339	5.000	1.894

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.305	5.499	5.509	-.010	0.03	22.27	1.9	365.1	0.164E-0[illegible]
	Am241		5.480	5.509	-.029				279.6	0.126E-03
2	Am243	0.619	5.276	5.296	-.020	0.02	45.19	1.3	539.0	0.243E-03
Totals:		0.924	<--valid peaks only-->				67.46			

DETECTOR CALIBRATION
Energy(MEV) = 4.086 + (0.0047)*Channel
Energy range (MeV): 4.086 TO 6.492
Efficiency = 0.0847 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	35039.0	100.000
Smoothed	35039.0	100.000
Composite fit	32387.2	92.432
Residuals	2651.8	7.568

Analyzed by: _____
VR

Spectrum 4a4078.CNF

Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 8421.5


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Raw Data Dump for AEA Spectrum: 4a4078.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
31	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
51	0.	0.	0.	1.	2.	1.	1.	0.	0.	1.
61	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
71	0.	1.	0.	1.	2.	2.	1.	0.	0.	1.
81	0.	1.	1.	1.	3.	0.	0.	0.	0.	0.
91	0.	1.	0.	0.	4.	1.	1.	1.	1.	0.
101	0.	1.	0.	0.	0.	1.	2.	0.	4.	1.
111	2.	1.	0.	1.	0.	1.	1.	1.	1.	1.
121	0.	3.	0.	3.	1.	3.	0.	2.	2.	2.
131	2.	2.	0.	0.	1.	3.	2.	1.	0.	0.
141	3.	2.	1.	1.	7.	4.	3.	3.	1.	5.
151	6.	1.	3.	3.	1.	2.	8.	6.	3.	2.
161	2.	1.	4.	5.	4.	3.	2.	2.	4.	8.
171	1.	6.	2.	3.	3.	3.	6.	4.	1.	6.
181	1.	6.	11.	11.	10.	15.	6.	6.	6.	10.
191	8.	6.	10.	12.	14.	6.	7.	9.	16.	11.
201	8.	18.	15.	14.	11.	20.	16.	16.	21.	24.
211	27.	33.	29.	33.	35.	46.	38.	47.	51.	59.
221	57.	91.	92.	65.	81.	86.	113.	138.	159.	149.
231	160.	208.	211.	186.	170.	186.	189.	183.	237.	238.
241	268.	324.	325.	407.	466.	523.	617.	632.	638.	684.
251	650.	765.	854.	1075.	1334.	1694.	1746.	1829.	1629.	1294.
261	811.	463.	308.	177.	149.	102.	93.	82.	84.	73.
271	69.	73.	60.	44.	39.	47.	51.	33.	51.	53.
281	68.	67.	101.	92.	103.	109.	131.	162.	189.	189.
291	227.	266.	318.	288.	364.	318.	355.	410.	481.	610.
301	727.	830.	820.	785.	657.	486.	340.	216.	171.	116.
311	75.	85.	61.	34.	42.	31.	18.	10.	2.	2.
321	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
331	0.	0.	0.	0.	0.	1.	0.	1.	0.	1.
341	0.	0.	0.	0.	1.	2.	2.	2.	2.	3.
351	2.	1.	0.	1.	5.	2.	2.	2.	2.	0.
361	5.	1.	5.	6.	7.	6.	2.	5.	4.	2.
371	2.	1.	4.	5.	2.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	1.	0.	0.	0.	0.	2.	0.
431	0.	0.	1.	0.	1.	2.	0.	2.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	1.	0.	1.	0.	1.
481	2.	1.	1.	3.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J1426-5782
File ID: 9a1468.CNF

Rullli
1-5-94

Counted on: 1/ 5/94 @ 2:49
Detector: AEA9
Geometry number: 1
Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1081.3	1081.3	301.466	301.466	14.000	6.537	7.000	2.580
2	2285.7	2285.7	255.490	255.484	10.000	4.622	5.000	1.777
3?	9.5	9.5	178.786	178.511	138.000	1.000	69.000	0.100

PEAK RESULTS
Peak Error Limit: 25%

Peak	Isotope	AEA Frac	Peak Centroid Exp.	Peak Centroid Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.314	5.480	5.482	-.0020	0.03	37.25	1.5	321.4	0.145E-03
	Pu238		5.499	5.482	0.017				419.6	0.189E-03
2	Am243	0.619	5.276	5.271	0.0050	0.02	73.44	1.0	601.6	0.271E-03
3		????		4.917			0.76	10.5		
Totals:		0.934	<--valid peaks only-->				110.69			

DETECTOR CALIBRATION
Energy(MEV) = 4.095 + (0.0046)*Channel
Energy range (MeV): 4.095 TO 6.451
Efficiency = 0.1233 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	56919.0	100.000
Smoothed	56919.0	100.000
Composite fit	53504.5	94.001
Residuals	3414.5	5.999

Analyzed by: _____
VR

Spectrum 9a1468.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 13982.0


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Raw Data Dump for AEA Spectrum: 9a1468.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	0.	0.	2.	0.	0.	1.	0.	1.	1.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
31	2.	1.	1.	0.	1.	1.	0.	2.	0.	1.
41	0.	0.	1.	0.	0.	0.	1.	0.	1.	0.
	1.	0.	3.	1.	1.	1.	1.	0.	1.	0.
61	0.	0.	0.	1.	0.	1.	0.	1.	2.	0.
71	1.	0.	0.	0.	1.	1.	0.	0.	1.	1.
81	0.	1.	1.	2.	1.	1.	1.	1.	0.	2.
91	1.	2.	1.	1.	0.	1.	0.	2.	2.	1.
101	1.	0.	2.	2.	0.	1.	2.	1.	2.	2.
111	3.	2.	1.	3.	3.	6.	0.	2.	1.	3.
121	2.	3.	1.	0.	2.	3.	1.	1.	3.	5.
131	3.	2.	1.	3.	1.	5.	2.	3.	3.	4.
141	2.	4.	4.	8.	3.	2.	4.	2.	2.	2.
151	8.	1.	5.	4.	8.	3.	5.	2.	2.	5.
161	6.	4.	3.	9.	3.	9.	7.	10.	4.	9.
171	6.	10.	11.	0.	11.	9.	12.	5.	14.	10.
181	8.	8.	6.	8.	12.	12.	11.	9.	10.	13.
191	6.	10.	7.	20.	15.	16.	17.	21.	14.	9.
201	28.	28.	24.	24.	35.	38.	31.	38.	42.	57.
211	60.	44.	67.	74.	73.	67.	88.	92.	117.	136.
221	129.	137.	159.	164.	192.	220.	266.	261.	323.	344.
231	324.	350.	339.	323.	342.	360.	387.	421.	498.	552.
241	583.	727.	739.	829.	967.	1083.	1110.	1136.	1217.	1302.
251	1389.	1631.	2043.	2382.	2681.	2715.	2458.	1855.	1218.	727.
261	446.	313.	239.	228.	224.	218.	206.	199.	157.	138.
271	117.	92.	85.	73.	74.	64.	83.	105.	116.	124.
281	143.	176.	201.	206.	235.	241.	296.	330.	361.	390.
291	457.	494.	533.	553.	632.	615.	708.	831.	986.	1101.
301	1290.	1251.	1100.	909.	640.	457.	355.	264.	249.	214.
311	171.	112.	96.	58.	44.	30.	16.	7.	1.	1.
321	0.	1.	0.	2.	2.	0.	2.	1.	1.	1.
331	2.	1.	3.	0.	1.	0.	0.	2.	0.	2.
341	0.	1.	0.	2.	2.	3.	4.	4.	3.	5.
351	5.	7.	2.	8.	9.	8.	5.	6.	9.	14.
361	4.	7.	13.	6.	7.	6.	7.	3.	5.	4.
371	6.	5.	2.	2.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.
421	0.	1.	0.	2.	0.	1.	0.	0.	0.	2.
431	1.	1.	0.	2.	1.	0.	0.	1.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

MOS 1/13/93

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

Rechecked 1-5-94

SAMPLE
J1426-5982
File ID: 8a8653.CNF

WHC-SD-WM-DP-062, REV.

Counted on: 1/ 5/94 @ 2:48
Detector: AEA8
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	2656.1	2656.1	299.591	299.591	16.000	10.942	8.000	2.847
2	4372.5	4372.5	253.822	253.759	16.000	8.524	8.000	1.934

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.370	5.480	5.499	-.019	0.05	128.46	0.8	1179.1	0.531E-0[illegible]
	Pu238		5.499	5.499	0.000				1539.4	0.693E-0[illegible]
2	Am243	0.627	5.276	5.283	-.007	0.04	217.65	0.6	1896.9	0.854E-03
Totals:		0.997	<--valid peaks only-->				346.11			

DETECTOR CALIBRATION
Energy(MEV) = 4.091 + (0.0047)*Channel
Energy range (MeV): 4.091 TO 6.497
Efficiency = 0.1159 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	166659.0	100.000
Smoothed	166659.0	100.000
Composite fit	166152.1	99.696
Residuals	506.9	0.304

Analyzed by: _____
VR

Spectrum 8a8653.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 32814.9


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Raw Data Dump for A&A Spectrum: 5a9b5b.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	4.	1.	3.
21	2.	3.	0.	2.	4.	2.	3.	3.	2.	2.
31	1.	4.	3.	4.	3.	2.	0.	2.	2.	2.
41	7.	2.	4.	5.	2.	3.	1.	0.	2.	4.
51	6.	7.	4.	1.	5.	3.	1.	4.	3.	4.
61	4.	3.	3.	1.	3.	4.	2.	6.	1.	4.
71	8.	8.	7.	6.	4.	3.	4.	5.	7.	4.
81	1.	2.	4.	8.	2.	6.	4.	2.	7.	7.
91	6.	5.	8.	7.	6.	7.	4.	7.	5.	6.
101	6.	4.	5.	3.	9.	5.	6.	7.	5.	4.
111	5.	6.	5.	8.	6.	5.	7.	10.	6.	12.
121	11.	11.	6.	7.	8.	5.	7.	6.	5.	4.
131	9.	10.	10.	9.	9.	7.	13.	10.	9.	9.
141	12.	15.	14.	12.	18.	9.	4.	10.	24.	16.
151	11.	16.	12.	20.	15.	19.	24.	13.	19.	18.
161	16.	23.	16.	28.	22.	18.	13.	23.	22.	20.
171	20.	22.	27.	21.	31.	18.	31.	30.	28.	34.
181	41.	29.	31.	46.	45.	37.	41.	44.	47.	51.
191	62.	67.	74.	70.	90.	84.	86.	91.	105.	149.
201	124.	133.	145.	164.	190.	227.	229.	236.	267.	315.
211	354.	371.	400.	405.	446.	504.	515.	588.	621.	649.
221	751.	743.	876.	922.	963.	1019.	1105.	1150.	1201.	1247.
231	1330.	1331.	1304.	1337.	1453.	1513.	1661.	1670.	1849.	2021.
241	2135.	2230.	2491.	2628.	2809.	2923.	3228.	3362.	3506.	3890.
251	4277.	4592.	4783.	4886.	4706.	4266.	3792.	3117.	2553.	1932.
261	1445.	1089.	844.	729.	514.	511.	502.	461.	420.	440.
271	409.	375.	403.	423.	429.	478.	562.	609.	615.	713.
281	781.	842.	946.	1025.	1185.	1244.	1324.	1351.	1540.	1605.
291	1731.	1872.	1991.	2136.	2243.	2452.	2580.	2707.	2883.	2884.
301	2654.	2560.	2219.	1850.	1564.	1164.	945.	807.	557.	505.
311	375.	278.	215.	159.	107.	74.	41.	33.	15.	7.
321	3.	1.	0.	0.	0.	1.	0.	0.	0.	0.
331	1.	0.	1.	1.	0.	0.	0.	0.	2.	0.
341	0.	3.	2.	2.	1.	1.	3.	2.	2.	1.
351	4.	3.	3.	1.	3.	4.	3.	6.	3.	4.
361	4.	1.	4.	5.	8.	1.	7.	7.	4.	4.
371	4.	2.	3.	2.	1.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
411	0.	0.	0.	1.	1.	1.	1.	0.	0.	0.
421	0.	0.	0.	1.	0.	0.	0.	2.	0.	1.
431	2.	0.	0.	2.	1.	3.	1.	2.	1.	2.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
471	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

WHC-SD-WM-DP-062, REV. 0

DATA REDUCTION REPORT

SAMPLE
J1426-5982
File ID: 12a4329.CNF

R Willis
1-5-94

Counted on: 1/ 5/94 @ 2:51
Detector: AEA12
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	3092.8	3092.8	299.212	299.212	14.000	6.011	7.000	2.440
2	4555.8	4555.8	253.361	253.353	12.000	4.564	6.000	1.989
3	6594.9	6594.9	227.362	227.295	12.000	4.192	6.000	1.737
4?	19.5	19.5	112.335	112.332	196.000	1.000	98.000	0.100
5?	11.5	11.5	106.653	106.352	204.000	1.000	102.000	0.100
6?	0.0	0.1	80.365	80.365	0.000	0.100	0.000	0.100

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.224	5.499	5.507	-.008	0.03	102.89	0.9	1041.6	0.469E-03
	Am241		5.480	5.507	-.027				797.8	0.359E-03
2	Am243	0.297	5.276	5.291	-.015	0.02	136.53	0.8	1005.2	0.453E-03
3	Pu239	0.433	5.143	5.169	-.026	0.02	199.00	0.7	1450.4	0.653E-03
	Pu240		5.144	5.169	-.025				1450.4	0.653E-03
4		????		4.629			1.50	7.3		
5		????		4.600			0.88	15.6		
6		????		4.478			0.00	9801.		
Totals:		0.953	<--valid peaks only-->				438.42			

DETECTOR CALIBRATION
Energy(MEV) = 4.101 + (0.0047)*Channel
Energy range (MeV): 4.101 TO 6.507
Efficiency = 0.1372 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	220738.0	100.000
Smoothed	220737.8	100.000
Composite fit	211598.3	95.859
Residuals	9139.7	4.141

```
                    Spectrum 12a4329.CNF
1 Legend:  Raw = ....  Modeled Peaks = 1,2,.., etc     Display Max.:   45054.8

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...................2
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```

Raw Data Dump for AEA Spectrum: 12a4329.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.
11	3.	5.	2.	2.	3.	4.	4.	7.	5.	3.
21	3.	7.	5.	6.	3.	9.	3.	8.	3.	5.
31	3.	5.	3.	8.	5.	5.	1.	4.	7.	9.
41	6.	3.	2.	7.	3.	8.	4.	5.	5.	3.
[illegible]	7.	5.	6.	4.	6.	10.	7.	8.	3.	8.
61	4.	5.	5.	7.	3.	8.	9.	7.	4.	9.
71	5.	6.	7.	8.	9.	6.	11.	9.	4.	13.
81	13.	6.	7.	9.	7.	5.	14.	8.	15.	8.
91	8.	8.	8.	11.	12.	6.	9.	13.	10.	10.
101	13.	15.	9.	17.	14.	23.	21.	19.	15.	6.
111	18.	19.	18.	14.	16.	11.	17.	14.	18.	28.
121	14.	22.	12.	21.	25.	15.	25.	18.	23.	20.
131	23.	27.	33.	22.	20.	29.	23.	33.	26.	20.
141	38.	28.	36.	31.	38.	29.	40.	31.	30.	31.
151	37.	42.	47.	37.	42.	52.	45.	59.	61.	52.
161	56.	52.	46.	78.	69.	59.	69.	60.	64.	67.
171	76.	75.	83.	88.	98.	94.	96.	98.	114.	111.
181	134.	136.	141.	150.	158.	145.	169.	182.	188.	225.
191	248.	280.	298.	302.	373.	389.	423.	459.	508.	548.
201	626.	692.	739.	789.	815.	858.	991.	1077.	1198.	1267.
211	1388.	1493.	1635.	1812.	2078.	2293.	2510.	2609.	2871.	3013.
221	3296.	3868.	4566.	5261.	6398.	7244.	7991.	7959.	7070.	5375.
231	3571.	2280.	1455.	1034.	876.	881.	975.	1070.	1020.	1200.
241	1304.	1424.	1628.	1703.	1934.	2150.	2152.	2487.	2927.	3493.
251	4091.	4847.	5414.	5461.	4762.	3449.	2192.	1280.	824.	597.
261	535.	495.	425.	463.	503.	437.	412.	411.	359.	296.
271	301.	267.	318.	339.	343.	363.	445.	492.	468.	555.
281	612.	592.	668.	709.	749.	837.	969.	991.	1158.	1245.
291	1376.	1465.	1701.	1879.	2079.	2373.	2901.	3324.	3697.	3517.
301	3019.	2303.	1669.	1130.	866.	743.	570.	498.	419.	322.
31[illegible]	197.	146.	78.	56.	28.	6.	2.	1.	0.	0.
321	0.	0.	0.	0.	0.	1.	0.	0.	1.	1.
331	2.	0.	1.	1.	0.	1.	2.	0.	0.	0.
341	1.	0.	1.	3.	2.	3.	0.	1.	8.	6.
351	1.	6.	7.	4.	3.	7.	7.	6.	9.	10.
361	6.	13.	4.	6.	2.	4.	5.	8.	7.	2.
371	1.	2.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	1.	1.	0.	0.	0.	1.	1.	0.	1.
421	0.	0.	0.	2.	0.	2.	0.	2.	0.	0.
431	2.	1.	0.	1.	0.	2.	3.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

II-2397

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

WHC-SD-WM-DP-062, REV. 0

ANALYTICAL BATCH

Lab Segment Serial No. J1427	Customer ID: KE71A
Analysis: Am 241	Sample Prep: Direct

Instrument: WB 537237	Procedure/ Rev: LA-503-156/D-0
Technologist: T.L. Mix	Date: 1-14-94
Starting Time: 0800	Temperature 25°C
Ending Time: 1400	Chemist: L Fritts

Comments:

	Description	Lab ID		Description	Lab ID
1	LMCS	J1419-5582	11		
2	Blank	J1422-5082	12		
3	Sample	J1427-5782	13		
4	Sample dup.	J1427-5782	14		
5	Sample trip.	J1427-5782	15		
6	Spike	J1427-5982	16		
7	Spike dup.	J1427-5982	17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	63B43	.100ml-10ml-1ml		
Spike	78B43	.100 ml		

A-6000-881 (03/92)

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-503-156

DATE START: January 14, 1994

PREPARED BY: L.L. Fritts LLFritts 1-19-94

DATE COMPLETE: January 19, 1994

	UNITS:	uCi/mL									
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	RESULT #3	AVERAGE	2*SD	PREC	%REC	DET LIM	% CT ER
STD 63B43	J1419	Am-241	3.00E+1						112.0	1.71E-3	3.1
BLANK	J1422	Am-241	<5.71E-3						53.6	5.71E-3	27.8
KE71A	J1427	Am-241	4.48E-2	4.99E-2	4.77E-2	4.75E-2	5.12E-3	10.8	88.2	5.71E-3	6.1
									55.2	5.71E-3	4.2
									48.0	5.71E-3	4.6
KE71A	J1427	241 Spike	122.3	107.6							

NARRATIVE: [ ] NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in uCi/L.

The results for the spike are in percent recovery.

Spike is only slightly outside of the control limits and other results look good--No rerun requested!

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#2 2534 Batch 2397

Serial No.	Sample Point	Date	Time Issued	Priority
J 1419.-5582	BECHTOLD	12-16-93	9:12	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? .100 ml - 10ml - 1ml	STD

Remarks, Calculations, Results

EDP R201 AR001

"AEA" - 480MIN
ATTACH PRINTOUT

STD# 63B43 RESULT 30.0

STD VAL 26.789 %REC 111.99%

.1ml 78B43

1.18.94

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa Mi	[illegible]	[illegible]	Raymond	
Hrs	Hrs	Hrs	Hrs	Hrs
			1.15.94	

Date	Time Completed	Lab Unit Mgr.
1-14-94	1834	[illegible] [illegible]

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			STANDARD
Serial No.	Spike (Tracer) Book Number		78B43
J1419-5582	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2397	Volume of Sample in mL	(SS)	1
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	1907
T MIX	Am-243 Area Peak Height from AEA	(C243)	2177
Date	Total AT Count	(ATOT)	20443
01/14/94	AT Count Time in Minutes	(MIN CT'd)	30
	Background in CPM	(BKG)	9

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))

µCi/mL = µCi/L / (1000mL/L)

Tracer % Rec = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

Am-241 µCi/L	=	3.00E+01
Am-241 µCi/mL	=	3.00E-02
Relative counting error	=	3.1%
Am-243 Tracer Recovery	=	95.1%

Data Entry by:	R. Alvarez	Date:	17-Jan-94
Approved by:	[illegible]	Date:	19 Jan 1994

Form 3 Rev. 1.2

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 1.14.94 MB

J1419-5582

20443/30 -9

#2

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#3 3594

Serial No.	Sample Point	Date	Time Issued	Priority
J 1422.-5682	BECHTOLD	12-16-93	9:14	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? ~~1ml~~ .1ml-10ml-.3ml	BLK

Remarks, Calculations, Results:

REAGENT BLANK

COUNT AS uCI/L

.100ml 78B43

1.19.94

"AEA" - 480MIN

ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

<5.71 x10^-3 uCi/ml

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Theresa Mi	M Bu	D.H. Mitchell	Raymond	
Hrs	Hrs	Hrs	Hrs	Hrs
			1-15-94	

Date	Time Completed	Lab Unit Mgr.	
1-14-94	1037		

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			BLANK
Serial No.	Spike (Tracer) Book Number		78B43
J1422-5682	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2397	Volume of Sample in mL	(SS)	0.3
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	13
T MIX	Am-243 Area Peak Height from AEA	(C243)	1576
Date	Total AT Count	(ATOT)	6175
01/14/94	AT Count Time in Minutes	(MIN CT'd)	30
	Background in CPM	(BKG)	2

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))

µCi/mL = µCi/L / (1000mL/L)

Tracer % Rec = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

NOTE: Reported result is a LESS THAN value using 5% of the Am-243 peak as the Am-241 peak.

Am-241 µCi/L	=	< 5.71E+00
Am-241 µCi/mL	=	< 5.71E-03
Relative counting error	=	27.8%
Am-243 Tracer Recovery	=	53.6%

Data Entry by:	R. Ulrich	Date:	17-Jan-94
Approved by:		Date:	19 Jan 1994

Form 3 Rev. 1.2

786

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#2 1-14-94 m3

6175/30 -2

J1422-5682
#3

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#4 4103

Serial No	Sample Point	Date	Time Issued	Priority
J 1427.-5782	BECHTOLD	12-16-93	13:19	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? .100ml-10ml- .300ml 5m	KE71A

Remarks, Calculations, Results:
COUNT AS uCI/L
.100ml 78B43

"AEA" - 480MIN
ATTACH PRINTOUT

4.48×10^{-2} uCi/ml

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa M	D.H. Martin	Raymond		
Hrs	Hrs	Hrs	Hrs	Hrs
		1-15-94		

Date	Time Completed	Lab Unit Mgr	
1-14-94	1038		

54-6800-041 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1427-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2397	Volume of Sample in mL	(SS)	0.3
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	375
T MIX	Am-243 Area Peak Height from AEA	(C243)	956
Date	Total AT Count	(ATOT)	10791
01/14/94	AT Count Time in Minutes	(MIN CT'd)	30
	Background in CPM	(BKG)	2

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))
µCi/mL = µCi/L / (1000mL/L)
Tracer % Rec = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

Am-241 µCi/L	=	4.48E+01
Am-241 µCi/mL	=	4.48E-02
Relative counting error	=	6.1%
Am-243 Tracer Recovery	=	68.2%

Data Entry by:	R. White	Date:	17-Jan-94
Approved by:		Date:	

Form 3 Rev. 1.2

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#2 1-14-94 DM

10791/30 -2

J1427-5782

#4

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#5 5024

Serial No.	Sample Point	Date	Time Issued	Priority
J 1427.-5782	BECHTOLD	12-16-93	13:19	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? .100ml - 10ml - .300ml	KE71A

Remarks, Calculations, Results:
COUNT AS uCI/L
.100ml 78B43

DUP

"AEA" - 480MIN
ATTACH PRINTOUT

4.99×10^{2} uCi/ml

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa M	D.H. Wilkins	Raymond		
Hrs	Hrs	Hrs 1-15-94	Hrs	Hrs
Date 1-14-94	Time Completed 1039	Lab Unit Mgr. Patrick Fitts	N.E. Wright	

54-6800-001 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1427-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2397	Volume of Sample in mL	(SS)	0.3
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	822
T MIX	Am-243 Area Peak Height from AEA	(C243)	1881
Date	Total AT Count	(ATOT)	9140
01/14/94	AT Count Time in Minutes	(MIN CT'd)	30
	Background in CPM	(BKG)	6

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))
µCi/mL = µCi/L / (1000mL/L)
Tracer % Rec = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

Am-241 µCi/L	=	4.99E+01
Am-241 µCi/mL	=	4.99E-02
Relative counting error	=	4.2%
Am-243 Tracer Recovery	=	55.2%

Data Entry by:	R Cerda	Date:	17-Jan-94
Approved by:	P Fitts	Date:	19 Jan 1994

Form 3 Rev. 1.2

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 1-14-94 DM
9140/30 - 6

J1427-5782
#5

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#6 6934

Serial No	Sample Point	Date	Time Issued	Priority
J 1427.-5782	BECHTOLD	12-16-93	13:19	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? .100ml-10ml-.300ml	KE71A

Remarks, Calculations, Results

COUNT AS uCI/L TR1P "AEA" - 480MIN

.100ml 78B43 ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

4.77 x10^-2 ul/ml

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
			1-15-94	

Date	Time Completed	Lab Unit Mgr.
1-14-94		

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1427-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2397	Volume of Sample in mL	(SS)	0.3
Recun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	682
T MIX	Am-243 Area Peak Height from AEA	(C243)	1635
Date	Total AT Count	(ATOT)	7878
01/14/94	AT Count Time in Minutes	(MIN CT'd)	30
	Background in CPM	(BKG)	6

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))

µCi/mL = µCi/L / (1000mL/L)

Tracer % Rec = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

Am-241 µCi/L	=	4.77E+01
Am-241 µCi/mL	=	4.77E-02
Relative counting error	=	4.6%
Am-243 Tracer Recovery	=	48.0%

Data Entry by:		Date:	17-Jan-94
Approved by:		Date:	19 Jan 1994

Form 3 Rev. 1.2

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 1-14-94

7878/30 - 6

J1427-5782
#6

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#7 7461

Serial No.	Sample Point	Date	Time Issued	Priority
J 1427.-5982	BECHTOLD	12-16-93	13:19	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? .100ml-10ml-.300ml	KE71A

Remarks, Calculations, Results

SAMPLE SPIKED ID 63B43 5K .100ml-10ml-1ml "AEA" - 480MIN
ATTACH PRINTOUT

SPIKE ID 78B43

SPIKE VOLUME .200ml
COUNT AS uCI/L

WHC-SD-WM-DP-062, REV. 0

122.3%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Theresa M	D.H. Milian	Raymond		
Hrs	Hrs	Hrs	Hrs	Hrs
		1-15-94		
Date	Time Completed	Lab Unit Mgr.		
1-14-94	1040	L.L. Fitts	N.E. Wright	

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			CHK EXT NO.
Serial No.	Spike (Tracer) Book Number		78B43
R1427-5982	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.2
2397	Volume of Sample in mL	(SS)	0.3
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	320
T MIX	Am-243 Area Peak Height from AEA	(C243)	476
Date	Total AT Count	(ATOT)	2716
01/14/94	AT Count Time in Minutes	(MIN CT'd)	30
	Background in CPM	(BKG)	6

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))
µCi/mL = µCi/L / (1000mL/L)
Tracer % Rec = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

$154 - 44.8 \left(\frac{101}{1}\right)\left(\frac{101}{.3}\right) = 122.3\%$

26.789

2.10.94

Am-241 µCi/L	=	1.54E+02
Am-241 µCi/mL	=	1.54E-01
Relative counting error	=	7.2%
Am-243 Tracer Recovery	=	6.7%

Data Entry by:	R. Ulrich	Date:	17-Jan-94
Approved by:	L.L. Fitts	Date:	19 Jan 1994

Form 3 Rev. 1.2

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 1-14-94 DM

2716/30 -6

J1427-5982

#7

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#8 8674

Serial No.	Sample Point	Date	Time Issued	Priority
J 1427.-5982	BECHTOLD	12-16-93	13:19	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? ,100ml-10ml-.300ml	KE71A

Remarks, Calculations, Results:

SAMPLE SPIKED ID 63843 KP DNP .100ml-10ml-1/2"A" - 480MIN
ATTACH PRINTOUT

SPIKE ID 78843

SPIKE VOLUME .200ml
COUNT AS uCI/L

WHC-SD-WM-DP-062, REV. 0

107.6%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa M. Hamilton		Raymond		
Hrs	Hrs	Hrs	Hrs	Hrs
		1-15-94	Rabelk	
Date	Time Completed	Lab Manager		
1-15-94	1040			

54-6800-06 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

Serial No.	Spike (Tracer) Book Number		CHK EXT NO.
R1427-5982	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.2
2397	Volume of Sample in mL	(SS)	0.3
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	3231
T MIX	Am-243 Area Peak Height from AEA	(C243)	5051
Date	Total AT Count	(ATOT)	22593
01/14/94	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	9

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))
µCi/mL = µCi/L / (1000mL/L)
Tracer % Rec = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

146 - 49.9 (101/1 / 101/3) : 107.6%
26.28.9
2.10.94

Am-241 µCi/L	=	1.46E+02
Am-241 µCi/mL	=	1.46E-01
Relative counting error	=	2.3%
Am-243 Tracer Recovery	=	60.2%

Data Entry by:		Date:	17-Jan-94
Approved by:		Date:	19 Jan 1994

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 1-14-94 DM

22593/30 -9

J1427-5982
#8

WHC-SD-WM-DP-062, REV. 0

Raymond
1.15.94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J-1419-5582
File ID: 2a2534.CNF

Counted on: 1/15/94 @ 2:37
Detector: AEA2
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1818.1	1818.1	298.398	298.398	22.000	18.261	11.000	5.970
2	2017.2	2017.2	252.512	252.410	22.000	17.231	11.000	3.518
3	1489.0	1489.0	227.252	226.264	16.000	10.488	8.000	3.558
4?	12.2	12.2	134.513	134.288	88.000	380.284	44.000	123.073
5?	0.0	0.1	115.778	115.778	0.000	0.100	0.000	0.100

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.327	5.480	5.492	-.012	0.09	91.41	0.9	835.5	0.376E-03
	Pu238		5.499	5.492	0.007				1090.7	0.491E-03
2	Am243	0.442	5.276	5.276	0.000	0.08	123.45	0.8	1071.3	0.483E-03
	Pu240		5.144	5.276	-.132				1060.6	0.478E-03
3	Pu239	0.224	5.143	5.153	-.010	0.05	62.46	1.6	536.6	0.242E-03
	Pu240		5.144	5.153	-.009				536.6	0.242E-03
4		????		4.721			2.37	42.7		
5		????		4.634			0.00	8832.		
Totals:		0.993	<--valid peaks only-->				277.32			

DETECTOR CALIBRATION
Energy(MEV) = 4.089 + (0.0047)*Channel
Energy range (MeV): 4.089 TO 6.496
Efficiency = 0.1164 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	134079.0	100.000
Smoothed	134078.9	100.000
Composite fit	134265.9	100.139
Residuals	-186.9	-0.139

Analyzed by: _____
DM

Spectrum 2a2534.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 15759.2


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4
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4
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5
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4
4
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4
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4
4.
42.
4.3...
4...2..3....
.......2........3.........
............2.......................3................
...................2.......................3.....................
.............3................2..............
3.............................................2
1.............................................................2..
.1.....................................2...
....1....2......
..........1.
.......................1
.............................................1.
.............................................................1
...........................1
.....1
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Raw Data Dump for AEA Spectrum: 2a2534.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	1.	5.	1.	4.
21	4.	4.	4.	3.	1.	2.	1.	2.	4.	3.
31	2.	5.	7.	4.	4.	9.	5.	6.	2.	7.
[illegible]	5.	4.	3.	6.	3.	4.	4.	2.	3.	3.
[illegible]	4.	5.	2.	6.	1.	5.	6.	2.	7.	7.
61	8.	7.	4.	2.	5.	4.	5.	7.	6.	7.
71	3.	5.	10.	10.	7.	8.	3.	3.	6.	7.
81	7.	9.	7.	9.	7.	8.	10.	6.	4.	8.
91	10.	3.	11.	8.	5.	7.	2.	4.	9.	5.
101	9.	5.	7.	8.	6.	6.	7.	6.	9.	6.
111	8.	4.	7.	9.	13.	12.	11.	8.	7.	6.
121	5.	9.	8.	8.	12.	12.	11.	10.	15.	8.
131	15.	13.	17.	13.	17.	21.	9.	9.	7.	18.
141	14.	20.	18.	18.	21.	18.	23.	23.	12.	24.
151	24.	28.	21.	15.	15.	24.	26.	23.	30.	29.
161	32.	36.	33.	33.	29.	46.	37.	27.	51.	50.
171	47.	50.	69.	60.	62.	58.	63.	46.	72.	70.
181	56.	71.	94.	88.	85.	101.	105.	102.	102.	136.
191	128.	115.	139.	156.	148.	192.	203.	209.	210.	234.
201	256.	281.	321.	335.	372.	416.	425.	461.	557.	586.
211	674.	751.	846.	907.	997.	1061.	1284.	1315.	1403.	1543.
221	1649.	1890.	1908.	1963.	2097.	2041.	2147.	2095.	2025.	1901.
231	1755.	1628.	1523.	1370.	1312.	1133.	1096.	1072.	1069.	1109.
241	1142.	1226.	1247.	1389.	1528.	1620.	1722.	1872.	1941.	2081.
251	2148.	2177.	2159.	2063.	1970.	1841.	1730.	1503.	1452.	1279.
261	1052.	812.	710.	655.	534.	474.	427.	347.	317.	289.
271	280.	280.	283.	305.	289.	297.	344.	410.	402.	453.
281	499.	548.	580.	683.	747.	853.	950.	1010.	1137.	1256.
291	1388.	1463.	1572.	1746.	1835.	1840.	1907.	1905.	1874.	1864.
30[illegible]	1696.	1678.	1518.	1367.	1204.	1073.	881.	754.	602.	456.
3[illegible]	394.	325.	236.	178.	123.	102.	75.	50.	35.	29.
321	15.	9.	7.	10.	3.	3.	0.	1.	0.	2.
331	1.	1.	1.	0.	0.	1.	1.	1.	2.	3.
341	2.	2.	1.	4.	2.	4.	0.	1.	2.	1.
351	1.	1.	0.	2.	0.	0.	1.	3.	0.	2.
361	0.	2.	0.	1.	0.	0.	0.	0.	1.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	1.	0.	2.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
431	1.	0.	0.	0.	1.	0.	0.	0.	0.	1.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
461	0.	0.	2.	1.	0.	0.	3.	0.	1.	0.
471	2.	2.	0.	1.	4.	1.	0.	0.	3.	2.
481	0.	2.	2.	0.	0.	1.	0.	0.	0.	0.
491	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Raymond
1-15-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J-1422-5682
File ID: 3a3594.CNF

Counted on: 1/15/94 @ 2:37
Detector: AEA3
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1502.7	1502.7	258.043	258.043	26.000	22.066	13.000	4.498

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	1.009	5.276	5.268	0.008	0.10	97.61	0.9	765.5	0.345E-03
	Pu240		5.144	5.268	-.124				757.8	0.341E-0[illegible]
Totals:		1.009	<--valid peaks only-->				97.61			

DETECTOR CALIBRATION
Energy(MEV) = 4.081 + (0.0046)*Channel
Energy range (MeV): 4.081 TO 6.437
Efficiency = 0.1288 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	46455.0	100.000
Smoothed	46454.7	99.999
Composite fit	46857.7	100.867
Residuals	-402.7	-0.867

Analyzed by: _____
DM

Spectrum 3a3594.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 11439.1


```
1
1
.1
.. 1
...  1
.......  1
.   ......... 1
.   ......................1
.......................................1.....
.......................................................1.....
.......................................................................1..
.....................................1
....... 1
1
```

Raw Data Dump for AEA Spectrum: 3a3594.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	1.	0.	0.	0.	0.	0.	1.	0.	0.
31	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	1.	0.	0.	0.	0.	1.	0.	0.	1.	0.
81	0.	0.	3.	2.	0.	0.	1.	0.	1.	0.
91	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
101	0.	0.	0.	0.	0.	1.	0.	1.	0.	1.
111	2.	0.	3.	3.	1.	1.	0.	0.	0.	0.
121	0.	1.	1.	1.	0.	0.	1.	1.	1.	2.
131	1.	0.	1.	1.	0.	0.	0.	1.	3.	0.
141	1.	0.	0.	1.	3.	0.	0.	1.	0.	2.
151	1.	4.	2.	2.	1.	3.	4.	3.	3.	7.
161	2.	2.	2.	0.	4.	1.	2.	4.	5.	6.
171	3.	7.	3.	4.	9.	6.	6.	8.	6.	5.
181	15.	10.	7.	14.	11.	14.	12.	8.	17.	17.
191	19.	25.	19.	20.	12.	30.	23.	33.	38.	27.
201	30.	39.	34.	50.	56.	59.	61.	63.	51.	73.
211	78.	84.	78.	101.	109.	102.	115.	120.	138.	158.
221	164.	185.	196.	193.	230.	240.	240.	285.	315.	322.
231	368.	393.	414.	446.	500.	505.	621.	622.	654.	734.
241	811.	822.	858.	878.	959.	997.	1070.	1220.	1231.	1302.
251	1362.	1430.	1516.	1501.	1475.	1479.	1576.	1511.	1536.	1514.
261	1433.	1370.	1342.	1242.	1129.	993.	831.	692.	498.	406.
271	330.	240.	184.	158.	133.	107.	83.	64.	43.	49.
281	30.	26.	18.	9.	12.	9.	5.	2.	9.	6.
291	3.	5.	6.	5.	8.	10.	7.	5.	3.	13.
301	7.	9.	12.	7.	10.	7.	5.	3.	7.	6.
311	7.	2.	5.	2.	5.	2.	3.	0.	1.	0.
321	3.	0.	1.	1.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
351	1.	0.	0.	1.	0.	0.	0.	0.	1.	2.
361	0.	3.	1.	1.	1.	1.	1.	2.	0.	0.
371	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Kaymond
1-15-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J-1427-5782
File ID: 4a4103.CNF

Counted on: 1/15/94 @ 2:38
Detector: AEA4
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	357.5	357.5	293.704	293.704	26.000	32.355	13.000	2.106
2	703.5	703.5	254.408	254.159	14.000	8.633	7.000	0.424

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
	Th228	0.507	5.430	5.463	-.033	0.15	52.12	1.2	844.8	0.381E-03
	Am241		5.480	5.463	0.017				638.1	0.287E-03
2	Am243	1.120	5.276	5.277	-.001	0.04	115.19	0.9	1339.0	0.603E-03
Totals:		1.627	<--valid peaks only-->				167.31			

DETECTOR CALIBRATION
Energy(MEV) = 4.082 + (0.0047)*Channel
Energy range (MeV): 4.082 TO 6.489
Efficiency = 0.0869 CPM/DPM

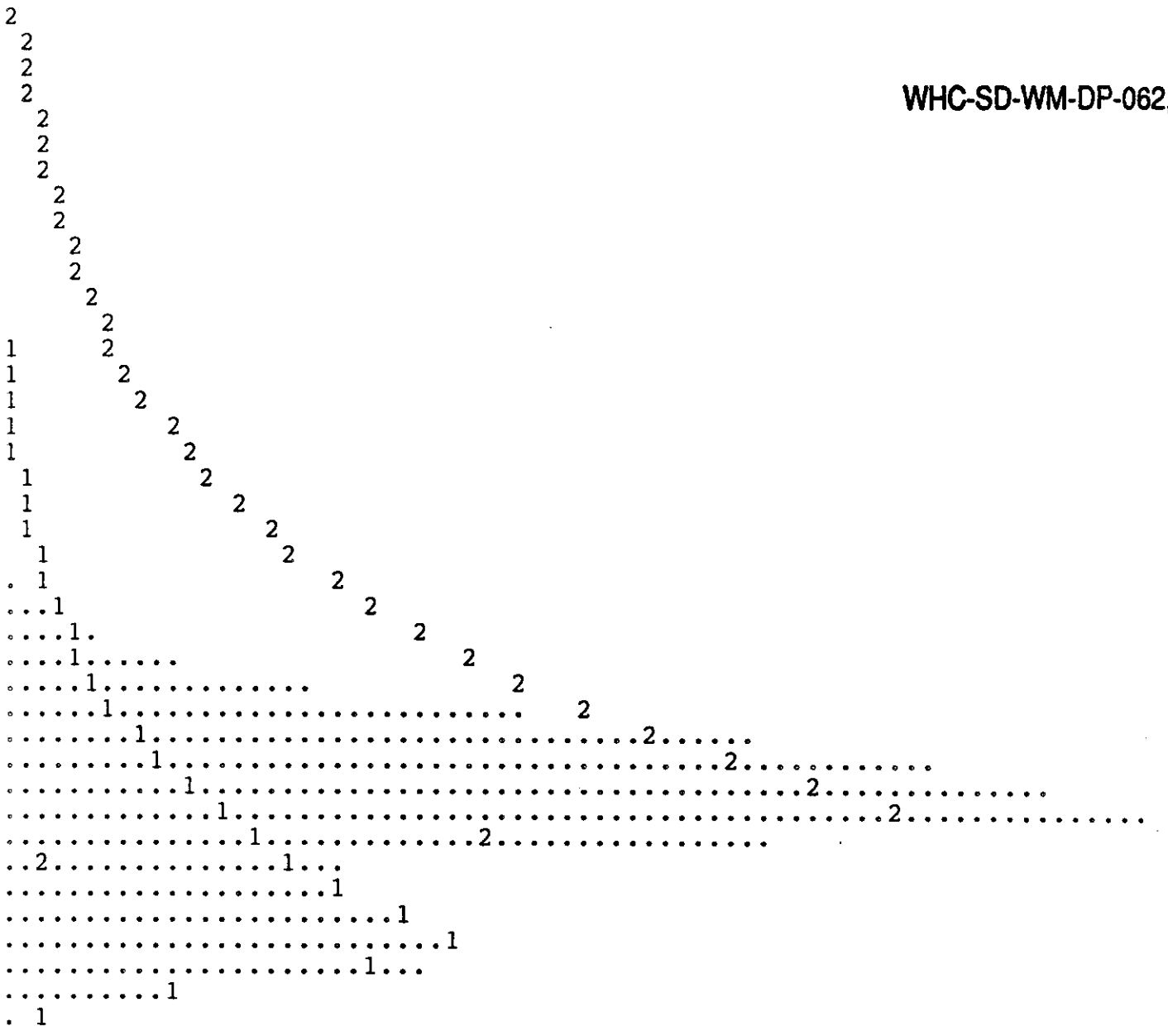
TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	49361.0	100.000
Smoothed	49361.0	100.000
Composite fit	80313.0	162.705
Residuals	-30952.0	-62.705

Analyzed by: _____
DM

Spectrum 4a4103.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 6895.2



Raw Data Dump for AEA Spectrum: 4a4103.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
21	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.
31	0.	2.	0.	1.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
[illegible]	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
61	0.	1.	1.	1.	0.	0.	1.	0.	1.	1.
71	2.	1.	1.	1.	2.	1.	0.	0.	0.	0.
81	1.	1.	0.	0.	0.	0.	1.	0.	0.	0.
91	0.	1.	0.	0.	1.	1.	0.	0.	0.	1.
101	1.	0.	1.	0.	1.	0.	1.	0.	0.	0.
111	0.	0.	1.	0.	1.	0.	0.	1.	0.	0.
121	1.	1.	2.	3.	0.	1.	0.	1.	1.	1.
131	1.	1.	2.	0.	3.	0.	1.	1.	4.	5.
141	1.	2.	1.	2.	2.	0.	2.	1.	3.	3.
151	3.	4.	4.	5.	2.	2.	3.	0.	5.	2.
161	9.	2.	7.	7.	1.	5.	4.	5.	11.	16.
171	7.	15.	7.	10.	20.	14.	11.	22.	29.	17.
181	26.	24.	12.	31.	34.	27.	44.	33.	49.	53.
191	54.	44.	68.	62.	73.	77.	91.	83.	113.	97.
201	118.	142.	129.	132.	146.	149.	174.	210.	215.	207.
211	246.	232.	281.	287.	286.	297.	335.	348.	387.	392.
221	434.	455.	514.	497.	549.	555.	558.	578.	612.	619.
231	669.	666.	704.	641.	698.	722.	704.	738.	774.	751.
241	776.	820.	777.	818.	852.	763.	842.	815.	862.	841.
251	855.	879.	862.	892.	896.	956.	810.	782.	732.	548.
261	470.	354.	305.	241.	224.	211.	236.	226.	242.	252.
271	241.	252.	245.	279.	260.	272.	251.	294.	261.	282.
281	270.	298.	323.	312.	308.	335.	317.	321.	367.	350.
291	361.	371.	355.	351.	375.	341.	358.	338.	334.	360.
301	315.	340.	311.	295.	227.	161.	133.	94.	80.	62.
311	39.	31.	21.	20.	16.	6.	6.	3.	6.	0.
321	2.	0.	2.	0.	0.	1.	0.	2.	2.	1.
331	1.	2.	1.	1.	2.	0.	1.	2.	1.	1.
341	0.	2.	3.	2.	1.	2.	1.	2.	2.	4.
351	2.	0.	4.	0.	3.	2.	2.	0.	1.	1.
361	2.	1.	2.	2.	2.	1.	0.	1.	5.	1.
371	3.	0.	0.	0.	1.	1.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	1.	1.	0.	1.	0.	0.	0.	1.	0.	1.
431	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	1.	0.	1.	0.	0.	0.	3.
481	1.	0.	1.	1.	3.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

1-15-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J-1427-5782 DUP.
File ID: 5a5024.CNF

Counted on: 1/15/94 @ 2:39
Detector: AEA5
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	766.2	766.2	299.325	299.325	22.000	17.734	11.000	5.317
2	1757.4	1757.4	252.879	252.808	22.000	17.964	11.000	5.880

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.302	5.480	5.496	-.016	0.08	39.42	1.4	309.2	0.139E-0[illegible]
	Pu238		5.499	5.496	0.003				403.7	0.182E-03
2	Am243	0.673	5.276	5.277	-.001	0.08	87.85	1.0	654.4	0.295E-03
	Pu240		5.144	5.277	-.133				647.9	0.292E-03
Totals:		0.975	<--valid peaks only-->				127.27			

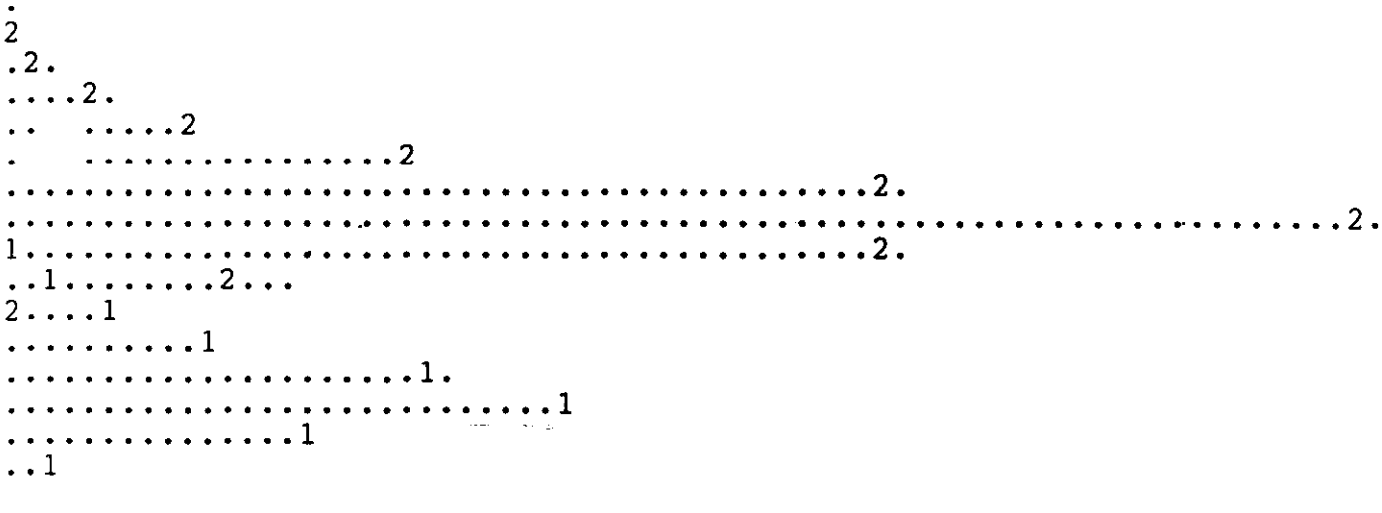
DETECTOR CALIBRATION
Energy(MEV) = 4.089 + (0.0047)*Channel
Energy range (MeV): 4.089 TO 6.495
Efficiency = 0.1356 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	62682.0	100.000
Smoothed	62682.0	100.000
Composite fit	61096.2	97.470
Residuals	1585.8	2.530

Analyzed by: _____
DM

Spectrum 5a5024.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 13696.7



Raw Data Dump for AEA Spectrum: 5a5024.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	3.	2.	4.
21	1.	2.	1.	5.	2.	2.	1.	1.	3.	4.
31	4.	4.	4.	2.	2.	3.	1.	5.	1.	4.
41	3.	0.	2.	6.	1.	3.	3.	4.	4.	1.
51	3.	4.	1.	4.	2.	0.	7.	1.	4.	2.
61	2.	2.	2.	3.	0.	4.	2.	5.	3.	3.
71	1.	2.	5.	6.	3.	6.	4.	6.	1.	2.
81	5.	5.	3.	2.	5.	4.	3.	4.	2.	5.
91	2.	4.	3.	2.	10.	3.	2.	8.	6.	5.
101	6.	3.	2.	2.	7.	6.	2.	4.	7.	5.
111	1.	3.	2.	9.	7.	2.	2.	6.	4.	5.
121	7.	4.	2.	9.	7.	3.	3.	3.	4.	3.
131	7.	6.	7.	7.	8.	4.	15.	5.	4.	4.
141	2.	4.	7.	4.	4.	9.	1.	8.	5.	8.
151	7.	4.	5.	8.	11.	11.	7.	15.	5.	9.
161	13.	3.	6.	14.	10.	8.	5.	16.	13.	14.
171	10.	12.	14.	12.	14.	18.	10.	20.	20.	21.
181	15.	26.	16.	21.	17.	17.	30.	22.	33.	23.
191	18.	30.	30.	26.	32.	32.	33.	30.	43.	39.
201	32.	46.	46.	51.	48.	47.	61.	73.	71.	65.
211	82.	80.	85.	95.	84.	107.	122.	156.	142.	133.
221	166.	174.	207.	192.	186.	226.	238.	285.	272.	293.
231	305.	370.	377.	405.	476.	503.	514.	616.	672.	753.
241	848.	971.	1086.	1249.	1289.	1368.	1491.	1520.	1653.	1838.
251	1881.	1867.	1858.	1814.	1728.	1713.	1542.	1385.	1305.	1088.
261	1007.	760.	664.	558.	517.	406.	326.	247.	235.	170.
271	173.	184.	144.	134.	140.	138.	122.	152.	161.	161.
281	211.	223.	233.	259.	281.	338.	362.	411.	446.	541.
291	594.	631.	658.	679.	701.	757.	770.	740.	816.	822.
301	744.	715.	650.	607.	529.	529.	440.	310.	293.	254.
311	192.	156.	112.	107.	84.	60.	39.	29.	32.	12.
321	12.	4.	8.	3.	1.	1.	2.	1.	3.	1.
331	2.	1.	0.	0.	0.	3.	4.	1.	1.	3.
341	5.	2.	3.	3.	3.	1.	1.	2.	3.	4.
351	6.	2.	1.	6.	4.	2.	3.	3.	3.	3.
361	1.	2.	4.	1.	3.	4.	4.	4.	5.	1.
371	1.	4.	2.	1.	1.	1.	1.	0.	0.	2.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
421	0.	2.	1.	0.	0.	0.	0.	0.	1.	0.
431	0.	0.	0.	1.	0.	0.	1.	1.	0.	0.
441	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	1.	2.	0.	2.	0.
471	1.	2.	0.	0.	2.	1.	1.	0.	0.	1.
481	0.	1.	1.	0.	0.	1.	2.	1.	2.	1.
491	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Raymond
1-15-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J-1427-5782 TRIP
File ID: 6a6934.CNF

Counted on: 1/15/94 @ 2:39
Detector: AEA6
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	639.8	639.8	300.151	300.151	24.000	22.641	12.000	6.349
2	1507.7	1507.7	253.812	253.697	24.000	21.160	12.000	6.655
3	16.7	16.7	169.056	168.959	90.000	1.000	45.000	0.100

PEAK RESULTS
Peak Error Limit: 25%

Peak	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.303	5.480	5.502	-.022	0.11	36.41	1.5	297.7	0.134E-03
	Pu238		5.499	5.502	-.003				388.7	0.175E-03
2	Am243	0.670	5.276	5.283	-.007	0.10	80.62	1.0	626.0	0.282E-03
	Pu240		5.144	5.283	-.139				619.7	0.279E-03
3		0.011		4.885		0.00	1.33	7.9	10.2	0.461E-05
Totals:		0.984	<--valid peaks only-->				118.37			

DETECTOR CALIBRATION
Energy(MEV) = 4.091 + (0.0047)*Channel
Energy range (MeV): 4.091 TO 6.497
Efficiency = 0.1301 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	57750.0	100.000
Smoothed	57753.8	100.007
Composite fit	56821.9	98.393
Residuals	928.1	1.607

Analyzed by: _____
DM

Spectrum 6a6934.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 11731.8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Raw Data Dump for AEA Spectrum: 6a6934.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	2.	3.	3.
21	1.	5.	2.	7.	0.	1.	2.	3.	3.	1.
31	3.	2.	5.	1.	3.	3.	2.	3.	4.	6.
41	1.	2.	5.	4.	1.	3.	6.	4.	2.	3.
	3.	0.	2.	4.	3.	2.	6.	2.	4.	0.
61	2.	4.	5.	2.	3.	2.	3.	2.	5.	1.
71	2.	3.	3.	4.	3.	3.	2.	2.	3.	7.
81	2.	6.	6.	6.	3.	5.	2.	5.	1.	3.
91	4.	7.	3.	4.	4.	6.	4.	6.	3.	5.
101	6.	5.	2.	4.	8.	3.	7.	7.	4.	7.
111	5.	2.	6.	7.	10.	2.	5.	7.	5.	8.
121	3.	4.	6.	6.	7.	14.	11.	9.	6.	8.
131	11.	6.	3.	1.	9.	2.	16.	13.	14.	4.
141	8.	7.	9.	8.	8.	14.	7.	6.	7.	7.
151	13.	18.	10.	9.	7.	11.	6.	15.	10.	6.
161	5.	12.	12.	10.	10.	12.	14.	20.	23.	21.
171	15.	10.	9.	12.	18.	20.	7.	15.	15.	21.
181	17.	16.	23.	22.	21.	27.	20.	17.	25.	16.
191	23.	29.	29.	25.	28.	36.	29.	27.	32.	22.
201	45.	43.	41.	41.	50.	49.	41.	78.	53.	56.
211	56.	70.	64.	77.	87.	97.	115.	111.	133.	128.
221	148.	144.	176.	143.	217.	209.	228.	232.	225.	236.
231	260.	312.	321.	360.	398.	437.	501.	524.	577.	653.
241	754.	794.	927.	945.	1179.	1190.	1298.	1311.	1462.	1459.
251	1571.	1568.	1549.	1635.	1501.	1506.	1464.	1326.	1201.	1117.
261	1051.	873.	793.	712.	629.	537.	395.	372.	314.	239.
271	237.	180.	161.	139.	119.	151.	142.	140.	136.	160.
281	152.	197.	208.	221.	248.	286.	278.	359.	406.	438.
291	456.	515.	548.	556.	631.	624.	648.	682.	654.	657.
301	633.	658.	636.	581.	540.	484.	465.	388.	372.	305.
3	258.	216.	169.	129.	120.	113.	57.	53.	43.	37.
321	18.	26.	15.	9.	8.	3.	6.	2.	4.	2.
331	1.	2.	4.	1.	1.	0.	1.	0.	3.	2.
341	2.	1.	3.	2.	1.	1.	3.	2.	2.	1.
351	1.	2.	5.	3.	3.	1.	2.	6.	0.	0.
361	2.	1.	1.	1.	3.	4.	4.	0.	1.	3.
371	4.	3.	1.	3.	6.	2.	1.	1.	1.	2.
381	1.	0.	1.	1.	1.	0.	1.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	2.	0.	1.	0.	0.
421	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
431	1.	0.	0.	0.	0.	0.	3.	0.	1.	0.
441	0.	1.	1.	0.	1.	0.	0.	0.	0.	0.
451	0.	0.	1.	1.	0.	1.	0.	0.	0.	0.
461	1.	0.	0.	0.	0.	1.	0.	0.	2.	2.
471	3.	1.	2.	4.	1.	3.	1.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	1.	1.	1.	2.	4.	4.	5.	2.	0.	0.
511	0.	0.								

Reynolds
1-15-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J-1427-5982 SPIK
File ID: 7a7461.CNF

Counted on: 1/15/94 @ 2:40
Detector: AEA7
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	285.9	285.9	304.182	304.182	20.000	12.752	10.000	7.942
2	422.7	422.7	258.428	258.425	18.000	11.337	9.000	5.757
3	146.9	146.9	232.339	231.778	14.000	7.352	7.000	3.286

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.338	5.480	5.517	-.037	0.06	10.67	2.7	112.3	0.506E-04
	Pu238		5.499	5.517	-.018				146.6	0.660E-04
2	Am243	0.499	5.276	5.302	-.026	0.05	15.73	2.3	157.2	0.708E-04
3	Pu239	0.157	5.143	5.177	-.034	0.03	4.95	4.9	48.9	0.220E-04
	Pu240		5.144	5.177	-.033				48.9	0.220E-04
Totals:		0.993	<--valid peaks only-->				31.35			

DETECTOR CALIBRATION
Energy(MEV) = 4.088 + (0.0047)*Channel
Energy range (MeV): 4.088 TO 6.494
Efficiency = 0.1011 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	15149.0	100.000
Smoothed	15149.0	100.000
Composite fit	15047.1	99.327
Residuals	101.9	0.673

Analyzed by: _____
DM

Spectrum 7a7461.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 3023.9


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3...............2.
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Raw Data Dump for AEA Spectrum: 7a7461.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
31	1.	0.	1.	0.	0.	0.	1.	0.	0.	0.
41	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	2.	1.	0.	0.	0.
61	1.	0.	1.	0.	0.	0.	1.	0.	1.	0.
71	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
81	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
101	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
111	0.	1.	2.	0.	1.	0.	0.	0.	1.	1.
121	1.	0.	1.	0.	0.	0.	2.	1.	0.	1.
131	0.	2.	0.	0.	1.	0.	1.	0.	1.	1.
141	2.	1.	1.	0.	1.	0.	2.	0.	0.	0.
151	0.	1.	1.	2.	0.	0.	0.	0.	1.	0.
161	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.
181	1.	1.	0.	1.	1.	0.	1.	1.	0.	1.
191	1.	1.	2.	2.	2.	1.	0.	5.	3.	4.
201	2.	5.	8.	8.	3.	11.	11.	4.	8.	7.
211	10.	15.	10.	12.	23.	26.	36.	36.	50.	40.
221	65.	60.	70.	100.	98.	126.	125.	137.	157.	178.
231	170.	169.	180.	166.	150.	128.	109.	91.	85.	71.
241	70.	51.	76.	83.	88.	119.	140.	152.	167.	201.
251	239.	288.	311.	380.	372.	418.	476.	461.	459.	427.
261	377.	374.	299.	247.	199.	181.	109.	95.	71.	63.
271	44.	36.	34.	23.	27.	17.	23.	15.	9.	12.
281	18.	15.	16.	19.	24.	21.	26.	25.	59.	47.
291	75.	83.	77.	105.	130.	135.	162.	197.	249.	247.
301	269.	283.	305.	320.	305.	264.	267.	225.	188.	193.
311	138.	132.	95.	85.	66.	54.	34.	27.	18.	22.
321	1.	7.	6.	4.	3.	3.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
341	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
351	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.
361	1.	3.	2.	1.	0.	0.	0.	0.	0.	3.
371	2.	0.	0.	1.	1.	1.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
431	0.	1.	0.	2.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
481	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	3.	0.								

Raymond
1-15-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J-1427-5982 SPIK
File ID: 8a8674.CNF

Counted on: 1/15/94 @ 2:40
Detector: AEA8
Geometry number: 1
Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	2962.4	2962.4	299.075	299.075	18.000	10.449	9.000	5.748
2	4562.7	4562.7	253.084	253.079	16.000	9.069	8.000	4.732
3	1077.1	1077.1	227.487	226.828	14.000	6.602	7.000	3.100

PEAK RESULTS
Peak Error Limit: 25%

Pe.	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.351	5.480	5.501	-.021	0.05	104.80	0.9	864.9	0.390E-03
	Pu238		5.499	5.501	-.002				1129.2	0.509E-03
2	Am243	0.521	5.276	5.284	-.008	0.04	155.58	0.7	1219.2	0.549E-03
3	Pu239	0.115	5.143	5.161	-.018	0.03	34.44	1.9	267.1	0.120E-03
	Pu240		5.144	5.161	-.017				267.1	0.120E-03
		---					---			
Totals:		0.987	<--valid peaks only-->				294.81			

DETECTOR CALIBRATION
Energy(MEV) = 4.095 + (0.0047)*Channel
Energy range (MeV): 4.095 TO 6.501
Efficiency = 0.1289 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	143388.0	100.000
Smoothed	143388.0	100.000
Composite fit	141510.3	98.690
Residuals	1877.7	1.310

Analyzed by: _____
DM

Spectrum 8a8674.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 33481.1


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3
..3
2........3.
..2...........3...
..3......2...
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..2....
.1.
.......1
..........................1
.........................................1
...............1
1.
```

Raw Data Dump for AEA Spectrum: 8a8674.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	4.	2.	0.
21	4.	2.	2.	2.	4.	1.	2.	0.	1.	3.
31	3.	1.	2.	0.	6.	2.	0.	0.	2.	2.
41	3.	1.	0.	0.	1.	1.	4.	1.	2.	1.
51	1.	5.	2.	2.	2.	1.	1.	3.	0.	2.
61	0.	5.	1.	1.	1.	3.	3.	2.	4.	3.
71	3.	3.	2.	2.	5.	1.	3.	3.	2.	2.
81	1.	3.	4.	0.	4.	3.	3.	2.	3.	4.
91	6.	5.	1.	1.	4.	2.	4.	3.	1.	0.
101	5.	3.	4.	4.	1.	1.	0.	7.	2.	5.
111	3.	4.	4.	5.	5.	1.	8.	6.	5.	4.
121	7.	5.	5.	2.	5.	5.	5.	5.	8.	5.
131	6.	3.	4.	2.	3.	7.	6.	4.	2.	3.
141	8.	12.	1.	8.	7.	8.	3.	5.	4.	5.
151	5.	4.	5.	3.	5.	8.	3.	4.	7.	7.
161	6.	4.	5.	6.	9.	4.	5.	8.	10.	6.
171	9.	14.	10.	7.	5.	17.	11.	17.	8.	10.
181	11.	13.	19.	18.	15.	10.	14.	16.	18.	20.
191	17.	23.	22.	23.	22.	30.	24.	32.	44.	29.
201	56.	50.	63.	60.	70.	96.	100.	112.	135.	142.
211	178.	209.	224.	277.	365.	368.	444.	510.	646.	683.
221	830.	915.	1007.	1149.	1230.	1345.	1360.	1296.	1242.	1165.
231	1007.	866.	770.	664.	583.	581.	675.	681.	788.	977.
241	1091.	1323.	1561.	1840.	2213.	2630.	3001.	3339.	3865.	4438.
251	4654.	5051.	5032.	4889.	4371.	4025.	3437.	2666.	2032.	1460.
261	1073.	839.	618.	560.	454.	390.	334.	287.	254.	217.
271	193.	152.	164.	150.	161.	168.	184.	201.	238.	247.
281	319.	370.	370.	475.	564.	693.	827.	918.	1082.	1194.
291	1474.	1735.	1961.	2242.	2636.	2920.	3109.	3183.	3231.	3151.
301	2872.	2640.	2245.	1822.	1511.	1225.	918.	712.	567.	417.
311	344.	265.	183.	146.	72.	57.	32.	15.	10.	5.
321	3.	0.	0.	1.	0.	0.	0.	0.	0.	0.
331	0.	1.	0.	0.	0.	0.	0.	0.	2.	0.
341	0.	1.	0.	0.	1.	3.	3.	0.	0.	2.
351	2.	3.	0.	1.	0.	3.	5.	0.	3.	3.
361	2.	5.	4.	5.	3.	6.	4.	4.	2.	3.
371	6.	3.	0.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	1.	0.	1.	0.	0.	1.	0.	0.	1.	2.
431	1.	1.	0.	2.	0.	0.	1.	0.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	2.	0.	0.	0.	0.	1.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH 2398

WHC-SD-WM-DP-062, REV. 0

Lab Segment Serial No. J1428	Customer ID: KE72A
Analysis: Am241	Sample Prep: Direct

Instrument: WB 537237	Procedure/ Rev: LA-503-156 0-0
Technologist: Teresa Mix	Date: 1-10-94
Starting Time: 0830	Temperature 25°
Ending Time: 1400	Chemist: L. Fritts

Comments:

	Description	Lab ID		Description	Lab ID
1	LMCS	~~J1420-5582~~ ~~J1420-5582~~	11		
2	Blank	J1423-5682	12		
3	Sample	J1428-5782	13		
4	Sample dup.	J1428-5782	14		
5	Sample trip.	J1428-5782	15		
6	Spike	J1428-5982	16		
7	Spike dup.	~~J1428-5982~~	17		
8		J1428-5982	18		
9		2-10-94	19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	63B43	.100ml-10ml-1ml		
Spike	78B43	.100ml		

A-6000-881 (03/92)

60

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-503-156

DATE START: January 10, 1994

PREPARED BY: L.L. Fritts LLFritts 1-14-94

DATE COMPLETE: January 14, 1994

	UNITS:	uCi/mL									
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	RESULT #3	AVERAGE	2*SD	PREC	%REC	DET LIM	% CT ER
STD 63843	J1420	Am-241	3.00E+1						112.0	3.55E-3	4.4
BLANK	J1423	Am-241	1.97E-3						2.4	1.87E-2	51.3
KE72A	J1428	Am-241	1.40E-2	1.44E-2	1.47E-2	1.44E-2	7.02E-4	4.9	28.7	6.51E-3	7.0
									33.2	5.62E-3	7.5
									35.7	5.23E-3	5.8
KE72A	J1428	241 Spike	~~109.7~~ pK AC 1-19-94	102.8							

NARRATIVE: [X] NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH

LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in uCi/L.

The results for the spike are in percent recovery.

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

(7) 7452 Batch 2398

Serial No	Sample Point	Date	Time Issued	Priority
J 1420.-5582	BECHTOLD	12-16-93	9:12	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? .100ml - 10ml - 1ml	STD

Remarks, Calculations, Results

EDP R201 AR001 "AEA" - 480MIN

STD# 63B43 RESULT 3.00 E+1 ATTACH PRINTOUT

STD VAL ~~2.683 E+1~~ 26.79 %REC 112.0 %

1/11/94

.100 ml 78B43

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
		1-12-94		

Date	Time Completed	Lab Unit Mgr	
1-10-94			1-12-94

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			STANDARD
Serial No.	Spike (Tracer) Book Number		78B43
J1420-5582	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2398	Volume of Sample in mL	(SS)	1
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	983
T MIX	Am-243 Area Peak Height from AEA	(C243)	1124
Date	Total AT Count	(ATOT)	10446
01/10/94	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	7

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))

µCi/mL = µCi/L / (1000mL/L)

Tracer % Rec = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

Am-241 µCi/L	=	3.00E+01
Am-241 µCi/mL	=	3.00E-02
Relative counting error	=	4.4%
Am-243 Tracer Recovery	=	48.3%

Data Entry by:		Date:	12-Jan-94
Approved by:		Date:	13 Jan 1994

Form 3 Rev. 1.2

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 1-11-84

10446/30 -7

J1420-5582
#7

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

(b) 6925

Serial No.	Sample Point	Date	Time Issued	Priority
J 1423.-5682	BECHTOLD	12-16-93	9:14	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? ~~1ml~~ 1ml-10ml-.1ml 1-13-94	BLK

Remarks, Calculations, Results

REAGENT BLANK

COUNT AS uCI/L

.100 ml 78B43

"AEA" - 480MIN
ATTACH PRINTOUT

1-13-94

~~1.905 5 uci/ml~~

1.97×10^{-3} uCi/ml

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs 1-12-94	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr.	
1-10-94			1-12-94

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			BLANK
Serial No.	Spike (Tracer) Book Number		78B43
J1423-5682	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2398	Volume of Sample in mL	(SS)	0.1
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	4
T MIX	Am-243 Area Peak Height from AEA	(C243)	76
Date	Total AT Count	(ATOT)	321
01/10/94	AT Count Time in Minutes	(MIN CT'd)	30
	Background in CPM	(BKG)	1

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))

µCi/mL = µCi/L / (1000mL/L)

Tracer % Rec = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

Am-241 µCi/L	=	1.97E+00
Am-241 µCi/mL	=	1.97E-03
Relative counting error	=	51.3%
Am-243 Tracer Recovery	=	2.4%

Data Entry by:		Date:	13-Jan-94
Approved by:		Date:	13 Jan 1994

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#2 1-11-94

J1423-5682
#6

321 -1
30

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

8 4094

Serial No.	Sample Point	Date	Time Issued	Priority
J 1428.-5782	BECHTOLD	12-16-93	13:20	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? 1ml - 10ml - .100ml	KE72A

Remarks, Calculations, Results

COUNT AS uCI/L SAM

.1ml 78B43

"AEA" - 480MIN
ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

1.40 E-2 uci/ml

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa Mi				
Hrs	Hrs	Hrs 1-12-94	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-10-93			1-12-94

54-6600-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

Serial No.			SAMPLE
J1428-5782	Spike (Tracer) Book Number		78B43
	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2398	Volume of Sample in mL	(SS)	0.1
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	282
T MIX	Am-243 Area Peak Height from AEA	(C243)	753
Date	Total AT Count	(ATOT)	4664
01/10/94	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	7

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))

µCi/mL = µCi/L / (1000mL/L)

Tracer % Rec = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

Am-241 µCi/L	=	1.40E+01
Am-241 µCi/mL	=	1.40E-02
Relative counting error	=	7.0%
Am-243 Tracer Recovery	=	28.7%

Data Entry by:		Date:	12-Jan-94
Approved by:		Date:	14 Jan 1994

Form 3 Rev. 1.2

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

1-11-94

4664/30 -7

J 1428-5782
#8

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

(5) 5014

Serial No.	Sample Point	Date	Time Issued	Priority
J 1428.-5782	BECHTOLD	12-16-93	13:20	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? 1ml - 10ml - .100ml	KE72A

Remarks, Calculations, Results

COUNT AS uCI/L

.100ml 78B43

DUP

"AEA" - 480MIN
ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

1.44E-2 uci/ml

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs 1-12-94	Hrs	Hrs
Date 1-10-94	Time Completed	Lab Unit/Mgr	1-12-94	

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1428-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2398	Volume of Sample in mL	(SS)	0.1
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	249
T MIX	Am-243 Area Peak Height from AEA	(C243)	644
Date	Total AT Count	(ATOT)	5327
01/10/94	AT Count Time in Minutes	(MIN CT'd)	30
	Background in CPM	(BKG)	4

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))

µCi/mL = µCi/L / (1000mL/L)

Tracer % Rec = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

Am-241 µCi/L	=	1.44E+01
Am-241 µCi/mL	=	1.44E-02
Relative counting error	=	7.5%
Am-243 Tracer Recovery	=	33.2%

Data Entry by:		Date:	12-Jan-94
Approved by:		Date:	14 Jan 1994

Form 3 Rev. 1.2

828

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 1-11-94

5327 -4
30

J 1428-5782
#5

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

③ 3585

Serial No	Sample Point	Date	Time Issued	Priority
J 1428.-5782	BECHTOLD	12-16-93	13:20	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? 1ml - 10ml - 100ml	KE72A

Remarks, Calculations, Results

COUNT AS uCI/L TOTP

"AEA" - 480MIN
ATTACH PRINTOUT

100ml 78B43

WHC-SD-WM-DP-062, REV. 0

1.47 E-2 uci/ml

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs 1-12-94	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-10-94			1-12-94

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1428-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
2398	Volume of Sample in mL	(SS)	0.1
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	419
T MIX	Am-243 Area Peak Height from AEA	(C243)	1067
Date	Total AT Count	(ATOT)	5651
01/10/94	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	1

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))
µCi/mL = µCi/L / (1000mL/L)
Tracer % Rec = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

Am-241 µCi/L	=	1.47E+01
Am-241 µCi/mL	=	1.47E-02
Relative counting error	=	5.8%
Am-243 Tracer Recovery	=	35.7%

Data Entry by:		Date:	12-Jan-94
Approved by:		Date:	14 Jan 1994

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#2 1-11-94 MVS

5651-1
30

J 1428-5782
#3

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

② 2525

Serial No.	Sample Point	Date	Time Issued	Priority
J 1428.-5982	BECHTOLD	12-16-93	13:20	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0-

Sample Size	Customer ID
? 1ml-10ml-.100ml	KE72A

Remarks, Calculations, Results:

SAMPLE SPIKED ID 63B43 spk.100ml-10ml-1ml

SPIKE ID 78B43

SPIKE VOLUME .200ml

COUNT AS uCI/L

~~110.7%~~ "AEA" - 480MIN ATCH PRINTOUT 1.14.94

109.7%

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa Mix	MB	[illegible]		
Hrs	Hrs	Hrs 1-12-94	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-10-94		[illegible]	1-12-94 [illegible]

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) LIQUIDS

			CHK EXT NO.
Serial No.	Spike (Tracer) Book Number		78B43
J1428-5982	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.2
2398	Volume of Sample in mL	(SS)	0.1
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	885
T MIX	Am-243 Area Peak Height from AEA	(C243)	1438
Date	Total AT Count	(ATOT)	13736
01/10/94	AT Count Time in Minutes	(MIN CT'd)	30
	Background in CPM	(BKG)	4

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))

µCi/mL = µCi/L / (1000mL/L)

Tracer % Rec = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

$$\frac{(46.0 - 14.0)\left(\frac{1}{885}\right)\left(\frac{1}{11}\right)(100)}{26.92} = 109.7\%$$

[illegible] 2.10.94

Am-241 µCi/L	=	4.60E+01
Am-241 µCi/mL	=	4.60E-02
Relative counting error	=	4.3%
Am-243 Tracer Recovery	=	37.3%

Data Entry by:	[illegible]	Date:	14-Jan-94
Approved by:	[illegible]	Date:	14 Jan 1994

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 1-11-94 MS

13736 / 3J = 4

J1428-5982
#2

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

(8) 8666

Serial No	Sample Point	Date	Time Issued	Priority
J 1428.-5982	BECHTOLD	12-16-93	13:20	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? 1ml-10ml-100ml	KE72A

Remarks, Calculations, Results

SAMPLE SPIKED ID 63B43 . ~~100ml~~ 10ml-1ml

SPIKE ID 78B43

SPIKE VOLUME .200ml

COUNT AS uCI/L

102.8%

"AEA" - 480MIN
ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa Mi				
Hrs	Hrs	Hrs	Hrs	Hrs
		1-12-94		
Date	Time Completed	Lab Unit Mgr		
1-10-94			1-12-94	

54-6800-061 (R-10-83)

2.10.94

(44.4 - 14.4)(10/1 / 11/1)(100) = 102.8% spike rec.

26.79

AM-241: LA-503-156 (D-0) LIQUIDS

Serial No.	Spike (Tracer) Book Number		CHK EXT NO.
J1428-5982	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.2
2398	Volume of Sample in mL	(SS)	0.1
Rerun No.	Dilution Factor	(DF)	11
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	1134
T MIX	Am-243 Area Peak Height from AEA	(C243)	1909
Date	Total AT Count	(ATOT)	14944
01/10/94	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	7

Am-241 µCi/L = ((C241 * SPKA * SPKV * DF * DDF * (1000mL/L)) / ((C243 * SS * (2220000dpm/mL))
µCi/mL = µCi/L / (1000mL/L)
Tracer % Rec = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error = Square Root of ((1 / C241) + (1/C243)) * 100

Am-241 µCi/L	=	4.44E+01
Am-241 µCi/mL	=	4.44E-02
Relative counting error	=	3.7%
Am-243 Tracer Recovery	=	40.9%

Data Entry by:		Date:	12-Jan-94
Approved by:		Date:	14 Jan 1994

Form 3 Rev. 1.2

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

1. 1-11-94 MS

14944/30 - 7

σ 1428.5982
8

WHC-SD-WM-DP-062, REV. 0

H.Johnson 1-12-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J 1420-5582
File ID: 7a7452.CNF

Counted on: 1/11/94 @13:24
Detector: AEA7
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	914.1	914.1	299.472	299.472	22.000	17.244	11.000	2.514
2	923.3	923.3	253.508	253.046	22.000	16.711	11.000	2.838

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.521	5.480	5.491	-.011	0.08	68.56	1.1	726.5	0.327E-0[illegible]
	Pu238		5.499	5.491	0.008				948.4	0.427E-03
2	Am243	0.475	5.276	5.273	0.003	0.08	62.49	1.3	628.6	0.283E-03
	Pu240		5.144	5.273	-.129				622.4	0.280E-03
		---					---			
Totals:		0.996	<--valid peaks only-->				131.05			

DETECTOR CALIBRATION
Energy(MEV) = 4.084 + (0.0047)*Channel
Energy range (MeV): 4.084 TO 6.490
Efficiency = 0.1004 CPM/DPM

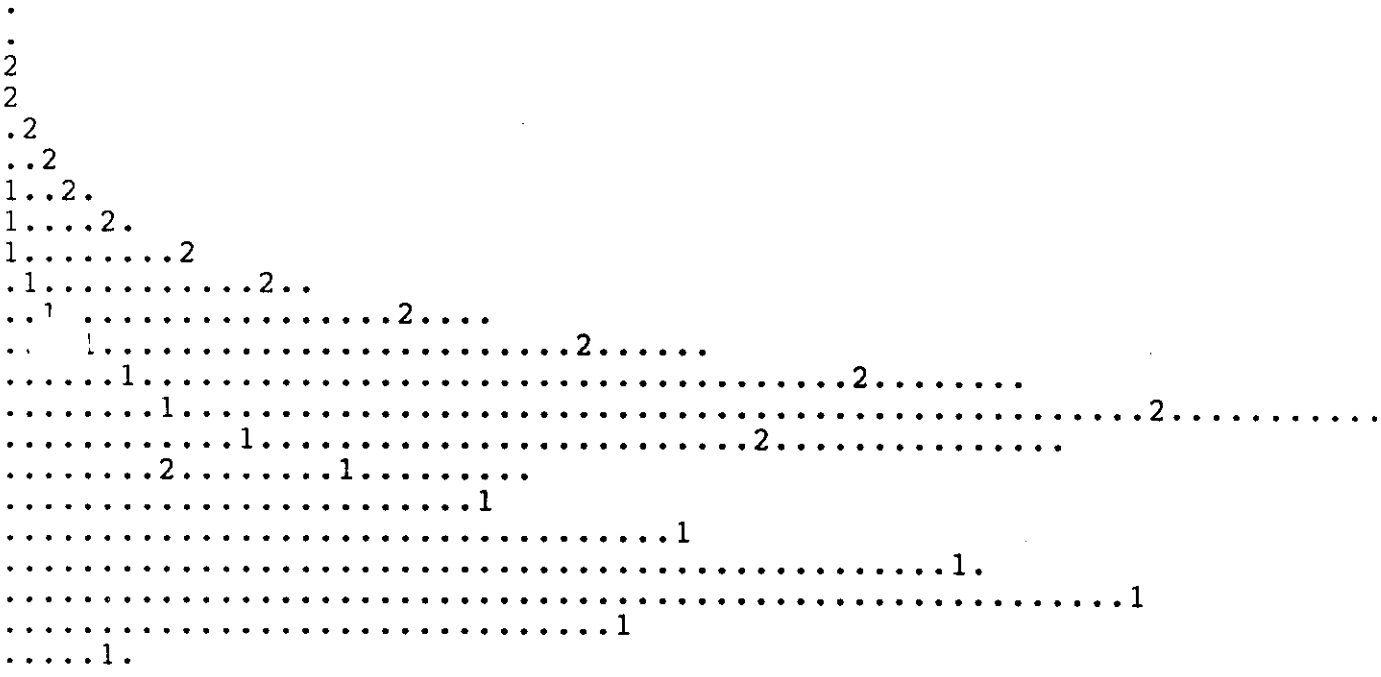
TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	63179.0	100.000
Smoothed	63179.0	100.000
Composite fit	62910.5	99.575
Residuals	268.5	0.425

Analyzed by: _____
MB

Spectrum 7a7452.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 8297.0



Raw Data Dump for AEA Spectrum: 7a7452.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	1.	0.	3.	1.
21	1.	3.	0.	3.	1.	2.	0.	2.	2.	2.
31	2.	1.	2.	2.	3.	2.	2.	1.	0.	1.
41	2.	3.	0.	1.	4.	4.	1.	0.	4.	3.
51	4.	2.	2.	1.	3.	0.	3.	2.	3.	1.
61	1.	2.	2.	1.	2.	0.	0.	2.	1.	0.
71	5.	0.	6.	2.	7.	2.	4.	2.	4.	2.
81	1.	1.	5.	11.	5.	2.	9.	2.	0.	4.
91	2.	3.	5.	2.	0.	2.	2.	2.	3.	3.
101	7.	7.	8.	4.	6.	4.	1.	5.	6.	3.
111	7.	4.	6.	4.	10.	11.	5.	6.	6.	4.
121	9.	8.	8.	5.	12.	10.	3.	10.	11.	7.
131	9.	3.	10.	9.	11.	10.	9.	14.	9.	15.
141	11.	11.	8.	11.	19.	18.	15.	16.	16.	17.
151	18.	23.	11.	16.	15.	18.	18.	21.	24.	12.
161	19.	19.	18.	25.	20.	18.	26.	22.	13.	33.
171	29.	33.	25.	29.	36.	36.	33.	31.	32.	47.
181	48.	36.	45.	41.	49.	50.	57.	49.	40.	49.
191	64.	73.	69.	70.	73.	78.	85.	79.	93.	94.
201	91.	93.	113.	105.	100.	128.	133.	136.	150.	144.
211	143.	168.	186.	170.	190.	212.	211.	206.	252.	245.
221	295.	269.	298.	325.	301.	398.	382.	376.	354.	409.
231	437.	498.	468.	543.	532.	517.	550.	597.	577.	644.
241	718.	743.	756.	791.	790.	848.	867.	943.	1022.	1078.
251	1065.	1123.	1124.	1082.	1103.	1019.	998.	1018.	839.	833.
261	745.	611.	552.	468.	410.	407.	394.	366.	304.	337.
271	325.	351.	327.	344.	345.	394.	355.	424.	387.	396.
281	462.	525.	534.	529.	551.	613.	617.	616.	672.	693.
291	696.	766.	836.	844.	792.	897.	864.	921.	983.	949.
301	895.	868.	853.	747.	701.	591.	486.	433.	373.	292.
311	237.	192.	142.	102.	82.	67.	61.	38.	27.	17.
321	23.	10.	0.	3.	2.	0.	1.	3.	0.	0.
331	0.	0.	0.	0.	1.	0.	0.	1.	0.	2.
341	0.	1.	0.	0.	0.	1.	1.	1.	0.	1.
351	1.	3.	2.	0.	1.	3.	1.	0.	1.	1.
361	1.	1.	1.	0.	0.	1.	0.	2.	0.	1.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
481	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	1.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J 1423-5682
File ID: 6a6925.CNF

Counted on: 1/11/94 @13:23
Detector: AEA6
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	67.1	67.1	250.245	250.245	28.000	27.751	14.000	8.329

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1		0.913		70.075		****	3.99	4.5	31.2	0.141E-04
Totals:		0.913	<--valid peaks only-->				3.99			

DETECTOR CALIBRATION
Energy(MEV) = ******* + (0.9750)*Channel
Energy range (MeV): ****** TO ******
Efficiency = 0.1279 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	2101.0	100.000
Smoothed	2104.4	100.163
Composite fit	1917.4	91.264
Residuals	183.6	8.736

Analyzed by: _____
MB

Spectrum 6a6925.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 492.8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1
.1
...1
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Raw Data Dump for AEA Spectrum: 6a6925.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	1.	0.	0.	1.	0.	0.	1.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
61	0.	1.	0.	0.	0.	0.	0.	0.	1.	1.
71	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	1.	0.	0.	1.	0.	1.	0.	0.	0.
101	1.	0.	0.	0.	0.	0.	1.	0.	0.	2.
111	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
121	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
131	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
141	1.	1.	0.	1.	1.	1.	0.	1.	0.	1.
151	0.	0.	0.	1.	0.	2.	1.	0.	0.	0.
161	0.	0.	2.	0.	0.	1.	1.	0.	0.	3.
171	1.	0.	0.	1.	0.	1.	0.	0.	0.	1.
181	1.	0.	0.	1.	0.	2.	0.	1.	1.	1.
191	0.	1.	2.	1.	0.	2.	2.	1.	1.	2.
201	0.	0.	3.	5.	2.	1.	3.	2.	6.	3.
211	1.	5.	6.	4.	8.	4.	4.	7.	9.	7.
221	9.	14.	6.	10.	12.	14.	18.	13.	15.	13.
231	31.	24.	26.	19.	33.	31.	34.	37.	36.	47.
241	44.	55.	52.	63.	59.	49.	53.	67.	71.	76.
251	68.	66.	58.	62.	56.	42.	53.	47.	48.	38.
261	39.	26.	26.	28.	12.	16.	11.	7.	8.	4.
271	7.	14.	7.	2.	8.	7.	3.	1.	5.	2.
281	3.	0.	1.	0.	2.	4.	1.	3.	2.	4.
291	0.	0.	2.	3.	4.	2.	1.	2.	1.	0.
301	~~0.~~ 427	2.	1.	1.	0.	1.	1.	0.	1.	0.
311	1. 1.13.94	0.	0.	1.	0.	0.	0.	0.	0.	0.
321	3.	1.	1.	1.	0.	0.	0.	0.	0.	0.
331	0.	0.	1.	1.	0.	1.	0.	2.	3.	1.
341	0.	1.	2.	0.	0.	0.	1.	4.	0.	1.
351	0.	1.	2.	3.	2.	1.	0.	0.	1.	0.
361	0.	2.	0.	0.	0.	1.	0.	1.	0.	0.
371	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
381	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
411	0.	1.	1.	1.	0.	0.	0.	0.	1.	0.
421	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
431	0.	0.	1.	0.	0.	2.	0.	0.	0.	1.
441	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
451	0.	0.	0.	0.	0.	2.	0.	0.	0.	1.
461	0.	0.	0.	0.	1.	0.	0.	1.	1.	1.
471	2.	1.	2.	4.	1.	0.	0.	1.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
491	1.	0.	1.	0.	3.	8.	9.	1.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT **WHC-SD-WM-DP-062, REV. 0**

SAMPLE
J 1428-5782
File ID: 4a4094.CNF

Counted on: 1/11/94 @13:22
Detector: AEA4
Geometry number: 1
Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	248.1	248.1	302.914	302.914	14.000	6.667	7.000	1.921
2	639.6	639.6	257.399	257.382	14.000	5.287	7.000	1.557

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.269	5.499	5.505	-.006	0.03	10.17	2.8	166.0	0.748E-04
	Am241		5.480	5.505	-.025				127.2	0.573E-04
2	Am243	0.655	5.276	5.291	-.015	0.02	24.73	1.8	293.5	0.132E-03
		---					---			
Totals:		0.924	<--valid peaks only-->				34.90			

DETECTOR CALIBRATION
Energy(MEV) = 4.081 + (0.0047)*Channel
Energy range (MeV): 4.081 TO 6.488
Efficiency = 0.0851 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	18122.0	100.000
Smoothed	18122.0	100.000
Composite fit	16753.0	92.446
Residuals	1369.0	7.554

Analyzed by: _____
MB

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                    Spectrum 4a4094.CNF
1 Legend:  Raw = ....  Modeled Peaks = 1,2,.., etc     Display Max.:    3675.2

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Raw Data Dump for AEA Spectrum: 4a4094.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	2.	1.	0.	0.	0.	0.	0.	0.	1.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	2.	0.	0.	0.	1.	1.
51	0.	1.	0.	0.	0.	0.	1.	1.	1.	0.
61	0.	0.	0.	0.	1.	0.	2.	2.	0.	2.
71	1.	1.	0.	1.	0.	0.	0.	0.	1.	0.
81	1.	1.	2.	1.	0.	0.	1.	0.	1.	1.
91	0.	0.	2.	1.	0.	1.	0.	1.	1.	0.
101	2.	2.	1.	0.	2.	0.	0.	3.	2.	0.
111	0.	1.	1.	1.	2.	0.	2.	0.	1.	0.
121	1.	1.	1.	2.	2.	2.	2.	0.	1.	1.
131	4.	2.	4.	3.	3.	1.	1.	1.	4.	4.
141	3.	2.	5.	2.	6.	9.	2.	3.	3.	2.
151	5.	3.	6.	7.	2.	2.	6.	8.	1.	2.
161	2.	3.	4.	7.	6.	4.	5.	6.	9.	8.
171	4.	7.	8.	6.	8.	8.	12.	11.	3.	6.
181	10.	13.	9.	7.	15.	10.	18.	7.	10.	14.
191	19.	17.	19.	17.	20.	21.	20.	16.	22.	17.
201	17.	25.	20.	24.	29.	28.	30.	24.	29.	33.
211	35.	36.	39.	38.	44.	50.	49.	51.	59.	62.
221	49.	68.	60.	52.	82.	65.	103.	84.	93.	104.
231	110.	115.	128.	119.	145.	124.	158.	146.	169.	193.
241	197.	215.	214.	226.	268.	285.	280.	347.	348.	363.
251	401.	434.	456.	526.	583.	662.	753.	736.	664.	543.
261	381.	255.	145.	107.	99.	76.	55.	57.	57.	58.
271	59.	49.	54.	53.	53.	50.	45.	36.	49.	60.
281	50.	41.	49.	64.	66.	79.	86.	90.	89.	103.
291	94.	126.	117.	163.	154.	139.	139.	195.	205.	243.
301	241.	272.	267.	282.	228.	212.	113.	106.	73.	50.
311	39.	30.	26.	20.	15.	8.	4.	5.	2.	2.
321	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
331	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	1.	1.	1.	0.	0.
351	1.	1.	4.	0.	0.	2.	1.	0.	2.	1.
361	2.	0.	2.	1.	0.	2.	0.	0.	2.	2.
371	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
421	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
431	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
441	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	1.	0.	0.	0.	0.	0.	0.	0.	1.	1.
481	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT **WHC-SD-WM-DP-062, REV. 0**

SAMPLE
J 1428-5782
File ID: 5a5014.CNF

Counted on: 1/11/94 @13:23
Detector: AEA5
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	240.3	240.3	298.548	299.165	20.000	17.060	10.000	1.909
2	553.5	553.5	252.526	251.411	24.000	19.429	12.000	2.524
3	9.8	9.8	32.046	30.279	352.000	110.659	176.000	185.542

PEAK RESULTS
Peak Error Limit: 25%

Peak	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.296	5.480	5.474	0.006	0.08	21.61	1.9	167.1	0.753E-04
	Pu238		5.499	5.474	0.025				218.2	0.983E-04
2	Am243	0.626	5.276	5.255	0.021	0.09	45.72	1.4	335.6	0.151E-03
	Pu240		5.144	5.255	-.111				332.3	0.150E-03
3	U 238	0.013	4.200	4.237	-.037	0.51	0.94	9.9	8.8	0.399E-05
Totals:		0.934	<--valid peaks only-->				68.27			

DETECTOR CALIBRATION
Energy(MEV) = 4.098 + (0.0046)*Channel
Energy range (MeV): 4.098 TO 6.453
Efficiency = 0.1376 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	35082.0	100.000
Smoothed	35082.0	100.000
Composite fit	32773.1	93.418
Residuals	2308.9	6.582

Analyzed by: _____
MB

Spectrum 5a5014.CNF

I Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 4720.2


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Raw Data Dump for AEA Spectrum: 5a5014.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	3.	7.	7.	7.
21	10.	6.	7.	13.	8.	9.	11.	5.	6.	15.
31	9.	7.	9.	5.	12.	8.	8.	5.	9.	11.
41	8.	7.	4.	10.	8.	9.	2.	7.	7.	9.
[illegible]	8.	7.	6.	12.	13.	10.	13.	7.	14.	16.
61	9.	8.	11.	15.	12.	9.	9.	10.	11.	7.
71	10.	6.	16.	12.	15.	11.	9.	12.	15.	7.
81	18.	13.	9.	19.	17.	10.	12.	15.	12.	14.
91	13.	13.	16.	11.	19.	15.	21.	19.	17.	11.
101	19.	29.	19.	22.	16.	9.	22.	27.	24.	17.
111	16.	14.	28.	32.	31.	25.	23.	20.	22.	20.
121	22.	29.	31.	20.	22.	23.	30.	35.	36.	29.
131	36.	38.	34.	30.	34.	27.	23.	38.	37.	28.
141	29.	31.	30.	29.	39.	36.	39.	49.	34.	34.
151	29.	35.	52.	56.	51.	31.	37.	45.	45.	47.
161	48.	47.	52.	40.	55.	47.	59.	54.	58.	61.
171	59.	63.	64.	65.	49.	74.	84.	75.	77.	74.
181	79.	78.	77.	67.	68.	93.	98.	98.	87.	88.
191	90.	94.	80.	92.	96.	117.	114.	117.	118.	109.
201	131.	123.	116.	126.	136.	126.	137.	154.	163.	144.
211	162.	178.	178.	176.	198.	170.	194.	211.	201.	214.
221	197.	220.	218.	253.	253.	268.	273.	274.	284.	322.
231	303.	329.	350.	354.	380.	368.	398.	391.	420.	440.
241	454.	457.	520.	502.	537.	592.	551.	591.	600.	610.
251	634.	644.	606.	592.	559.	577.	493.	455.	403.	373.
261	331.	306.	253.	209.	178.	195.	164.	116.	128.	119.
271	130.	114.	129.	123.	121.	120.	112.	137.	128.	140.
281	154.	158.	130.	151.	186.	197.	198.	192.	193.	205.
291	178.	217.	220.	240.	234.	233.	248.	249.	234.	246.
301	225.	217.	196.	166.	157.	120.	99.	109.	48.	62.
31[illegible]	48.	35.	34.	26.	14.	10.	8.	10.	5.	7.
32[illegible]	3.	4.	1.	1.	0.	2.	4.	0.	2.	3.
331	1.	3.	1.	2.	1.	0.	1.	1.	2.	2.
341	0.	1.	1.	4.	4.	2.	1.	2.	3.	2.
351	1.	4.	0.	4.	3.	2.	0.	1.	1.	2.
361	3.	3.	1.	4.	2.	2.	0.	1.	0.	0.
371	1.	1.	0.	2.	0.	1.	0.	0.	1.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	1.	0.	0.	2.
421	0.	1.	1.	0.	1.	0.	0.	0.	0.	1.
431	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
461	0.	0.	2.	1.	0.	1.	0.	0.	1.	1.
471	0.	0.	1.	0.	0.	2.	0.	0.	0.	0.
481	1.	1.	1.	1.	0.	2.	0.	0.	0.	1.
491	1.	1.	0.	0.	0.	0.	1.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT **WHC-SD-WM-DP-062, REV. 0**

SAMPLE
J 1428-5782
File ID: 3a3585.CNF

Counted on: 1/11/94 @13:22
Detector: AEA3
Geometry number: 1
Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	392.1	392.1	302.416	302.416	16.000	12.260	8.000	1.957
2	941.6	941.6	256.893	256.774	16.000	10.166	8.000	1.635

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.293	5.480	5.501	-.021	0.06	26.16	1.7	220.2	0.992E-04
	Pu238		5.499	5.501	-.002				287.4	0.129E-03
2	Am243	0.681	5.276	5.286	-.010	0.05	60.71	1.2	485.1	0.219E-03
Totals:		0.974	<--valid peaks only-->				86.87			

DETECTOR CALIBRATION
Energy(MEV) = 4.079 + (0.0047)*Channel
Energy range (MeV): 4.079 TO 6.486
Efficiency = 0.1264 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	42810.0	100.000
Smoothed	42809.9	100.000
Composite fit	41702.8	97.414
Residuals	1107.2	2.586

Analyzed by: _____
MB

Spectrum 3a3585.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 6861.4


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Raw Data Dump for AEA Spectrum: 3a3585.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
21	0.	0.	0.	1.	2.	4.	0.	1.	2.	1.
31	0.	0.	0.	0.	0.	0.	1.	2.	0.	0.
41	0.	1.	0.	1.	2.	2.	3.	3.	2.	1.
51	1.	1.	0.	1.	0.	0.	1.	1.	0.	4.
61	0.	2.	1.	3.	3.	3.	1.	2.	0.	0.
71	1.	3.	1.	1.	0.	2.	4.	3.	2.	2.
81	0.	0.	2.	0.	3.	0.	1.	3.	2.	3.
91	2.	3.	3.	0.	1.	3.	1.	1.	4.	1.
101	4.	1.	5.	4.	2.	3.	5.	5.	3.	5.
111	3.	10.	3.	4.	1.	3.	5.	5.	4.	9.
121	4.	10.	8.	7.	10.	12.	6.	5.	6.	7.
131	9.	9.	8.	6.	9.	10.	11.	7.	14.	10.
141	21.	14.	13.	16.	21.	10.	11.	21.	19.	13.
151	17.	17.	14.	18.	23.	18.	18.	13.	20.	21.
161	18.	31.	28.	26.	24.	27.	29.	25.	29.	19.
171	28.	25.	30.	31.	35.	43.	37.	37.	44.	38.
181	42.	40.	45.	57.	46.	60.	52.	68.	57.	80.
191	92.	72.	64.	85.	80.	94.	98.	108.	105.	91.
201	106.	105.	115.	104.	110.	109.	138.	123.	140.	140.
211	136.	158.	170.	157.	170.	177.	149.	195.	204.	210.
221	228.	260.	252.	255.	278.	306.	298.	282.	307.	342.
231	361.	397.	365.	343.	427.	432.	462.	458.	494.	517.
241	526.	514.	554.	590.	593.	646.	639.	735.	795.	785.
251	880.	830.	911.	925.	1013.	1053.	1067.	1017.	986.	888.
261	785.	671.	504.	403.	321.	259.	225.	183.	181.	171.
271	139.	173.	171.	146.	156.	136.	144.	163.	153.	165.
281	139.	170.	170.	193.	183.	210.	212.	215.	233.	239.
291	231.	249.	264.	288.	326.	284.	336.	329.	384.	406.
301	396.	417.	404.	419.	365.	309.	297.	242.	211.	147.
311	131.	92.	67.	64.	53.	42.	24.	21.	23.	8.
321	6.	2.	1.	2.	0.	1.	0.	1.	2.	1.
331	0.	0.	0.	1.	0.	0.	0.	0.	0.	2.
341	1.	1.	1.	1.	1.	2.	0.	2.	1.	1.
351	6.	2.	0.	1.	1.	1.	4.	0.	1.	2.
361	3.	2.	2.	5.	1.	1.	3.	4.	1.	3.
371	2.	1.	1.	1.	1.	1.	1.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
401	1.	0.	0.	0.	0.	0.	1.	0.	1.	1.
411	1.	0.	0.	1.	0.	0.	0.	0.	0.	1.
421	0.	1.	1.	0.	0.	0.	0.	0.	1.	2.
431	0.	0.	1.	2.	1.	1.	1.	1.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J 1428-5982
File ID: 2a2525.CNF

Counted on: 1/11/94 @13:21
Detector: AEA2
Geometry number: 1
Count time: 28806. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	855.8	855.8	294.232	294.232	28.000	28.010	14.000	2.579
2	1118.6	1118.6	249.454	248.570	24.000	23.691	12.000	2.606
3?	1.1	1.1	95.569	95.569	4.000	0.000	2.000	1.843
4?	6.0	6.0	52.384	52.127	14.000	4.353	7.000	0.723

PEAK RESULTS
Peak Error Limit: 25%

P	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Th228	0.487	5.430	5.464	-.034	0.13	94.91	0.9	1152.3	0.519E-03
	Am241		5.480	5.464	0.016				870.4	0.392E-03
2	Am243	0.548	5.276	5.250	0.026	0.11	106.78	1.0	929.8	0.419E-03
	Pu240		5.144	5.250	-.106				920.5	0.415E-03
3		????		4.531			0.00	1000.		
4		????		4.326			0.31	24.9		
Totals:		1.035	<--valid peaks only-->				201.69			

DETECTOR CALIBRATION
Energy(MEV) = 4.081 + (0.0047)*Channel
Energy range (MeV): 4.081 TO 6.488
Efficiency = 0.1160 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	93563.0	100.000
Smoothed	93563.0	100.000
Composite fit	96979.9	103.652
Residuals	-3416.9	-3.652

Analyzed by: _____
MB

Spectrum 2a2525.CNF

1 Legend: Raw = :... Modeled Peaks = 1,2,.., etc Display Max.: 10654.7


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Raw Data Dump for AEA Spectrum: 2a2525.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	4.	1.	6.	5.
21	4.	8.	5.	4.	4.	3.	7.	7.	4.	6.
31	4.	8.	7.	6.	4.	6.	6.	6.	7.	10.
41	9.	7.	5.	7.	5.	8.	3.	10.	8.	8.
[illegible]	14.	12.	12.	11.	9.	8.	6.	7.	8.	7.
61	5.	8.	7.	9.	10.	16.	11.	3.	9.	9.
71	14.	7.	5.	12.	5.	7.	16.	17.	11.	11.
81	8.	19.	15.	8.	9.	11.	20.	12.	14.	18.
91	14.	12.	10.	19.	15.	17.	12.	15.	16.	20.
101	16.	12.	15.	14.	19.	19.	22.	16.	20.	22.
111	19.	23.	19.	27.	24.	32.	27.	25.	21.	32.
121	25.	22.	27.	22.	37.	24.	28.	26.	41.	25.
131	26.	31.	37.	38.	27.	44.	42.	37.	29.	48.
141	34.	60.	41.	41.	48.	47.	45.	44.	43.	45.
151	54.	51.	57.	59.	39.	65.	56.	63.	70.	55.
161	74.	59.	75.	81.	89.	75.	88.	67.	88.	85.
171	77.	93.	87.	115.	103.	131.	115.	103.	116.	135.
181	134.	120.	145.	145.	160.	157.	156.	170.	170.	166.
191	177.	194.	193.	195.	210.	216.	215.	242.	282.	271.
201	284.	309.	329.	305.	338.	353.	372.	362.	388.	407.
211	419.	510.	487.	505.	503.	577.	555.	620.	637.	701.
221	697.	697.	710.	708.	818.	847.	864.	872.	921.	892.
231	935.	1031.	1037.	1068.	1061.	1113.	1123.	1162.	1109.	1279.
241	1253.	1259.	1344.	1344.	1498.	1379.	1379.	1418.	1427.	1407.
251	1438.	1320.	1420.	1259.	1223.	1135.	1143.	973.	943.	805.
261	812.	700.	680.	597.	519.	482.	468.	492.	469.	477.
271	455.	503.	498.	518.	525.	586.	560.	596.	623.	617.
281	627.	695.	699.	734.	733.	763.	761.	783.	829.	855.
291	830.	875.	848.	885.	863.	845.	857.	789.	773.	765.
301	653.	615.	542.	501.	511.	395.	303.	273.	223.	162.
311	167.	147.	87.	67.	42.	37.	34.	25.	14.	13.
321	13.	3.	3.	4.	2.	3.	3.	2.	2.	1.
331	1.	0.	0.	1.	0.	2.	2.	2.	3.	4.
341	2.	2.	3.	1.	3.	2.	3.	4.	2.	4.
351	2.	2.	2.	1.	2.	0.	1.	1.	1.	5.
361	3.	3.	0.	2.	1.	1.	1.	1.	0.	0.
371	1.	0.	0.	0.	1.	1.	0.	0.	0.	1.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	1.	0.	0.	1.	1.	0.
411	0.	1.	0.	0.	0.	1.	0.	0.	1.	0.
421	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
431	0.	1.	1.	1.	1.	0.	0.	1.	0.	0.
441	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
451	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
461	0.	1.	0.	1.	0.	0.	0.	0.	1.	0.
471	2.	2.	0.	0.	0.	1.	0.	2.	2.	1.
481	0.	0.	0.	1.	0.	0.	2.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J 1428-5982
File ID: 8a8666.CNF

Counted on: 1/11/94 @13:43
Detector: AEA8
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1075.8	1075.8	297.951	297.951	18.000	12.202	9.000	1.395
2	1532.3	1532.3	252.238	251.980	18.000	9.923	9.000	1.374
3?	7.8	7.8	114.207	113.581	6.000	2.874	3.000	0.645
4?	6.3	6.3	98.449	97.840	8.000	2.672	4.000	1.378
5?	6.9	6.9	77.514	77.168	8.000	4.482	4.000	1.236

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.465	5.480	5.497	-.017	0.06	91.24	0.9	738.2	0.333E-03
	Pu238		5.499	5.497	0.002				963.7	0.434E-03
2	Am243	0.559	5.276	5.281	-.005	0.05	109.69	1.0	842.6	0.380E-03
3		????		4.631			0.33	30.4		
4		????		4.557			0.15	54.9		
5		????		4.459			0.27	26.5		
Totals:		1.024	<--valid peaks only-->				200.94			

DETECTOR CALIBRATION
Energy(MEV) = 4.097 + (0.0047)*Channel
Energy range (MeV): 4.097 TO 6.503
Efficiency = 0.1315 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	94173.0	100.000
Smoothed	94173.0	100.000
Composite fit	96816.5	102.807
Residuals	-2643.5	-2.807

Analyzed by: _____
MB

Spectrum 8a8666.CNF

1 Legend:- Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 13665.9


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............1..........2..............
.2..............1..
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1
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Raw Data Dump for AEA Spectrum: 8a8666.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	1.	3.	3.	2.
21	4.	3.	2.	3.	7.	3.	5.	2.	3.	2.
31	3.	4.	2.	1.	2.	6.	3.	1.	3.	4.
41	3.	7.	2.	5.	5.	4.	8.	6.	5.	3.
51	9.	5.	8.	3.	3.	4.	6.	1.	16.	4.
61	10.	8.	5.	3.	4.	7.	2.	8.	5.	10.
71	4.	5.	6.	8.	9.	15.	10.	14.	12.	9.
81	6.	8.	5.	8.	11.	12.	5.	10.	8.	9.
91	14.	4.	17.	5.	12.	13.	15.	21.	16.	15.
101	11.	14.	10.	15.	20.	15.	14.	14.	13.	17.
111	17.	17.	13.	23.	25.	12.	16.	15.	12.	15.
121	22.	16.	21.	28.	25.	16.	22.	29.	21.	22.
131	23.	28.	20.	28.	18.	34.	22.	27.	25.	33.
141	29.	25.	31.	25.	39.	29.	38.	34.	40.	34.
151	42.	43.	34.	31.	37.	39.	43.	53.	44.	53.
161	48.	45.	50.	55.	59.	51.	66.	63.	75.	42.
171	67.	59.	68.	60.	84.	84.	79.	69.	98.	89.
181	90.	88.	74.	96.	96.	119.	118.	123.	110.	132.
191	126.	150.	142.	152.	144.	151.	161.	183.	192.	229.
201	195.	202.	231.	257.	226.	247.	251.	310.	290.	341.
211	316.	361.	379.	430.	425.	451.	501.	472.	487.	535.
221	533.	563.	607.	695.	719.	738.	811.	773.	875.	837.
231	899.	962.	991.	1001.	1049.	1082.	1116.	1111.	1185.	1202.
241	1244.	1246.	1340.	1405.	1504.	1537.	1514.	1667.	1718.	1766.
251	1871.	1909.	1799.	1823.	1706.	1538.	1322.	1052.	940.	818.
261	633.	563.	478.	489.	438.	423.	461.	456.	466.	435.
271	437.	468.	518.	525.	548.	576.	630.	605.	631.	683.
281	645.	690.	655.	671.	775.	746.	854.	814.	821.	872.
291	868.	935.	1001.	1010.	1032.	1074.	1134.	1120.	1106.	1061.
301	1023.	874.	775.	583.	496.	362.	273.	240.	184.	146.
311	104.	84.	62.	44.	28.	11.	6.	6.	6.	2.
321	2.	0.	1.	0.	0.	0.	1.	0.	0.	1.
331	0.	1.	0.	0.	1.	0.	1.	1.	1.	1.
341	0.	1.	2.	3.	1.	2.	3.	2.	2.	2.
351	1.	1.	2.	1.	1.	1.	1.	3.	4.	4.
361	0.	0.	2.	2.	0.	2.	1.	0.	1.	1.
371	0.	1.	0.	1.	1.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
411	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.
421	0.	0.	0.	1.	0.	1.	0.	1.	0.	1.
431	1.	1.	2.	0.	0.	0.	0.	0.	0.	1.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
481	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

WCA 43

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH 2578

WHC-SD-WM-DP-062, REV. 0

Lab Segment Serial No. J1445-5782	Customer ID: KE83B
Analysis: Am241	Sample Prep: Direct

Instrument: WB 537237	Procedure/ Rev: LA-503-156 D-0
Technologist: T.L. Mix	Date: 1-25-94
Starting Time: 0800	Temperature N/A
Ending Time: 1700	Chemist: L. Fritts

Comments:

	Description	Lab ID		Description	Lab ID
1	LMCS	J1439-5582	11		
2	Blank	J1440-5682	12		
3	Sample	J1445-5782	13		
4	Sample dup.	J1445-5782	14		
5	Sample trip.	J1445-5782	15		
6	Spike	J1445-5082	16		
7	Spike dup.	J1445-5982	17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	63B43	.100ml-10ml-1ml		
Spike	78B43	.100ml		

A-6000-881 (03/92)

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-503-156

DATE START: January 25, 1994

PREPARED BY: L.L. Fritts LLFritts 1·26·94

DATE COMPLETE: January 26, 1994

	UNITS:	uCi/mL									
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	RESULT #3	AVERAGE	2*SD	PREC	%REC	DET LIM	% CT ER
STD 63B43	J1439	Am-241	2.80E+1						104.4	1.71E-2	30.5
BLANK	J1440	Am-241	<1.71E-1						2.9	1.71E-1	114.3
KE83B	J1445	Am-241	1.93E-1	1.77E-1	1.81E-1	1.84E-1	1.67E-2	9.1	4.3	1.71E-1	24.6
									4.5	1.71E-1	22.2
									4.1	1.71E-1	21.4
KE83B	J1445	241 Spike	103.8	88.0							

NARRATIVE: [ ] NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH

LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in uCi/L.

The results for the spike are in percent recovery.

Complete separation of the Pu239/40 and Am was not achieved.

Tracer recoveries were low.

Data falls within specified QC requirements and rerun is not justified.

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#6 6959 RERUN Batch 2578

Serial No.	Sample Point	Date	Time Issued	Priority
J 1439.-5582	BECHTOLD	1- 4-94	10:49	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	1

Sample Size	Customer ID
? .100ml-10ml-1ml	STD

Remarks, Calculations, Results

EDP R201 AR001 "AEA" - 480MIN ATTACH PRINTOUT

STD# 63843 RESULT 2.7954 E+1

STD VAL 2.6788 E1 %REC 104.4%

.100ml 78843

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa M	Raymond	D.H. Milligan		
Hrs	Hrs	Hrs	Hrs	Hrs
	1-25-94			

Date	Time Completed	Lab Unit Mgr.	Date
1-25-94	1700		1-26-94

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			STANDARD
Serial No.	Spike (Tracer) Book Number		78B43
J1439-5582	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2578	Volume of Sample in mL	(SS)	1.000
Rerun No.	Dilution Factor	(DF)	101
1	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	75
MIX	Am-243 Area Peak Height from AEA	(C243)	92
Date	Cm-243/244 Area Peak Height from AEA	(CM)	1
01/25/94	Total AT Count	(ATOT)	1590
Sample Type	AT Count Time in Minutes	(MIN CT'd)	30
LIQUID	Background in CPM	(BKG)	9
	Am 241 µCi/L =		2.7954E+01

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Tracer % Recovery = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100

Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

Am 241 µCi/mL	=	2.80E-02	Detection Level in µCi/mL
Cm 243/244 µCi/mL	=	< 1.71E-02	
Relative counting error (Am-241)	=	30.5%	
Relative counting error (Cm-243/244)	=	197.1%	
Am-243 Tracer Recovery	=	6.4%	1.71E-02

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	26 Jan 94

Form 6 Rev. 1.1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 VR 1-25-94

$\frac{1590}{30}$ - 9

J1439-5582

#6

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#7 7485

RERUN

Serial No.	Sample Point	Date	Time Issued	Priority
J 1440.-5682	BECHTOLD	1- 4-94	10:52	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	1

Sample Size: ? ml .100ml - 10 ml - .100ml (S.M. Hurland 1-26-94)

Customer ID: BLANK

Remarks, Calculations, Results:

REAGENT BLANK

COUNT AS uCI/L

.100ml 78B43

"AEA" - 480MIN

ATTACH PRINTOUT

$< 1.71 \times 10^{-1}$ uCi/ml

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Perera Mi	Raymond	D.H. Martin		
Hrs	Hrs	Hrs	Hrs	Hrs
	1-25-94		Lakit	

Date	Time Completed	Lab Unit Mgr.	
1-25-94	1700	Fitts	DK McFarland

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			BLANK
Serial No.	Spike (Tracer) Book Number		78B43
J1440-5682	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2578	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	101
1	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	3
T MIX	Am-243 Area Peak Height from AEA	(C243)	142
Date	Cm-243/244 Area Peak Height from AEA	(CM)	2
01/25/94	Total AT Count	(ATOT)	398
Sample Type	AT Count Time in Minutes	(MIN CT'd)	30
LIQUID	Background in CPM	(BKG)	2
	Am 241 µCi/L = <		1.7145E+02

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Tracer % Recovery = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100

Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

NOTE: Am 241 Result is a LESS THAN Value

			Detection Level in µCi/mL
Am 241 µCi/mL	=	< 1.71E-01	
Cm 243/244 µCi/mL	=	< 1.71E-01	
Relative counting error (Am-241)	=	114.3%	
Relative counting error (Cm-243/244)	=	139.6%	
Am-243 Tracer Recovery	=	2.9%	1.71E-01

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	26 Jan 94

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#2 VR 1-25-94

398/30 - 2

J1440-5682

#7

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#8 8698

RERUN

Serial No	Sample Point	Date	Time Issued	Priority
J 1445.-5782	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	1

Sample Size	Customer ID
? .100ml - 10ml - .100ml	KE83B

Remarks, Calculations, Results

COUNT AS uCI/L

.100 ml 78B43

"AEA" - 480MIN

ATTACH PRINTOUT

1.93×10^{-1} uCi/ml

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Raymond D. H. Miller			
Hrs	Hrs	Hrs	Hrs	Hrs
	1-25-94			
Date	Time Completed	Lab Unit Mgr		
1-25-94	1700		1-26-94	

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1445-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2578	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	101
1	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	99
MIX	Am-243 Area Peak Height from AEA	(C243)	176
Date	Cm-243/244 Area Peak Height from AEA	(CM)	1
01/25/94	Total AT Count	(ATOT)	878
Sample Type	AT Count Time in Minutes	(MIN CT'd)	30
LIQUID	Background in CPM	(BKG)	4
	Am 241 µCi/L =		1.9288E+02

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100

Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	1.93E-01	
Cm 243/244 µCi/mL	=	< 1.71E-01	
Relative counting error (Am-241)	=	24.6%	
Relative counting error (Cm-243/244)	=	196.6%	
Am-243 Tracer Recovery	=	4.3%	1.71E-01

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	26 Jan 94

Form 6 Rev. 1.1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 R 1-25-94

$\frac{878}{30} - 4$

J1445-5782

#8

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#9 1512

RERUN

Serial No	Sample Point	Date	Time Issued	Priority
J 1445.-5782	BECHTOLD	1- 4-94	12: .3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	2

Sample Size	Customer ID
? .100ml- 10ml- .100ml	KE83B

Remarks, Calculations, Results

COUNT AS uCI/L

.100ml 78843

"AEA" - 480MIN
ATTACH PRINTOUT

1/27/94 1.77 E-1 uci/ml

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa M	Raymond	D.H. Mitchell		
Hrs	Hrs	Hrs	Hrs	Hrs
	1-25-94			

Date	Time Completed	Lab Unit Mgr	
1-25-94	1700		1-26-94

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1445-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2578	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	101
2	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	118
MIX	Am-243 Area Peak Height from AEA	(C243)	229
Date	Cm-243/244 Area Peak Height from AEA	(CM)	3
01/25/94	Total AT Count	(ATOT)	1036
Sample Type	AT Count Time in Minutes	(MIN CT'd)	30
LIQUID	Background in CPM	(BKG)	9
	Am 241 µCi/L =		1.7669E+02

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Tracer % Recovery = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100
Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	1.77E-01	
Cm 243/244 µCi/mL	=	< 1.71E-01	
Relative counting error (Am-241)	=	22.2%	
Relative counting error (Cm-243/244)	=	113.9%	
Am-243 Tracer Recovery	=	4.5%	1.71E-01

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	26 Jan 94

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 R 1-25-94
1036/30 -9

J1445-5782
#9

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#10 2413

RERUN

Serial No	Sample Point	Date	Time Issued	Priority
J 1445.-5782	BECHTOLD-	1- 4-94	12: 3	26

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	3

Sample Size	Customer ID
? .100ml - 10ml - .100ml	KE83B

Remarks, Calculations, Results

COUNT AS uCI/L

.100ml 78B43

1.81×10^{-1} µCi/ml

"AEA" - 480MIN

ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Theresa M.	Raymond	D.H. Milian		
Hrs	Hrs	Hrs	Hrs	Hrs
	1-25-94			

Date	Time Completed	Lab Unit Mgr	
1-25-94	1700		1-26-94

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1445-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2578	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	101
3	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	128
MIX	Am-243 Area Peak Height from AEA	(C243)	242
Date	Cm-243/244 Area Peak Height from AEA	(CM)	1
01/25/94	Total AT Count	(ATOT)	762
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	2
	Am 241 µCi/L =		1.8137E+02

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100

Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	1.81E-01	
Cm 243/244 µCi/mL	=	< 1.71E-01	
Relative counting error (Am-241)	=	21.4%	
Relative counting error (Cm-243/244)	=	196.4%	
Am-243 Tracer Recovery	=	4.1%	1.71E-01

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	26 Jan 94

867

Form 6 Rev. 1.1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#2 K 1-25-94

762/30 - 2

J1445-5782

#10

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#11 3385

RERUN

Serial No	Sample Point	Date	Time Issued	Priority
J 1445.-5082	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	1

Sample Size	Customer ID
? .100ml- 10ml- .100ml	KE83B

Remarks, Calculations, Results

SAMPLE SPIKED ID 63B43 .100ml 10ml-1ml

SPIKE ID 78B43

SPIKE VOLUME .200ml

COUNT AS uCI/L

103.8%

"AEA" - 480MIN
ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa Mi	Raymond H Miller			
Hrs	Hrs	Hrs	Hrs	Hrs
	1-25-94			
Date	Time Completed	Lab Unit Mgr		
1-25-94	1700		1-26-94	

54-6800-061 (R-10-83)

(471.04 - 192.88) (10/1 / 10/1) (100) = 144.9 / 1.26 = 103.8%

192.88 / 1.26 = 153.1

2.6788 E+1

AM-241: LA-503-156 (D-0) **LIQUID**

			ERR
Serial No.	Spike (Tracer) Book Number		78B43
J1445-5082	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.200
2578	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	101
1	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	329
MIX	Am-243 Area Peak Height from AEA	(C243)	479
Date	Cm-243/244 Area Peak Height from AEA	(CM)	2
01/25/94	Total AT Count	(ATOT)	2806
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	4
	Am 241 µCi/L =		4.7104E+02

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100

Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	4.71E-01	
Cm 243/244 µCi/mL	=	< 3.43E-01	
Relative counting error (Am-241)	=	14.0%	
Relative counting error (Cm-243/244)	=	138.9%	
Am-243 Tracer Recovery	=	7.0%	3.43E-01

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	26 Jan 94

Form 6 Rev. 1.1

Page 1 of 1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 ve 1-25-94
2806 - 4
30

J1445-5082
#11

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#12 4372

RERUN

Serial No	Sample Point		Time Issued	Priority
J 1445.-5982	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	1

Sample Size	Customer ID
? .100ml- 10ml- .100ml	KE83B

Remarks, Calculations, Results

SAMPLE SPIKED ID 63B43 .100ml-10ml-1ml

"AEA" - 480MIN
ATTACH PRINTOUT

SPIKE ID 78B43

SPIKE VOLUME .200ml
COUNT AS uCI/L

88.0%

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Teresa M	Raymond	D.H. Millian		
Hrs	Hrs	Hrs	Hrs	Hrs
	1-25-94			
Date	Time Completed	Lab Unit Mgr.		
1-25-94	1700		1-26-94	

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			CHK EXT NO.
Serial No.	Spike (Tracer) Book Number		78B43
J1445-5982	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.200
2578	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	101
1	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	513
MIX	Am-243 Area Peak Height from AEA	(C243)	853
Date	Cm-243/244 Area Peak Height from AEA	(CM)	2
01/25/94	Total AT Count	(ATOT)	3525
Sample Type	AT Count Time in Minutes	(MIN CT'd)	30
LIQUID	Background in CPM	(BKG)	9
	Am 241 µCi/L =		4.1244E+02

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Tracer % Recovery = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100
Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	4.12E-01	
Cm 243/244 µCi/mL	=	< 3.43E-01	
Relative counting error (Am-241)	=	11.0%	
Relative counting error (Cm-243/244)	=	138.8%	
Am-243 Tracer Recovery	=	9.0%	3.43E-01

(412.44 - 176.69)(101/1)(100) = 88.0%

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	26 Jan 94

Form 6 Rev. 1.1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 VR 1-25-94
3525-9
30

J1445-5982
#12

WHC-SD-WM-DP-062, REV. 0

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

1-26-94

SAMPLE
J-1439-5582
File ID: 6a6959.CNF

WHC-SD-WM-DP-062, REV. 0

Counted on: 1/26/94 @ 0:56
Detector: AEA6
Geometry number: 1
Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	66.7	66.7	298.587	298.587	24.000	24.245	12.000	5.862
2	80.4	80.4	254.443	254.079	18.000	15.344	9.000	5.862
3	201.1	201.1	227.041	226.508	20.000	22.669	10.000	6.897

PEAK RESULTS
Peak Error Limit: 25%

Peak	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.210	5.480	5.482	-.0020	.11	4.11	4.4	33.6	0.151E-04
	Pu238		5.499	5.482	0.017				43.9	0.198E-04
2	Am243	0.185	5.276	5.273	0.0030	.07	3.62	5.1	28.1	0.127E-04
	Pu240		5.144	5.273	-.129				27.8	0.125E-04
3	Pu239	0.570	5.143	5.144	-.0010	.11	11.13	3.0	85.5	0.385E-04
	Pu240		5.144	5.144	0.000				85.5	0.385E-04
		---					---			
Totals:		0.965	<--valid peaks only-->				18.85			

DETECTOR CALIBRATION
Energy(MEV) = 4.079 + (0.0047)*Channel
Energy range (MeV): 4.079 TO 6.486
Efficiency = 0.1301 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	9379.0	100.000
Smoothed	9381.7	100.029
Composite fit	9050.4	96.497
Residuals	328.6	3.503

Analyzed by: _____
DM

Spectrum 6a6959.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 1555.4


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2.......................................................3....
.2.....................................................................3..
.....2.................................3.....
..........3..2.............
3.........................2..
.1................2..
..1.2....
.....1
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...1
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Raw Data Dump for AEA Spectrum: 6a6959.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
21	0.	0.	2.	0.	0.	0.	1.	0.	0.	0.
31	0.	0.	1.	1.	0.	0.	1.	0.	1.	1.
41	0.	0.	2.	0.	0.	2.	1.	3.	2.	1.
[illegible]	0.	3.	1.	3.	1.	1.	3.	0.	1.	1.
[illegible]	1.	1.	1.	1.	1.	2.	0.	0.	1.	2.
71	1.	1.	0.	1.	3.	0.	1.	1.	1.	1.
81	0.	1.	0.	2.	0.	1.	0.	2.	0.	1.
91	0.	2.	1.	1.	2.	2.	1.	0.	0.	1.
101	0.	2.	1.	4.	3.	1.	3.	2.	1.	2.
111	2.	1.	0.	1.	0.	0.	0.	3.	2.	1.
121	5.	3.	0.	1.	1.	2.	6.	2.	0.	2.
131	2.	6.	0.	1.	1.	2.	2.	3.	4.	4.
141	5.	2.	2.	1.	5.	0.	4.	3.	2.	4.
151	2.	2.	2.	6.	2.	1.	4.	7.	3.	4.
161	6.	5.	9.	6.	3.	7.	4.	6.	3.	6.
171	4.	10.	8.	8.	4.	6.	5.	7.	8.	6.
181	14.	15.	14.	9.	8.	13.	11.	15.	15.	9.
191	19.	16.	22.	18.	16.	14.	24.	18.	26.	39.
201	27.	34.	32.	47.	44.	47.	59.	57.	75.	60.
211	89.	79.	89.	132.	127.	111.	141.	155.	168.	166.
221	186.	202.	236.	234.	196.	202.	202.	227.	212.	172.
231	180.	165.	116.	155.	123.	118.	102.	96.	86.	88.
241	81.	77.	56.	74.	65.	63.	91.	81.	75.	84.
251	76.	87.	89.	68.	92.	90.	74.	83.	57.	68.
261	38.	40.	36.	37.	36.	29.	23.	28.	17.	21.
271	22.	13.	12.	23.	21.	8.	20.	24.	22.	22.
281	19.	25.	38.	26.	32.	32.	53.	41.	54.	61.
291	55.	56.	57.	47.	64.	59.	68.	68.	72.	75.
301	52.	58.	48.	51.	47.	43.	49.	45.	25.	30.
[illegible]	19.	18.	19.	17.	9.	12.	6.	6.	3.	1.
[illegible]	2.	2.	0.	0.	0.	0.	0.	1.	0.	0.
331	0.	0.	1.	0.	1.	0.	0.	1.	2.	1.
341	2.	0.	0.	1.	0.	0.	0.	2.	0.	1.
351	0.	1.	1.	0.	0.	0.	0.	0.	0.	1.
361	0.	1.	0.	0.	0.	0.	1.	1.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	1.	0.	0.	1.	0.	1.	0.	0.
441	1.	0.	0.	0.	1.	0.	1.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	2.	0.	1.
461	0.	0.	0.	1.	1.	1.	0.	1.	1.	1.
471	3.	1.	3.	1.	1.	2.	1.	2.	1.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	1.	2.	1.	9.	9.	3.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
J-1440-5682
File ID: 7a7485.CNF

1-26-94

WHC-SD-WM-DP-062, REV. 0

Counted on: 1/26/94 @ 0:57
Detector: AEA7
Geometry number: 1
Count time: 28806. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	112.9	112.9	257.616	257.616	16.000	7.576	8.000	4.510

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.890	5.276	5.276	0.000	0.03	3.48	4.8	34.4	0.155E-04
Totals:		0.890	<--valid peaks only-->				3.48			

DETECTOR CALIBRATION
Energy(MEV) = 4.091 + (0.0046)*Channel
Energy range (MeV): 4.091 TO 6.446
Efficiency = 0.1020 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	1874.0	100.000
Smoothed	1874.0	100.000
Composite fit	1668.4	89.030
Residuals	205.6	10.970

Analyzed by: _____
DM

Spectrum 7a7485.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 711.5


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1..
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.............1...
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Raw Data Dump for AEA Spectrum: 7a7485.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
31	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
71	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
81	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
91	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
101	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
111	0.	1.	0.	1.	1.	1.	0.	0.	0.	2.
121	0.	1.	0.	0.	0.	0.	1.	0.	0.	0.
131	0.	0.	0.	1.	0.	1.	0.	0.	0.	1.
141	0.	1.	1.	2.	1.	0.	1.	1.	3.	0.
151	0.	0.	2.	0.	0.	0.	0.	0.	0.	1.
161	0.	0.	0.	0.	1.	1.	0.	2.	0.	2.
171	0.	1.	0.	1.	0.	1.	0.	0.	0.	0.
181	0.	0.	0.	1.	2.	1.	0.	1.	0.	0.
191	0.	1.	1.	1.	0.	1.	1.	1.	0.	1.
201	1.	0.	2.	0.	1.	0.	1.	3.	1.	1.
211	1.	1.	1.	2.	1.	1.	0.	2.	3.	1.
221	3.	7.	6.	6.	3.	6.	1.	6.	5.	4.
231	5.	6.	10.	9.	9.	2.	16.	6.	10.	8.
241	14.	13.	20.	21.	26.	23.	23.	25.	48.	42.
251	63.	50.	88.	108.	116.	106.	142.	114.	109.	112.
261	82.	63.	60.	39.	27.	21.	8.	11.	10.	4.
271	9.	6.	3.	1.	2.	2.	2.	2.	0.	0.
281	1.	2.	0.	1.	3.	1.	1.	3.	1.	0.
291	3.	2.	1.	2.	0.	0.	2.	1.	1.	1.
301	1.	0.	1.	1.	3.	2.	0.	1.	0.	1.
311	0.	1.	0.	0.	1.	0.	0.	0.	0.	1.
321	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	1.	0.	0.	1.	0.	1.	0.	0.	0.
351	0.	0.	1.	2.	0.	1.	0.	0.	1.	0.
361	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	1.	0.								

Westinghouse-Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
J-1445-5782
File ID: 8a8698.CNF

1-26-94

WHC-SD-WM-DP-062, REV.

Counted on: 1/26/94 @ 0:58
Detector: AEA8
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	81.5	81.5	302.493	302.493	16.000	8.795	8.000	4.820
2	148.8	148.8	256.409	256.406	16.000	7.240	8.000	4.524
3	52.1	52.1	231.396	231.174	14.000	5.867	7.000	2.664

PEAK RESULTS
Peak Error Limit: 25%

Peak	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.290	5.480	5.510	-.030	0.04	2.71	5.4	22.4	0.101E-04
	Pu238		5.499	5.510	-.011				29.2	0.132E-04
2	Am243	0.476	5.276	5.293	-.017	0.03	4.45	4.3	34.9	0.157E-04
3	Pu239	0.175	5.143	5.174	-.031	0.03	1.63	8.0	12.7	0.571E-05
	Pu240		5.144	5.174	-.030				12.7	0.571E-05
		---					---			
Totals:		0.941	<--valid peaks only-->				8.79			

DETECTOR CALIBRATION
Energy(MEV) = 4.088 + (0.0047)*Channel
Energy range (MeV): 4.088 TO 6.494
Efficiency = 0.1289 CPM/DPM

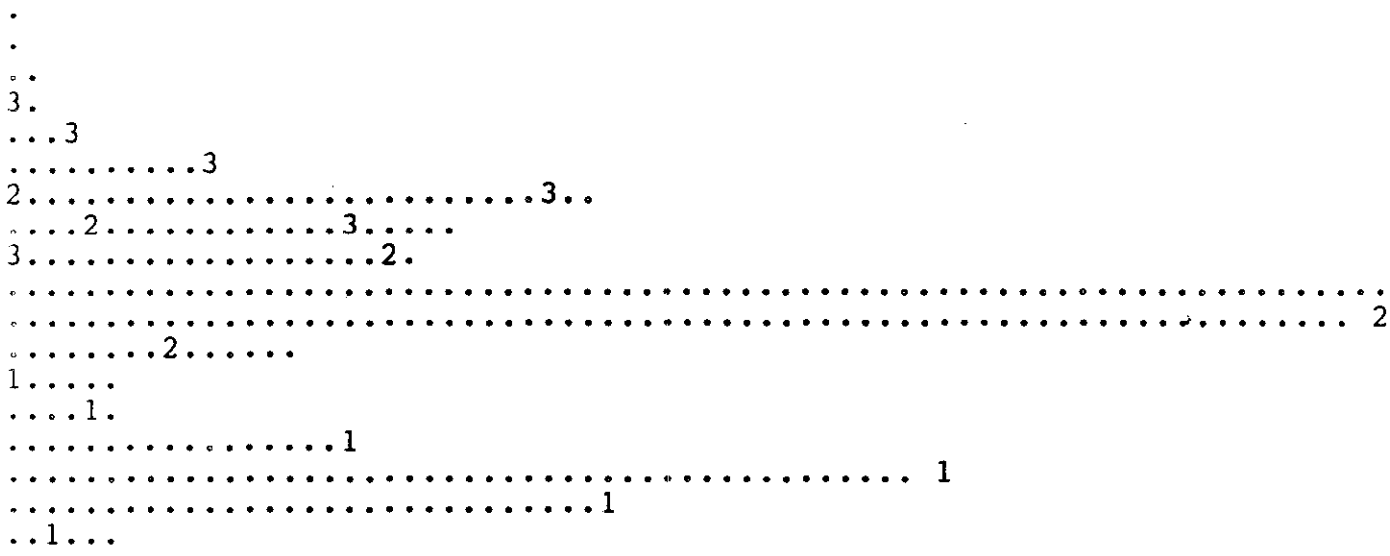
TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	4487.0	100.000
Smoothed	4487.0	100.000
Composite fit	4220.4	94.057
Residuals	266.6	5.943

Analyzed by: _____
DM

Spectrum 8a8698.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 826.2



Raw Data Dump for AEA Spectrum: 8a8698.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	1.	2.	2.	0.
21	0.	0.	0.	0.	0.	1.	0.	0.	2.	1.
31	0.	2.	2.	0.	1.	0.	0.	0.	0.	0.
41	1.	1.	0.	1.	2.	1.	2.	1.	0.	1.
51	2.	1.	0.	0.	0.	0.	0.	0.	0.	1.
61	0.	0.	0.	0.	0.	4.	1.	0.	1.	1.
71	2.	1.	0.	2.	0.	0.	0.	2.	0.	1.
81	1.	0.	1.	1.	0.	3.	0.	1.	1.	2.
91	1.	1.	2.	0.	0.	0.	0.	0.	0.	3.
101	1.	1.	1.	1.	0.	0.	0.	1.	1.	2.
111	0.	0.	2.	0.	0.	0.	0.	0.	1.	3.
121	2.	1.	0.	2.	3.	1.	1.	0.	0.	0.
131	3.	1.	2.	0.	0.	0.	3.	1.	0.	1.
141	2.	0.	0.	3.	0.	0.	1.	1.	2.	0.
151	0.	2.	1.	1.	5.	1.	0.	2.	0.	0.
161	0.	2.	0.	1.	1.	1.	2.	2.	1.	0.
171	0.	0.	2.	0.	1.	4.	2.	3.	1.	6.
181	1.	1.	1.	2.	0.	3.	1.	2.	3.	0.
191	3.	3.	3.	2.	3.	6.	1.	6.	4.	4.
201	7.	3.	4.	2.	5.	3.	3.	5.	7.	8.
211	7.	3.	6.	4.	5.	12.	11.	8.	15.	23.
221	16.	15.	29.	27.	27.	43.	47.	54.	55.	51.
231	67.	51.	62.	49.	30.	27.	25.	26.	18.	17.
241	15.	22.	21.	21.	36.	46.	50.	47.	58.	73.
251	90.	101.	128.	137.	161.	176.	173.	144.	114.	123.
261	69.	64.	44.	37.	22.	19.	15.	13.	11.	15.
271	7.	11.	12.	8.	13.	8.	5.	5.	8.	8.
281	4.	6.	8.	9.	11.	8.	15.	16.	14.	18.
291	25.	23.	34.	21.	43.	48.	45.	59.	73.	74.
301	95.	99.	82.	79.	76.	75.	43.	44.	28.	23.
311	24.	16.	10.	6.	5.	5.	3.	5.	4.	1.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
351	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
361	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
371	1.	0.	2.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
481	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

Rullbi
1-26-94

SAMPLE
J-1445-5782
File ID: 9a1512.CNF

WHC-SD-WM-DP-062, REV. 0

Counted on: 1/26/94 @ 0:58
Detector: AEA9
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	98.6	98.6	303.445	303.445	14.000	6.586	7.000	3.284
2	184.5	184.5	257.593	257.590	10.000	4.723	5.000	2.336
3	55.2	55.2	231.910	231.550	14.000	4.242	7.000	1.967

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.298	5.480	5.484	-.004	0.03	3.08	5.1	22.4	0.101E-04
	Pu238		5.499	5.484	0.015				29.2	0.131E-04
2	Am243	0.508	5.276	5.273	0.003	0.02	5.24	3.9	36.2	0.163E-04
3	Pu239	0.152	5.143	5.153	-.010	0.02	1.57	8.3	10.8	0.485E-05
	Pu240		5.144	5.153	-.009				10.8	0.485E-05
		---					---			
Totals:		0.958	<--valid peaks only-->				9.89			

DETECTOR CALIBRATION
Energy(MEV) = 4.088 + (0.0046)*Channel
Energy range (MeV): 4.088 TO 6.443
Efficiency = 0.1464 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	4958.0	100.000
Smoothed	4958.0	100.000
Composite fit	4750.0	95.804
Residuals	208.0	4.196

Analyzed by: _____
DM

Spectrum 9a1512.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 1010.2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Raw Data Dump for AEA Spectrum: 9a1512.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
21	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
31	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
101	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
111	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
121	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
131	0.	0.	0.	0.	2.	0.	0.	0.	0.	2.
141	0.	1.	2.	1.	1.	3.	1.	0.	2.	2.
151	1.	1.	0.	0.	1.	1.	1.	0.	0.	0.
161	1.	2.	0.	0.	0.	0.	0.	0.	0.	1.
171	2.	0.	3.	0.	0.	0.	2.	1.	1.	1.
181	0.	0.	0.	1.	0.	0.	2.	1.	4.	1.
191	0.	0.	0.	0.	1.	1.	1.	1.	5.	1.
201	3.	0.	2.	2.	1.	2.	2.	3.	4.	4.
211	4.	9.	4.	3.	8.	13.	13.	12.	12.	18.
221	14.	17.	31.	30.	37.	41.	44.	48.	53.	61.
231	71.	75.	54.	72.	36.	36.	24.	22.	18.	22.
241	17.	18.	30.	34.	45.	41.	56.	66.	72.	81.
251	90.	121.	131.	149.	158.	194.	180.	229.	192.	165.
261	91.	52.	35.	35.	21.	17.	23.	25.	16.	20.
271	12.	13.	8.	9.	4.	5.	4.	5.	4.	3.
281	4.	1.	5.	7.	13.	9.	15.	22.	13.	28.
291	28.	28.	41.	28.	36.	53.	52.	62.	75.	80.
301	77.	109.	118.	109.	110.	73.	62.	37.	37.	26.
311	21.	16.	19.	9.	7.	6.	3.	1.	1.	0.
321	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.
331	1.	0.	1.	1.	3.	0.	1.	0.	1.	2.
341	0.	0.	0.	4.	0.	0.	2.	1.	0.	3.
351	3.	3.	1.	1.	1.	2.	2.	1.	1.	1.
361	0.	1.	2.	0.	0.	2.	0.	1.	2.	0.
371	4.	1.	0.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

Bullis
1-26-94

SAMPLE
J-1445-5782
File ID: 10a2413.CNF

WHC-SD-WM-DP-062, REV. C

Counted on: 1/26/94 @ 0:59
Detector: AEA10
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	103.1	103.1	301.055	301.055	12.000	5.122	6.000	2.363
2	192.4	192.4	254.967	254.963	10.000	3.823	5.000	1.991
3	65.7	65.7	229.565	229.393	14.000	4.904	7.000	2.219

PEAK RESULTS
Peak Error Limit: 25%

Peak #	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.289	5.499	5.508	-.009	0.02	3.10	5.1	33.7	0.152E-04
	Am241		5.480	5.508	-.028				25.8	0.116E-04
2	Am243	0.471	5.276	5.291	-.015	0.02	5.05	4.0	40.0	0.180E-04
3	Pu239	0.184	5.143	5.171	-.028	0.02	1.97	7.3	15.4	0.696E-05
	Pu240		5.144	5.171	-.027				15.4	0.696E-05
Totals:		0.944	<--valid peaks only-->				10.11			

DETECTOR CALIBRATION
Energy(MEV) = 4.093 + (0.0047)*Channel
Energy range (MeV): 4.093 TO 6.500
Efficiency = 0.1274 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	5143.0	100.000
Smoothed	5143.0	100.000
Composite fit	4853.9	94.378
Residuals	289.1	5.622

Analyzed by: _____
DM

Spectrum 10a2413.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 1147.9


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..............1.
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Raw Data Dump for AEA Spectrum: 10a2413.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	1.	0.	1.	0.	0.	1.	1.	1.	0.	0.
21	1.	0.	0.	1.	0.	0.	1.	1.	3.	0.
31	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.
41	0.	0.	0.	0.	2.	1.	0.	0.	2.	0.
51	0.	0.	0.	1.	1.	0.	1.	0.	0.	0.
61	1.	0.	0.	0.	0.	0.	1.	1.	0.	0.
71	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	1.	0.	0.	0.	2.	0.	0.	0.
101	1.	0.	0.	1.	1.	1.	0.	0.	0.	0.
111	1.	1.	2.	0.	1.	0.	0.	0.	0.	1.
121	0.	0.	0.	1.	2.	0.	0.	2.	0.	0.
131	0.	0.	0.	4.	2.	0.	0.	2.	2.	0.
141	1.	2.	1.	0.	0.	2.	4.	0.	2.	0.
151	1.	0.	0.	2.	0.	1.	0.	2.	1.	0.
161	1.	1.	3.	2.	1.	4.	0.	1.	0.	0.
171	0.	1.	5.	1.	3.	1.	0.	1.	2.	2.
181	3.	1.	1.	2.	1.	0.	1.	2.	3.	2.
191	1.	2.	3.	3.	2.	0.	2.	7.	2.	2.
201	3.	5.	4.	7.	4.	10.	1.	7.	9.	6.
211	6.	12.	8.	11.	15.	14.	21.	20.	28.	34.
221	25.	40.	35.	41.	43.	55.	44.	74.	94.	79.
231	71.	57.	43.	38.	33.	27.	27.	26.	30.	22.
241	45.	41.	49.	43.	52.	70.	71.	81.	96.	116.
251	99.	145.	184.	201.	242.	227.	169.	107.	55.	31.
261	23.	23.	27.	21.	19.	20.	17.	14.	18.	12.
271	11.	9.	10.	6.	7.	11.	13.	8.	5.	13.
281	8.	7.	16.	20.	15.	26.	25.	26.	22.	33.
291	36.	41.	50.	47.	54.	61.	65.	83.	87.	108.
301	128.	121.	94.	60.	33.	23.	34.	23.	19.	21.
311	15.	4.	2.	7.	1.	3.	2.	1.	0.	0.
321	0.	2.	0.	0.	1.	0.	3.	0.	0.	0.
331	0.	1.	1.	2.	0.	0.	1.	0.	2.	1.
341	0.	0.	0.	0.	3.	0.	1.	1.	1.	0.
351	0.	0.	0.	1.	0.	5.	1.	0.	1.	1.
361	0.	0.	1.	1.	0.	0.	1.	0.	0.	0.
371	0.	1.	0.	0.	1.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
431	0.	1.	0.	0.	0.	0.	0.	1.	0.	1.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
J-1445-5082
File ID: 11a3385.CNF

Rullin
1-26-94

Counted on: 1/26/94 @ 0:59 **WHC-SD-WM-DP-062, REV. 0**
Detector: AEA11
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	273.3	273.3	302.532	302.532	16.000	7.125	8.000	3.468
2	413.9	413.9	256.442	256.438	12.000	5.637	6.000	2.757
3	499.9	499.9	230.536	230.459	12.000	4.514	6.000	2.080

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.236	5.480	5.482	-.0020	0.03	8.81	3.0	68.2	0.307E-04
	Pu238		5.499	5.482	0.017				89.1	0.401E-04
2	Am243	0.333	5.276	5.270	0.0060	0.03	12.43	2.5	91.3	0.411E-04
3	Pu239	0.389	5.143	5.150	-.0070	0.02	14.52	2.5	105.7	0.476E-04
	Pu240		5.144	5.150	-.006				105.7	0.476E-04
		---					---			
Totals:		0.958	<--valid peaks only-->				35.76			

DETECTOR CALIBRATION
Energy(MEV) = 4.090 + (0.0046)*Channel
Energy range (MeV): 4.090 TO 6.445
Efficiency = 0.1374 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	17919.0	100.000
Smoothed	17919.0	100.000
Composite fit	17167.4	95.806
Residuals	751.6	4.194

Analyzed by: _____
DM

Spectrum 11a3385.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 3418.1


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Raw Data Dump for AEA Spectrum: 11a3385.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.
21	0.	1.	0.	1.	0.	0.	0.	1.	0.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
51	1.	0.	0.	0.	0.	1.	0.	0.	0.	0.
61	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
71	0.	0.	0.	1.	0.	0.	1.	0.	1.	0.
81	0.	0.	0.	0.	0.	1.	0.	2.	1.	1.
91	0.	0.	0.	0.	0.	1.	0.	0.	1.	2.
101	0.	1.	0.	0.	0.	0.	0.	1.	2.	0.
111	1.	2.	1.	0.	0.	0.	1.	0.	3.	0.
121	1.	1.	0.	3.	1.	3.	1.	1.	1.	0.
131	1.	1.	1.	0.	3.	1.	0.	1.	0.	1.
141	2.	1.	2.	3.	3.	0.	1.	3.	2.	2.
151	2.	1.	5.	1.	2.	2.	4.	2.	4.	7.
161	1.	4.	4.	1.	4.	4.	2.	3.	3.	12.
171	4.	9.	1.	5.	5.	5.	4.	12.	6.	9.
181	10.	3.	8.	5.	13.	13.	16.	13.	14.	17.
191	21.	17.	13.	16.	17.	13.	22.	18.	17.	34.
201	20.	27.	22.	35.	36.	30.	36.	43.	58.	53.
211	58.	53.	68.	75.	106.	85.	97.	121.	151.	180.
221	199.	218.	234.	255.	312.	332.	427.	475.	554.	577.
231	601.	538.	447.	342.	188.	131.	82.	69.	63.	56.
241	68.	95.	68.	102.	104.	130.	167.	172.	201.	205.
251	217.	293.	323.	378.	468.	466.	479.	441.	341.	247.
261	172.	99.	74.	52.	61.	48.	38.	41.	33.	36.
271	36.	26.	24.	20.	18.	17.	20.	13.	36.	30.
281	26.	37.	24.	27.	42.	37.	56.	69.	40.	68.
291	68.	86.	83.	113.	126.	157.	183.	203.	224.	228.
301	276.	329.	321.	257.	245.	181.	137.	96.	85.	62.
311	53.	52.	35.	25.	16.	7.	10.	4.	1.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
351	0.	1.	1.	0.	1.	0.	0.	0.	1.	0.
361	0.	0.	0.	2.	0.	0.	1.	1.	2.	0.
371	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

R Ullellen 1-26-94

SAMPLE
J-1445-5982
File ID: 12a4372.CNF

WHC-SD-WM-DP-062, REV. 0

Counted on: 1/26/94 @ 1: 0
Detector: AEA12
Geometry number: 1
Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	436.8	436.8	303.076	303.076	14.000	6.413	7.000	3.703
2	674.7	674.7	257.175	257.174	12.000	4.219	6.000	2.433
3	602.2	602.2	231.116	231.059	12.000	3.960	6.000	2.085

PEAK RESULTS
Peak Error Limit: 25%

Peak	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.267	5.480	5.482	-.002	0.03	12.81	2.5	109.9	0.495E-04
	Pu238		5.499	5.482	0.017				143.5	0.646E-04
2	Am243	0.363	5.276	5.271	0.005	0.02	17.38	2.1	141.6	0.638E-04
3	Pu239	0.331	5.143	5.151	-.008	0.02	15.87	2.3	128.0	0.576E-04
	Pu240		5.144	5.151	-.007				128.0	0.576E-04
Totals:		0.961	<--valid peaks only-->				46.06			

DETECTOR CALIBRATION
Energy(MEV) = 4.088 + (0.0046)*Channel
Energy range (MeV): 4.088 TO 6.443
Efficiency = 0.1240 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	23003.0	100.000
Smoothed	23003.0	100.000
Composite fit	22107.8	96.108
Residuals	895.2	3.892

Analyzed by: _____
DM

Spectrum 12a4372.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 3762.4


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Raw Data Dump for ABA Spectrum: 12a4372.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	1.	0.	0.	1.	0.	0.	1.	1.	0.	0.
21	0.	0.	0.	0.	1.	0.	1.	0.	1.	0.
31	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
41	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	1.	0.	2.	0.	1.	0.
61	0.	1.	0.	0.	1.	0.	1.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	1.	0.	2.	1.
81	1.	0.	0.	0.	2.	0.	1.	0.	1.	1.
91	1.	0.	0.	0.	0.	1.	0.	1.	0.	0.
101	0.	1.	0.	0.	0.	0.	1.	1.	0.	1.
111	0.	1.	1.	0.	0.	1.	0.	1.	0.	0.
121	2.	1.	0.	0.	0.	1.	0.	1.	3.	0.
131	1.	0.	3.	1.	0.	1.	0.	1.	2.	0.
141	3.	1.	0.	4.	1.	2.	0.	0.	1.	0.
151	3.	0.	2.	4.	1.	2.	1.	2.	1.	4.
161	2.	3.	2.	1.	0.	6.	3.	1.	1.	4.
171	0.	1.	1.	4.	4.	4.	4.	5.	6.	6.
181	6.	4.	4.	5.	8.	9.	7.	6.	12.	10.
191	10.	9.	16.	12.	12.	19.	11.	16.	14.	18.
201	17.	19.	25.	20.	20.	25.	37.	34.	34.	42.
211	37.	55.	75.	58.	69.	72.	95.	130.	136.	146.
221	210.	217.	232.	264.	321.	346.	391.	484.	617.	643.
231	742.	707.	574.	455.	278.	150.	95.	59.	64.	81.
241	83.	88.	104.	121.	136.	157.	157.	221.	232.	255.
251	317.	320.	416.	512.	616.	722.	853.	755.	666.	451.
261	267.	142.	93.	91.	75.	61.	69.	63.	56.	56.
271	55.	44.	43.	22.	26.	20.	20.	22.	25.	20.
281	22.	27.	35.	51.	52.	44.	54.	51.	66.	76.
291	95.	121.	140.	138.	159.	211.	233.	224.	273.	377.
301	411.	497.	513.	510.	405.	290.	236.	185.	124.	107.
311	97.	90.	64.	54.	31.	21.	9.	7.	4.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
351	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
361	0.	0.	2.	0.	0.	0.	0.	1.	0.	0.
371	2.	1.	1.	2.	0.	0.	1.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	1.	1.	0.	0.	0.	0.	1.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Batch # 2509

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

WHC-SD-WM-DP-062, REV. 0

Lab Segment Serial No. J1445	Customer ID: KE83B
Analysis: AM 241	Sample Prep: DIRECT

Instrument: WB537237	Procedure/ Rev: LA 503-156
Technologist: Joel M Van Sant	Date: 1-20-94
Starting Time: 1600	Temperature 25°C
Ending Time: 2130	Chemist: L FRITTS

Comments: Rerun -- spike out of control limits. "Less than" value on sample duplicate.

L Fritts 1-24-94 **OUT FOR RERUN**

	Description	Lab ID		Description	Lab ID
1	STANDARD LMCS	J1439-5582	11		
2	BLANK	J1440-5682	12		
3	Sample	J1445-5782	13		
4	Sample Dup	J1445 5782	14		
5	Sample Trip	J1445 5782	15		
6	Spike	J1445-5082	16		
7	Spike Dup	J1445-5982	17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	63843	.100-10-1mL		
Spike	78843	.100mL		

A-6000-881 (03/92)

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

lb 2398 Batch 2509

Serial No.	Sample Point	Date	Time Issued	Priority
J 1439.-5582	BECHTOLD	1- 4-94	10:49	26

Determination	Method-Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? .100 - 10 - 1mL	STD

Remarks, Calculations, Results

EDP R201 AR001

STD# 78B43 RESULT 2.89 E+1

STD VAL 2.6789 E+1 %REC 107.9%

.100mL 78B43

"AEA" - 480MIN ATTACH PRINTOUT

OUT FOR RERUN

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Raymond			
Hrs	Hrs 1-20-94	Hrs	Hrs 1-21-94	Hrs

Date	Time Completed	Lab Unit Mgr
1-20-94	2130	

54-6800-061 (R-10-83)

WHC-SD-WM-DP-062, REV. 0

AM-241: LA-503-156 (D-0) **LIQUID**

			STANDARD
Serial No.	Spike (Tracer) Book Number		78B43
J1439-5582	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2509	Volume of Sample in mL	(SS)	1.000
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	43
	Am-243 Area Peak Height from AEA	(C243)	51
Date	Cm-243/244 Area Peak Height from AEA	(CM)	
01/20/94	Total AT Count	(ATOT)	1214
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	4
	Am 241 µCi/L =		2.8911E+01

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100

Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

Am 241 µCi/mL	=	2.89E-02	Detection Level in µCi/mL
Cm 243/244 µCi/mL	=	< 1.71E-02	
Relative counting error (Am-241)	=	40.6%	
Relative counting error (Cm-243/244)	=	ERR	
Am-243 Tracer Recovery	=	5.3%	1.71E-02

Data Entry by:		Date:	24-Jan-94
Approved by:		Date:	

Form 6 Rev. 1.1

*3 VR 1-20-94

1214/30 - 4

J 1439-5582
10

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

11 3370

Serial No.	Sample Point	Date	Time Issued	Priority
J 1440.-5682	BECHTOLD	1- 4-94	10:52	26

Determination	Method-Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? mL	BLANK

Remarks, Calculations, Results:

REAGENT BLANK

COUNT AS uCI/L

"AEA" - 480MIN
ATTACH PRINTOUT

.100mL 78B43

OUT FOR RERUN

WHC-SD-WM-DP-062, REV. 0

Analyst 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs 1-21-94	Hrs

Date	Time Completed	Lab Unit Mgr
1-20-94	2130	

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			BLANK
Serial No.	Spike (Tracer) Book Number		78B43
J1440-5682	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2509	Volume of Sample in mL	(SS)	1.000
Rerun No.	Dilution Factor	(DF)	1
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	2
	Am-243 Area Peak Height from AEA	(C243)	97
Date	Cm-243/244 Area Peak Height from AEA	(CM)	
01/20/94	Total AT Count	(ATOT)	677
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	8
	Am 241 µCi/L = <		1.6975E-01

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100

Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

NOTE: Am 241 Result is a LESS THAN Value

Am 241 µCi/mL	=	< 1.70E-04	Detection Level in µCi/mL
Cm 243/244 µCi/mL	=	< 1.70E-04	
Relative counting error (Am-241)	=	140.0%	
Relative counting error (Cm-243/244)	=	ERR	
Am-243 Tracer Recovery	=	3.8%	1.70E-04

Data Entry by:		Date:	24-Jan-94
Approved by:		Date:	

Form 6 Rev. 1.1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 1-20-94 MB

677/30 -8

J1440-5682

11

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

12 4357

Serial No.	Sample Point	Date	Time Issued	Priority
J 1445.-5782	BECHTOLD	1- 4-94	12: 3	26

Determination	Method-Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? .100mL - 10 - .100mL	KE83B

Remarks, Calculations, Results:

COUNT AS uCI/L
SAM

"AEA" - 480MIN
ATTACH PRINTOUT

.100mL 79843

WHC-SD-WM-DP-062, REV. 0 OUT FOR RERUN

Analyst	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Raymond			
Hrs	Hrs 1-20-94	Hrs	Hrs 1-21-94	Hrs

Date	Time Completed	Lab Unit Mgr	
1-20-94	2130		

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1445-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2509	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	76
	Am-243 Area Peak Height from AEA	(C243)	142
Date	Cm-243/244 Area Peak Height from AEA	(CM)	
01/20/94	Total AT Count	(ATOT)	718
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	3
	Am 241 µCi/L =		1.8352E+02

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100
Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

Am 241 µCi/mL	=	1.84E-01	Detection Level in µCi/mL
Cm 243/244 µCi/mL	=	< 1.71E-01	
Relative counting error (Am-241)	=	27.9%	
Relative counting error (Cm-243/244)	=	ERR	
Am-243 Tracer Recovery	=	3.6%	1.71E-01

Data Entry by:		Date:	24-Jan-94
Approved by:		Date:	

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#2 VR 1-20-94

718/30 -3

J1445-5782

12

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#9 1497

Serial No.	Sample Point	Date	Time Issued	Priority
J 1445.-5782	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? .100 - 10 - .100mL	KE83B

Remarks, Calculations, Results:

COUNT AS uCI/L
Dup
.100mL 78B43

"AEA" - 480MIN
ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

OUT FOR RERUN

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs 1-21-94	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-20-94	2130	

54-6800-061 (R-10-83)

1-24-94

(40.7 - 8.1) / 101 (100) = 27.7 = 68.2

AM-241: LA-503-156 (D-0) **LIQUID**

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1445-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2509	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	57
	Am-243 Area Peak Height from AEA	(C243)	211
Date	Cm-243/244 Area Peak Height from AEA	(CM)	
01/20/94	Total AT Count	(ATOT)	956
Sample Type	AT Count Time in Minutes	(MIN CT'd)	30
LIQUID	Background in CPM	(BKG)	3
	Am 241 µCi/L = <		1.7145E+02

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Tracer % Recovery = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100
Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100
NOTE: Am 241 Result is a LESS THAN Value

Am 241 µCi/mL	=	< 1.71E-01	Detection Level in µCi/mL
Cm 243/244 µCi/mL	=	< 1.71E-01	
Relative counting error (Am-241)	=	29.3%	
Relative counting error (Cm-243/244)	=	ERR	
Am-243 Tracer Recovery	=	6.0%	1.71E-01

Data Entry by:		Date:	24-Jan-94
Approved by:		Date:	

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

E2 1-20-94 MB

956/30 - 3

J1445-5782
9

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#10 2399

Serial No	Sample Point	Date	Time Issued	Priority
J 1445.-5782	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157 -	0

Sample Size	Customer ID
? .100mL-10-.100mL	KE83B

Remarks, Calculations, Results:

COUNT AS uCI/L
TRIP

"AEA" - 480MIN
ATTACH PRINTOUT

.100mL 78B43

WHC-SD-WM-DP-062, REV. 0

OUT FOR RERUN

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs 1-21-94	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-20-94	2130	

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1445-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2509	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	64
	Am-243 Area Peak Height from AEA	(C243)	114
Date	Cm-243/244 Area Peak Height from AEA	(CM)	
01/20/94	Total AT Count	(ATOT)	1075
Sample Type	AT Count Time in Minutes	(MIN CT'd)	30
LIQUID	Background in CPM	(BKG)	3
	Am 241 µCi/L =		1.9251E+02

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Tracer % Recovery = ((ATOT / MIN CT'd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100
Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	1.93E-01	
Cm 243/244 µCi/mL	=	< 1.71E-01	
Relative counting error (Am-241)	=	30.6%	
Relative counting error (Cm-243/244)	=	ERR	
Am-243 Tracer Recovery	=	5.6%	1.71E-01

Data Entry by:		Date:	24-Jan-94
Approved by:		Date:	

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

1-20-94 MS

1075/30 -8

J 1445-5782
10

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#12 4358

Serial No.	Sample Point	Date	Time Issued	Priority
J 1445.-5082	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? .1mL-10- .100mL	KE83B

Remarks, Calculations, Results:

SAMPLE SPIKED ID 63BAB .100-10-1mL

SPIKE ID 78B43

SPIKE VOLUME
COUNT AS uCI/L .200mL

"AEA" - 430MIN
ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

OUT FOR RERUN

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Raymond			
Hrs	Hrs	Hrs	Hrs	Hrs
	1-20-94	1-21-94		
Date	Time Completed	Lab Unit Mgr		
1-20-94	2130			

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			ERR
Serial No.	Spike (Tracer) Book Number		78B43
J1445-5082	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.200
2509	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	93
	Am-243 Area Peak Height from AEA	(C243)	180
Date	Cm-243/244 Area Peak Height from AEA	(CM)	
01/20/94	Total AT Count	(ATOT)	2681
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	4
	Am 241 µCi/L =		3.5433E+02

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100
Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

$(3.543E+2 - 183.52)(\frac{101}{1}/\frac{101}{.1})(100) = 63.7500\%$

2.6789 E+1

			Detection Level in µCi/mL
Am 241 µCi/mL	=	3.54E-01	
Cm 243/244 µCi/mL	=	< 3.43E-01	
Relative counting error (Am-241)	=	25.0%	
Relative counting error (Cm-243/244)	=	ERR	
Am-243 Tracer Recovery	=	7.5%	3.43E-01

Data Entry by:		Date:	24-Jan-94
Approved by:		Date:	

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 R 1-20-94

2681/30 - 4

J1445-5082

12

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#11 3371

Serial No.	Sample Point	Date	Time Issued	Priority
J 1445.-5982	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? .1mL-10-.100mL	KE83B

Remarks, Calculations, Results DHP

SAMPLE SPIKED ID 63B43 .100-10-1mL

SPIKE ID 78B43

SPIKE VOLUME
COUNT AS uCI/L .200mL

"AEA" - 480MIN
ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs 1-21-94	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-20-94	2130	

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			CHK EXT NO.
Serial No.	Spike (Tracer) Book Number		78B43
J1445-5982	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.200
2509	Volume of Sample in mL	(SS)	0.100
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	1458
	Am-243 Area Peak Height from AEA	(C243)	2486
Date	Cm-243/244 Area Peak Height from AEA	(CM)	
01/20/94	Total AT Count	(ATOT)	1374
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	4
	Am 241 µCi/L =		4.0221E+02

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100
Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

Am 241 µCi/mL	=	4.02E-01	Detection Level in µCi/mL
Cm 243/244 µCi/mL	=	< 3.43E-01	
Relative counting error (Am-241)	=	6.5%	
Relative counting error (Cm-243/244)	=	ERR	
Am-243 Tracer Recovery	=	3.5%	3.43E-01

Date Entry by:		Date:	24-Jan-94
Approved by:		Date:	

(402.2 - 171.45)(101/1 / 101/1)(100) = 86.1%

2.6.789

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 1-10-94 mls

13074/30 - 4

J1445-5982
11

WHC-SD-WM-DP-062, REV. 0

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J1439-5582
File ID: 10a2398.CNF

Counted on: 1/21/94 @ 2:23
Detector: AEA10
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	36.1	36.1	303.032	304.100	12.000	5.619	6.000	0.843
2	35.8	35.8	256.227	256.342	12.000	4.756	6.000	0.461
3	204.5	204.5	230.627	231.417	10.000	3.626	5.000	0.259

PEAK RESULTS
Peak Error Limit: 25%

Peak #	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.136	5.499	5.507	-.008	0.03	2.27	5.9	24.8	0.112E-04
	Am241		5.480	5.507	-.027				19.0	0.856E-05
2	Am243	0.190	5.276	5.283	-.007	0.02	3.19	5.3	25.3	0.114E-04
3	Pu239	1.390	5.143	5.166	-.023	0.02	23.33	1.9	183.4	0.826E-04
	Pu240		5.144	5.166	-.022				183.4	0.826E-04
		---					---			
Totals:		1.716	<--valid peaks only-->				28.79			

DETECTOR CALIBRATION
Energy(MEV) = 4.078 + (0.0047)*Channel
Energy range (MeV): 4.078 TO 6.485
Efficiency = 0.1272 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	8054.0	100.000
Smoothed	8054.0	100.000
Composite fit	13819.4	171.584
Residuals	-5765.4	-71.584

Analyzed by: _____
EMB

Spectrum 10a2398.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 1552.7


```
3
3
3
3
 3
 3
 3
  3
   3
   3
    3
     3
      3
       3
        3
          3
           3
            3
.             3
2                3
2                   3
2.                     3
.2..                      3
.2........                   3
..2......................      3
...2.............................................3..
...2.......................................................3...........
.....2.......................................................................3
......2.......................3.........
1.......2..
1..........2.
.1....2..
..1
...1
....1.
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......1
.
```

Raw Data Dump for AEA Spectrum: 10a2398.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
21	2.	0.	0.	0.	2.	1.	0.	0.	0.	1.
31	2.	2.	1.	0.	1.	0.	0.	0.	1.	1.
41	1.	1.	0.	1.	1.	1.	0.	0.	0.	1.
51	0.	0.	2.	1.	1.	1.	1.	2.	1.	2.
61	2.	1.	1.	0.	0.	0.	1.	2.	2.	1.
71	0.	0.	1.	1.	1.	4.	0.	0.	0.	1.
81	0.	0.	1.	0.	2.	2.	3.	0.	0.	3.
91	4.	1.	3.	0.	2.	3.	0.	0.	1.	2.
101	2.	1.	1.	1.	2.	4.	2.	1.	5.	2.
111	1.	1.	2.	6.	1.	5.	0.	0.	2.	1.
121	0.	2.	2.	3.	2.	2.	4.	0.	1.	4.
131	3.	1.	3.	2.	2.	1.	3.	2.	1.	2.
141	3.	4.	2.	2.	4.	0.	0.	2.	1.	4.
151	3.	7.	4.	3.	5.	2.	3.	3.	0.	4.
161	3.	2.	5.	3.	4.	5.	3.	8.	7.	6.
171	2.	5.	9.	4.	3.	2.	7.	9.	8.	11.
181	5.	8.	9.	10.	10.	15.	20.	13.	16.	13.
191	13.	14.	21.	25.	20.	23.	35.	36.	45.	47.
201	44.	62.	64.	53.	74.	72.	99.	108.	124.	123.
211	114.	160.	160.	180.	197.	205.	185.	206.	191.	225.
221	215.	193.	198.	160.	198.	143.	157.	158.	181.	216.
231	241.	270.	240.	174.	123.	72.	40.	36.	24.	25.
241	24.	21.	31.	29.	22.	33.	34.	32.	27.	29.
251	33.	30.	39.	36.	38.	42.	51.	35.	40.	29.
261	20.	19.	8.	6.	5.	7.	10.	8.	10.	3.
271	7.	12.	6.	11.	4.	10.	11.	10.	13.	18.
281	7.	13.	10.	15.	21.	34.	21.	20.	27.	19.
291	22.	27.	31.	34.	36.	24.	26.	19.	29.	24.
301	27.	34.	42.	41.	36.	24.	23.	15.	7.	6.
311	5.	3.	5.	1.	1.	1.	5.	1.	1.	0.
321	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
331	1.	0.	2.	0.	0.	0.	1.	1.	2.	1.
341	0.	0.	1.	1.	1.	1.	0.	0.	2.	3.
351	0.	0.	0.	0.	2.	2.	0.	0.	1.	1.
361	2.	0.	1.	0.	0.	0.	1.	2.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
481	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

N Johnson 1-21-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J1440-5682
File ID: 11a3370.CNF

Counted on: 1/21/94 @ 2:23
Detector: AEA11
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	88.2	88.2	255.176	255.176	14.000	7.468	7.000	1.143
2?	1.1	1.1	207.079	206.634	4.000	0.000	2.000	3.758

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.918	5.276	5.271	0.005	0.03	5.65	3.8	48.4	0.218E-0
2		????		5.048			0.00	1000.		
Totals:		0.918	<--valid peaks only-->				5.65			

DETECTOR CALIBRATION
Energy(MEV) = 4.097 + (0.0046)*Channel
Energy range (MeV): 4.097 TO 6.453
Efficiency = 0.1180 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	2955.0	100.000
Smoothed	2955.3	100.009
Composite fit	2714.1	91.848
Residuals	240.9	8.152

Analyzed by: _____
EMB

Spectrum 11a3370.CNF

1 Legend:- Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 667.5


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Raw Data Dump for AEA Spectrum: 11a3370.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.
11	0.	0.	1.	2.	0.	0.	0.	1.	1.	0.
21	0.	2.	0.	1.	0.	0.	0.	2.	0.	1.
31	1.	0.	0.	0.	1.	1.	0.	1.	1.	0.
41	0.	0.	1.	1.	2.	0.	0.	0.	0.	1.
51	0.	1.	0.	0.	0.	2.	0.	1.	0.	0.
61	1.	0.	0.	1.	2.	2.	1.	1.	0.	1.
71	1.	0.	0.	2.	0.	1.	0.	1.	1.	0.
81	0.	2.	1.	0.	0.	0.	0.	1.	1.	1.
91	0.	0.	0.	0.	1.	4.	2.	1.	2.	0.
101	3.	2.	0.	3.	2.	2.	0.	0.	0.	5.
111	2.	3.	1.	1.	2.	3.	0.	2.	1.	1.
121	3.	2.	1.	3.	3.	3.	5.	1.	0.	2.
131	2.	2.	1.	1.	2.	1.	2.	2.	0.	3.
141	5.	3.	5.	1.	4.	2.	0.	1.	4.	0.
151	5.	3.	5.	4.	1.	4.	0.	5.	5.	2.
161	3.	8.	5.	2.	2.	3.	4.	4.	8.	6.
171	2.	10.	7.	8.	7.	2.	1.	7.	3.	2.
181	7.	4.	7.	3.	7.	5.	1.	6.	4.	8.
191	6.	9.	8.	9.	10.	6.	5.	8.	8.	12.
201	8.	13.	9.	9.	13.	9.	16.	16.	9.	11.
211	5.	12.	17.	17.	14.	18.	9.	21.	16.	16.
221	20.	22.	20.	19.	22.	28.	19.	47.	19.	29.
231	27.	32.	21.	36.	48.	40.	36.	46.	43.	44.
241	45.	56.	55.	73.	91.	80.	74.	67.	84.	77.
251	88.	91.	77.	90.	97.	83.	93.	85.	66.	44.
261	27.	19.	8.	10.	13.	10.	5.	6.	5.	7.
271	6.	4.	2.	0.	0.	0.	0.	2.	0.	0.
281	0.	0.	0.	1.	2.	0.	0.	0.	0.	0.
291	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.
301	0.	0.	0.	2.	0.	1.	0.	0.	0.	0.
311	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
331	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
341	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
351	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
361	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
411	0.	0.	0.	1.	0.	0.	0.	1.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

1-21-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J1445-5782
File ID: 12a4357.CNF

Counted on: 1/21/94 @ 2:24
Detector: AEA12
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	66.4	66.4	299.064	299.064	12.000	7.163	6.000	1.485
2	124.5	124.5	253.107	253.056	12.000	5.902	6.000	1.208

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.341	5.499	5.500	-.001	0.03	3.40	4.9	34.7	0.156E-04
	Am241		5.480	5.500	-.020				26.6	0.120E-04
2	Am243	0.627	5.276	5.284	-.008	0.03	6.25	3.7	46.4	0.209E-04
Totals:		0.969	<--valid peaks only-->				9.65			

DETECTOR CALIBRATION
Energy(MEV) = 4.095 + (0.0047)*Channel
Energy range (MeV): 4.095 TO 6.501
Efficiency = 0.1362 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	4783.0	100.000
Smoothed	4783.0	100.000
Composite fit	4633.1	96.866
Residuals	149.9	3.134

Analyzed by: _____
EMB

Spectrum 12a4357.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 980.7


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Raw Data Dump for AEA Spectrum: 12a4357.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	1.	1.	0.	0.	0.	0.	1.
21	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
41	0.	1.	0.	1.	0.	0.	1.	0.	0.	0.
51	0.	1.	0.	0.	0.	1.	1.	0.	0.	0.
61	0.	0.	0.	2.	0.	0.	0.	0.	1.	0.
71	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
81	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
91	0.	1.	0.	1.	1.	1.	1.	0.	1.	1.
101	1.	0.	1.	1.	1.	0.	0.	0.	1.	1.
111	1.	1.	0.	1.	2.	0.	0.	1.	0.	0.
121	0.	1.	1.	0.	3.	1.	0.	1.	2.	0.
131	1.	0.	1.	0.	1.	2.	1.	2.	0.	0.
141	0.	1.	2.	1.	2.	0.	1.	0.	2.	3.
151	1.	0.	1.	0.	1.	0.	1.	3.	2.	0.
161	2.	0.	0.	3.	1.	4.	1.	1.	4.	2.
171	1.	3.	2.	2.	3.	2.	2.	1.	2.	3.
181	0.	1.	3.	7.	2.	2.	5.	3.	5.	2.
191	2.	3.	4.	5.	6.	4.	8.	9.	2.	8.
201	8.	5.	5.	5.	7.	7.	10.	12.	11.	14.
211	13.	11.	10.	11.	9.	16.	22.	20.	29.	24.
221	23.	18.	24.	29.	34.	28.	28.	30.	37.	36.
231	41.	46.	29.	26.	43.	49.	64.	50.	55.	50.
241	73.	70.	89.	117.	104.	118.	119.	119.	138.	129.
251	102.	142.	132.	139.	139.	104.	87.	53.	31.	20.
261	23.	14.	12.	21.	17.	19.	18.	11.	13.	12.
271	10.	12.	12.	14.	11.	15.	15.	23.	16.	17.
281	26.	29.	24.	33.	30.	33.	36.	45.	50.	44.
291	60.	49.	73.	54.	63.	73.	63.	60.	67.	76.
301	64.	56.	49.	23.	21.	12.	7.	12.	10.	9.
311	1.	2.	3.	2.	2.	1.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
351	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
361	0.	2.	1.	0.	0.	0.	0.	0.	0.	1.
371	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

MG Swim-1-21-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

WHC-SD-WM-DP-062, REV. 0

DATA REDUCTION REPORT

SAMPLE MB 1-21-94
~~J145 5782 DUP~~ J-1445-5782
File ID: 9a1497.CNF

Counted on: 1/21/94 @12:33
Detector: AEA9
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	50.7	50.7	301.713	301.713	14.000	8.183	7.000	1.266
2	181.7	181.7	256.267	256.214	12.000	5.545	6.000	0.808

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.242	5.480	5.478	0.002	0.04	3.26	5.0	24.2	0.109E-0
	Pu238		5.499	5.478	0.021				31.6	0.142E-04
2	Am243	0.868	5.276	5.268	0.008	0.03	11.69	2.7	82.5	0.372E-04
Totals:		1.109	<--valid peaks only-->				14.95			

DETECTOR CALIBRATION
Energy(MEV) = 4.090 + (0.0046)*Channel
Energy range (MeV): 4.090 TO 6.445
Efficiency = 0.1432 CPM/DPM

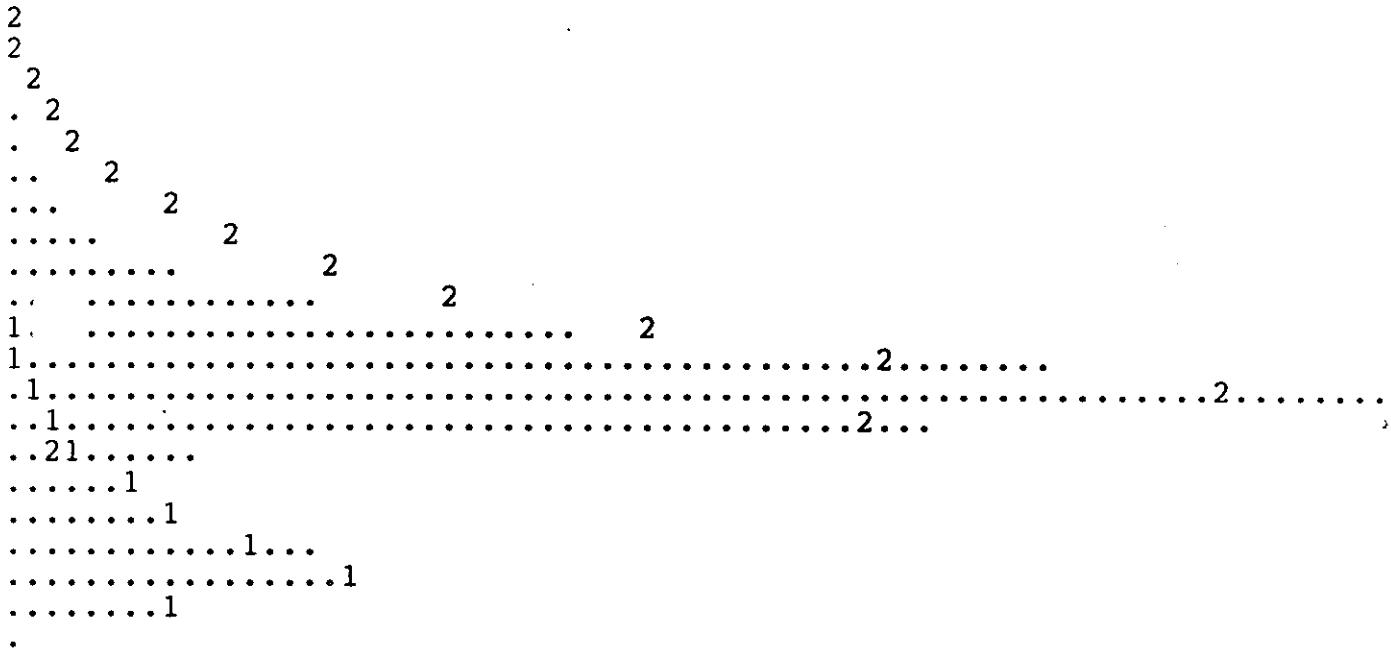
TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	6469.0	100.000
Smoothed	6469.0	100.000
Composite fit	7177.3	110.949
Residuals	-708.3	-10.949

Analyzed by: _____
ALJ

Spectrum 9a1497.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 1424.0



Raw Data Dump for AEA Spectrum: 9a1497.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	1.	0.	0.	0.	0.	0.	0.	1.	1.	1.
31	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
41	1.	0.	0.	0.	0.	1.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
61	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
81	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
91	1.	1.	2.	0.	0.	0.	1.	1.	0.	0.
101	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.
111	0.	0.	1.	0.	1.	1.	0.	0.	1.	1.
121	0.	1.	1.	0.	0.	0.	0.	1.	1.	1.
131	0.	0.	0.	2.	0.	2.	2.	4.	1.	0.
141	0.	1.	1.	0.	1.	0.	0.	0.	1.	1.
151	1.	3.	0.	1.	0.	1.	2.	2.	0.	1.
161	1.	1.	1.	2.	0.	3.	2.	2.	3.	1.
171	3.	1.	2.	2.	2.	1.	2.	2.	4.	3.
181	5.	4.	3.	2.	6.	2.	3.	2.	0.	3.
191	2.	4.	3.	9.	11.	8.	3.	4.	5.	6.
201	8.	11.	6.	5.	10.	9.	9.	15.	10.	16.
211	8.	18.	15.	20.	17.	20.	22.	27.	12.	24.
221	21.	30.	35.	41.	31.	30.	46.	52.	41.	48.
231	55.	55.	52.	52.	68.	69.	90.	79.	106.	106.
241	114.	109.	141.	170.	116.	147.	168.	173.	185.	184.
251	183.	200.	171.	172.	169.	189.	211.	191.	182.	111.
261	74.	42.	38.	33.	24.	21.	16.	12.	18.	14.
271	19.	18.	13.	13.	17.	15.	10.	10.	20.	18.
281	20.	21.	13.	19.	31.	33.	35.	32.	33.	28.
291	42.	41.	46.	53.	54.	55.	36.	33.	57.	45.
301	55.	51.	57.	50.	39.	27.	23.	11.	11.	13.
311	7.	11.	8.	6.	2.	1.	1.	2.	1.	0.
321	0.	2.	0.	0.	0.	0.	0.	0.	1.	0.
331	0.	3.	0.	1.	2.	1.	1.	0.	1.	0.
341	0.	0.	1.	0.	0.	0.	3.	1.	1.	2.
351	1.	1.	0.	2.	1.	3.	1.	4.	0.	1.
361	3.	5.	1.	3.	1.	3.	2.	3.	2.	0.
371	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	1.	0.	0.	0.	0.	1.	0.	0.	0.	0.
431	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

MBrown 1-21-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J1445-5782 TRIP
File ID: 10a2399.CNF

Counted on: 1/21/94 @12:34
Detector: AEA10
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	54.5	54.5	291.198	291.198	32.000	33.269	16.000	8.920
2	98.7	98.7	256.798	256.609	30.000	5.141	15.000	14.910
3	92.4	92.4	247.154	243.400	16.000	8.309	8.000	1.276
4?	0.5	0.1	195.743	195.000	4.000	0.100	2.000	0.100
5?	0.4	0.1	190.784	190.784	4.000	0.100	2.000	0.100

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Th228	0.310	5.430	5.447	-.017	0.16	3.58	4.7	39.6	0.178E-04
	Am241		5.480	5.447	0.033				29.9	0.135E-04
2	Am243	0.193	5.276	5.284	-.008	0.02	2.22	6.6	17.7	0.796E-05
3	Pu240	0.518	5.144	5.222	-.078	0.04	5.99	4.3	47.1	0.212E-04
4		????		4.995			0.00	7907.		
5		????		4.975			0.00	7253.		
Totals:		1.021	<--valid peaks only-->				11.79			

DETECTOR CALIBRATION
Energy(MEV) = 4.078 + (0.0047)*Channel
Energy range (MeV): 4.078 TO 6.485
Efficiency = 0.1272 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	5544.0	100.000
Smoothed	5544.0	100.000
Composite fit	5660.6	102.103
Residuals	-116.6	-2.103

Analyzed by: _____
ALJ

Spectrum 10a2399.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 761.7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12.............................................................3.........
..1...............3.........................2...............
....1.....................................  2
..2......1......
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Raw Data Dump for AEA Spectrum: 10a2399.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	0.	1.	1.	0.	1.	1.	0.	0.	0.	0.
21	0.	0.	0.	1.	0.	1.	1.	1.	1.	1.
31	2.	1.	0.	0.	1.	1.	1.	1.	0.	0.
41	1.	1.	0.	1.	2.	1.	1.	0.	0.	0.
[illegible]	2.	1.	1.	0.	0.	0.	1.	0.	0.	0.
61	0.	2.	3.	3.	0.	0.	3.	0.	2.	2.
71	3.	0.	0.	0.	0.	1.	0.	1.	1.	3.
81	0.	1.	0.	1.	2.	0.	2.	1.	0.	1.
91	0.	1.	0.	0.	1.	1.	1.	1.	2.	0.
101	0.	0.	1.	0.	1.	1.	0.	3.	0.	0.
111	3.	1.	1.	2.	0.	1.	1.	2.	1.	2.
121	1.	1.	1.	4.	3.	2.	7.	1.	1.	4.
131	2.	0.	1.	2.	2.	3.	3.	2.	5.	1.
141	1.	3.	2.	3.	0.	4.	3.	3.	3.	4.
151	6.	4.	1.	4.	4.	4.	4.	3.	3.	4.
161	5.	1.	5.	3.	5.	4.	7.	1.	6.	6.
171	3.	2.	7.	2.	4.	4.	4.	11.	8.	6.
181	9.	5.	10.	1.	10.	10.	5.	6.	12.	11.
191	10.	9.	6.	12.	16.	15.	14.	10.	6.	14.
201	11.	17.	8.	16.	13.	22.	17.	13.	18.	16.
211	20.	18.	23.	33.	28.	27.	27.	42.	41.	43.
221	40.	44.	42.	44.	42.	48.	40.	56.	46.	50.
231	55.	58.	75.	72.	74.	78.	86.	80.	69.	99.
241	81.	101.	98.	107.	92.	89.	114.	101.	103.	87.
251	74.	69.	77.	69.	67.	83.	87.	91.	85.	56.
261	34.	34.	21.	20.	25.	18.	19.	14.	22.	16.
271	16.	23.	14.	32.	17.	25.	25.	20.	27.	44.
281	38.	35.	25.	38.	51.	44.	58.	46.	40.	59.
291	64.	57.	48.	45.	52.	37.	45.	37.	42.	42.
301	40.	42.	37.	44.	32.	19.	16.	5.	9.	2.
311	8.	5.	2.	4.	3.	1.	1.	0.	1.	0.
321	1.	2.	1.	1.	0.	0.	1.	1.	1.	0.
331	0.	0.	0.	0.	1.	0.	1.	0.	2.	1.
341	1.	0.	0.	3.	0.	0.	0.	0.	1.	1.
351	2.	1.	3.	0.	0.	3.	0.	0.	0.	0.
361	1.	0.	3.	0.	0.	1.	0.	0.	1.	0.
371	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

M Brown 1-21-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J1445-5982 SPK D
File ID: 11a3371.CNF

Counted on: 1/21/94 @12:36
Detector: AEA11
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak	Peak height		Peak center		FWHM		Tau	
ID	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1257.8	1257.8	302.318	302.318	14.000	6.671	7.000	1.593
2	2041.4	2041.4	256.283	256.245	12.000	5.462	6.000	1.258
3	26.8	26.8	94.699	94.688	274.000	1.000	137.000	0.100
4?	5.7	5.7	34.959	34.193	14.000	84.128	7.000	5.588

PEAK RESULTS
Peak Error Limit: 25%

Peak		AEA	Peak Centroid				Count	%err		Activity
ID	Isotope	Frac	Exp.	Obs.	Diff.	FWHM	Rate c/m	@95	d/m	uCi/ea
1	Am241	0.315	5.480	5.488	-.008	0.03	57.97	1.2	522.6	0.235E-03
	Pu238		5.499	5.488	0.011				682.3	0.307E-03
2	Am243	0.507	5.276	5.276	0.000	0.03	93.29	1.0	798.6	0.360E-03
3		0.011		4.533	0.00		2.00	6.3	16.9	0.763E-05
4		????		4.255			0.56	23.2		
		---					---			
Totals:		0.832	<--valid peaks only-->				153.26			

DETECTOR CALIBRATION
Energy(MEV) = 4.097 + (0.0046)*Channel
Energy range (MeV): 4.097 TO 6.453
Efficiency = 0.1180 CPM/DPM

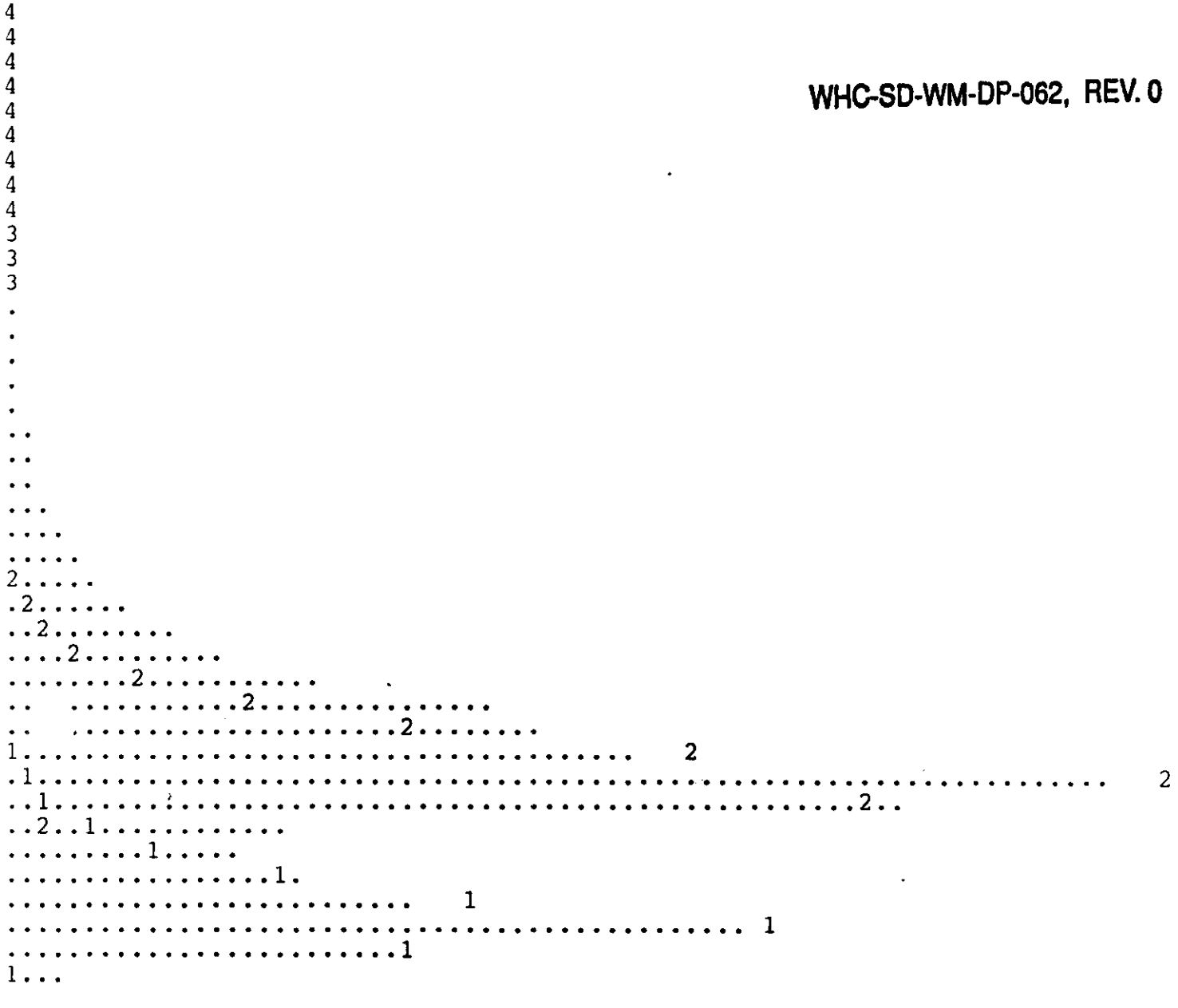
TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	88408.0	100.000
Smoothed	88408.0	100.000
Composite fit	73839.8	83.522
Residuals	14568.2	16.478

Analyzed by: _____
ALJ

Spectrum 11a3371.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 12702.1



Raw Data Dump for AEA Spectrum: 11a3371.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	1.	6.
11	10.	4.	14.	12.	10.	9.	7.	7.	8.	4.
21	10.	12.	10.	8.	7.	8.	8.	8.	12.	10.
31	7.	10.	9.	13.	11.	10.	11.	7.	15.	4.
41	7.	7.	18.	9.	13.	13.	13.	11.	15.	12.
51	11.	11.	10.	13.	13.	12.	16.	14.	14.	15.
61	11.	14.	14.	14.	15.	11.	18.	11.	19.	11.
71	16.	12.	13.	16.	13.	15.	16.	15.	12.	15.
81	15.	12.	19.	19.	18.	18.	16.	23.	21.	16.
91	25.	25.	27.	24.	29.	25.	21.	27.	21.	20.
101	17.	22.	30.	32.	29.	22.	18.	27.	25.	29.
111	31.	26.	33.	31.	33.	38.	31.	23.	30.	33.
121	33.	33.	37.	28.	40.	32.	29.	37.	46.	33.
131	33.	44.	41.	39.	52.	40.	40.	43.	56.	36.
141	58.	41.	51.	51.	61.	48.	56.	56.	46.	55.
151	62.	50.	66.	65.	77.	60.	67.	66.	76.	69.
161	86.	88.	91.	79.	82.	93.	94.	96.	99.	85.
171	89.	93.	110.	98.	120.	119.	121.	112.	102.	119.
181	121.	140.	124.	126.	173.	169.	148.	163.	130.	177.
191	171.	193.	188.	190.	188.	207.	201.	204.	209.	213.
201	236.	230.	211.	268.	260.	292.	261.	331.	269.	319.
211	320.	339.	330.	322.	361.	375.	352.	408.	422.	504.
221	470.	552.	552.	553.	573.	587.	685.	753.	807.	849.
231	935.	838.	895.	818.	744.	732.	762.	724.	797.	760.
241	823.	827.	831.	855.	964.	939.	1082.	1152.	1235.	1273.
251	1408.	1440.	1743.	1949.	2106.	2486.	2374.	2085.	1677.	1200.
261	764.	486.	436.	410.	371.	361.	363.	404.	363.	356.
271	339.	344.	334.	357.	311.	341.	333.	369.	398.	331.
281	419.	404.	444.	485.	463.	488.	461.	506.	534.	501.
291	598.	597.	616.	693.	712.	765.	845.	900.	1061.	1127.
301	1318.	1458.	1414.	1297.	996.	712.	583.	428.	294.	287.
311	199.	168.	135.	95.	78.	51.	28.	18.	6.	0.
321	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
331	0.	1.	0.	0.	1.	1.	0.	0.	0.	1.
341	1.	0.	1.	0.	2.	1.	0.	0.	1.	0.
351	1.	0.	1.	3.	0.	1.	4.	1.	0.	3.
361	2.	1.	2.	1.	1.	2.	1.	2.	2.	0.
371	3.	3.	1.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	2.	0.	2.	0.	0.	1.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

MBSum 1-21-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J1445-5082 SPK
File ID: 12a4358.CNF

Counted on: 1/21/94 @12:37
Detector: AEA12
Geometry number: 1
Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	82.8	82.8	299.717	299.717	14.000	9.257	7.000	7.264
2	68.4	68.4	288.022	286.380	14.000	5.762	7.000	7.264
3	76.9	76.9	271.635	271.114	42.000	15.297	21.000	21.681
4	147.4	147.4	254.758	254.473	12.000	4.910	6.000	0.174
5	174.8	174.8	229.165	229.069	10.000	3.901	5.000	0.785
6?	0.0	0.1	75.037	75.037	0.000	0.100	0.000	0.100

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.068	5.480	5.503	-.023	0.04	2.60	5.5	20.3	0.916E-05
	Pu238		5.499	5.503	-.004				26.5	0.120E-04
2	Th228	0.043	5.430	5.441	-.011	0.03	1.66	9.8	17.1	0.771E-05
3	Th228	0.078	5.430	5.369	0.061	0.07	2.99	6.8	30.9	0.139E-04
	Am243		5.276	5.369	-.093				22.2	0.999E-05
4	Am243	0.790	5.276	5.291	-.015	0.02	30.33	1.7	225.0	0.101E-03
5	Pu239	0.219	5.143	5.171	-.028	0.02	8.42	6.1	61.8	0.278E-04
	Pu240		5.144	5.171	-.027				61.8	0.278E-04
6		????		4.447			0.00	*****		
		---					---			
Totals:		1.197	<--valid peaks only-->				46.00			

DETECTOR CALIBRATION
Energy(MEV) = 4.095 + (0.0047)*Channel
Energy range (MeV): 4.095 TO 6.501
Efficiency = 0.1362 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	18443.0	100.000
Smoothed	18443.0	100.000
Composite fit	22083.6	119.740
Residuals	-3640.6	-19.740

Analyzed by: _____
ALJ

Spectrum 12a4358.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 2070.0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6    4
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.....       4
......       4
........      4
............   4
5............   4
.5............ 4
..5...............4
....5.............4...
......5............4........
............5...........4..............
....................5......4.......................
..............................4.5.......................
..   ............................4...........5.............................
..   ....5.......................4............
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3.................................... 4
......3........4.......
................ 3
.2............3.
.1.3..........2....
.......2.1.........
....................1
......1
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Raw Data Dump for AEA Spectrum: 12a4358.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	1.	8.	6.	5.	3.	2.	1.	3.	5.	7.
21	3.	5.	8.	2.	5.	3.	2.	6.	6.	3.
31	4.	2.	2.	2.	7.	5.	4.	6.	5.	2.
41	5.	3.	4.	5.	5.	5.	7.	8.	4.	1.
51	6.	6.	3.	4.	6.	7.	7.	8.	4.	12.
61	4.	6.	12.	9.	4.	3.	3.	7.	10.	8.
71	8.	13.	6.	8.	19.	11.	6.	8.	11.	9.
81	8.	10.	13.	10.	11.	9.	16.	11.	10.	6.
91	10.	10.	15.	15.	11.	8.	11.	15.	14.	6.
101	11.	10.	15.	7.	5.	14.	11.	16.	11.	14.
111	15.	12.	13.	12.	23.	18.	19.	16.	21.	16.
121	23.	25.	10.	12.	15.	28.	19.	28.	21.	16.
131	18.	28.	30.	24.	19.	18.	18.	25.	28.	20.
141	28.	25.	19.	24.	29.	29.	33.	31.	31.	28.
151	27.	41.	39.	48.	38.	49.	41.	39.	49.	41.
161	49.	37.	51.	51.	50.	49.	45.	57.	54.	56.
171	53.	49.	52.	54.	72.	77.	67.	73.	69.	70.
181	70.	95.	75.	70.	85.	81.	71.	92.	89.	99.
191	93.	106.	111.	115.	94.	117.	115.	119.	109.	130.
201	136.	131.	146.	119.	161.	158.	146.	183.	182.	189.
211	192.	174.	174.	192.	203.	178.	200.	212.	213.	193.
221	205.	189.	217.	214.	223.	253.	280.	264.	339.	314.
231	279.	235.	173.	140.	149.	141.	148.	139.	154.	137.
241	168.	130.	137.	139.	143.	116.	110.	126.	117.	113.
251	114.	126.	155.	151.	171.	180.	145.	89.	66.	81.
261	59.	57.	52.	64.	58.	60.	62.	58.	45.	66.
271	63.	63.	62.	60.	59.	49.	73.	50.	68.	74.
281	73.	66.	66.	81.	68.	79.	85.	85.	88.	79.
291	72.	57.	70.	64.	54.	67.	82.	74.	81.	93.
301	92.	75.	51.	54.	27.	32.	13.	12.	16.	10.
311	12.	6.	4.	3.	1.	0.	0.	0.	1.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
341	0.	0.	1.	2.	0.	0.	0.	0.	2.	0.
351	1.	1.	0.	0.	1.	0.	0.	0.	0.	0.
361	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Batch 2510

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

WHC-SD-WM-DP-062, REV. 0

ANALYTICAL BATCH

Lab Segment Serial No. J1446	Customer ID: KE83D
Analysis: Am_{241}	Sample Prep: DIRECT

Instrument: WB 537237	Procedure/ Rev: LA-503-156 D-0
Technologist: John VanSant	Date: 1-20-94
Starting Time: 0800	Temperature 25°C
Ending Time: 1400	Chemist: L Fritts

Comments:

	Description	Lab ID		Description	Lab ID
1	LMCS STANDARD	J1447 5582	11		
2	Blank	J1448-5682	12		
3	Sample	J1446 5782	13		
4	Sample Dup	J1446 5782	14		
5	Sample Trip	J1446-5782	15		
6	Spike	J1446 5082	16		
7	Spike Dup	J1446 5982	17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	68B43	.100-10-1mL		
Spike	.100mL	79B43		

A-6000-881 (03/92)

104

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-503-156

DATE START: January 20, 1994

PREPARED BY: L.L. Fritts 1-25-94

DATE COMPLETE: January 25, 1994

	UNITS:	uCi/mL									
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	RESULT #3	AVERAGE	2*SD	PREC	%REC	DET LIM	% CT ER
STD 63843	J1447	Am-241	2.43E+1						90.7	3.05E-3	12.5
BLANK	J1448	Am-241	<8.28E-3						41.4	8.28E-3	87.8
KE83D	J1446	Am-241	3.10E-2	3.05E-2	3.51E-2	3.22E-2	5.05E-3	15.7	31.8	1.08E-2	13.9
									53.4	6.42E-3	9.9
									9.6	3.43E-2	52.6
KE83D	J1446	241 Spike	116.4	89.8							

NARRATIVE: [X] NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH

LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in uCi/L.

The results for the spike are in percent recovery.

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#4 4115

Serial No.	Sample Point	Date	Time Issued	Priority
J 1446.-5782	BECHTOLD	1- 4-94	12:26	26

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? .1mL-10-.500mL	KE83D

Remarks, Calculations, Results

COUNT AS uCI/L
SAM

3.10×10^{-2} uCi/ml

.100mL 78843

"AEA" - 480MIN
ATTACH PRINTOUT

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
		Raymond		
Hrs	Hrs	Hrs	Hrs	Hrs
		1.20.94	1-21-94	
Date	Time Completed	Lab Unit Mgr		
1-20-94				

54-6800-061 (R-10-83)

WHC-SD-WM-DP-062, REV. 0

AM-241: LA-503-156 (D-0) **LIQUID**

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1446-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2510	Volume of Sample in mL	(SS)	0.500
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	290
J VAN SANT	Am-243 Area Peak Height from AEA	(C243)	642
Date	Cm-243/244 Area Peak Height from AEA	(CM)	6
01/20/94	Total AT Count	(ATOT)	5459
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	8
	Am 241 µCi/L =		3.0978E+01

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100
Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	3.10E-02	
Cm 243/244 µCi/mL	=	< 1.08E-02	
Relative counting error (Am-241)	=	13.9%	
Relative counting error (Cm-243/244)	=	80.4%	
Am-243 Tracer Recovery	=	31.8%	1.08E-02

Data Entry by:		Date:	24-Jan-94
Approved by:		Date:	25 Jan 94

Form 6 Rev. 1.1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 1-20-94 MB

5459/30 - 8

J1446578 2

#4

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#2 2547 Batch # 2510

Serial No.	Sample Point	Date	Time Issued	Priority
J 1447.-5582	BECHTOLD	1- 4-94	13:50	26

Determination	Method-Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? .100-10-1mL	STD

Remarks, Calculations, Results

EDP R201 AR001

STD#78843 RESULT 2.4286 E+1

STD VAL 2.6789 %REC ~~90.6~~ 90.7% "AEA" - 480MIN

.1mL 78843 ATTACH PRINTOUT

1-24-94

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs 1-20-94	Hrs 1-21-94	Hrs	Hrs
Date 1-20-94	Time Completed	Lab Unit No.		

54-6800-061 (R-10-83)

WHC-SD-WM-DP-062, REV. 0

AM-241: LA-503-156 (D-0) **LIQUID**

			STANDARD
Serial No.	Spike (Tracer) Book Number		78B43
J1447-5582	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2510	Volume of Sample in mL	(SS)	1.000
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	420
J VAN SANT	Am-243 Area Peak Height from AEA	(C243)	593
Date	Cm-243/244 Area Peak Height from AEA	(CM)	3
01/20/94	Total AT Count	(ATOT)	10994
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	4
	Am 241 µCi/L =		2.4286E+01

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100

Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	2.43E-02	
Cm 243/244 µCi/mL	=	< 3.05E-03	
Relative counting error (Am-241)	=	12.5%	
Relative counting error (Cm-243/244)	=	113.4%	
Am-243 Tracer Recovery	=	56.3%	3.05E-03

Data Entry by:		Date:	24-Jan-94
Approved by:		Date:	25 Jan 1994

Form 6 Rev. 1.1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 1-20-94 MS

J1447-5582
#2

10994 - 4
3U

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#3 3607

Serial No.	Sample Point	Date	Time Issued	Priority
J 1448.-5682	BECHTOLD	1- 4-94	13:52	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? ~~1ml~~ .1ml-10ml-.5ml 1-25-94	BLANK

Remarks, Calculations, Results

REAGENT BLANK

COUNT AS uCI/L

.100mL 78843

"AEA" - 480MIN
ATTACH PRINTOUT

< 8.28 E-3

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs 1-21-94	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-20-94			

54-6800-061 (R-10-83)

WHC-SD-WM-DP-062, REV 0

AM-241: LA-503-156 (D-0) **LIQUID**

			BLANK
Serial No.	Spike (Tracer) Book Number		78843
J1448-5682	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2510	Volume of Sample in mL	(SS)	0.500
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	5
J VAN SANT	Am-243 Area Peak Height from AEA	(C243)	1237
Date	Cm-243/244 Area Peak Height from AEA	(CM)	5
01/20/94	Total AT Count	(ATOT)	4792
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	3
	Am 241 µCi/L = <		8.2780E+00

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100
Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100
NOTE: Am 241 Result is a LESS THAN Value

			Detection Level in µCi/mL
Am 241 µCi/mL	=	< 8.28E-03	
Cm 243/244 µCi/mL	=	< 8.28E-03	
Relative counting error (Am-241)	=	87.8%	
Relative counting error (Cm-243/244)	=	87.8%	
Am-243 Tracer Recovery	=	41.4%	8.28E-03

Data Entry by:		Date:	24-Jan-94
Approved by:		Date:	25 Jan 1994

Form 6 Rev. 1.1

Page 1 of 1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

P2 1-20-94 mB

J-1448-5682
#3

4292/30 -3

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#5 9M 5056 #6 6948

Serial No.	Sample Point	Date	Time Issued	Priority
J 1446.-5782	BECHTOLD	1- 4-94	12:26	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
? .100-10-.500mL	KE83D

Remarks, Calculations, Results:

COUNT AS uCI/L
Dup

3.05x10^{-2} uCi/ml

.100ml 78843

"AEA" - 480MIN
ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Raymond		DHMilia	
Hrs	Hrs 1-20-94	Hrs 1-21-94	Hrs	Hrs 1-22-94

Date	Time Completed	Lab Unit Mgr	
1-20-94			

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78843
J1446-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2510	Volume of Sample in mL	(SS)	0.500
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	569
J VAN SANT	Am-243 Area Peak Height from AEA	(C243)	1281
Date	Cm-243/244 Area Peak Height from AEA	(CM)	9
01/20/94	Total AT Count	(ATOT)	8962
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	8
	Am 241 µCi/L =		3.0462E+01

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100
Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	3.05E-02	
Cm 243/244 µCi/mL	=	< 6.42E-03	
Relative counting error (Am-241)	=	9.9%	
Relative counting error (Cm-243/244)	=	65.6%	
Am-243 Tracer Recovery	=	53.4%	6.42E-03

Data Entry by:		Date:	24-Jan-94
Approved by:		Date:	25 Jan 1994

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

A1 1-20-94 MS

8962/30 -8

J 1446 5782
#5

WHC-SD-WM-DP-062, REV. 0

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#1 7473

Serial No.	Sample Point	Date	Time Issued	Priority
J 1446.-5082	BECHTOLD	1- 4-94	12:26	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? ,100-10-.500mL	KE83D

Remarks, Calculations, Results:

SAMPLE SPIKED ID 68843 .100-10-1mL

SPIKE ID 78843

SPIKE VOLUME

COUNT AS uCI/L .200mL

"AEA" - 480MIN

ATTACH PRINTOUT

116.4%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Raymond			
Hrs	Hrs	Hrs	Hrs	Hrs
	1-20-94	1-21-94		
Date	Time Completed	Lab Unit Mgr		
1-20-94				

94 2.10.94

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			ERR
Serial No.	Spike (Tracer) Book Number		78843
J1446-5082	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.200
2510	Volume of Sample in mL	(SS)	0.500
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	360
J VAN SANT	Am-243 Area Peak Height from AEA	(C243)	529
Date	Cm-243/244 Area Peak Height from AEA	(CM)	3
01/20/94	Total AT Count	(ATOT)	2907
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	4
	Am 241 µCi/L =		9.3341E+01

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))

Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100

Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100

Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

$$\frac{(93.341-30.978)(\frac{101}{1})(\frac{101}{1.5})(100)}{26.789} = 116.4\%$$

2.10.94

			Detection Level in µCi/mL
Am 241 µCi/mL	=	9.33E-02	
Cm 243/244 µCi/mL	=	< 6.86E-02	
Relative counting error (Am-241)	=	13.4%	
Relative counting error (Cm-243/244)	=	113.5%	
Am-243 Tracer Recovery	=	7.3%	6.86E-02

Data Entry by:		Date:	24-Jan-94
Approved by:		Date:	25 Jan 94

Form 6 Rev. 1.1

#3

2907 - 4
30

J1446-5082
#7

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#6 6946

Serial No.	Sample Point	Date	Time Issued	Priority
J 1446.-5782	BECHTOLD	1- 4-94	12:26	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	E14157	0

Sample Size	Customer ID
?.100-10-.500 mL	KE83D

Remarks, Calculations, Results

COUNT AS uCI/L
TRIP

3.51 X 10^-2 uCi/ml

"AEA" - 480MIN
ATTACH PRINTOUT

.100mL 78B43

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Raymond			
Hrs	Hrs 1-20-94	Hrs 1-21-94	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-20-94			

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			SAMPLE
Serial No.	Spike (Tracer) Book Number		78B43
J1446-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.100
2510	Volume of Sample in mL	(SS)	0.500
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	21
J VAN SANT	Am-243 Area Peak Height from AEA	(C243)	41
Date	Cm-243/244 Area Peak Height from AEA	(CM)	2
01/20/94	Total AT Count	(ATOT)	1734
Sample Type	AT Count Time in Minutes	(MIN CTd)	30
LIQUID	Background in CPM	(BKG)	3
	Am 241 µCi/L =		3.5126E+01

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100
Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

			Detection Level in µCi/mL
Am 241 µCi/mL	=	3.51E-02	
Cm 243/244 µCi/mL	=	< 3.43E-02	
Relative counting error (Am-241)	=	52.6%	
Relative counting error (Cm-243/244)	=	141.9%	
Am-243 Tracer Recovery	=	9.6%	3.43E-02

Data Entry by:		Date:	24-Jan-94
Approved by:		Date:	25 Jan 94

Form 6 Rev. 1.1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#2 1-20-94 MB

1734/30 -3

J1446-3782
#6

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

9 1500

Serial No	Sample Point	Date	Time Issued	Priority
J 1446.-5982	BECHTOLD	1- 4-94	12:26	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	E14157	0

Sample Size	Customer ID
? .100 -10- .500mL	KE83D

Remarks, Calculations, Results DUP

SAMPLE SPIKED ID 68BA8 78BA1 1-20-94 100-10-1mL

SPIKE ID 78BA8

SPIKE VOLUME
COUNT AS uCI/L .200mL

"AEA" - 480MIN
ATTACH PRINTOUT

WHC-SD-WM-DP-062, REV. 0

89.8%

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs 1-28-94	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-20-94			

54-6800-061 (R-10-83)

AM-241: LA-503-156 (D-0) **LIQUID**

			CHK EXT NO.
Serial No.	Spike (Tracer) Book Number		78B43
J1446-5982	Activity of Am243 Tracer in dpm/mL	(SPKA)	7537
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.200
2510	Volume of Sample in mL	(SS)	0.500
Rerun No.	Dilution Factor	(DF)	101
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	1891
J VAN SANT	Am-243 Area Peak Height from AEA	(C243)	3302
Date	Cm-243/244 Area Peak Height from AEA	(CM)	7
01/20/94	Total AT Count	(ATOT)	15121
Sample Type	AT Count Time in Minutes	(MIN CT'd)	30
LIQUID	Background in CPM	(BKG)	8
	Am 241 µCi/L =		7.8549E+01

$(7.8549 - 30.462)(\frac{101}{1})(\frac{1}{101}) = 26.789$

$26.789 / 30.462 = 87.8\%$

Cm-243/244 µCi/L = CM * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Am-241 µCi/L = C241 * SPKA * SPKV * DF * DDF * (1000mL/L) / (C243 * SS * (2220000dpm/µCi))
Tracer % Recovery = ((ATOT / MIN CTd - BKG) * 2 * (C243 / (C241 + C243)) / (SPKA * SPKV)) * 100
Relative Counting Error (Am-241) = Square Root of ((1 / C241) + (1/C243)) * 1.96 * 100
Relative Counting Error (Cm-243/244) = Square Root of ((1 / CM) + (1/C243)) * 1.96 * 100

Am 241 µCi/mL	=	7.85E-02	Detection Level in µCi/mL
Cm 243/244 µCi/mL	=	< 1.64E-02	
Relative counting error (Am-241)	=	5.7%	
Relative counting error (Cm-243/244)	=	74.2%	
Am-243 Tracer Recovery	=	41.8%	1.64E-02

Data Entry by:		Date:	24-Jan-94
Approved by:		Date:	25 Jan 94

Form 6 Rev. 1.1

#1 1-20-94 MS

15121/30 - 8

J1446-598z
9

MBJ10mm 1-21-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT WHC-SD-WM-DP-062, REV. 0

SAMPLE
J1447-5582 STD
File ID: 2a2547.CNF

Counted on: 1/21/94 @14:46
Detector: AEA2
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	393.1	393.1	299.309	299.309	20.000	18.530	10.000	3.003
2	500.6	500.6	253.783	253.505	20.000	16.938	10.000	1.013
3	772.1	772.1	227.986	227.620	18.000	11.765	9.000	2.606
4?	10.1	10.1	72.583	72.014	16.000	1.000	8.000	0.100
5?	10.1	10.1	57.652	57.652	22.000	0.687	11.000	0.066

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.191	5.480	5.494	-.014	0.09	27.93	1.7	255.3	0.115E-03
	Pu238		5.499	5.494	0.005				333.3	0.150E-03
2	Am243	0.499	5.276	5.279	-.003	0.08	72.94	1.1	633.0	0.285E-03
	Pu240		5.144	5.279	-.135				626.6	0.282E-03
3	Pu239	0.284	5.143	5.157	-.014	0.06	41.54	2.2	356.9	0.161E-03
	Pu240		5.144	5.157	-.013				356.9	0.161E-03
4		????		4.426			0.70	22.9		
5		????		4.358			0.65	23.4		
Totals:		0.975	<--valid peaks only-->				142.41			

DETECTOR CALIBRATION
Energy(MEV) = 4.087 + (0.0047)*Channel
Energy range (MeV): 4.087 TO 6.494
Efficiency = 0.1164 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	70131.0	100.000
Smoothed	70131.0	100.000
Composite fit	69012.5	98.405
Residuals	1118.5	1.595

Analyzed by: _____
ALJ

Spectrum 2a2547.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 8626.7


```
5
5
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5.
4.
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Raw Data Dump for AEA Spectrum: 2a2547.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	4.	19.	16.	19.
21	16.	16.	24.	19.	22.	18.	16.	15.	17.	23.
31	24.	20.	21.	26.	22.	18.	28.	19.	29.	31.
41	21.	36.	24.	33.	36.	29.	27.	27.	32.	40.
51	31.	30.	36.	41.	26.	35.	28.	36.	38.	29.
61	31.	24.	34.	33.	28.	32.	31.	26.	30.	28.
71	41.	36.	42.	31.	33.	35.	34.	32.	28.	29.
81	38.	36.	34.	46.	47.	39.	51.	57.	50.	40.
91	54.	47.	43.	53.	40.	56.	61.	44.	46.	46.
101	59.	51.	61.	62.	67.	75.	55.	64.	58.	72.
111	62.	66.	60.	69.	65.	55.	63.	63.	71.	78.
121	55.	59.	67.	86.	70.	65.	80.	87.	103.	99.
131	99.	87.	90.	97.	91.	105.	102.	101.	85.	102.
141	111.	110.	103.	117.	105.	117.	112.	106.	106.	123.
151	130.	115.	135.	116.	120.	143.	121.	126.	135.	141.
161	157.	145.	146.	143.	147.	173.	160.	148.	181.	152.
171	151.	196.	200.	199.	194.	193.	195.	186.	206.	207.
181	222.	237.	231.	242.	239.	249.	273.	274.	269.	294.
191	316.	339.	314.	297.	330.	329.	381.	384.	409.	402.
201	383.	371.	438.	416.	453.	487.	531.	524.	528.	546.
211	567.	559.	633.	618.	632.	674.	720.	759.	835.	844.
221	898.	1003.	972.	1061.	1068.	1144.	1162.	1198.	1130.	1096.
231	1032.	1026.	966.	913.	757.	688.	668.	515.	503.	499.
241	411.	394.	388.	419.	383.	433.	448.	446.	519.	498.
251	548.	564.	562.	593.	572.	525.	514.	441.	476.	389.
261	350.	295.	305.	239.	217.	224.	193.	162.	152.	155.
271	170.	135.	162.	147.	167.	158.	175.	167.	150.	175.
281	176.	182.	183.	191.	201.	267.	248.	253.	278.	300.
291	312.	327.	340.	365.	372.	393.	392.	416.	387.	420.
301	378.	378.	381.	360.	284.	266.	221.	193.	132.	146.
311	100.	105.	51.	58.	46.	32.	21.	13.	14.	8.
321	8.	5.	1.	3.	2.	0.	1.	1.	0.	0.
331	1.	1.	0.	0.	1.	2.	1.	3.	0.	1.
341	0.	1.	4.	2.	3.	3.	3.	2.	3.	3.
351	2.	0.	0.	1.	3.	2.	1.	2.	1.	2.
361	3.	2.	1.	2.	3.	1.	1.	0.	0.	2.
371	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
391	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
401	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
411	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	1.	1.	0.	1.
431	0.	1.	1.	0.	1.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	1.	0.	1.	0.	1.	1.
461	0.	0.	0.	0.	0.	1.	0.	0.	0.	2.
471	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
481	0.	1.	1.	0.	1.	1.	0.	1.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

MBrown 1-21-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J1448-5682 BLK
File ID: 3a3607.CNF

Counted on: 1/21/94 @14:47
Detector: AEA3
Geometry number: 1
Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1132.2	1132.2	259.005	259.005	14.000	7.599	7.000	1.757
2	19.6	19.6	82.695	82.694	298.000	1.000	149.000	0.100
3?	5.7	5.7	59.895	59.289	12.000	2.588	6.000	1.241
4?	6.1	6.1	40.478	36.991	14.000	6.782	7.000	3.113

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.735	5.276	5.272	0.0040	0.03	54.52	1.2	403.2	0.182E-03
2		0.019		4.461		0.00	1.42	7.5	10.4	0.468E-05
3		????		4.353			0.14	63.3		
4		????		4.250			0.20	39.3		
Totals:		0.755	<--valid peaks only-->				55.94			

DETECTOR CALIBRATION
Energy(MEV) = 4.080 + (0.0046)*Channel
Energy range (MeV): 4.080 TO 6.436
Efficiency = 0.1366 CPM/DPM

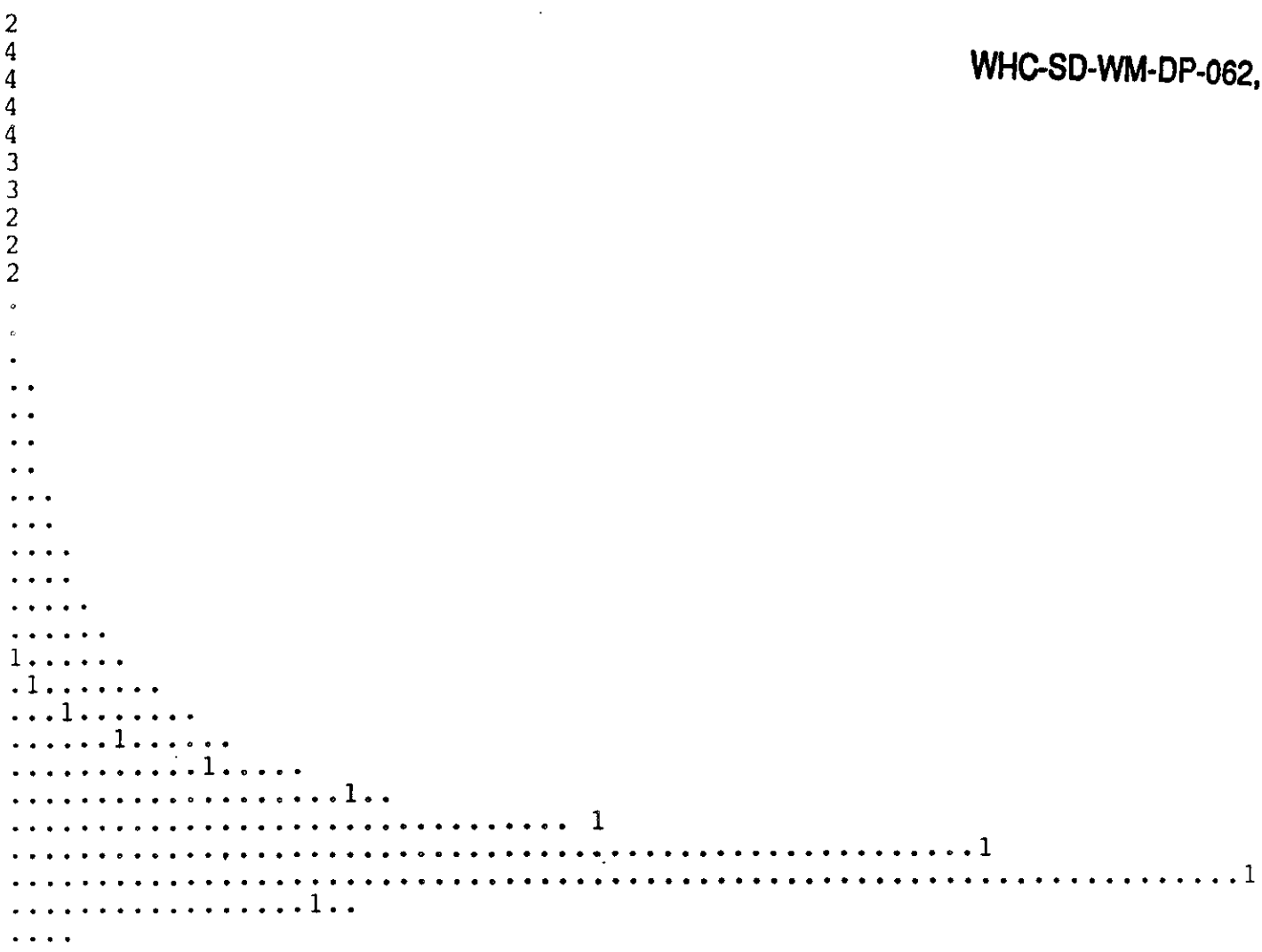
TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	35588.0	100.000
Smoothed	35588.0	100.000
Composite fit	27014.8	75.910
Residuals	8573.2	24.090

Analyzed by: _____
ALJ

Spectrum 3a3607.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 7873.7



Raw Data for AEA Spectrum: 3a3607.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	3.	5.	3.	4.
21	5.	10.	1.	6.	10.	5.	5.	4.	10.	6.
31	12.	14.	8.	9.	10.	9.	16.	13.	7.	13.
[illegible]	14.	14.	9.	7.	5.	10.	11.	8.	9.	14.
51	14.	6.	13.	8.	13.	13.	17.	13.	20.	14.
61	20.	12.	13.	17.	11.	8.	14.	14.	20.	13.
71	13.	17.	8.	16.	19.	15.	18.	17.	12.	12.
81	21.	22.	18.	23.	15.	14.	18.	18.	16.	13.
91	24.	20.	21.	22.	16.	21.	16.	28.	24.	14.
101	23.	22.	34.	22.	19.	25.	21.	25.	27.	30.
111	30.	40.	25.	31.	28.	34.	29.	28.	29.	22.
121	28.	38.	36.	26.	34.	32.	28.	30.	36.	42.
131	38.	32.	26.	39.	38.	31.	38.	35.	32.	35.
141	51.	39.	39.	28.	52.	50.	38.	51.	47.	47.
151	51.	43.	53.	46.	40.	56.	50.	53.	59.	53.
161	66.	63.	54.	56.	68.	66.	61.	56.	55.	66.
171	73.	79.	75.	77.	66.	62.	91.	85.	79.	71.
181	77.	77.	95.	70.	90.	97.	95.	113.	82.	97.
191	99.	86.	119.	100.	105.	101.	108.	128.	124.	113.
201	144.	125.	112.	142.	156.	146.	137.	144.	155.	157.
211	150.	172.	174.	164.	180.	198.	193.	161.	180.	201.
221	209.	210.	202.	215.	250.	225.	219.	274.	300.	267.
231	271.	240.	259.	291.	314.	309.	317.	342.	337.	365.
241	412.	405.	465.	467.	453.	500.	568.	581.	649.	697.
251	735.	751.	786.	889.	1000.	999.	1173.	1169.	1237.	1226.
261	1116.	920.	789.	509.	397.	259.	191.	158.	125.	104.
271	106.	90.	88.	75.	58.	31.	25.	19.	9.	7.
281	0.	1.	2.	2.	3.	0.	0.	2.	1.	0.
291	2.	3.	0.	1.	1.	0.	1.	2.	4.	1.
301	1.	2.	2.	3.	4.	0.	5.	1.	5.	2.
311	5.	1.	1.	1.	0.	0.	0.	0.	1.	0.
321	1.	2.	0.	0.	0.	0.	0.	1.	0.	1.
331	1.	0.	0.	2.	3.	1.	0.	0.	2.	1.
341	1.	0.	1.	3.	1.	0.	1.	2.	4.	3.
351	4.	1.	1.	1.	2.	1.	0.	0.	5.	4.
361	0.	3.	4.	4.	5.	3.	3.	1.	4.	0.
371	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
J1446-5782 SAM
File ID: 4a4115.CNF

Counted on: 1/21/94 @14:47
Detector: AEA4
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	255.3	255.3	301.944	301.944	14.000	7.433	7.000	2.112
2	569.3	569.3	256.587	256.554	14.000	7.474	7.000	1.799
3	10.1	10.1	114.147	114.142	250.000	1.000	125.000	0.100

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.235	5.480	5.495	-.015	0.03	10.80	2.7	133.4	0.601E-04
	Pu238	.	5.499	5.495	0.004				174.1	0.784E-04
2	Am243	0.580	5.276	5.281	-.005	0.04	26.64	1.8	312.6	0.141E-03
3		0.017		4.612		0.00	0.78	10.1	9.1	0.408E-05
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Totals:		0.832	<--valid peaks only-->				38.22			

DETECTOR CALIBRATION
Energy(MEV) = 4.076 + (0.0047)*Channel
Energy range (MeV): 4.076 TO 6.482
Efficiency = 0.0861 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	22054.0	100.000
Smoothed	22054.0	100.000
Composite fit	18346.0	83.187
Residuals	3708.0	16.813

Analyzed by: _____
ALJ

Spectrum 4a4115.CNF

1 Legend:' Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 3670.5


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Raw Data Dump for AEA Spectrum: 4a4115.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	2.	1.	3.
21	3.	2.	2.	2.	2.	2.	1.	1.	2.	2.
31	1.	0.	2.	2.	1.	2.	2.	3.	4.	1.
41	1.	1.	1.	1.	3.	0.	3.	4.	4.	2.
51	2.	3.	1.	4.	3.	4.	3.	3.	3.	1.
61	4.	0.	4.	2.	1.	3.	4.	5.	4.	5.
71	6.	6.	5.	4.	3.	1.	1.	4.	3.	4.
81	7.	2.	7.	6.	3.	6.	4.	8.	6.	2.
91	8.	5.	4.	9.	4.	6.	5.	10.	6.	7.
101	5.	9.	7.	7.	8.	3.	8.	7.	4.	5.
111	10.	7.	7.	15.	11.	7.	6.	6.	6.	9.
121	9.	9.	6.	9.	13.	9.	15.	20.	9.	11.
131	10.	7.	12.	12.	14.	13.	13.	11.	18.	10.
141	14.	16.	17.	20.	13.	15.	14.	17.	17.	14.
151	18.	15.	20.	28.	18.	19.	16.	25.	19.	19.
161	15.	28.	26.	27.	27.	28.	22.	24.	34.	29.
171	32.	27.	34.	29.	36.	24.	28.	33.	42.	46.
181	31.	37.	44.	32.	29.	41.	44.	46.	43.	40.
191	51.	55.	47.	53.	44.	55.	65.	57.	56.	62.
201	65.	65.	76.	64.	65.	89.	73.	76.	58.	86.
211	89.	76.	100.	111.	86.	85.	112.	99.	103.	105.
221	110.	127.	118.	143.	152.	124.	156.	141.	154.	181.
231	190.	166.	171.	199.	180.	193.	174.	189.	181.	165.
241	186.	205.	216.	219.	222.	283.	281.	334.	344.	408.
251	413.	456.	549.	570.	570.	642.	631.	595.	549.	432.
261	348.	226.	158.	130.	110.	100.	79.	84.	65.	70.
271	72.	73.	64.	61.	49.	56.	50.	53.	62.	64.
281	73.	73.	61.	82.	83.	87.	86.	88.	76.	94.
291	116.	125.	134.	149.	166.	168.	205.	211.	196.	261.
301	290.	285.	270.	257.	193.	157.	129.	90.	59.	49.
311	42.	22.	15.	26.	14.	6.	4.	5.	5.	1.
321	1.	0.	0.	2.	1.	0.	1.	0.	0.	0.
331	2.	1.	0.	1.	0.	0.	0.	0.	1.	0.
341	0.	0.	1.	4.	0.	1.	0.	2.	0.	2.
351	3.	5.	6.	0.	4.	3.	2.	2.	2.	4.
361	1.	5.	6.	5.	3.	1.	2.	0.	1.	4.
371	1.	1.	2.	2.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	1.	1.	0.	0.	1.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	1.	0.	0.	0.	2.
481	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

1-22-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J-1446-5782 DUP
File ID: 6a6948.CNF

Counted on: 1/22/94 @ 0:55
Detector: AEA6
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	528.9	528.9	296.118	296.118	28.000	32.165	14.000	4.798
2	1132.6	1132.6	251.157	250.742	26.000	25.898	13.000	4.515
3	32.9	32.9	138.148	137.857	80.000	383.777	40.000	121.289
4?	12.2	12.2	72.035	71.623	10.000	12.258	5.000	1.354
5?	6.1	6.1	58.124	57.283	6.000	0.910	3.000	0.198

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Th228	0.328	5.430	5.460	-.030	0.15	44.27	1.3	476.7	0.215E-03
	Am241		5.480	5.460	0.020				360.1	0.162E-03
2	Am243	0.615	5.276	5.252	0.024	0.12	82.90	1.1	640.2	0.288E-03
	Pu240		5.144	5.252	-.108				633.8	0.286E-03
3	Np237	0.048	4.640	4.732	-.092	1.77	6.41	11.7	816.7	0.368E-03
	Np237		4.781	4.732	0.049				56.3	0.254E-04
4		????		4.428			0.96	12.2		
5		????		4.362			0.23	37.2		
Totals:		0.990	<--valid peaks only-->				133.58			

DETECTOR CALIBRATION
Energy(MEV) = 4.098 + (0.0046)*Channel
Energy range (MeV): 4.098 TO 6.453
Efficiency = 0.1308 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	64760.0	100.000
Smoothed	64762.1	100.003
Composite fit	64703.0	99.912
Residuals	57.0	0.088

Analyzed by: _____
DM

Spectrum 6a6948.CNF

1 Legend: Raw =..... Modeled Peaks = 1,2,.., etc Display Max.: 9543.0


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Raw Data Dump for AEA Spectrum: 6a6948.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	2.	10.	13.	9.
21	8.	8.	9.	14.	9.	13.	13.	11.	15.	12.
31	13.	9.	17.	18.	12.	11.	14.	14.	11.	8.
41	12.	12.	11.	9.	12.	15.	10.	13.	12.	14.
51	12.	15.	10.	12.	19.	12.	14.	26.	15.	16.
61	12.	10.	14.	15.	18.	18.	11.	22.	14.	18.
71	18.	16.	30.	12.	15.	17.	12.	8.	17.	16.
81	18.	23.	12.	16.	25.	14.	19.	17.	23.	30.
91	16.	17.	22.	17.	15.	30.	24.	21.	22.	20.
101	16.	27.	10.	21.	18.	23.	25.	29.	19.	30.
111	28.	28.	37.	22.	17.	31.	21.	24.	21.	29.
121	29.	29.	31.	17.	26.	25.	31.	28.	32.	24.
131	39.	40.	33.	34.	25.	34.	41.	40.	44.	32.
141	34.	33.	34.	37.	45.	44.	50.	32.	58.	34.
151	48.	47.	40.	41.	55.	41.	48.	43.	54.	54.
161	47.	63.	44.	51.	46.	53.	70.	54.	50.	62.
171	64.	56.	61.	77.	76.	52.	69.	63.	74.	70.
181	86.	71.	82.	74.	88.	79.	71.	77.	90.	68.
191	83.	77.	95.	120.	113.	104.	124.	128.	108.	130.
201	148.	132.	155.	158.	153.	151.	170.	181.	156.	188.
211	216.	218.	228.	233.	224.	241.	269.	296.	304.	307.
221	313.	362.	388.	380.	393.	425.	446.	440.	486.	537.
231	539.	568.	678.	701.	683.	707.	747.	829.	800.	902.
241	904.	981.	994.	1095.	1075.	1147.	1180.	1199.	1281.	1259.
251	1261.	1233.	1215.	1215.	1161.	1100.	1014.	957.	905.	808.
261	784.	630.	599.	504.	477.	427.	387.	333.	290.	288.
271	285.	227.	253.	244.	261.	250.	244.	283.	276.	277.
281	294.	305.	346.	346.	386.	412.	392.	427.	411.	477.
291	509.	520.	519.	569.	548.	512.	545.	531.	518.	499.
301	492.	475.	417.	396.	375.	362.	335.	274.	232.	179.
311	162.	135.	124.	95.	78.	53.	52.	39.	26.	17.
321	18.	18.	12.	4.	12.	3.	7.	5.	3.	3.
331	5.	1.	0.	3.	2.	2.	1.	1.	1.	2.
341	1.	4.	3.	2.	3.	2.	4.	2.	3.	6.
351	3.	2.	3.	5.	3.	5.	1.	5.	9.	3.
361	3.	2.	1.	4.	4.	3.	4.	3.	8.	2.
371	2.	1.	3.	4.	0.	1.	1.	2.	0.	2.
381	1.	1.	0.	1.	1.	2.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.
411	0.	1.	0.	0.	0.	0.	0.	0.	0.	2.
421	0.	0.	1.	0.	0.	1.	0.	0.	1.	2.
431	1.	1.	1.	1.	0.	0.	1.	1.	1.	0.
441	0.	0.	0.	2.	0.	0.	0.	1.	0.	1.
451	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
461	1.	0.	0.	1.	1.	0.	0.	0.	1.	2.
471	2.	2.	1.	1.	0.	3.	2.	1.	0.	2.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	1.	1.	3.	7.	13.	2.	0.	0.
511	0.	0.								

W/Dooman 1-21-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT **WHC-SD-WM-DP-062, REV. 0**

SAMPLE
J1446-5782 TRIP
File ID: 6a6946.CNF

Counted on: 1/21/94 @14:49
Detector: AEA6
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	15.0	15.0	294.332	294.153	28.000	27.790	14.000	1.389
2	35.5	35.5	240.685	241.035	62.000	61.887	31.000	31.448
3	14.6	14.6	230.627	227.431	6.000	1.508	3.000	0.221
4	30.5	30.5	198.253	196.456	30.000	57.813	15.000	20.923
5	34.1	34.1	158.709	157.842	42.000	67.578	21.000	28.969
6?	24.0	24.0	143.579	143.579	24.000	0.023	12.000	16.590
7	33.6	33.6	115.401	115.401	58.000	119.211	29.000	44.198
8	33.5	33.5	59.506	58.651	58.000	121.610	29.000	45.359
9?	15.3	15.3	43.570	39.535	8.000	1.566	4.000	4.013
10	25.0	25.0	29.763	29.763	24.000	10.502	12.000	16.718

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Th228	0.143	5.430	5.454	-.024	0.13	2.63	5.5	28.4	0.128E-04
	Am241		5.480	5.454	0.026				21.4	0.965E-05
2	Pu239	0.152	5.143	5.204	-.061	0.29	2.78	7.1	21.3	0.958E-05
	Pu240		5.144	5.204	-.060				21.3	0.958E-05
3	Pu239	0.046	5.143	5.140	0.003	0.01	0.84	17.8	6.4	0.290E-05
	Pu240		5.144	5.140	0.004				6.4	0.290E-05
4		0.128		4.995		0.27	2.36	9.1	18.0	0.812E-05
5	Np237	0.153	4.640	4.813	-.173	0.32	2.80	7.6	357.1	0.161E-03
	Np237		4.781	4.813	-.032				24.6	0.111E-04
6		????		4.746			0.02	362.		
7	Np237	0.199	4.640	4.614	0.026	0.56	3.66	6.5	466.2	0.210E-03
8	U 238	0.199	4.200	4.347	-.147	0.57	3.65	6.1	36.3	0.163E-04
	U 235		4.396	4.347	0.049				49.0	0.221E-04
9		????		4.257			0.19	53.1		
10	U 238	0.044	4.200	4.211	-.011	0.05	0.81	16.7	8.0	0.360E-05
Totals:		1.064	<--valid peaks only-->				19.54			

DETECTOR CALIBRATION
Energy(MEV) = 4.071 + (0.0047)*Channel

Energy range (MeV): 4.071 TO 6.478
Efficiency = 0.1308 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	8814.0	100.000
Smoothed	8816.9	100.033
Composite fit	9482.5	107.585
Residuals	-668.5	-7.585

Analyzed by: _____
ALJ

Spectrum 6a6946.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 309.5

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..:...9.........................................8........
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17.......................................................8.
1..7.............................................8
1........7.................................8...........
1...................7.......8.............................
1...............8................7....................
1......8.....................................7...........
518.................................................7..
85.......................................................7.
.1...5.............................................7............
.1.............5.........................7................
.61.........................7...5.............................
4.1..............7.................................5..........
34.1...7.............................................5......
.371.4.............................................5.......
73..1........4.......................5.......................
..3.1................5........4.................................
....31..5.....................................4.............
2.5...3.............................................4............
..2...1..3.....................................4................
.......1.2...3...............4.........................
........1....4.....3....2.............................
..   ......1......3.........................2.......................
4.   .......1.............................................2.
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WHC-SD-WM-DP-062, REV. 0

Raw Data Dump for AEA Spectrum: 6a6946.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	12.	23.	34.	28.
21	23.	36.	33.	41.	35.	37.	35.	28.	29.	31.
31	37.	26.	25.	35.	39.	28.	23.	25.	29.	36.
41	35.	23.	45.	24.	31.	33.	33.	24.	30.	23.
51	42.	19.	27.	28.	43.	27.	39.	36.	37.	34.
61	33.	42.	23.	23.	29.	33.	24.	29.	30.	31.
71	34.	31.	25.	39.	28.	27.	27.	36.	29.	25.
81	26.	31.	31.	34.	24.	35.	26.	27.	23.	33.
91	27.	24.	32.	29.	35.	33.	26.	30.	37.	36.
101	33.	30.	27.	35.	35.	35.	30.	24.	39.	29.
111	44.	30.	38.	39.	31.	35.	30.	39.	28.	31.
121	41.	36.	42.	36.	41.	36.	39.	41.	27.	28.
131	30.	26.	45.	34.	32.	36.	34.	35.	37.	28.
141	35.	45.	47.	26.	33.	39.	36.	40.	23.	28.
151	29.	34.	45.	32.	35.	41.	34.	35.	50.	33.
161	33.	39.	29.	31.	31.	32.	27.	50.	35.	40.
171	34.	32.	35.	42.	29.	34.	33.	42.	28.	38.
181	42.	40.	43.	41.	38.	28.	31.	42.	21.	35.
191	28.	37.	30.	43.	37.	38.	42.	43.	39.	26.
201	34.	43.	24.	42.	34.	34.	35.	28.	34.	38.
211	21.	30.	27.	41.	34.	27.	24.	28.	26.	28.
221	34.	47.	38.	25.	23.	31.	55.	38.	43.	50.
231	32.	47.	37.	26.	29.	31.	33.	35.	36.	30.
241	41.	40.	35.	30.	29.	35.	38.	34.	32.	34.
251	31.	39.	30.	24.	34.	32.	34.	36.	31.	21.
261	26.	18.	14.	25.	23.	24.	15.	15.	23.	10.
271	15.	15.	15.	10.	13.	14.	16.	9.	13.	15.
281	19.	11.	12.	12.	10.	15.	7.	16.	7.	9.
291	14.	16.	10.	21.	12.	12.	8.	14.	10.	10.
301	12.	8.	12.	4.	4.	8.	9.	2.	4.	2.
311	6.	1.	3.	1.	1.	0.	0.	1.	0.	0.
321	0.	0.	0.	0.	1.	0.	1.	0.	1.	0.
331	0.	0.	2.	1.	1.	0.	0.	1.	0.	1.
341	1.	1.	1.	1.	0.	3.	1.	2.	1.	1.
351	0.	0.	0.	1.	1.	0.	2.	0.	0.	0.
361	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
421	1.	0.	0.	0.	0.	0.	1.	1.	0.	1.
431	0.	1.	0.	0.	1.	0.	1.	0.	0.	0.
441	0.	1.	0.	2.	2.	0.	0.	1.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
461	0.	0.	1.	0.	0.	1.	0.	2.	1.	1.
471	1.	1.	2.	1.	0.	3.	0.	1.	0.	0.
481	0.	0.	0.	0.	0.	0.	1.	1.	0.	1.
491	0.	0.	1.	1.	1.	4.	3.	6.	0.	0.
511	0.	0.								

MGSton 1-21-94

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT **WHC-SD-WM-DP-062, REV. 0**

SAMPLE
J1446-5082 SPK
File ID: 7a7473.CNF

Counted on: 1/21/94 @14:50
Detector: AEA7
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	304.4	304.4	303.619	303.619	18.000	9.418	9.000	4.081
2	457.7	457.7	258.058	258.044	16.000	9.195	8.000	3.805
3	155.4	155.4	231.885	231.397	14.000	5.332	7.000	1.618

PEAK RESULTS
Peak Error Limit: 25%

Pk ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.320	5.480	5.516	-.036	0.04	11.19	2.7	119.3	0.537E-04
	Pu238		5.499	5.516	-.017				155.7	0.701E-04
2	Am243	0.486	5.276	5.301	-.025	0.04	17.00	2.2	172.0	0.775E-04
3	Pu239	0.169	5.143	5.176	-.033	0.03	5.91	4.4	59.2	0.267E-04
	Pu240		5.144	5.176	-.032				59.2	0.267E-04
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Totals:		0.974	<--valid peaks only-->				34.10			

DETECTOR CALIBRATION
Energy(MEV) = 4.089 + (0.0047)*Channel
Energy range (MeV): 4.089 TO 6.495
Efficiency = 0.0998 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	16797.0	100.000
Smoothed	16797.0	100.000
Composite fit	16367.3	97.442
Residuals	429.7	2.558

Analyzed by: _____
ALJ

Spectrum 7a7473.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 3129.7


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1................2..
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Raw Data Dump for AEA Spectrum: 7a7473.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	2.	1.	0.	0.	0.	0.	0.
41	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
51	1.	1.	0.	1.	0.	0.	0.	0.	0.	1.
61	0.	0.	1.	1.	0.	0.	0.	0.	1.	0.
71	1.	3.	0.	1.	0.	0.	0.	0.	1.	0.
81	1.	1.	1.	0.	1.	1.	0.	1.	0.	0.
91	1.	0.	0.	1.	2.	4.	1.	0.	0.	1.
101	0.	1.	3.	1.	1.	0.	2.	1.	2.	2.
111	0.	2.	1.	1.	2.	1.	0.	1.	0.	2.
121	1.	3.	1.	0.	1.	0.	4.	1.	1.	1.
131	5.	1.	2.	1.	1.	0.	1.	5.	4.	2.
141	1.	3.	0.	2.	2.	3.	1.	3.	1.	0.
151	2.	0.	2.	3.	0.	3.	4.	4.	5.	4.
161	4.	4.	1.	3.	2.	3.	6.	6.	2.	5.
171	1.	1.	7.	7.	3.	5.	2.	7.	4.	6.
181	7.	10.	3.	4.	4.	4.	6.	7.	4.	5.
191	11.	14.	13.	10.	6.	15.	12.	19.	9.	16.
201	23.	10.	20.	15.	15.	27.	28.	34.	34.	25.
211	28.	41.	50.	36.	58.	44.	50.	68.	68.	67.
221	72.	90.	116.	118.	111.	123.	158.	164.	179.	164.
231	206.	195.	209.	170.	132.	120.	116.	99.	75.	75.
241	87.	80.	100.	119.	134.	132.	163.	200.	217.	261.
251	264.	319.	342.	405.	436.	475.	529.	482.	499.	460.
261	389.	373.	262.	190.	132.	109.	100.	69.	62.	41.
271	45.	48.	48.	29.	33.	23.	29.	27.	23.	31.
281	25.	33.	30.	37.	45.	44.	62.	63.	63.	75.
291	77.	95.	138.	122.	148.	165.	228.	243.	224.	262.
301	303.	296.	360.	316.	314.	281.	246.	191.	143.	124.
311	88.	73.	70.	40.	42.	27.	20.	21.	10.	7.
321	5.	2.	2.	3.	1.	1.	0.	0.	1.	0.
331	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
341	0.	1.	0.	0.	1.	0.	0.	2.	1.	0.
351	0.	1.	0.	0.	1.	1.	0.	1.	1.	3.
361	1.	0.	0.	3.	2.	1.	1.	1.	0.	0.
371	0.	2.	2.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
391	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
441	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
481	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	2.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

WHC-SD-WM-DP-062, REV. 0

SAMPLE
J-1446-5982
File ID: 9a1500.CNF

Counted on: 1/22/94 @ 0:57
Detector: AEA9
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1619.1	1619.1	303.306	303.306	14.000	6.464	7.000	1.685
2	2724.9	2724.9	257.465	257.438	10.000	4.603	5.000	1.179
3	90.2	90.2	169.856	169.513	120.000	1.000	60.000	0.100
4?	9.5	9.5	64.713	64.520	18.000	17.519	9.000	9.261
5?	4.8	4.8	53.608	53.064	6.000	0.486	3.000	0.137

PEAK RESULTS
Peak Error Limit: 25%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.326	5.480	5.485	-.0050	0.03	70.16	1.1	532.8	0.240E-03
	Pu238		5.499	5.485	0.014				695.6	0.313E-03
2	Am243	0.524	5.276	5.274	0.0020	0.02	112.68	0.9	812.4	0.366E-03
3		0.033		4.869		0.00	7.20	3.4	51.4	0.231E-04
4		????		4.386			0.42	22.5		
5		????		4.333			0.14	44.1		
Totals:		0.884	<--valid peaks only-->				190.04			

DETECTOR CALIBRATION
Energy(MEV) = 4.089 + (0.0046)*Channel
Energy range (MeV): 4.089 TO 6.445
Efficiency = 0.1401 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	103239.0	100.000
Smoothed	103239.0	100.000
Composite fit	91495.8	88.625
Residuals	11743.2	11.375

Analyzed by: _____
DM

Spectrum 9a1500.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 15621.2


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1.......................................................................... 2
.1.........................................................................2.
....2............
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.1...
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Raw Data Dump for AEA Spectrum: 9a1500.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	3.	12.
11	5.	12.	4.	7.	4.	1.	3.	7.	6.	10.
21	8.	5.	9.	10.	12.	8.	6.	3.	5.	4.
31	3.	4.	8.	6.	6.	6.	2.	7.	6.	8.
41	5.	4.	3.	11.	13.	10.	3.	8.	3.	8.
51	6.	10.	14.	19.	11.	6.	7.	5.	6.	13.
61	11.	10.	14.	10.	23.	12.	8.	13.	9.	13.
71	9.	13.	8.	12.	12.	8.	11.	11.	10.	10.
81	13.	15.	14.	9.	15.	11.	13.	14.	21.	24.
91	15.	22.	21.	11.	15.	22.	13.	18.	20.	16.
101	16.	21.	7.	20.	25.	20.	15.	21.	19.	30.
111	27.	26.	31.	26.	21.	24.	16.	25.	33.	30.
121	29.	25.	27.	26.	37.	36.	35.	29.	30.	39.
131	33.	32.	41.	29.	38.	30.	46.	43.	42.	43.
141	45.	42.	54.	39.	38.	53.	48.	49.	61.	48.
151	45.	46.	57.	56.	62.	70.	44.	67.	67.	53.
161	57.	68.	81.	75.	89.	74.	89.	74.	93.	94.
171	87.	75.	81.	84.	85.	102.	95.	100.	108.	104.
181	113.	103.	107.	123.	127.	119.	101.	139.	134.	134.
191	149.	134.	156.	159.	148.	163.	175.	191.	202.	166.
201	187.	194.	211.	216.	234.	209.	266.	254.	259.	302.
211	305.	298.	330.	349.	377.	355.	420.	424.	405.	484.
221	473.	550.	532.	529.	537.	586.	577.	616.	663.	759.
231	849.	831.	923.	791.	697.	742.	761.	761.	804.	828.
241	1008.	1035.	1118.	1276.	1308.	1411.	1518.	1648.	1745.	1774.
251	1725.	1836.	1934.	2068.	2361.	2733.	3215.	3302.	2966.	2278.
261	1397.	870.	575.	469.	397.	405.	360.	365.	336.	395.
271	341.	323.	293.	240.	267.	254.	273.	275.	282.	300.
281	320.	354.	400.	436.	466.	506.	577.	617.	650.	738.
291	808.	925.	906.	996.	1027.	1105.	1023.	1121.	1176.	1287.
301	1397.	1648.	1857.	1891.	1664.	1238.	820.	639.	508.	386.
311	329.	304.	214.	197.	139.	100.	57.	36.	21.	4.
321	0.	1.	0.	2.	1.	1.	0.	1.	0.	0.
331	0.	1.	0.	0.	0.	0.	0.	2.	2.	4.
341	2.	3.	0.	0.	2.	2.	1.	1.	2.	1.
351	5.	1.	5.	4.	6.	4.	7.	5.	4.	7.
361	4.	3.	5.	2.	5.	5.	4.	4.	2.	2.
371	1.	3.	1.	2.	0.	2.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
421	1.	0.	0.	0.	0.	1.	0.	0.	0.	1.
431	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
441	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Batch 2598

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

WHC-SD-WM-DP-062, REV. 0

ANALYTICAL BATCH

Lab Segment Serial No. J 1424, J 1426	Customer ID: KE65D, KE65A
Analysis: U	Sample Prep: DIRECT

Instrument: U888807	Procedure/ Rev: LA-925-106/ B-0
Technologist: TANIA BATES	Date: 1-31-97
Starting Time: 0900	Temperature 26°C
Ending Time: 1500	Chemist: J. SLIPPERN

Comments: SAMPLE PREP (1mL - 10 mL)

	Description	Lab ID		Description	Lab ID
1	UMCS	J1415-5540	11	SAMPLE SPK	J1426-5940
2	BLK	J1416-5640	12	SAMPLE SPK	J1426-5040
3	SAMPLE	J1424-5740	13		
4	SAMPLE	J1424-5740	14		
5	SAMPLE	J1424-5740	15		
6	SAMPLE SPK	J1424-5940	16		
7	SAMPLE SPK	J1424-5040	17		
8	SAMPLE	J1426-5740	18		
9	SAMPLE	J1426-5740	19		
10	SAMPLE	J1424-5740	20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
UFC	144B38 .100	mL		
U-CAL	146B38 .100	mL		

970

A 6000-881 (03/93)

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-925-106

DATE START: JANUARY 31, 1994

PREPARED BY: JL SLIPPERN J L Slippern 2/1/94

DATE COMPLETE: FEBRUARY 1, 1994

	UNITS:	ug/mL										
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	RESULT #3	AVERAGE	2*SD	PREC	ACCU	%REC	DET LIM	% CT ER
STD 144B38	J1415	U	3.78E-02							97.9	3.29E+00	
BLANK	J1416	U	<3.24E-01								3.24E-01	
KE65D	J1424	U	6.33E+01	6.48E+01	6.33E+01	6.38E+01	1.7	2.7			3.17E+00	
											3.41E+00	
											3.17E+00	
		U SPIKE				112			0.4	112.2		
										111.8		
KE65A	J1426	U	1.66E+02	1.66E+02	1.82E+02	1.71E+02	18.5	10.8			3.31E+01	
											3.31E+01	
											3.31E+01	
		U SPIKE				102.4			0	102.4		
										102.4		

NARRATIVE: [X] NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH

LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in gU/L.

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

REDIUM Batch 2598

Serial No	Sample Point	Date	Time Issued	Priority
J 1415.-5540	BECHTOLD	12-15-93	11:23	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	2

Sample Size	Customer ID
.100 - 10 - .100 mL	STD

Remarks, Calculations, Results:
S267 UFIC
STD# 146838 RESULT 3.78 E-2
STD VAL 3.86 E-2 %REC 97.90
SPIKE ID/VAL 146838/5.04-4 gU
SPIKE VOL. .100 mL

WHC-SD-WM-DP-062, REV. 0

Daniel Bates .23 .53

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-31-94	1500		

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			STANDARD
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1415-5540	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2598	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
2			
Instrument	Deflection (sample + fluran)	DSAM	0.23
W8 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.53
01/31/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	1
	Concentration in sample (gU/L)		3.78E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM)*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM)*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	3.78E-02
U in µg/mL=	3.78E+01

DETECTION LEVEL µg/mL= 3.29E+00

Data Entry by:		Date:	31-Jan-94
Approved by:		Date:	2/1/94

Form 1 Rev. 1.2

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

RERUN

Serial No	Sample Point	Date	Time Issued	Priority
J 1416.-5640	BECHTOLD	12-15-93	11:24	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	2

Sample Size	Customer ID
.100 - 10 - .100	BLK

Remarks, Calculations, Results:

REAGENT BLANK
146838/4.58-5 gle
5.04-4 gle
.100 mL

<3.24E-1 µg/mL

WHC-SD-WM-DP-062, REV. 0

Low 100/30
High 100/28

Danica Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-31-94	1500	

54-5800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			BLANK
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1416-5640	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2598	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
2			
Instrument	Deflection (sample + fluran)	DSAM	0
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.3
01/31/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	1
	Concentration in sample (gU/L)	<	3.24E-04

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L = <	3.24E-04
U in µg/mL = <	3.24E-01

DETECTION LEVEL µg/mL= 3.24E-01

REPORT RESULT AS A < (LESS THAN) VALUE

Data Entry by:		Date:	31-Jan-94
Approved by:		Date:	2/1/94

Form 1 Rev. 1.2

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

REDUN

Serial No	Sample Point	Date	Time Issued	Priority
J 1424.-5740	BECHTOLD	12-16-93	13: 7	22

Determination	Method Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	4

Sample Size (1 mL - 10 mL) .100-10 - .100 mL

Customer ID: KE65D

Remarks, Calculations, Results: 7.8 1-31-94 SAM 146838 / 5 - 4.58-5 gU .100 mL

WHC-SD-WM-DP-062, REV, 0

6.33 E+1 µg/mL

Dania Bates

.40
.68

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-31-94	1500		

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1424-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2598	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
4			
Instrument	Deflection (sample + fluran)	DSAM	0.4
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.68
01/31/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		6.33E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1 E6 µg/g / 1000 mL/L)

U in sample gU/L=	6.33E-02
U in µg/mL=	6.33E+01

DETECTION LEVEL µg/mL= 3.17E+00

Data Entry by:		Date:	31-Jan-94
Approved by:		Date:	2/1/94

Form 1 Rev. 1.2

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

RERUN

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5740	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	5

Sample Size (1 mL – 10 mL) .100-10 – .100 mL

Customer ID: KE65D

Remarks, Calculations, Results: DUP 146838 / 4.58 -5 gU .100 mL

WHC-SD-WM-DP-062, REV. 0

6.48 E+1 µg/mL

.38
.64

Daniel Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-31-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1424-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2598	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
5			
Instrument	Deflection (sample + fluran)	DSAM	0.38
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.64
01/31/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		6.48E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	6.48E-02
U in µg/mL=	6.48E+01

DETECTION LEVEL µg/mL= 3.41E+00

Data Entry by:		Date:	31-Jan-94
Approved by:		Date:	2/1/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

REDUN

Serial No	Sample Point	Date	Time Issued	Priority
J 1424.-5740	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result-Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	6

Sample Size (1mL -10 mL) .100 – 10 – .100 mL

Customer ID: KE65D

Remarks, Calculations, Results: TRIP 146838 / 4.58-5 gU .100 mL

WHC-SD-WM-DP-062, REV. 0

6.33E+1 µg/mL

Danica Bates

.40
.68

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-31-94	1500	Dakith	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1424-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2598	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
6			
Instrument	Deflection (sample + fluran)	DSAM	0.4
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.68
01/31/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		6.33E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	6.33E-02
U in µg/mL=	6.33E+01

DETECTION LEVEL µg/mL= 3.17E+00

Data Entry by:		Date:	31-Jan-94
Approved by:		Date:	2/1/94

Form 1 Rev. 1.2

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

REDIUM

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5940	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	2

Sample Size (1mL -10 mL)
.100
.100 ÷ 10 → .100mL

Customer ID: KE65D

Remarks, Calculations, Results: 144838
SAMPLE SPIKED ID 146B3815.04 µL
SPIKE ID
SPIKE VOLUME .100mL

WHC-SD-WM-DP-062, REV. 0

112.2%

Dania Bates

.24
.48

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-31-94	1500		

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1424-5940	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2598	Volume of sample (mL)	VSAM	0.1000
Rerun No.	Volume of liquid in cell	VSUB	5.60
2	(sample + fluran + water)		
Instrument	Volume of spike (mL)	VSP	0.1000
WB 88807	Volume of liquid in cell	VTOT	5.70
Analyst:	(sample + fluran + water + spike)		
BATES	Deflection (sample + fluran)	DSAM	0.24
Date:	Deflection (sample + fluran + spike)	DS+S	0.48
01/31/94	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	6.3300E-02
	Concentration (gU/L)	gU/LS	4.964E-01
	% Recovery		112.2

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	112.19

Data Entry by:		Date:	31-Jan-94
Approved by:		Date:	2/1/94

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5040	BECHTOLD	12-16-93	13: 7	22

Determination	Method-Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	2

Sample Size (1mL-10mL)
.100 .100 710 → .100 mL

Customer ID: KE65D

Remarks, Calculations, Results
SAMPLE SPIKE 144838
DUPLICATE

SPIKE ID 14B3815.04 4 gU
SPIKE VOL, 100mL

WHC-SD-WM-DP-062, REV. 0

111.8%

Donia Bates

.24
.48

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
1-31-94	1500			

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1424-5040	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2598	Volume of sample (mL)	VSAM	0.1000
Rerun No.	Volume of liquid in cell	VSUB	5.60
2	(sample + fluran + water)		
Instrument	Volume of spike (mL)	VSP	0.1000
WB 88807	Volume of liquid in cell	VTOT	5.70
Analyst:	(sample + fluran + water + spike)		
BATES	Deflection (sample + fluran)	DSAM	0.24
Date:	Deflection (sample + fluran + spike)	DS+S	0.48
01/31/94	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	6.4800E-02
	Concentration (gU/L)	gU/LS	4.964E-01
	% Recovery		111.8

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	111.80

Data Entry by:		Date:	31-Jan-94
Approved by:		Date:	2/1/94

Form 2 Rev. 2.1 Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5740	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	4

Sample Size	Customer ID
(1mL – 10 mL) .100 – 10 – .100 mL	KE65A

Remarks, Calculations, Results:
SAM 146638/5.04-4 g/L
.100 mL

WHC-SD-WM-DP-062, REV. 0

1.66E+2 µg/mL

Janice Bates

.10
.40

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-31-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1426-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2598	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
4			
Instrument	Deflection (sample + fluran)	DSAM	0.1
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.4
01/31/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		1.66E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	1.66E-01
U in µg/mL=	1.66E+02

DETECTION LEVEL µg/mL= 3.31E+01

Data Entry by:		Date:	31-Jan-94
Approved by:		Date:	2/1/94

Form 1 Rev. 1.2

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1426.-5740	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	5

Sample Size (1mL - 10 mL)
.100 - 10 - .100mL

Customer ID: KE65A

Remarks, Calculations, Results:
Dup 146838/5.04-4 g/L
.100 mL

WHC-SD-WM-DP-062, REV. 0

1.66 E+2 µg/mL

Danica Bates

.10
.40

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Chief	
1-31-94	1500		

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1426-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2598	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
5			
Instrument	Deflection (sample + fluran)	DSAM	0.1
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.4
01/31/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		1.66E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	1.66E-01
U in µg/mL=	1.66E+02

DETECTION LEVEL µg/mL= 3.31E+01

Data Entry by:		Date:	31-Jan-94
Approved by:		Date:	2/1/94

Form 1 Rev. 1.2

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PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

RERUN

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5740	BECHTOLD	12-16-93	13:18	22

Determination	Method Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	6

Sample Size (1mL - 10 mL) .100 - 10 ~ .100mL

Customer ID: KE65A

Remarks, Calculations, Results: TRIP 146B38/5.04-4 g/L .100 mL

WHC-SD-WM-DP-062, REV. 0

1.82E+2 µg/mL

Sanna Bates .11 .41

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-31-94	1500		

54-6600-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1426-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2598	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
6			
Instrument	Deflection (sample + fluran)	DSAM	0.11
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.41
01/31/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		1.82E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((VTOT/VSUB)*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	1.82E-01
U in µg/mL=	1.82E+02

DETECTION LEVEL µg/mL= 3.31E+01

Data Entry by:		Date:	31-Jan-94
Approved by:		Date:	2/1/94

Form 1 Rev. 1.2

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PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

REDIST

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5940	BECHTOLD	12-16-93	13:18	22

Determination	Method-Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	2

Sample Size 1mL - 10 mL
.100
.100710 → .100 mL

Customer ID KE65A

Remarks, Calculations, Results:
SAMPLE SPIKED ID 144638
SPIKE ID 146638/5.04-4gU
SPIKE VOLUME .100 mL

WHC-SD-WM-DP-062, REV. 0

102.4%

.34
.64

Jenica Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
1-31-94	1500			

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1426-5940	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2598	Volume of sample (mL)	VSAM	0.1000
Rerun No.	Volume of liquid in cell	VSUB	5.60
2	(sample + fluran + water)		
Instrument	Volume of spike (mL)	VSP	0.1000
WB 88807	Volume of liquid in cell	VTOT	5.70
Analyst:	(sample + fluran + water + spike)		
BATES	Deflection (sample + fluran)	DSAM	0.34
Date:	Deflection (sample + fluran + spike)	DS+S	0.64
01/31/94	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	1.6600E-01
	Concentration (gU/L)	gU/LS	5.612E-01
	% Recovery		102.4

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	102.39

Data Entry by:		Date:	31-Jan-94
Approved by:		Date:	2/1/94

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

DEBIT

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5040	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	2

Sample Size (1mL-10mL)
.100 .100 ≥10 → .100 mL

Customer ID: KE65A

Remarks, Calculations, Results
SAMPLE SPIKE 144638
DUPLICATE

SPIKE ID 146B38/5.04-4 gU
SPIKE VOL .100 mL

102.4 %

Damian Bates

.34
.64

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-31-94	1500	

54-6800-061 (R-10-83)

WHC-SD-WM-DP-062, REV. 0

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1426-5040	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2598	Volume of sample (mL)	VSAM	0.1000
Rerun No.	Volume of liquid in cell	VSUB	5.60
2	(sample + fluran + water)		
Instrument	Volume of spike (mL)	VSP	0.1000
WB 88807	Volume of liquid in cell	VTOT	5.70
Analyst:	(sample + fluran + water + spike)		
BATES	Deflection (sample + fluran)	DSAM	0.34
Date:	Deflection (sample + fluran + spike)	DS+S	0.64
01/31/94	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	1.6600E-01
	Concentration (gU/L)	gU/LS	5.612E-01
	% Recovery		102.4

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	102.39

Data Entry by:		Date:	31-Jan-94
Approved by:		Date:	2/1/94

Form 2 Rev. 2.1

2406 — 35

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

WHC-SD-WM-DP-062, REV. 0

Lab Segment Serial No. J 1424, 1425	Customer ID: KE65D, KE64A
Analysis: URANIUM LASER	Sample Prep: DIRECT

Instrument: LUB88807	Procedure/ Rev: LA-925-106 / B-0
Technologist: TANIA BATES	Date: 12-22-93
Starting Time: 0800	Temperature 23°C
Ending Time: 1300	Chemist: J. SLIPPERN

Comments: 1 mL → 10 mL FINAL PREP. PRECIPITATE IN ALL SAMPLES WERE CLEAR. J 1424 TURNED light BROWN WHEN brought up to 10 mL with CH_2O. J 1425 REMAINED CLEAR.

	Description		Lab ID
1	LMCS	*	J1401-5540
2	BLK	*	J1402-5640
3	SAMPLE	*	J1424-5740
4	SAMPLE	*	J1424-5740
5	SAMPLE	*	J1424-5740
6	SPIKE	*	J1424-5940
7	SPIKE	*	J1424-~~5940~~ 5040 TB 12-22-93
8	SAMPLE		J1425-5740
9	SAMPLE		J1425-5740
10	SAMPLE		J1425-5740

	Description	Lab ID
11	SPIKE	J1425-5940
12	SPIKE	J1425-5040
13		
14		
15	* OUT FOR RERUN (J1424)	
16		
17		
18		
19		
20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
UFIC	144B38 / .100 mL			
U-CAL	146B38 / .100 mL			

Reviewed Rates 12-22-93

A-6000-881 (03/92)

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-925-106

DATE START: DECEMBER 22, 1993

PREPARED BY: JL SLIPPERN 12/27/93

DATE COMPLETE: DECEMBER 27, 1993

	UNITS:	ug/mL										
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	RESULT #3	AVERAGE	2*SD	PREC	ACCU	%REC	DET LIM	% CT ER
STD 144B38	J1401	U	3.95E-02							102.3	3.29E+00	
BLANK	J1402	U	<3.24E+00								3.24E+00	
KE65D	J1424	U	4.47E+01	4.38E+01	4.47E+01	4.44E+01	1.0	2.3			3.72E+00	
											3.72E+00	
											3.72E+00	
		U SPIKE				123.6			3.8	125.9		
										121.2		
KE64A	J1425	U	3.25E+02	3.25E+02	3.25E+02	3.25E+02	0	0			1.35E+01	
											1.35E+01	
											1.35E+01	
		U SPIKE				102.9			0	102.9		
										102.9		

NARRATIVE: [ ] NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in gU/L.

SPIKE AND SPIKE DUP RECOVERIES FOR J1424 EXCEED ACCEPTABLE LIMITS.

RERUN FOR J1424 ONLY REQUESTED.

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Batch 2406

Serial No	Sample Point	Date	Time Issued	Priority
J 1401.-5540	BECHTOLD	12-15-93	9: 0	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size	Customer ID
? .100 - 10 → .100 mL	STD

Remarks, Calculations, Results:

S267 UF1C
STD#144838 RESULT 3.95-2
STD VAL 3.86-2 %REC 102.3%
SPIKE ID/VAL 146B38/5.04-4 g/L
SPIKE VOL. .100 mL

WHC-SD-WM-DP-062, REV. 0

Tania Bates

OUT FOR RERUN 24 '54

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-22-93	1300	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			STANDARD
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1401-5540	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2406	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
0			
Instrument	Deflection (sample + fluran)	DSAM	0.24
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
T. BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.54
12/22/93	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	1
	Concentration in sample (gU/L)		3.95E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	3.95E-02
U in µg/mL=	3.95E+01

DETECTION LEVEL µg/mL= 3.29E+00

Data Entry by:	D Honaker	Date:	23-Dec-93
Approved by:	Jennifer L. Slupesky	Date:	12/27/93

Form 1 Rev. 1.2

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1402.-5640	BECHTOLD	12-15-93	9: 4	22

Determination	Method-Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size	Customer ID
? .100 - 10 → .100mL	BLK

Remarks, Calculations, Results:
REAGENT BLANK T.B. 12-22-93
146B58 / ~~4.68 g/L~~ 4.58 g/L
.100 mL

WHC-SD-WM-DP-062, REV. 0

<3.24 E+0

Janice Bates

OUT FOR RERUN: 00 30

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
12-22-93	1300		

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			BLANK
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1402-5640	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2406	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell	VSUB	5.60
0	(sample + fluran + water)		
Instrument	Deflection (sample + fluran)	DSAM	0
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL)	VTOT	5.70
T BATES	(sample + fluran + water + spike)		
Date:	Deflection (sample + fluran + spike)	DS+S	0.3
12/22/93	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)	<	3.24E-03

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L = <	3.24E-03
U in µg/mL = <	3.24E+00

DETECTION LEVEL µg/mL= 3.24E+00
REPORT RESULT AS A < (LESS THAN) VALUE

Data Entry by:	R. Ulrich	Date:	27-Dec-93
Approved by:	Jennifer L. Schroeder	Date:	12/27/93

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PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1424.-5740	BECHTOLD	12-16-93	13: 7	22

Determination	Method Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size 1 mL → 10 mL DILED.
? .100 - 10 → .100 mL

Customer ID: KE65D

Remarks, Calculations, Results T-B 12-22-93
146 B38 / 4.68 gle 5 gm
.100 mL 4.58 gle

WHC-SD-WM-DP-062, REV. 0

4.47E+1

OUT FOR RERUN 4.48

Dania Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-22-93	1300	Jennifer L. Slippen

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1424-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2406	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
0			
Instrument	Deflection (sample + fluran)	DSAM	0.24
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
T. BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.48
12/22/93	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		4.47E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	4.47E-02
U in µg/mL=	4.47E+01

DETECTION LEVEL µg/mL= 3.72E+00

Data Entry by:	DHonahe	Date:	23-Dec-93
Approved by:	Jennifer L. Slippen	Date:	12/27/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5740	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size 1 mL → 10 mL prep.
? .100 - 10 → .100 mL

Customer ID: KE65D

Remarks, Calculations, Results: T-3-12-22-93 DUP
146838/~~4.68-5~~ gU
.100 mL 4.58-5 gU

WHC-SD-WM-DP-062, REV. 0

4.83E+1

OUT FOR RERUN .26 .50

Tania Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-22-93	1300	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1424-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2406	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell	VSUB	5.60
0	(sample + fluran + water)		
Instrument	Deflection (sample + fluran)	DSAM	0.26
W888807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL)	VTOT	5.70
T. BATES	(sample + fluran + water + spike)		
Date:	Deflection (sample + fluran + spike)	DS+S	0.5
12/22/93	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		4.83E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	4.83E-02
U in µg/mL=	4.83E+01

DETECTION LEVEL µg/mL= 3.72E+00

Data Entry by:	D Stonaker	Date:	23-Dec-93
Approved by:	Jennifer H Slupper	Date:	12/27/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1424.-5740	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size	Customer ID
1 mL → 10 mL prep. ? .100 - 10 → .100 mL	KE65D

Remarks, Calculations, Results T.B. 12-22-93 TRP
146838/4.58 g/L
.100mL

WHC-SD-WM-DP-062, REV. 0

4.47E+1

OUT FOR RERUN

.24
.48

Tamia Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-22-93	1300	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1424-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2406	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
0			
Instrument	Deflection (sample + fluran)	DSAM	0.24
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
T. BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.48
12/22/93	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		4.47E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	4.47E-02
U in µg/mL=	4.47E+01

DETECTION LEVEL µg/mL= 3.72E+00

Data Entry by:	DHonahu	Date:	23-Dec-93
Approved by:	Jennifer B. Slupperia	Date:	12/27/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5940	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size: 1 mL → 10 mL prep.
? .500 J1424
.100 144838 7 10 → .100 mL

Customer ID: KE65D

Remarks, Calculations, Results:

SAMPLE SPIKED ID 144838 SK
SPIKE ID 146838/5.04-4 g/L
SPIKE VOLUME .100 mL

125.9%

OUT FOR RERUN .36 .62

Tamra J. Bates

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-22-93	1300	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1424-5940	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2406	Volume of sample (mL)	VSAM	0.1000
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
0			
Instrument	Volume of spike (mL)	VSP	0.1000
WB88807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.70
Analyst:			
T BATES	Deflection (sample + fluran)	DSAM	0.36
Date:	Deflection (sample + fluran + spike)	DS+S	0.62
12/22/93	Dilution factor of sample	DF	21.2
	Dilution factor of spike	DFS	106
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	4.4700E-02
	Concentration (gU/L)	gU/LS	1.419E-01
	% Recovery		125.9

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	125.91

Data Entry by:	R. Abbott	Date:	27-Dec-93
Approved by:	Jennifer L. Stepanek	Date:	12/27/93

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5040	BECHTOLD	12-16-93	13: 7	22

Determination	Method-Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size 1 mL → 10 mL prep.
? .500 J 1424 > 10 → .100 mL
.100 144838

Customer ID: KE65D

Remarks, Calculations, Results:
SAMPLE SPIKE
DUPLICATE 144838 GROUP

WHC-SD-WM-DP-062, REV. 0

SPIKE ID 146838 / 5.04 g/L
SPIKE VOL .100 mL

121.2 %

Dania Bates

OUT FOR RERUN .36 .62

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-22-93	1300	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1424-5040	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2406	Volume of sample (mL)	VSAM	0.1000
Rerun No.	Volume of liquid in cell	VSUB	5.60
0	(sample + fluran + water)		
Instrument	Volume of spike (mL)	VSP	0.1000
WB88807	Volume of liquid in cell	VTOT	5.70
Analyst:	(sample + fluran + water + spike)		
T BATES	Deflection (sample + fluran)	DSAM	0.36
Date:	Deflection (sample + fluran + spike)	DS+S	0.62
12/22/93	Dilution factor of sample	DF	21.2
	Dilution factor of spike	DFS	106
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	4.8300E-02
	Concentration (gU/L)	gU/LS	1.419E-01
	% Recovery		121.2

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	121.24

Data Entry by:		Date:	27-Dec-93
Approved by:		Date:	12/27/93

Form 2 Rev. 2.1

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1425.-5740	BECHTOLD	12-16-93	13:17	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size 1mL → 10 mL prep.
? .100 – 10 → .025 mL

Customer ID: KE64A

Remarks, Calculations, Results
146838/4.58-5 gUg 4M
.100 mL

WHC-SD-WM-DP-062, REV. 0

3.25E+2

Dania Bates

.48
.74

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
12-22-93	1300		

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1425-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2406	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
0			
Instrument	Deflection (sample + fluran)	DSAM	0.48
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.63
T. BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.74
12/22/93	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		3.25E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))–DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/(((VTOT/VSUB)*(DS+S))–DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))–DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	3.25E-01
U in µg/mL=	3.25E+02

DETECTION LEVEL µg/mL= 1.35E+01

Data Entry by:	DHonaker	Date:	23-Dec-93
Approved by:	Jennifer H. Shipper	Date:	12/27/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1425.-5740	BECHTOLD	12-16-93	13:17	22

Determination	Method Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size 1mL → 10mL prep
? .100 - 10 → .025 mL

Customer ID: KE64A

Remarks, Calculations, Results:
146.838/4.58-5 gU
.100 mL
DVP

WHC-SD-WM-DP-062, REV. 0

3.25E+2

.48
.74

Damian Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-22-93	1300	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1425-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2406	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
0			
Instrument	Deflection (sample + fluran)	DSAM	0.48
WB88807	Volume of spike (mL)	VSP	0.100
Analyst	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.63
T. BATES			
Date	Deflection (sample + fluran + spike)	DS+S	0.74
12/22/93	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		3.25E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	3.25E-01
U in µg/mL=	3.25E+02

DETECTION LEVEL µg/mL= 1.35E+01

Data Entry by:		Date:	23-Dec-93
Approved by:		Date:	12/27/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1425.-5740	BECHTOLD -	12-16-93	13:17	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size 1 mL → 10 mL prep
? .100 -10 → .025 mL

Customer ID: KE64A

Remarks, Calculations, Results
146838/4.58 -5g/L TRIP
.100 mL

WHC-SD-WM-DP-062, REV. 0

3.25E+2

.48
.74

Tamia Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-22-93	1300	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1425-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2406	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
0			
Instrument	Deflection (sample + fluran)	DSAM	0.48
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.63
T. BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.74
12/22/93	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		3.25E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	3.25E-01
U in µg/mL=	3.25E+02

DETECTION LEVEL µg/mL= 1.35E+01

Data Entry by:	D Honahey	Date:	23-Dec-93
Approved by:	Jennifer L Shupert	Date:	12/27/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1425.-5940	BECHTOLD	12-16-93	13:17	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size 1mL → 10 mL prep
? .100 of 1425
.100 144838 > 10 → .100 mL

Customer ID: KE64A

Remarks, Calculations, Results:
SAMPLE SPIKED ID 144838 SPIK
SPIKE ID 144838/5.04-4 g/L
SPIKE VOLUME .100 mL

WHC-SD-WM-DP-062, REV. 0

102.9 %

.44
.74

Tania Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-22-93	1300	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1425-5940	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2406	Volume of sample (mL)	VSAM	0.1000
Rerun No.	Volume of liquid in cell	VSUB	5.60
0	(sample + fluran + water)		
Instrument	Volume of spike (mL)	VSP	0.1000
WB88807	Volume of liquid in cell	VTOT	5.70
Analyst	(sample + fluran + water + spike)		
T BATES	Deflection (sample + fluran)	DSAM	0.44
Date	Deflection (sample + fluran + spike)	DS+S	0.74
12/22/93	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	3.2500E-01
	Concentration (gU/L)	gU/LS	7.222E-01
	% Recovery		102.9

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	102.89

Data Entry by:		Date:	27-Dec-93
Approved by:		Date:	12/27/93

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1425.-5040	BECHTOLD	12-16-93	13:17	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size	Customer ID
1mL → 10 mL prep ? :100 J1425 :100 144838 710 → .100 mL	KE64A

Remarks, Calculations, Results:

SAMPLE SPIKE
DUPLICATE 144838 SKDP

SPIKE ID 146838/5.04-4 g/L
SPIKE VOL. 100 mL

102.9 %

WHC-SD-WM-DP-062, REV. 0

Daniel Bates

.44
.74

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-22-93	1300	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1425-5040	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2406	Volume of sample (mL)	VSAM	0.1000
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
0			
Instrument	Volume of spike (mL)	VSP	0.1000
WB88807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.70
Analyst			
T BATES	Deflection (sample + fluran)	DSAM	0.44
Date	Deflection (sample + fluran + spike)	DS+S	0.74
12/22/93	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	3.2500E-01
	Concentration (gU/L)	gU/LS	7.222E-01
	% Recovery		102.9

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	102.89

Data Entry by:	R White	Date:	27-Dec-93
Approved by:	Jennifer L. Skeppen	Date:	12/27/93

Form 2 Rev. 2.1

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2407

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

WHC-SD-WM-DP-062, REV. 0

Lab Segment Serial No. J 1426, 1427, 1428	Customer ID: KE65A, KE71A, KE72A
Analysis: URANIUM LASER	Sample Prep: DIRECT

Instrument: WB88607	Procedure/ Rev: LA-925-106/B-0
Technologist: TANIA BATES	Date: 12-21-93
Starting Time: 0800	Temperature 23°C
Ending Time: 1100	Chemist: J. SLIPPERN

Comments: 1 mL → 10 mL FINAL PREP. PRECIPITATE IN ALL SAMPLES WERE CLEAR. J 1427 TURNED A YELLOW BROWN WHEN brought up TO 10 with DH_2O.

	Description	Lab ID		Description	Lab ID
1	LMCS	J1415-5540	11	SPIKE	J1427-5940
2	BLK	J1416-5640	12	SPIKE	J1427-5040
3	SAMPLE OUT FOR RERUN	J1426-5740	13	SAMPLE	J1428-5740
4	SAMPLE	J1426-5740 5740 TB 12-21-93	14	SAMPLE	J1428-5740
5	SAMPLE	J1426-5740	15	SAMPLE	J1428-5740
6	SPIKE	J1426-5940	16	SPIKE	J1428-5940
7	SPIKE	J1426-5940 5940 TB 12-21-93	17	SPIKE	J1428-5040
8	SAMPLE	J1427-5740	18		
9	SAMPLE	J1427-5740	19		
10	SAMPLE	J1427-5740	20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
UFIC	144B38 / .100 mL			
U-CAL	146B38 / .100 mL			

998

Tania Bates 12-21-93

A-6000-881 (03/92)

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-625-106

DATE START: DECEMBER 21, 1993

PREPARED BY: J.L. Slippern 12/22/93

DATE COMPLETE: DECEMBER 22, 1993

	UNITS:	ug/mL										
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	RESULT #3	AVERAGE	2*SD	PREC	ACCU	%REC	DET LIM	% CT ER
STD 144B36	J1415	U	3.95E-02							102.3	3.29E+00	
BLANK	J1416	U	<2.58E+01								2.58E+01	
KE65A	J1426	U	3.09E+02	2.85E+02	3.09E+02	3.01E+02	27.7	9.2			2.37E+01	
											2.38E+01	
											2.37E+01	
		U SPIKE				9.6			63.3	6.7		
										12.9		
KE71A	J1427	U	5.17E+02	5.40E+02	5.17E+02	5.25E+02	26.6	5.1			2.35E+02	
											2.35E+02	
											2.35E+02	
		U SPIKE				120.2			5.0	123.2		
										117.2		
KE72A	J1428	U	1.20E+02	1.44E+02	1.44E+02	1.36E+02	27.7	~~4.6~~	19.9		2.40E+01	
								AR	1-7-94		2.39E+01	
											2.39E+01	
		U SPIKE				104.1			6.1	107.2		
										100.9		

NARRATIVE: [ ] NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in gU/L.

SPIKE AND SPIKE DUP RECOVERIES FOR J1426 ARE BELOW ACCEPTABLE LIMITS.

RERUN FOR J1426 ONLY REQUESTED.

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Batch 2407

Serial No	Sample Point	Date	Time Issued	Priority
J 1415.-5540	BECHTOLD	12-15-93	11:23	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size	Customer ID
? .100 - 10 → .100 ml	STD

Remarks, Calculations, Results

S267 UF1C
STD# 144838 RESULT 3.95E-2
STD VAL 3.56E-2 %REC 102.3%
SPIKE ID/VAL 146838/5.04-4 g/L
SPIKE VOL. 100ml

Tania Bates .24 .54

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	Jennifer L. Shuppert / Leslie Dias

54-6880-061 (R-10-83)

WHC-SD-WM-DP-062, REV. 0

URANIUM : LA-925-106 (B-0) LIQUIDS

			STANDARD
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1415-5540	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
0			
Instrument	Deflection (sample + fluran)	DSAM	0.24
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
T BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.54
12/21/93	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	1
	Concentration in sample (gU/L)		3.95E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	3.95E-02
U in µg/mL=	3.95E+01

DETECTION LEVEL µg/mL= 3.29E+00

Data Entry by:	Lakiti	Date:	21-Dec-93
Approved by:	Jennifer L. Shuppert	Date:	12/22/93

Form 1 Rev. 1.2 Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1416.-5640	BECHTOLD	12-15-93	11:24	22

Determination	Method-Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size	Customer ID
? .050 - 10 - .025 ml	BLK

Remarks, Calculations, Results:

REAGENT BLANK

146538 / 4.58-5 gU

.100 ml

WHC-SD-WM-DP-062, REV. 0

< 2.58 X10⁻¹ ug/ml

Tamia Bates

.00
.30

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			BLANK
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1416-5640	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
0			
Instrument	Deflection (sample + fluran)	DSAM	0
W888807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.63
T BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.3
12/21/93	Dilution factor of sample	DF	201
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)	<	2.58E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L = <	2.58E-02
U in µg/mL = <	2.58E+01

DETECTION LEVEL µg/mL= 2.58E+01

REPORT RESULT AS A < (LESS THAN) VALUE

Data Entry by:	R Abitz	Date:	21-Dec-93
Approved by:	Jennifer L. Shipman	Date:	12/22/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1426.-5740	BECHTOLD	12-16-93	13:18	22

Determination	Method-Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size: 1 mL → 10 mL prep.
? .050 - 10 - .025 mL

Customer ID: KE65A

Remarks, Calculations, Results:
146638/4.58 $^{-5}$ gU
.100 mL
gpm

WHC-SD-WM-DP-062, REV. 0

3.09×10^{2} ug/mL

Daniel Bates

.26
.56

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1426-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell	VSUB	5.53
0	(sample + fluran + water)		
Instrument	Deflection (sample + fluran)	DSAM	0.26
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL)	VTOT	5.63
T BATES	(sample + fluran + water + spike)		
Date:	Deflection (sample + fluran + spike)	DS+S	0.56
12/21/93	Dilution factor of sample	DF	201
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		3.09E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	3.09E-01
U in µg/mL=	3.09E+02

DETECTION LEVEL µg/mL= 2.37E+01

Data Entry by:		Date:	21-Dec-93
Approved by:	Jennifer L. Skipper	Date:	12/22/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1426.-5740	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size	Customer ID
? 1 ml - 10 ml prep. .050 - 10 — .025 ml	KE65A

Remarks, Calculations, Results:
146B38 / 4.58-5 gU DP
.100 ml

WHC-SD-WM-DP-062, REV. 0

2.85 x 10^2 uG/ml

Tania Bates .24 .54

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1426-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
0			
Instrument	Deflection (sample + fluran)	DSAM	0.24
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.63
T BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.54
12/21/93	Dilution factor of sample	DF	201
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		2.85E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	2.85E-01
U in µg/mL=	2.85E+02

DETECTION LEVEL µg/mL= 2.38E+01

Data Entry by:	R Abts	Date:	21-Dec-93
Approved by:	Jennifer L. Bell	Date:	12/22/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5740	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size	Customer ID
1 mL - 10 ml prep ? .050 - 10 - .025 ml	KE65A

Remarks, Calculations, Results:
146938/4.58 - 5 gal TMP
.100 ml

WHC-SD-WM-DP-062, REV. 0

3.09×10^{2} ug/ml

Dania Bates

.24
.56

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	

54-6800/061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1426-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell	VSUB	5.53
0	(sample + fluran + water)		
Instrument	Deflection (sample + fluran)	DSAM	0.26
WB88807	Volume of spike (mL)	VSP	0.100
Analyst	Volume of liquid in cell (mL)	VTOT	5.63
T BATES	(sample + fluran + water + spike)		
Date:	Deflection (sample + fluran + spike)	DS+S	0.56
12/21/93	Dilution factor of sample	DF	201
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		3.09E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((VTOT/VSUB)*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	3.09E-01
U in µg/ml=	3.09E+02

DETECTION LEVEL µg/mL= 2.37E+01

Data Entry by:	P. Ahte	Date:	21-Dec-93
Approved by:	Jennifer L. Silvers	Date:	12/22/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5940	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size	Customer ID
1 mL - 10 mL prep. ? .100 J1426 .100 146538 > 10 → .050 mL	KE65A

Remarks, Calculations, Results:

SAMPLE SPIKED ID 146538/K
SPIKE ID 146538/S04-4gle
SPIKE VOLUME .100 mL

WHC-SD-WM-DP-062, REV. 0

6.7 %

Tania Bates

.10
.40

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	J L Shepherd

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1426-5940	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.0500
Rerun No.	Volume of liquid in cell	VSUB	5.55
0	(sample + fluran + water)		
Instrument	Volume of spike (mL)	VSP	0.1000
WB88807	Volume of liquid in cell	VTOT	5.65
Analyst:	(sample + fluran + water + spike)		
T BATES	Deflection (sample + fluran)	DSAM	0.1
Date:	Deflection (sample + fluran + spike)	DS+S	0.4
12/21/93	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	3.0900E-01
	Concentration (gU/L)	gU/LS	3.347E-01
	% Recovery		6.7

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	6.65

Data Entry by:	R. Akota	Date:	21-Dec-93
Approved by:	Jennifer L Shepherd	Date:	12/22/93

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1426.-5040	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size	Customer ID
? .100 J1426 .100 144838 >10 → .050 ml prep	KE65A

Remarks, Calculations, Results:

SAMPLE SPIKE 144838 5K DUP
DUPLICATE

SPIKE ID 146838/5.04 g/l
SPIKE VOL .100 ml

12.9 %

.10
.40

Tania Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	

54-5800-061 (R-10-83)

WHC-SD-WM-DP-062, REV. 0

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1426-5040	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.0500
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.55
0			
Instrument	Volume of spike (mL)	VSP	0.1000
WB88807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.65
Analyst:			
T BATES	Deflection (sample + fluran)	DSAM	0.1
Date:	Deflection (sample + fluran + spike)	DS+S	0.4
12/21/93	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	2.8500E-01
	Concentration (gU/L)	gU/LS	3.347E-01
	% Recovery		12.9

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S − DSAM) * VSAM)
%Recovery = ((gU/LS − gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	12.87

Data Entry by:	R Ukita	Date:	21-Dec-93
Approved by:	Jennifer L Shepherd	Date:	12/22/93

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1427.-5740	BECHTOLD	12-16-93	13:19	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size	Customer ID
1mL - 10mL PREP ? .050 - 10 - .025mL	KE71A

Remarks, Calculations, Results

146B38 / 4.58 -5 gU SAM
.100mL

WHC-SD-WM-DP-062, REV. 0

5.17 x10^2 ug/mL

Donna Bates

.44
.74

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1427-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell	VSUB	5.53
0	(sample + fluran + water)		
Instrument	Deflection (sample + fluran)	DSAM	0.44
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL)	VTOT	5.63
T BATES	(sample + fluran + water + spike)		
Date:	Deflection (sample + fluran + spike)	DS+S	0.74
12/21/93	Dilution factor of sample	DF	201
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		5.17E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	5.17E-01
U in µg/mL=	5.17E+02

DETECTION LEVEL µg/mL= 2.35E+01

Data Entry by:	R Akin	Date:	21-Dec-93
Approved by:	Jennifer L Shepherd	Date:	12/22/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1427.-5740	BECHTOLD	12-16-93	13:19	22

Determination	Method Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size	Customer ID
? 1 ml → 10 ml prep .050 – 10 – .025 ml	KE71A

Remarks, Calculations, Results: 146B38 / 4.58 -5 gU DUP 1.100 ml

WHC-SD-WM-DP-062, REV. 0

5.40 x10^2 ug/ml

Tania Bates .46 .76

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	

54-6800-061 (R-10-93)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1427-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
0			
Instrument	Deflection (sample + fluran)	DSAM	0.46
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.63
T BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.76
12/21/93	Dilution factor of sample	DF	201
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		5.40E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	5.40E-01
U in µg/mL=	5.40E+02

DETECTION LEVEL µg/mL= 2.35E+01

Data Entry by:	R Acedo	Date:	21-Dec-93
Approved by:	Jennifer L. Stevens	Date:	12/22/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1427.-5740	BECHTOLD	12-16-93	13:19	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size	Customer ID
? 1 mL - 10 mL prep .050 - 10 → .025 mL	KE71A

Remarks, Calculations, Results:
146B38/4.58-5 gU TRIP
.100 mL

WHC-SD-WM-DP-062, REV. 0

5.17 x 10^2 ug/mL

Tonia Bates

.44
.74

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1427-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell	VSUB	5.53
0	(sample + fluran + water)		
Instrument	Deflection (sample + fluran)	DSAM	0.44
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL)	VTOT	5.63
T BATES	(sample + fluran + water + spike)		
Date:	Deflection (sample + fluran + spike)	DS+S	0.74
12/21/93	Dilution factor of sample	DF	201
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		5.17E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	5.17E-01
U in µg/mL=	5.17E+02

DETECTION LEVEL µg/mL= 2.35E+01

Data Entry by:	R Ukub	Date:	21-Dec-93
Approved by:	Jennifer L Blumer	Date:	12/22/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1427.-5940	BECHTOLD	12-16-93	13:19	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size 1 mL - 10 mL PREP
? .100 J 1427 > 10 → .050 mL
.100 144B33

Customer ID: KE71A

Remarks, Calculations, Results:
SAMPLE SPIKED ID 144B38 S/C
SPIKE ID 146B38/S04-5-4 T.B 12-21-93
SPIKE VOLUME 100 mL

WHC-SD-WM-DP-062, REV. 0

123.2%

.30
.60

Tania Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1427-5940	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.0500
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.55
0			
Instrument	Volume of spike (mL)	VSP	0.1000
WB88807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.65
Analyst:			
T BATES	Deflection (sample + fluran)	DSAM	0.3
Date:	Deflection (sample + fluran + spike)	DS+S	0.6
12/21/93	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	5.1700E-01
	Concentration (gU/L)	gU/LS	9.924E-01
	% Recovery		123.2

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	123.16

Data Entry by:		Date:	21-Dec-93
Approved by:		Date:	12/22/93

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1427.-5040	BECHTOLD	12-16-93	13:19	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size: ? 1.00 J 1427 / 1.00 144838 > 10 → .050 ml (1ml – 10ml, PREP)

Customer ID: KE71A

Remarks, Calculations, Results:
SAMPLE SPIKE 144838 SP DUP
DUPLICATE
SPIKE ID 146838/5.04 gU
SPIKE VOL .100 ml
117.2 %
.30
.60
Tonia Bates

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93		

54-6800-061 (R-10-93)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1427-5040	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.0500
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.55
0			
Instrument	Volume of spike (mL)	VSP	0.1000
WB88807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.65
Analyst:			
T BATES	Deflection (sample + fluran)	DSAM	0.3
Date:	Deflection (sample + fluran + spike)	DS+S	0.6
12/21/93	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	5.4000E-01
	Concentration (gU/L)	gU/LS	9.924E-01
	% Recovery		117.2

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S – DSAM) * VSAM)
%Recovery = ((gU/LS – gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	117.20

Data Entry by:	T Bates	Date:	21-Dec-93
Approved by:	Jennifer J Sluss	Date:	12/22/93

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1428.-5740	BECHTOLD	12-16-93	13:20	22

Determination	Method Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size: 1 ml - 10 ml prep
? .050 - 10 - .025 ml

Customer ID: KE72A

Remarks, Calculations, Results:
146838 / 14.58 5 gl SAM
, 100 ml

WHC-SD-WM-DP-062, REV. 0

1.20 x 10^2 ug/ml

Janis Bates

10
40

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1428-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell	VSUB	5.53
0	(sample + fluran + water)		
Instrument	Deflection (sample + fluran)	DSAM	0.1
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL)	VTOT	5.63
T BATES	(sample + fluran + water + spike)		
Date:	Deflection (sample + fluran + spike)	DS+S	0.4
12/21/93	Dilution factor of sample	DF	201
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		1.20E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	1.20E-01
U in µg/mL=	1.20E+02

DETECTION LEVEL µg/mL= 2.40E+01

Data Entry by:	R Akers	Date:	21-Dec-93
Approved by:	Jennifer L Stepson	Date:	12/22/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1428.-5740	BECHTOLD	12-16-93	13:20	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size 1mL - 10 ml
? .050 - 10 - .025 ml

Customer ID: KE72A

Remarks, Calculations, Results:
146838/4.58 -5 gU DP
.100 ml

WHC-SD-WM-DP-062, REV. 0

1.44 X10^2 ug/ml

Tania Bates

.12
.42

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1428-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
0			
Instrument	Deflection (sample + fluran)	DSAM	0.12
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.63
T BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.42
12/21/93	Dilution factor of sample	DF	201
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		1.44E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	1.44E-01
U in µg/mL=	1.44E+02

DETECTION LEVEL µg/mL= 2.39E+01

Data Entry by:	R. White	Date:	21-Dec-93
Approved by:	Jennifer L. Shipp	Date:	12/22/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1428.-5740	BECHTOLD	12-16-93	13:20	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size	Customer ID
1 mL - 10 mL prep ? .050 - 10 - .025 mL	KE72A

Remarks, Calculations, Results:
146B38/4.58-5 gU/L TOTP
.100 mL

WHC-SD-WM-DP-062, REV. 0

1.44x10² ug/mL

Tania Bates

.12
.42

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	

54-6600-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	4.58E-05
J1428-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell	VSUB	5.53
0	(sample + fluran + water)		
Instrument	Deflection (sample + fluran)	DSAM	0.12
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL)	VTOT	5.63
T BATES	(sample + fluran + water + spike)		
Date:	Deflection (sample + fluran + spike)	DS+S	0.42
12/21/93	Dilution factor of sample	DF	201
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		1.44E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	1.44E-01
U in µg/mL=	1.44E+02

DETECTION LEVEL µg/mL= 2.39E+01

Data Entry by:	P. Abels	Date:	21-Dec-93
Approved by:	Jennifer L Sleppen	Date:	12/22/93

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1428.-5940	BECHTOLD	12-16-93	13:20	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size 1mL - 10 mL
? .1000 144338 > 10 — .050mL

Customer ID: KE72A

Remarks, Calculations, Results:

SAMPLE SPIKED ID 144338 SK
SPIKE ID 146638 SD4-gU
SPIKE VOLUME .100mL

WHC-SD-WM-DP-062, REV. 0

107.15%

.16
.46

Jamie Peters

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	

54-8800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1428-5940	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.0500
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.55
0			
Instrument	Volume of spike (mL)	VSP	0.1000
WB88807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.65
Analyst:			
T BATES	Deflection (sample + fluran)	DSAM	0.16
Date:	Deflection (sample + fluran + spike)	DS+S	0.46
12/21/93	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	1.2000E-01
	Concentration (gU/L)	gU/LS	5.336E-01
	% Recovery		107.2

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	107.15

Data Entry by:	R Chris	Date:	21-Dec-93
Approved by:	Jennifer L. Shuppin	Date:	12/22/93

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1428.-5040	BECHTOLD	12-16-93	13:20	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size	Customer ID
? .100 J1428 .100 144838 >10 — .050 ml	KE72A

Remarks, Calculations, Results:

SAMPLE SPIKE 144838 5K DUP
DUPLICATE

SPIKE ID 146838 / 504 gU
SPIKE VOL .100 ml

100.94%

.16
.46

Tania Bates

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
12-21-93	1100	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1428-5040	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2407	Volume of sample (mL)	VSAM	0.0500
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.55
0			
Instrument	Volume of spike (mL)	VSP	0.1000
WB88807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.65
Analyst:			
T BATES	Deflection (sample + fluran)	DSAM	0.16
Date:	Deflection (sample + fluran + spike)	DS+S	0.46
12/21/93	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	1.4400E-01
	Concentration (gU/L)	gU/LS	5.336E-01
	% Recovery		100.9

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S − DSAM) * VSAM)
%Recovery = ((gU/LS − gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	100.94

Data Entry by:	L Cates	Date:	21-Dec-93
Approved by:	Jennifer L Shupert	Date:	12/22/93

Form 2 Rev. 2.1

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

2617

WHC-SD-WM-DP-062, REV. 0

Lab Segment Serial No. T1445	Customer ID: KE83B
Analysis: Uranium Laser	Sample Prep: Direct

Instrument: WB88807	Procedure/ Rev: UA-925-106 / B-0
Technologist: Tania Bates	Date: 2-3-94
Starting Time: 0800	Temperature 23°C
Ending Time: 1200	Chemist: J. Slippern

Comments:

	Description	Lab ID		Description	Lab ID
1	LMCS	J1439-5540	11		
2	BLK	J1440-5640	12		
3	SAMPLE	J1445-5740	13		
4	SAMPLE DUP.	J1445-5740	14		
5	SAMPLE TRIP:	J1445-5740	15		
6	SAMPLE SPK	J1445-5940	16		
7	SAMPLE SPK	J1445-5040	17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
UFIC	144B38 .100 ml			
U-CAL	146B38 .100 ml			

1017

Tania Bates 2-3-94

A-6000-881 (03/92)

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-925-106

DATE START: FEBRUARY 3, 1994

PREPARED BY: J.L. Slippern 2/3/94

DATE COMPLETE: FEBRUARY 3, 1994

	UNITS:	ug/mL										
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	RESULT #3	AVERAGE	2*SD	PREC	ACCU	%REC	DET LIM	% CT ER
STD 144B36	J1439	U	4.59E-02							118.9	3.28E+00	
BLANK	J1440	U	<1.43E+01								1.43E+01	
KE83B	J1445	U	8.51E+02	8.51E+02	7.54E+02	8.19E+02	112	13.7			1.42E+02	
											1.42E+02	
											1.37E+02	
		U SPIKE							0	88.0		
										88.0		

NARRATIVE: [X] NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH

LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in gU/L.

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

#2617

Serial No	Sample Point	Date	Time Issued	Priority
J 1439.-5540	BECHTOLD	1- 4-94	10:49	26

Determination	Method Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14167	1

Sample Size	Customer ID
.100-10 → .100 ml	STD

Remarks, Calculations, Results

SAMPLE USED
SMP # 146838 RESULT 4.59E-2 G/L
STD VAL 3.86E-2 G/L %REC 118.9%
SPIKE TO VAL 146838/5.04-4 gl
SPIKE VOL .100 ml

RERUN

WHC-SD-WM-DP-062, REV. 0

.28
.58

Tamara Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
		Reepta	E. Cut	
Date	Time Completed	Lab Unit Mgr		
2-3-94	1200		E. Cut	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			STANDARD
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1439-5540	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2617	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
1			
Instrument	Deflection (sample + fluran)	DSAM	0.28
WB 8807	Volume of spike (mL)	VSP	0.100
Analyst	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
T BATES			
Date	Deflection (sample + fluran + spike)	DS+S	0.58
02/03/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	1
	Concentration in sample (gU/L)		4.59E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	4.59E-02
U in µg/mL=	4.59E+01

DETECTION LEVEL µg/mL= 3.28E+00

Data Entry by:	Jennifer L. Shipman	Date:	03-Feb-94
Approved by:	J. L. Shipman	Date:	2/3/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1440.-5640	BECHTOLD	1- 4-94	10:52	36

Determination	Method Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	1

Sample Size	Customer ID
.100 -10 -.025 ml	BLANK

Remarks, Calculations, Results

REAGENT BLANK
146638/5.04-4 g/l
.100 ml

RERUN

<1.43 E+1 µg/mL

WHC-SD-WM-DP-062, REV. 0

.00
.30

Dania Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab
2-3-94	1200	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			BLANK
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1440-5640	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2617	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell	VSUB	5.53
1	(sample + fluran + water)		
Instrument	Deflection (sample + fluran)	DSAM	0
WB 8807	Volume of spike (mL)	VSP	0.100
Analyst	Volume of liquid in cell (mL)	VTOT	5.63
T BATES	(sample + fluran + water + spike)		
Date	Deflection (sample + fluran + spike)	DS+S	0.3
02/03/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	1
	Concentration in sample (gU/L)	<	1.43E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L = <	1.43E-02
U in µg/mL = <	1.43E+01

DETECTION LEVEL µg/mL= 1.43E+01
REPORT RESULT AS A < (LESS THAN) VALUE

Data Entry by:	Jennifer L. Sleppern	Date:	03-Feb-94
Approved by:	J. Sleppern	Date:	2/3/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1445-5740	BECHTOLD	1- 4-94	12: 3	26

Determination	Method Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	1

Sample Size	Customer ID
(1 ml - 10 ml prep.) .100 -10 → .025 ml	KE83B

Remarks, Calculations, Results
146638/5.04-4 gU
.100 ml

RERUN

8.51E+2 µg/mL

Damion Bates

WHC-SD-WM-DP-062, REV. 0

.12
.40

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Supervisor
2-3-94	1200	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1445-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2617	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
1			
Instrument	Deflection (sample + fluran)	DSAM	0.12
WB 8807	Volume of spike (mL)	VSP	0.100
Analyst	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.63
T BATES			
Date	Deflection (sample + fluran + spike)	DS+S	0.4
02/03/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		8.51E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1 E6 µg/g / 1000 mL/L)

U in sample gU/L=	8.51E-01
U in µg/mL=	8.51E+02

DETECTION LEVEL µg/mL= 1.42E+02

Data Entry by:		Date:	03-Feb-94
Approved by:		Date:	2/3/94

Form 1 Rev. 1.2

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1445.-5740	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	2

Sample Size (1 ml - 10 ml prep) .100 - 10 → .025 ml

Customer ID: KE83B

Remarks, Calculations, Results
146B38/5.04-4 gU
.100 ml

RERUN

8.51E+2 µg/mL

WHC-SD-WM-DP-062, REV. 0

.12
.40

Tonia Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-3-94	1200	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1445-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2617	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell	VSUB	5.53
1	(sample + fluran + water)		
Instrument	Deflection (sample + fluran)	DSAM	0.12
WB 8807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL)	VTOT	5.63
T BATES	(sample + fluran + water + spike)		
Date:	Deflection (sample + fluran + spike)	DS+S	0.4
02/03/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		8.51E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	8.51E-01
U in µg/mL=	8.51E+02

DETECTION LEVEL µg/mL= 1.42E+02

Data Entry by:	Jennifer L. Slippen	Date:	03-Feb-94
Approved by:	J. L. Slippen	Date:	2/3/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1445 -5740	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	3

Sample Size (1 ml = 10 ml prep.) .100 - 10 → .025 ml

Customer ID: KE83B

Remarks, Calculations, Results
146838 / 5.04-4 gU
, 100 ml

RERUN

7.54 E+2 µg/mL

WHC-SD-WM-DP-062, REV. 0

Dania Bates

.11
.40

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab U		
2-3-94	1200			

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1445-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2617	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell	VSUB	5.53
1	(sample + fluran + water)		
Instrument	Deflection (sample + fluran)	DSAM	0.11
WB 8807	Volume of spike (mL)	VSP	0.100
Analyst	Volume of liquid in cell (mL)	VTOT	5.63
T BATES	(sample + fluran + water + spike)		
Date:	Deflection (sample + fluran + spike)	DS+S	0.4
02/03/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		7.54E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1 E6 µg/g / 1000 mL/L)

U in sample gU/L=	7.54E-01
U in µg/mL=	7.54E+02

DETECTION LEVEL µg/mL= 1.37E+02

Data Entry by:		Date:	03-Feb-94
Approved by:		Date:	2/3/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1445-5040	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	1

Sample Size	Customer ID
? .100 (1ml - 10ml prep) .100 > 10 → .025 ml	KE83B

Remarks, Calculations, Results

SAMPLE SPIKE 144B38
DUPLICATE 146B38 15.04 ug/L
SPIKE AB
SPIKE VOL .100 ml

DERIVED

88.0%

Dania Bates

WHC-SD-WM-DP-062, REV. 0

.18
.48

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date: 2-3-94	Time Completed: 1200	Lab Unit Supervisor:		

54-5800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1445-5040	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2617	Volume of sample (mL)	VSAM	0.0250
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
1			
Instrument	Volume of spike (mL)	VSP	0.1000
WB 8807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.63
Analyst			
T BATES	Deflection (sample + fluran)	DSAM	0.18
Date	Deflection (sample + fluran + spike)	DS+S	0.48
02/03/94	Dilution factor of sample	DF	101
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	8.5100E-01
	Concentration (gU/L)	gU/LS	1.187E+00
	% Recovery		88.0

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	87.99

Data Entry by:	Jennifer L. Slippern	Date:	03-Feb-94
Approved by:	J. L. Slippern	Date:	2/3/94

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1445-5940	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	1

Sample Size (1 ml - 10 ml prep)
? .100/.100 > 10 → .025 ml

Customer ID
KE83B

Remarks, Calculations, Results
SAMPLE SPIKED ID 144B38
SPIKE ID 144B38 (5.04-4 gU
SPIKE VOLUME .100 ml

DEBUT

88.0%

WHC-SD-WM-DP-062, REV. 0

Dania Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr		
2-3-94	1200			

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1445-5940	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2617	Volume of sample (mL)	VSAM	0.0250
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
1			
Instrument	Volume of spike (mL)	VSP	0.1000
WB 8807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.63
Analyst	Deflection (sample + fluran)	DSAM	0.18
T BATES	Deflection (sample + fluran + spike)	DS+S	0.48
Date	Dilution factor of sample	DF	101
02/03/94	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	8.5100E-01
	Concentration (gU/L)	gU/LS	1.187E+00
	% Recovery		88.0

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	87.99

Data Entry by:	Jennifer L. Shippen	Date:	03-Feb-94
Approved by:	Jennifer L. Shippen	Date:	2/3/94

Form 2 Rev. 2.1

Batch 2513

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

WHC-SD-WM-DP-062, REV. 0

Lab Segment Serial No. J 1445, J 1446	Customer ID: KE83B, KE83D
Analysis: U	Sample Prep: DIRECT

Instrument: WB88807	Procedure/ Rev: LA-925-106/B-0
Technologist: TANIA BATES	Date: 1-10-94
Starting Time: 0900	Temperature 21°C
Ending Time: 1600	Chemist: J. SLIPPERN

Comments: SAMPLE PREP. — 1 ML — 10 mL FINAL. RESULTS WERE SPORADIC. KEPT SAMPLE ON STIRRER. KEPT READINGS CONSISTANT.

	Description	Lab ID		Description	Lab ID
1	LMCS	J1439-5540	11	SAMPLE SPK	J1446-5940
2	BLK	J1440-5640	12	SAMPLE SPK DUP.	J1446-5040
PR 3	SAMPLE	J1445-5740	13		
PR 4	SAMPLE DUP.	J1445-5740	14		
5	SAMPLE TRIP.	J1445-5740	15		
6	SAMPLE SPK.	J1445-5940	16		
PR 7	SAMPLE SPK DUP.	J1445-5040	17		
NS 2-10 8	SAMPLE	J1446-5740	18		
9	SAMPLE DUP.	J1446-5740	19		
10	SAMPLE TRIP.	J1446-5740	20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
UFIC	144B38 .100 ml			
U-CAL	146B38 .100 ml			

1026

Reviewed 1-10-94

A-6000-881 (03/92)

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-925-106

DATE START: JANUARY 10, 1994

PREPARED BY: J.L. Slippern 1/13/94

DATE COMPLETE: JANUARY 13, 1994

	UNITS:	ug/mL										
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	RESULT #3	AVERAGE	2*SD	PREC	ACCU	%REC	DET LIM	% CT ER
STD 144B38	J1439	U	3.95E-02							102.3	3.29E+00	
BLANK	J1440	U	<3.12E+00								3.12E+00	
KE83B	J1445	U	1.24E+03	1.24E+03	1.20E+03	1.23E+03	46.2	3.8			1.24E+02	
											1.24E+02	
											1.20E+02	
		U SPIKE							25.1	129.6		
										100.7		
KE83D	J1446	U	3.09E+02	3.09E+02	3.40E+02	3.19E+02	35.8	11.2			3.09E+01	
											3.09E+01	
											3.09E+01	
		U SPIKE							8.8	90.4		
										98.7		

NARRATIVE: [ ] NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in gU/L.

SPIKE EXCEEDS CONTROL LIMITS FOR J1445.

RERUN FOR J1445 ONLY REQUESTED.

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Batch 2513

Serial No.	Sample Point	Date	Time Issued	Priority
J 1439.-5540	BECHTOLD	1- 4-94	10:49	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size	Customer ID
?, 100 -10 -. 100 ml	STD

Remarks, Calculations, Results:

S267 UF1C
STD# 146B38 RESULT 3.95 E-2
STD VAL 3.86 E-2 %REC 102.3 Z-4
SPIKE ID/VAL 146B38/5.04 E-4 g/L
SPIKE VOL. .100 ml

Danica Bates .24 .54

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	1-11-94

Date	Time Completed	Lab Unit Mgr	
1-10-94	1600		1-11-94

54-5600-061 (R-10-83)

WHC-SD-WM-DP-062, REV. 0

URANIUM : LA-925-106 (B-0) LIQUIDS

			STANDARD
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1439-5540	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2513	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
0			
Instrument	Deflection (sample + fluran)	DSAM	0.24
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
T BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.54
01/10/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	1
	Concentration in sample (gU/L)		3.95E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	3.95E-02
U in µg/mL=	3.95E+01

DETECTION LEVEL µg/mL= 3.29E+00

Data Entry by:		Date:	11-Jan-94
Approved by:		Date:	1/13/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1440.-5640	BECHTOLD	1- 4-94	10:52	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size	Customer ID
? .100 -10 ~ .100 ml	BLANK

Remarks, Calculations, Results

REAGENT BLANK -4
146838/5.04 gle
.100 ml

< 3.12E+0 ug/ml

Tania Bates

.02
.34

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-10-94	1600		1-11-94

54-6600-061 (R-10-83)

WHC-SD-WM-DP-062, REV. 0

URANIUM : LA-925-106 (B-0) LIQUIDS

			BLANK
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1440-5640	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2513	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
0			
Instrument	Deflection (sample + fluran)	DSAM	0.02
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
T BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.34
01/10/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	1
	Concentration in sample (gU/L)	<	3.12E-03

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L = <	3.12E-03
U in µg/mL = <	3.12E+00

DETECTION LEVEL µg/mL= 3.12E+00

REPORT RESULT AS A < (LESS THAN) VALUE

Data Entry by:		Date:	11-Jan-94
Approved by:	Jennifer L. Blueper	Date:	1/13/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1445.-5740	BECHTOLD	1- 4-94	12: 3	26

Determination	Method-Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size: 1 mL - 10 mL PREP
? .100 - 10 → .025 mL

Customer ID: KE83B

Remarks, Calculations, Results:
SAM
146B38/5.04-4 g/L
.100 mL
1.24E+3 ug/mL
Janice Bates
.20
.52

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-10-94	1600	J. L. Skippen	1-11-94

54-5800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1445-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2513	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell	VSUB	5.53
0	(sample + fluran + water)		
Instrument	Deflection (sample + fluran)	DSAM	0.2
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL)	VTOT	5.63
T BATES	(sample + fluran + water + spike)		
Date:	Deflection (sample + fluran + spike)	DS+S	0.52
01/10/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		1.24E+00

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/(({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	1.24E+00
U in µg/mL=	1.24E+03

DETECTION LEVEL µg/mL= 1.24E+02

Data Entry by:		Date:	11-Jan-94
Approved by:		Date:	1/13/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1445.-5740	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size 1 mL – 10 mL PREP
? .100 – 10 – .025 mL

Customer ID: KE83B

Remarks, Calculations, Results:
Dup
146B38/5.04-4 g/l
.100 mL

WHC-SD-WM-DP-062, REV. 0

1.24 E+3 ug/ml

Tania Bates

.20
.52

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-10-94	1600	[signature]	1-11-94 [signature]

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1445-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2513	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
0			
Instrument	Deflection (sample + fluran)	DSAM	0.2
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.63
T BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.52
01/10/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		1.24E+00

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	1.24E+00
U in µg/mL=	1.24E+03

DETECTION LEVEL µg/mL= 1.24E+02

Data Entry by:	[signature]	Date:	11-Jan-94
Approved by:	[signature]	Date:	1/13/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1445.-5740	BECHTOLD	1- 4-94	12: 3	26

Determination	Method-Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size 1mL — 10mL PREP
? .100 - 10 → .025 mL

Customer ID KE83B

Remarks, Calculations, Results
TRIP
146338/5.04-4 g/L
.100 mL

WHC-SD-WM-DP-062, REV. 0

1.20E+3 ug/mL

Dania Bates

:20
:53

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-10-94	1600		1-11-94

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1445-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2513	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
0			
Instrument	Deflection (sample + fluran)	DSAM	0.2
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.63
T BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.53
01/10/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		1.20E+00

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	1.20E+00
U in µg/mL=	1.20E+03

DETECTION LEVEL µg/mL= 1.20E+02

Data Entry by:		Date:	11-Jan-94
Approved by:	Jennifer L. Stevens	Date:	1/13/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1445.-5940	BECHTOLD	1- 4-94	12: 3	26

Determination	Method Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size 1 mL - 10 mL prep
?;100/100 > 10 → .025 mL

Customer ID: KE83B

Remarks, Calculations, Results:

SAMPLE SPIKED ID 144B38
SPIKE ID 146B38/6.04-4 g/L
SPIKE VOLUME .100 mL

129.6%

Tania Bates

:28
:60

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-10-94	1600	1-11-94

54-6800-061 (R-10-83)

WHC-SD-WM-DP-062, REV. 0

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1445-5940	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2513	Volume of sample (mL)	VSAM	0.0250
Rerun No.	Volume of liquid in cell	VSUB	5.53
0	(sample + fluran + water)		
Instrument	Volume of spike (mL)	VSP	0.1000
WB88807	Volume of liquid in cell	VTOT	5.63
Analyst	(sample + fluran + water + spike)		
T BATES	Deflection (sample + fluran)	DSAM	0.28
Date	Deflection (sample + fluran + spike)	DS+S	0.6
01/10/94	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	1.2400E+00
	Concentration (gU/L)	gU/LS	1.740E+00
	% Recovery		129.6

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	129.59

Data Entry by:		Date:	11-Jan-94
Approved by:		Date:	1/13/94

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1445.-5040	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size	Customer ID
1 mL – 10 mL PREP ? .100 / .100 > 10 → .025 mL	KE83B

Remarks, Calculations, Results

SAMPLE SPIKE 144B38
DUPLICATE

SPIKE ID 146B38/5.04-4 g/L
SPIKE VOL .100 mL

100.7% recovery

Tamia Bates :TB

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-10-94	1600	J S Skipper	1-11-94 K McFarlane

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1445-5040	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2513	Volume of sample (mL)	VSAM	0.0250
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
0			
Instrument	Volume of spike (mL)	VSP	0.1000
WB88807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.63
Analyst			
T BATES	Deflection (sample + fluran)	DSAM	0.27
Date:	Deflection (sample + fluran + spike)	DS+S	0.6
01/10/94	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	1.2400E+00
	Concentration (gU/L)	gU/LS	1.629E+00
	% Recovery		100.7

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S – DSAM) * VSAM)
%Recovery = ((gU/LS – gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	100.74

Data Entry by:		Date:	11-Jan-94
Approved by:	Jennifer L Skipper	Date:	1/13/94

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1446.-5740	BECHTOLD	1- 4-94	12:26	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size	Customer ID
? 1 mL - 10 mL prep ? 100 -10 → 100 mL	KE83D

Remarks, Calculations, Results:

SAM
146838/5.04-4 g/l
100 mL

3.09E+2 ug/ml

WHC-SD-WM-DP-062, REV. 0

Tania Bates 1:20 1:52

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-10-94	1600		1-11-94

54-5800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1446-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2513	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
0			
Instrument	Deflection (sample + fluran)	DSAM	0.2
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
T BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.52
01/10/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		3.09E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	3.09E-01
U in µg/mL=	3.09E+02

DETECTION LEVEL µg/mL= 3.09E+01

Data Entry by:		Date:	11-Jan-94
Approved by:		Date:	1/13/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1446.-5740	BECHTOLD	1- 4-94	12:26	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size 1mL - 10 mL PREP
? .100 -10 → .100 mL

Customer ID: KE83D

Remarks, Calculations, Results:
Dup
146B38/5.04-4 g/L
.100 mL
3.09E+2 ug/mL

WHC-SD-WM-DP-062, REV. 0

Tania Bates

.20
.52

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1- 10-94	1600	1-11-94

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1446-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2513	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
0			
Instrument	Deflection (sample + fluran)	DSAM	0.2
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
T BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.52
01/10/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		3.09E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	3.09E-01
U in µg/mL=	3.09E+02

DETECTION LEVEL µg/mL= 3.09E+01

Data Entry by:		Date:	11-Jan-94
Approved by:	Jennifer L Shepherd	Date:	1/13/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1446.-5740	BECHTOLD	1- 4-94	12:26	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	0

Sample Size 1mL - 10mL prep
? .100 mL - 10 → .100 mL

Customer ID: KE83D

Remarks, Calculations, Results

Trip
146838/5.04 -4 g/L
.100 mL

3.40E+2 ug/mL

WHC-SD-WM-DP-062, REV. 0

Tania Bates .22 .54

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-10-94	1600		1-11-94

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1446-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2513	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
0			
Instrument	Deflection (sample + fluran)	DSAM	0.22
WB88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
T BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.54
01/10/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		3.40E-01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	3.40E-01
U in µg/mL=	3.40E+02

DETECTION LEVEL µg/mL= 3.09E+01

Data Entry by:		Date:	11-Jan-94
Approved by:		Date:	1/13/94

Form 1 Rev. 1.2 Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1446.-5940	BECHTOLD	1- 4-94	12:26	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size 1 mL -10 mL prep
?: 100 > 10 → .100 mL

Customer ID: KE83D

Remarks, Calculations, Results

SAMPLE SPIKED ID 144838
SPIKE ID 144838/5.04-4 gU
SPIKE VOLUME .100 mL

90.4% recovery

Danica Bates

.40
.78

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-10-94	1600	1-11-94

54-5800-061 (R-10-83)

WHC-SD-WM-DP-062, REV. 0

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1446-5940	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2513	Volume of sample (mL)	VSAM	0.1000
Rerun No.	Volume of liquid in cell	VSUB	5.60
0	(sample + fluran + water)		
Instrument	Volume of spike (mL)	VSP	0.1000
WB88807	Volume of liquid in cell	VTOT	5.70
Analyst:	(sample + fluran + water + spike)		
T BATES	Deflection (sample + fluran)	DSAM	0.4
Date:	Deflection (sample + fluran + spike)	DS+S	0.7
01/10/94	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	3.0900E-01
	Concentration (gU/L)	gU/LS	6.580E-01
	% Recovery		90.4

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	90.42

Data Entry by:		Date:	11-Jan-94
Approved by:	Jennifer L. Shuppert	Date:	1/13/94

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1446.-5040	BECHTOLD	1- 4-94	12:26	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	0

Sample Size	Customer ID
1 mL — 10 mL prep ? 100 > 10 → .100 mL	KE83D

Remarks, Calculations, Results:

SAMPLE SPIKE 144838
DUPLICATE

SPIKE ID 144838/5.04 g/L
SPIKE VOL .100 mL

98.7% recovery

Jenia Bates

.42
.72

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-10-94	1600	1-11-94

54-6800-061 (R-10-83)

WHC-SD-WM-DP-062, REV. 0

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1446-5040	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2513	Volume of sample (mL)	VSAM	0.1000
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
0			
Instrument	Volume of spike (mL)	VSP	0.1000
WB88807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.70
Analyst			
T BATES	Deflection (sample + fluran)	DSAM	0.42
Date:	Deflection (sample + fluran + spike)	DS+S	0.72
01/10/94	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	3.0900E-01
	Concentration (gU/L)	gU/LS	6.901E-01
	% Recovery		98.7

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	98.74

Data Entry by:		Date:	11-Jan-94
Approved by:		Date:	1/13/94

Form 2 Rev. 2.1

Page 1 of 1

Batch # 2458

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

WHC-SD-WM-DP-062, REV. 0

Lab Segment Serial No. J-1424	Customer ID: RE 65D
Analysis: U	Sample Prep: Direct

Instrument: WA-77341	Procedure/ Rev: LA 925-106
Technologist: BILL SYTH [signature]	Date: 1-26-94
Starting Time: 0800	Temperature NA
Ending Time: 1500	Chemist: J Slippern

Comments:

OUT FOR RERUN

	Description	Lab ID		Description	Lab ID
1	STD	J-1401-5540	11		
2	BLANK	J-1402-5640	12		
3	SAM	J-1424-5740	13		
4	SAM DUP	J-1424-5740	14		
5	TRIP SAM	J-1424-5740	15		
6	SAM SPIKE	J-1424-5040	16		
7	SAM SPIKE	J-1424-5040	17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	144338/.100-10			

A-6000-881 (03/92)

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-925-106

DATE START: JANUARY 26, 1994

PREPARED BY: JL SLIPPERN 1/27/94

DATE COMPLETE: JANUARY 27, 1994

	UNITS:	ug/mL										
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	RESULT #3	AVERAGE	2*SD	PREC	ACCU	%REC	DET LIM	% CT ER
STD 144B38	J1401	U	3.70E-02							95.9	3.09E+00	
BLANK	J1402	U	<5.49E-04								5.49E-01	
KE65D	J1424	U	4.56E+01	4.11E+01	4.94E+01	4.54E+01	8.3	18.3			1.52E+00	
											1.47E+00	
											1.65E+00	
		U SPIKE				2.1			52.4	2.6		
										1.5		

NARRATIVE: [ ] NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH
LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in gU/L.

SPIKE RECOVERIES TOO LOW FOR CONTROL LIMITS.

RERUN REQUESTED.

WHC-SD-WM-DP-062, REV. 0

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-925-106

DATE START: JANUARY 26, 1994

PREPARED BY: JL SLIPPERN 1/27/94

DATE COMPLETE: JANUARY 27, 1994

	UNITS:	ug/mL										
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	RESULT #3	AVERAGE	2*SD	PREC	ACCU	%REC	DET LIM	% CT ER
STD 144B38	J1401	U	3.70E-02							95.9	3.09E+00	
BLANK	J1402	U	<5.49E-04								5.49E-01	
KE65D	J1424	U	4.56E+01	4.11E+01	4.94E+01						1.52E+00	
											1.47E+00	
											1.65E+00	
		U SPIKE								2.6		
										1.5		

NARRATIVE: [ ] NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH

LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in gU/L.

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Batch 2458

Serial No.	Sample Point	Date	Time Issued	Priority
J 1401 -5540	BECHTOLD	12-15-93	9: 0	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	1

Sample Size	Customer ID
?.100-10-.100 ml SPIKE 146038	STD

Remarks, Calculations, Results

RERUN .24 .56

S267 UF1C
STD#144038 RESULT 3.70 E-2
STD VAL 3.86 E-2 %REC 95.85 %

SPIKE ID/VAL 5.04 -4
SPIKE VOL. .100ml

~~PF=10~~
1-27-94

OUT FOR RERUN

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

WHC-SD-WM-DP-062, REV. 0

Date	Time Completed	Lab Unit Mgr
1-26-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			STANDARD
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1401-5540	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2458	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
1			
Instrument	Deflection (sample + fluran)	DSAM	0.24
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
SYTH			
Date:	Deflection (sample + fluran + spike)	DS+S	0.56
01/26/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	1
	Concentration in sample (gU/L)		3.70E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	3.70E-02
U in µg/mL=	3.70E+01

DETECTION LEVEL µg/mL= 3.09E+00

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	1/27/94

Form 1 Rev. 1.2 Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1402.-5640	BECHTOLD	12-15-93	9: 4	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	1

Sample Size	Customer ID
? .100 ml	BLK

Remarks, Calculations, Results

REAGENT BLANK
SPIKE VAL 5.04-4

RERUN .02 .20

PF=10

WHC-SD-WM-DP-062, REV. 0

<5.49 E-1 µg/mL

OUT FOR RERUN

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-26-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			BLANK
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1402-5640	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2458	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
1			
Instrument	Deflection (sample + fluran)	DSAM	0.02
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
SYTH			
Date:	Deflection (sample + fluran + spike)	DS+S	0.2
01/26/94	Dilution factor of sample	DF	1
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)	<	5.49E-04

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L = <	5.49E-04
U in µg/mL = <	5.49E-01

DETECTION LEVEL µg/mL= 5.49E-01
REPORT RESULT AS A < (LESS THAN) VALUE

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	1/27/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No	Sample Point	Date	Time Issued	Priority
J 1424.-5740	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	1

Sample Size	Customer ID
? .025 ml	KE65D

Remarks, Calculations, Results: SPIKE VAL 5.04-4

RERUN .56 .82

WHC-SD-WM-DP-062, REV. 0

4.11 E+1 µg/mL PF-10

OUT FOR RERUN

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-94	1500		

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1424-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2458	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
1			
Instrument	Deflection (sample + fluran)	DSAM	0.56
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.63
SYTH			
Date:	Deflection (sample + fluran + spike)	DS+S	0.82
01/26/94	Dilution factor of sample	DF	1
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		4.11E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	4.11E-02
U in µg/mL=	4.11E+01

DETECTION LEVEL µg/mL= 1.47E+00

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	1/27/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5740	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	2

Sample Size	Customer ID
? .025 ml	KE65D

Remarks, Calculations, Results: SPIKE VAL 5.04-4

RERUN .60 .85

WHC-SD-WM-DP-062, REV. 0

4.56E+1 ug/mL PF-10

OUT FOR RERUN

Analyst - 1	Analyst	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-26-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1424-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2458	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
2			
Instrument	Deflection (sample + fluran)	DSAM	0.6
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.63
SYTH			
Date:	Deflection (sample + fluran + spike)	DS+S	0.85
01/26/94	Dilution factor of sample	DF	1
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		4.56E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	4.56E-02
U in µg/mL=	4.56E+01

DETECTION LEVEL µg/mL= 1.52E+00

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	1/27/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5740	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	3

Sample Size	Customer ID
? .025ml	KE65D

Remarks, Calculations, Results:
SPIKE VAL 5.04-4

RERUN .60 .83

WHC-SD-WM-DP-062, REV. 0

4.94E+1 ug/mL pf=10

OUT FOR RERUN

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-26-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1424-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2458	Volume of sample (mL)	VSAM	0.025
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.53
3			
Instrument	Deflection (sample + fluran)	DSAM	0.6
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.63
SYTH			
Date:	Deflection (sample + fluran + spike)	DS+S	0.83
01/26/94	Dilution factor of sample	DF	1
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		4.94E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	4.94E-02
U in µg/mL=	4.94E+01

DETECTION LEVEL µg/mL= 1.65E+00

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	1/27/94

Form 1 Rev. 1.2

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5940	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	1

Sample Size	Customer ID
? .010 ml	KE65D

Remarks, Calculations, Results

SAMPLE SPIKED ID
SPIKE ID 146B38
SPIKE VOLUME .100 ml
SPIKE VAL 5.04-4

2.6%

RERUN

.16
.30
PF=10

WHC-SD-WM-DP-062, REV. 0

OUT FOR RERUN

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-26-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1424-5940	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2458	Volume of sample (mL)	VSAM	0.0100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.51
1			
Instrument	Volume of spike (mL)	VSP	0.1000
WB 8807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.61
Analyst:			
SYTH	Deflection (sample + fluran)	DSAM	0.16
Date:	Deflection (sample + fluran + spike)	DS+S	0.3
01/26/94	Dilution factor of sample	DF	1
	Dilution factor of spike	DFS	1
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	4.5600E-02
	Concentration (gU/L)	gU/LS	5.544E-02
	% Recovery		2.6

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	2.55

Data Entry by:	Jennifer L. Shippen	Date:	26-Jan-94
Approved by:	J. L. Shippen	Date:	1/27/94

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5040	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	1

Sample Size	Customer ID
? .010 ml	KE65D

Remarks, Calculations, Results

SAMPLE SPIKE
DUPLICATE

SPIKE ID 146B38
SPIKE VOL .100 ml
SPIKE VAL 5.04-4

1.5 %

RERUN .24 .49

PF=10

WHC-SD-WM-DP-062, REV. 0

OUT FOR RERUN

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-26-94	1500		

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1424-5040	Volume of water (mL)		4.5
Batch ID:	Volume of fluran (mL)		1
2458	Volume of sample (mL)	VSAM	0.0100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.51
1			
Instrument:	Volume of spike (mL)	VSP	0.1000
WB 8807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.61
Analyst:			
SYTH	Deflection (sample + fluran)	DSAM	0.24
Date:	Deflection (sample + fluran + spike)	DS+S	0.49
01/26/94	Dilution factor of sample	DF	1
	Dilution factor of spike	DFS	1
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	4.1100E-02
	Concentration (gU/L)	gU/LS	4.672E-02
	% Recovery		1.5

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	1.46

Data Entry by:		Date:	27-Jan-94
Approved by:		Date:	1/27/94

Form 2 Rev. 2.1

WHC-SD-WM-DP-062, REV. 0

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH 2579

Lab Segment Serial No. J 1424, 1426	Customer ID: KE65D, KE65A
Analysis: URANIUM LASER	Sample Prep: DIRECT

Instrument: WB88807	Procedure/ Rev: LA-925-106/B-0
Technologist: TANIA BATES	Date: 01-25-94
Starting Time: 1100	Temperature 21°C
Ending Time: 1500	Chemist: J. SLIPPERN

Comments: SAMPLE PREP (1ml — 10 ML) FINAL SAMPLE CLEAR, NO BROWN PRECIPITATE J 1424 VERY SPORADIC RESULTS ON DILUTIONS. WENT WITH A DIRECT .010 mL SAMPLE SIZE

	Description	Lab ID		Description	Lab ID
1	LINES	J1415-5540	11	SAMPLE SPK.	J1426-5940
2	BLK.	J1416-5640	12	SAMPLE SPK DUP	J1426-5040
3	SAMPLE	J1424-5740	13		
4	SAMPLE DUP.	J1424-5740	14		
5	SAMPLE ~~TRIP~~ TRIP. 1-25-94	J1424-5740	15		
6	SAMPLE SPK.	J1424-5940	16	OUT FOR RERUN	
7	SAMPLE SPK. DUP	J1424-5040	17		
8	SAMPLE	J1426-5740	18		
9	SAMPLE DUP.	J1426-5740	19	OUT FOR RERUN	
10	SAMPLE TRIP	J1426-5740	20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
UFIC	144838 .100	mL		
UCAL	146838 .100	mL		

1050

Tania Bates 1-25-94

A-6000-881 (03/92)

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-925-106

DATE START: JANUARY 25, 1994

PREPARED BY: JL SLIPPERN 1/27/94

DATE COMPLETE: JANUARY 27, 1994

	UNITS:	ug/mL										
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	RESULT #3	AVERAGE	2*SD	PREC	ACCU	%REC	DET LIM	% CT ER
STD 144B38	J1401	U	4.27E-02							110.6	3.26E+00	
BLANK	J1402	U	<3.53E-02								3.53E+01	
KE66D	J1424	U	5.82E+03	6.13E+03	6.13E+03	6.03E+03	358	5.9			3.23E+02	
											3.23E+02	
											3.23E+02	
		U SPIKE							-	-1369		
										-1468		
KE65A	J1426	U	1.99E+04	1.82E+04	1.99E+04	1.93E+04	1963	10.2			3.31E+03	
											3.31E+03	
											3.31E+03	
		U SPIKE							-	-5010		
										-4570		

NARRATIVE: [ ] NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH

LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in gU/L.

RESULTS INDICATE GROSS ERROR.

RERUN REQUESTED.

WHC-SD-WM-DP-062, REV. 0

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

RERUN

Serial No.	Sample Point	Date	Time Issued	Priority
J 1415.-5540	BECHTOLD	12-15-93	11:23	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	1

Sample Size	Customer ID
? .100 - 10 - .100 mL	STD

Remarks, Calculations, Results:

S267 UF1C
STD# 144838 RESULT 4.27 E-2
STD VAL 3.86 E-2 %REC 110.6 %

SPIKE ID/VAL 146338/5.04 -4 g/L
SPIKE VOL. .100 mL

OUT FOR RERUN

Dania Bates .26 .56

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-25-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			STANDARD
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1415-5540	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2579	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
1			
Instrument	Deflection (sample + fluran)	DSAM	0.26
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.56
01/25/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	1
	Concentration in sample (gU/L)		4.27E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	4.27E-02
U in µg/mL=	4.27E+01

DETECTION LEVEL µg/mL= 3.28E+00

Data Entry by:	Jennifer L. Shippen	Date:	26-Jan-94
Approved by:	J. L. Shippen	Date:	1/27/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1416.-5640	BECHTOL RERUN	12-15-93	11:24	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	1

Sample Size	Customer ID
? .010 mL	BLK

Remarks, Calculations, Results

REAGENT BLANK
146338/5.04-4 gle
.100 mL

WHC-SD-WM-DP-062, REV. 0

< 3.53 E+1 µg/mL

OUT FOR RERUN

Janice Bates

.00
.30

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-25-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			BLANK
Serial No.	Spike concentration (gU/L)	CSP	5.04E-02
J1416-5640	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2579	Volume of sample (mL)	VSAM	0.010
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.51
1			
Instrument	Deflection (sample + fluran)	DSAM	0
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.61
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.3
01/25/94	Dilution factor of sample	DF	1
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	1
	Concentration in sample (gU/L)	<	3.53E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L = <	3.53E-02
U in µg/mL = <	3.53E+01

DETECTION LEVEL µg/mL= 3.53E+01
REPORT RESULT AS A < (LESS THAN) VALUE

Data Entry by:	Jennifer L. Skipper	Date:	26-Jan-94
Approved by:	J. L. Skipper	Date:	1/27/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

RERUN

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5740	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	2

Sample Size	Customer ID
? .010 mL 1mL — 10 mL prep.	KE65D

Remarks, Calculations, Results

146838 / 5.04-4 g/L
.100 mL

WHC-SD-WM-DP-062, REV. 0

5.82 E +3 µg/mL

Janice Bates

OUT FOR RERUN

.36
.66

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-25-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-02
J1424-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2579	Volume of sample (mL)	VSAM	0.010
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.51
2			
Instrument	Deflection (sample + fluran)	DSAM	0.36
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.61
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.66
01/25/94	Dilution factor of sample	DF	1
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		5.82E+00

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))–DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	5.82E+00
U in µg/mL=	5.82E+03

DETECTION LEVEL µg/mL= 3.23E+02

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	1/27/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5740	BECHTOLD RERUN	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	1

Sample Size	Customer ID
? 1 mL - 10 mL prep. .010 mL	KE65D

Remarks, Calculations, Results

146B38/5.04-g/L
.100 mL

WHC-SD-WM-DP-062, REV. 0

6.13 E+3 µg/mL

Dania Bates

OUT FOR RERUN .38 .68

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-25-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-02
J1424-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2579	Volume of sample (mL)	VSAM	0.010
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.51
1			
Instrument	Deflection (sample + fluran)	DSAM	0.38
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.61
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.68
01/25/94	Dilution factor of sample	DF	1
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		6.13E+00

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=(((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	6.13E+00
U in µg/mL=	6.13E+03

DETECTION LEVEL µg/mL= 3.23E+02

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	1/27/94

Form 1 Rev. 1.2

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

RERUN

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5740	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	3

Sample Size	Customer ID
? .010 mL 1mL - 10 mL prep.	KE65D

Remarks, Calculations, Results
146838 / 5.04-4 gU
.100 mL

WHC-SD-WM-DP-062, REV. 0

6.13 E+3 µg/mL

OUT FOR RERUN .38 .68

Danea Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-25-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-02
J1424-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2579	Volume of sample (mL)	VSAM	0.010
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.51
3			
Instrument	Deflection (sample + fluran)	DSAM	0.38
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.61
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.68
01/25/94	Dilution factor of sample	DF	1
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		6.13E+00

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))
0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level
Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	6.13E+00
U in µg/mL=	6.13E+03

DETECTION LEVEL µg/mL= 3.23E+02

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	1/27/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

RERUN

Serial No	Sample Point	Date	Time Issued	Priority
J 1424.-5940	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	1

Sample Size	Customer ID
? .100 .100 > 10 → .100 mL 1 mL - 10 mL prep.	KE65D

Remarks, Calculations, Results

SAMPLE SPIKED ID 144B38
SPIKE ID 146B38/5.04-4 gU
SPIKE VOLUME .100 mL

WHC-SD-WM-DP-062, REV. 0

-1369 %

Jania Bates

OUT FOR RERUN .28 .54

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-25-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1424-5940	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2579	Volume of sample (mL)	VSAM	0.1000
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
1			
Instrument	Volume of spike (mL)	VSP	0.1000
WB 88807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.70
Analyst			
BATES	Deflection (sample + fluran)	DSAM	0.28
Date	Deflection (sample + fluran + spike)	DS+S	0.54
01/25/94	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	5.8200E+00
	Concentration (gU/L)	gU/LS	5.338E-01
	% Recovery		-1369.5

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	-1369.48

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	1/27/94

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

RERUN

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5040	BECHTOLD-	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	1

Sample Size 1 mL - 10 mL prep.
? .108 > 10 → .100 mL

Customer ID: KE65D

Remarks, Calculations, Results

SAMPLE SPIKE 144838
DUPLICATE

SPIKE ID 146838/5.04-4 gU
SPIKE VOL .100 mL

WHC-SD-WM-DP-062, REV. 0

-1468%

OUT FOR RERUN

.28
.58

Janice Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-25-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1424-5040	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2579	Volume of sample (mL)	VSAM	0.1000
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
1			
Instrument	Volume of spike (mL)	VSP	0.1000
WB 88807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.70
Analyst:			
BATES	Deflection (sample + fluran)	DSAM	0.28
Date:	Deflection (sample + fluran + spike)	DS+S	0.58
01/25/94	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	6.1300E+00
	Concentration (gU/L)	gU/LS	4.638E-01
	% Recovery		-1467.9

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	-1467.93

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	1/27/94

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5740	BECHTOLD RERUN	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	1

Sample Size: 1 mL - 10 mL prep. ? .100 - 10 → .100 mL

Customer ID: KE65A

Remarks, Calculations, Results: 146338/5.04-4 gl .100 mL

WHC-SD-WM-DP-062, REV. 0

1.99 E+4 ug/mL

OUT FOR RERUN .12 .42

Damian Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-25-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-02
J1426-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2579	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
1			
Instrument	Deflection (sample + fluran)	DSAM	0.12
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.42
01/25/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		1.99E+01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	1.99E+01
U in µg/mL=	1.99E+04

DETECTION LEVEL µg/mL= 3.31E+03

Data Entry by:	Jennifer L. Skeppen	Date:	26-Jan-94
Approved by:	Jennifer L. Skeppen	Date:	1/27/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

RERUN

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5740	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	2

Sample Size 1mL - 10 mL prep.
? .100 - 10 → .100 mL

Customer ID: KE65A

Remarks, Calculations, Results
146338/5.04 -4 g/L
.100 mL

WHC-SD-WM-DP-062, REV. 0

1.82 E+4 µg/mL

Tania Bates

OUT FOR RERUN .41

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-25-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-02
J1426-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2579	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
2			
Instrument	Deflection (sample + fluran)	DSAM	0.11
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
BATES			
Date	Deflection (sample + fluran + spike)	DS+S	0.41
01/25/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		1.82E+01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	1.82E+01
U in µg/mL=	1.82E+04

DETECTION LEVEL µg/mL= 3.31E+03

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	1/27/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

RERUN

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5740	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	3

Sample Size	Customer ID
1 mL - 10 mL ? .100 - 10 → .100 mL	KE65A

Remarks, Calculations, Results

146838 / 5.04-4 g/L
.100mL

WHC-SD-WM-DP-062, REV. 0

1.99 E+4 µg/mL

OUT FOR RERUN

Dania Bates

.12
.42

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-25-94	1500		

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) LIQUIDS

			SAMPLE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-02
J1426-5740	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2579	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
3			
Instrument	Deflection (sample + fluran)	DSAM	0.12
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
BATES			
Date:	Deflection (sample + fluran + spike)	DS+S	0.42
01/25/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	10
	Concentration in sample (gU/L)		1.99E+01

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/((({VTOT/VSUB}*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	1.99E+01
U in µg/mL=	1.99E+04

DETECTION LEVEL µg/mL= 3.31E+03

Data Entry by:		Date:	26-Jan-94
Approved by:		Date:	1/27/94

Form 1 Rev. 1.2

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

RERUN

Serial No	Sample Point	Date	Time Issued	Priority
J 1426.-5040	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	1

Sample Size 1mL - 10 mL
? .100 .100 > 10 → .100 mL

Customer ID KE65A

Remarks, Calculations, Results:
SAMPLE SPIKE 144838
DUPLICATE

SPIKE ID 146338/5.04-4 g/L
SPIKE VOL .100 mL

WHC-SD-WM-DP-062, REV. 0

-5010%

OUT FOR RERUN

.34
.64

Jamia Bates

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-25-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1426-5040	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2579	Volume of sample (mL)	VSAM	0.1000
Rerun No.	Volume of liquid in cell	VSUB	5.60
1	(sample + fluran + water)		
Instrument	Volume of spike (mL)	VSP	0.1000
WB 88807	Volume of liquid in cell	VTOT	5.70
Analyst:	(sample + fluran + water + spike)		
BATES	Deflection (sample + fluran)	DSAM	0.34
Date:	Deflection (sample + fluran + spike)	DS+S	0.64
01/25/94	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	1.9900E+01
	Concentration (gU/L)	gU/LS	5.612E-01
	% Recovery		-5010.0

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	-5010.04

Data Entry by:	Jennifer L. Shippen	Date:	26-Jan-94
Approved by:	J. L. Shippen	Date:	1/27/94

Form 2 Rev. 2.1

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

RERUN

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5940	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	1

Sample Size 1mL - 10 mL
? .100 > 10 → .100 mL

Customer ID: KE65A

Remarks, Calculations, Results

SAMPLE SPIKED ID 144638
SPIKE ID 146638 / 5.04 ugle
SPIKE VOLUME .100 mL

OUT FOR RERUN

WHC-SD-WM-DP-062, REV. 0

-4570 %

Dania Bates

.34
.64

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
1-25-94	1500	

54-6800-061 (R-10-83)

URANIUM : LA-925-106 (B-0) SPIKE

			SPIKE
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1426-5940	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2579	Volume of sample (mL)	VSAM	0.1000
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
1			
Instrument	Volume of spike (mL)	VSP	0.1000
WB 88807	Volume of liquid in cell (sample + fluran + water + spike)	VTOT	5.70
Analyst			
BATES	Deflection (sample + fluran)	DSAM	0.34
Date	Deflection (sample + fluran + spike)	DS+S	0.64
01/25/94	Dilution factor of sample	DF	102
	Dilution factor of spike	DFS	102
	Spike value (matrix) (gU/L)	SV	3.8600E-02
	Preparation factor of sample	PF	10
	Concentration (gU/L) Form 1 or Form 3 (SAMPLE)	gU/L1	1.8200E+01
	Concentration (gU/L)	gU/LS	5.612E-01
	% Recovery		-4569.6

gU/L = (DSAM*VSP*CSP*DF*PF) / (((VTOT/VSUB) * DS+S - DSAM) * VSAM)
%Recovery = ((gU/LS - gU/L1) * (DFS / (DF * PF) / SV) * 100

% RECOVERY =	-4569.63

Data Entry by:	Jennifer L. Shippen	Date:	26-Jan-94
Approved by:	J. L. Shippen	Date:	1/27/94

Form 2 Rev. 2.1

Batch 2584

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

WHC-SD-WM-DP-062, REV. 0

Lab Segment Serial No. J-1425	Customer ID: RE64A
Analysis: U	Sample Prep: Direct

Instrument: WB-88807	Procedure/ Rev: LA-925-106-B-0
Technologist: BILL SYTH	Date: 2-1-94
Starting Time: 0800	Temperature NA
Ending Time: 1500	Chemist:

Comments: OUT FOR RERUN

	Description	Lab ID		Description	Lab ID
1	STD	J1401-5540	11		
2	BLANK	J1402-5640	12		
3	SAMPLE	J1425-5740	13		
4	SAMPLE DUP	J-1425-5740	14		
5	TRIP SAMPLE	J-1425-5740	15		
6	SAMPLE SPIKE	J-1425-5940	16		
7	SAMPLE SPIKE	J-1425-5940	17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	1414B38/.100			

A-6000-881 (03/92)

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

RERUN Batch 2584

Serial No.	Sample Point	Date	Time Issued	Priority
J 1401.-5540	BECHTOLD	12-15-93	9: 0	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	2

Sample Size: .100-10-.100 ml OUT FOR RERUN

Customer ID: STD

Remarks, Calculations, Results

S267 UF1C
STD# 4
STD VAL 3.86 E-2 RESULT %REC
SPIKE ID/VAL 146138
SPIKE VOL .100ml
5.04-4

PF=10
.24
.48

Willis R. Syth

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-1-94	1500	

54-6800-001 (R-10-83)

WHC-SD-WM-DP-062, REV. 0

URANIUM : LA-925-106 (B-0) LIQUIDS

			STANDARD
Serial No.	Spike concentration (gU/L)	CSP	5.04E-04
J1401-5540	Volume of water (mL)		4.5
Batch ID	Volume of fluran (mL)		1
2584	Volume of sample (mL)	VSAM	0.100
Rerun No.	Volume of liquid in cell (sample + fluran + water)	VSUB	5.60
2			
Instrument	Deflection (sample + fluran)	DSAM	0.24
WB 88807	Volume of spike (mL)	VSP	0.100
Analyst:	Volume of liquid in cell (mL) (sample + fluran + water + spike)	VTOT	5.70
SYTH			
Date:	Deflection (sample + fluran + spike)	DS+S	0.48
02/01/94	Dilution factor of sample	DF	101
	Digestion Dilution Factor of Sample	DDF	1
	Preparation Factor	PF	1
	Concentration in sample (gU/L)		4.91E-02

gU/L in Sample = ((DSAM*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM)*VSAM))

gU/L in Digest = ((DSAM*VSP*CSP*DF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM)*VSAM))

0.02 is used as the Sample Deflection Reading for Calculating Less Than Values & Detection Level

Detection Level=((0.02*VSP*CSP*DF*DDF*PF)/(((VTOT/VSUB)*(DS+S))-DSAM)*VSAM))*(1E6 µg/g / 1000 mL/L)

U in sample gU/L=	4.91E-02
U in µg/mL=	4.91E+01

DETECTION LEVEL µg/mL= 4.10E+00

Data Entry by:		Date:	01-Feb-94
Approved by:		Date:	

Form 1 Rev. 1.2

URANIUM ANALYSIS - UNDIGESTED SAMPLE

REDIT

Serial No.	Sample Point	Date	Time Issued	Priority
J 1402.-5640	BECHTOLD	12-15-93	9: 4	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	2

Sample Size	Customer ID
.100-10-.500ml	BLK

Remarks, Calculations, Results:
REAGENT BLANK
5.04-4

.00 PF-10

OUT FOR RERUN

WHC-SD-WM-DP-062, REV. 0

William K Smith

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-1-94	0948 1500	TE Wright

54-6800-061 (R-10-83)

REDIT

Serial No	Sample Point	Date	Time Issued	Priority
J 1425.-5040	BECHTOLD	12-16-93	13:17	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	1

Sample Size	Customer ID
.100-10-.100ml	KE64A

Remarks, Calculations, Results:
SAMPLE SPIKE
DUPLICATE

SPIKE ID 146238
SPIKE VOL .100ml
5.04-4

.11
.38
PF-10

OUT FOR RERUN

William K Smith

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-1-94	0949 1500	TE Wright

54-6800-061 (R-10-83)

URANIUM ANALYSIS - UNDIGESTED SAMPLE

RERUN

Serial No.	Sample Point	Date	Time Issued	Priority
J 1425.-5740	BECHTOLD	12-16-93	13:17	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	1

Sample Size	Customer ID
.100-10-.500ml	KE64A

Remarks, Calculations, Results

SAMPLE 5.04-4/ .156 .77 PF-10

OUT FOR RERUN

WHC-SD-WM-DP-062, REV. 0

William K Smith

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-1-94	0950 1500	TE Wright

54-6800-061 (R-10-83)

RERUN

Serial No.	Sample Point	Date	Time Issued	Priority
J 1425.-5740	BECHTOLD	12-16-93	13:17	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	2

Sample Size	Customer ID
.100-10-.500ml	KE64A

Remarks, Calculations, Results

Dup 5.04-4/ .52 .70 PF-10

OUT FOR RERUN

William K Smith

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-1-94	0950 1500	TE Wright

54-6800-061 (R-10-83)

URANIUM ANALYSIS - UNDIGESTED SAMPLE

RERUN

Serial No	Sample Point	Date	Time Issued	Priority
J 1425.-5740	BECHTOLD	12-16-93	13:17	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	uG/ML	E14157	3

Sample Size	Customer ID
.100-10-1.500ml	KE64A

Remarks, Calculations, Results:
TRIP 5.04-4

.58 PF-10
.80

OUT FOR RERUN
WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-1-94	1500	TE Wright

54-6800-061 (R-10-83)

RERUN

Serial No	Sample Point	Date	Time Issued	Priority
J 1425.-5940	BECHTOLD	12-16-93	13:17	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
U	LA-925-106	% RECOVERY	E14157	1

Sample Size	Customer ID
.100-10-.100ml	KE64A

Remarks, Calculations, Results
SAMPLE SPIKED ID
SPIKE ID 146B38
SPIKE VOLUME .100ml
5.04-4

.12 PF-10
.40

OUT FOR RERUN

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
2-1-94	1500	TE Wright

54-6800-061 (R-10-83)

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

J1401D
CASE NARRATIVE - ICP

WHCPAL LABORATORIES
WHCPAL/CUSTOMER SAMPLE NOS: J1424 KE65D
J1425 KE64A
J1426 KE65A
J1427 KE71A
INORGANIC ANALYSIS J1428 KE72A

The data evaluation for this project will follow the guidelines specified in "Sampling and Analysis Plan for 105-KE Basin Filter Backwash Pit," (WHC-SD-NR-PLN-013). Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION
All instrument calibration requirements were within specified control limits of ±25% during analysis.

INITIAL AND CONTINUING CALIBRATION BLANKS
All ICB and CCB analytical measurements were 0±2xIDL (Instrument Detection Limits).

PRECISION
Precision requirements were met for all analytes except
For J1424: Cadmium (25.5%).
For J1425: Lead (42.7%).
For J1426: Lead (31.6%).
For J1427: Lead (41.7%) and Samarium (44.3%).
For J1428: Lead (39.6%) and Zinc (27.8%).
Failures for Cadmium, Lead and Samarium are attributed to the low levels (<5xIDL) of these analytes in the samples. The failure for Zinc can not be explained at this time. The criterion for precision is 25% calculated as two times the standard deviation of triplicate analyses divided by the mean.

COMMENTS
The initial interference check sample was inadvertently omitted from this analysis. Thirteen samples were run between CCV-1 and CCV-2. The customer-supplied reagent blank (J1402-5650) was used as the ICB.

Brian Wels
1-21-94

Brian Wels
Senior Scientist, WHCPAL

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: WHC_PAL_____ Contract: WHC-PAL___

Lab Code: 105KE_ Case No.: _____ SAS No.: _____ SDG No.:J1401D

SOW No.: ILM02

WHC-SD-WM-DP-062, REV. 0

EPA Sample No.	Lab Sample ID
J1424	J1424
J1424T	J1424T
J1424D	J1424D
J1425	J1425
J1425T	J1425T
J1425D	J1425D
J1426	J1426
J1426T	J1426T
J1426D	J1426D
J1427	J1427
J1427T	J1427T
J1427D	J1427D
J1428	J1428
J1428T	J1428T
J1428D	J1428D

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Thomas Bushaw Name: TH BUSHAW

Date: 1/24/94 Title: Mgr. Inorganic Chem.

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J1424

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1401D

Matrix (soil/water): WATER Lab Sample ID: J1424

Level (low/med): LOW Date Received: 12/15/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

WHC-SD-WM-DP-062, REV. 0

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	66100			P
7440-39-3	Barium	436			P
7440-41-7	Beryllium	34.1			P
7440-42-8	Boron	132	U		P
7440-43-9	Cadmium	409		*	P
7440-70-2	Calcium	56500			P
7440-47-3	Chromium	599			P
7440-50-8	Copper	1040			P
7439-89-6	Iron	201000			P
7439-92-1	Lead	1150		*	P
7439-95-4	Magnesium	6780			P
7439-96-5	Manganese	2070			P
7439-98-7	Molydenum	187	U		P
7440-19-9	Samarium	748	U	*	P
7440-21-3	Silicon	11100			P
7440-22-4	Silver	66.0	U		P
7440-23-5	Sodium	2560			P
7440-28-0	Thallium	1770	U		P
7440-66-6	Zinc	2100			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

ILM02.1

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J1425

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE_ Case No.: _____ SAS No.: _____ SDG No.: J1401D

Matrix (soil/water): WATER Lab Sample ID: J1425

Level (low/med): LOW Date Received: 12/15/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	138000			P
7440-39-3	Barium	1840			P
7440-41-7	Beryllium	88.4			P
7440-42-8	Boron	132	U		P
7440-43-9	Cadmium	1300			P
7440-70-2	Calcium	124000			P
7440-47-3	Chromium	1560			P
7440-50-8	Copper	8100			P
7439-89-6	Iron	311000			P
7439-92-1	Lead	1700		*	P
7439-95-4	Magnesium	18900			P
7439-96-5	Manganese	7140			P
7439-98-7	Molydenum	187	U		P
7440-19-9	Samarium	748	U		P
7440-21-3	Silicon	11400			P
7440-22-4	Silver	66.0	U		P
7440-23-5	Sodium	7380			P
7440-28-0	Thallium	1770	U		P
7440-66-6	Zinc	3740			P

WHC-SD-WM-DP-062, REV. 0

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

ILM02.1

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J1426

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: _____ SAS No.: _____ SDG No.: J1401D

Matrix (soil/water): WATER Lab Sample ID: J1426

Level (low/med): LOW Date Received: 12/15/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	94200			P
7440-39-3	Barium	1290			P
7440-41-7	Beryllium	66.9			P
7440-42-8	Boron	166		*	P
7440-43-9	Cadmium	908			P
7440-70-2	Calcium	76300			P
7440-47-3	Chromium	880			P
7440-50-8	Copper	5850			P
7439-89-6	Iron	238000			P
7439-92-1	Lead	1270		*	P
7439-95-4	Magnesium	11600			P
7439-96-5	Manganese	5520			P
7439-98-7	Molydenum	187	U		P
7440-19-9	Samarium	748	U	*	P
7440-21-3	Silicon	10800			P
7440-22-4	Silver	66.0	U		P
7440-23-5	Sodium	5870			P
7440-28-0	Thallium	1770	U		P
7440-66-6	Zinc	2740			P

WHC-SD-WM-DP-062, REV. 0

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN

ILM02.1

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J1427

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: Sas No.: SDG No.: J1401D

Matrix (soil/water): WATER Lab Sample ID: J1427

Level (low/med): LOW Date Received: 12/15/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	184000			P
7440-39-3	Barium	2770			P
7440-41-7	Beryllium	150			P
7440-42-8	Boron	132	U		P
7440-43-9	Cadmium	1840			P
7440-70-2	Calcium	129000			P
7440-47-3	Chromium	9940			P
7440-50-8	Copper	8060			P
7439-89-6	Iron	427000			P
7439-92-1	Lead	2220		*	P
7439-95-4	Magnesium	13100			P
7439-96-5	Manganese	9980			P
7439-98-7	Molydenum	224		*	P
7440-19-9	Samarium	1160		*	P
7440-21-3	Silicon	9170			P
7440-22-4	Silver	66.0	U		P
7440-23-5	Sodium	9430			P
7440-28-0	Thallium	1770	U		P
7440-66-6	Zinc	5310			P

WHC-SD-WM-DP-062, REV. 0

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J1428

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE_ Case No.: _____ SAS No.: _____ SDG No.: J1401D

Matrix (soil/water): WATER Lab Sample ID: J1428

Level (low/med): LOW Date Received: 12/15/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	68100			P
7440-39-3	Barium	858			P
7440-41-7	Beryllium	50.5			P
7440-42-8	Boron	132	U		P
7440-43-9	Cadmium	421			P
7440-70-2	Calcium	43700			P
7440-47-3	Chromium	476			P
7440-50-8	Copper	1620			P
7439-89-6	Iron	115000			P
7439-92-1	Lead	842		*	P
7439-95-4	Magnesium	4690			P
7439-96-5	Manganese	2470			P
7439-98-7	Molydenum	187	U		P
7440-19-9	Samarium	748	U		P
7440-21-3	Silicon	9920			P
7440-22-4	Silver	66.0	U		P
7440-23-5	Sodium	3730			P
7440-28-0	Thallium	1770	U		P
7440-66-6	Zinc	1460		*	P

WHC-SD-WM-DP-062, REV. 0

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: WHC_PAL_____ Contract: WHC-PAL___

Lab Code: 105KE_ Case No.: _____ SAS No.: _____ SDG No.: J1401D

Initial Calibration Source: INORG VENT__

Continuing Calibration Source: INORG VENT__

WHC-SD-WM-DP-062, REV. 0

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	5000.0	5036.93	100.7	5000.0	5050.03	101.0	5019.88	100.4	P
Barium	5000.0	5051.05	101.0	5000.0	5054.85	101.1	4992.47	99.8	P
Beryllium	5000.0	5285.71	105.7	5000.0	5321.85	106.4	5170.27	103.4	P
Boron	5000.0	5108.65	102.2	5000.0	5188.46	103.8	5126.76	102.5	P
Cadmium	5000.0	5114.14	102.3	5000.0	5187.30	103.7	5033.28	100.7	P
Calcium	5000.0	5100.59	102.0	5000.0	5123.60	102.5	5065.38	101.3	P
Chromium	5000.0	5145.60	102.9	5000.0	5231.63	104.6	5089.82	101.8	P
Copper	5000.0	5107.89	102.2	5000.0	5134.86	102.7	5093.34	101.9	P
Iron	5000.0	5062.19	101.2	5000.0	5148.76	103.0	5036.74	100.7	P
Lead	5000.0	5111.68	102.2	5000.0	5174.22	103.5	5102.02	102.0	P
Magnesium	5000.0	5029.70	100.6	5000.0	5099.24	102.0	4969.66	99.4	P
Manganese	5000.0	5099.31	102.0	5000.0	5166.43	103.3	5064.24	101.3	P
Molydenum	5000.0	5096.97	101.9	5000.0	5166.04	103.3	5004.69	100.1	P
Samarium	5000.0	5076.80	101.5	5000.0	5105.77	102.1	4996.14	99.9	P
Silicon	5000.0	5145.26	102.9	5000.0	5299.05	106.0	5154.40	103.1	P
Silver	5000.0	4984.46	99.7	5000.0	5037.47	100.7	5006.53	100.1	P
Sodium	5000.0	5069.17	101.4	5000.0	5056.78	101.1	4998.79	100.0	P
Thallium	5000.0	4833.01	96.7	5000.0	4821.86	96.4	4800.54	96.0	P
Zinc	5000.0	5285.38	105.7	5000.0	5380.83	107.6	5285.48	105.7	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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3
BLANKS

Lab Name: WHC_PAL_____ Contract: WHC-PAL___

Lab Code: 105KE_ Case No.: _____ SAS No.: _____ SDG No.: J1401D

Preparation Blank Matrix (soil/water): _____ WHC-SD-WM-DP-062, REV. 0

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	38.0	U	38.0	U	38.0	U					P
Barium	6.0	U	6.0	U	6.0	U					P
Beryllium	3.0	U	3.0	U	3.0	U					P
[illegible]n	12.0	U	12.0	U	12.0	U					P
[illegible]mium	8.0	U	8.0	U	8.0	U					P
Calcium	19.0	U	19.0	U	19.0	U					P
Chromium	11.0	U	11.0	U	11.0	U					P
Copper	5.0	U	5.0	U	5.0	U					P
Iron	21.0	U	21.0	U	21.0	U					P
Lead	64.0	U	64.0	U	64.0	U					P
Magnesium	5.0	U	5.0	U	5.0	U					P
Manganese	3.0	U	3.0	U	3.0	U					P
Molydenum	17.0	U	17.0	U	17.0	U					P
Samarium	68.0	U	68.0	U	68.0	U					P
Silicon	29.0	U	29.0	U	29.0	U					P
Silver	6.0	U	6.0	U	6.0	U					P
Sodium	28.0	U	28.0	U	28.0	U					P
Thallium	161.0	U	161.0	U	161.0	U					P
Zinc	3.3		3.0	U	3.0	U					P

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6
DUPLICATES

EPA SAMPLE NO.

J1424D

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1401D

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		66078.3090		67573.5170		2.2		P
Barium		435.8420		440.7370		1.1		P
Beryllium		34.0780		37.8730		10.5		P
Boron		132.0000	U	132.0000	U			P
Cadmium		408.7490		318.1750		24.9	*	P
Calcium		56519.4960		58454.5830		3.4		P
Chromium		598.9280		585.9590		2.2		P
Copper		1039.7530		1009.1620		3.0		P
Iron		201232.9660		209905.5750		4.2		P
Lead		1150.9410		704.0000	U	200.0	*	P
Magnesium		6775.8900		7071.6470		4.3		P
Manganese		2071.8610		2159.2890		4.1		P
Molydenum		187.0000	U	187.0000	U			P
Samarium		748.0000	U	750.2440		200.0	*	P
Silicon		11070.7190		11288.6400		1.9		P
Silver		66.0000	U	66.0000	U			P
Sodium		2562.7030		2565.4640		0.1		P
Thallium		1771.0000	U	1771.0000	U			P
Zinc		2095.7200		2197.9980		4.8		P

WHC-SD-WM-DP-062, REV. 0

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

J1424T

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1401D

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		66078.3090		67942.8090		2.8		P
Barium		435.8420		454.1240		4.1		P
Beryllium		34.0780		39.1270		13.8		P
Boron		132.0000	U	132.0000	U			P
Cadmium		408.7490		351.2190		15.1		P
Calcium		56519.4960		58765.6630		3.9		P
Chromium		598.9280		575.4760		4.0		P
Copper		1039.7530		993.8610		4.5		P
Iron		201232.9660		211001.3180		4.7		P
Lead		1150.9410		704.0000	U	200.0	*	P
Magnesium		6775.8900		7085.6940		4.5		P
Manganese		2071.8610		2159.8720		4.2		P
Molybdenum		187.0000	U	187.0000	U			P
Samarium		748.0000	U	748.0000	U			P
Silicon		11070.7190		11441.2100		3.3		P
Silver		66.0000	U	66.0000	U			P
Sodium		2562.7030		2601.3680		1.5		P
Thallium		1771.0000	U	1771.0000	U			P
Zinc		2095.7200		2295.5020		9.1		P

WHC-SD-WM-DP-062, REV. 0

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

J1425D

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1401D

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		138022.5770		136338.2680		1.2		P
Barium		1836.4280		1815.1320		1.2		P
Beryllium		88.3630		97.1960		9.5		P
Boron		132.0000	U	132.0000	U			P
Cadmium		1296.8780		1275.1200		1.7		P
Calcium		123713.1170		122713.9870		0.8		P
Chromium		1560.3720		1562.7260		0.2		P
Copper		8100.9610		8018.7140		1.0		P
Iron		311455.3420		310128.0050		0.4		P
Lead		1698.8840		1655.2250		2.6		P
Magnesium		18930.4720		18708.4480		1.2		P
Manganese		7142.7180		7086.7830		0.8		P
Molydenum		187.0000	U	187.0000	U			P
Samarium		748.0000	U	748.0000	U			P
Silicon		11366.5090		11228.1730		1.2		P
Silver		66.0000	U	66.0000	U			P
Sodium		7375.7200		7224.7670		2.1		P
Thallium		1771.0000	U	1771.0000	U			P
Zinc		3736.5020		3596.6150		3.8		P

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

J1425T

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE_ Case No.: _____ SAS No.: _____ SDG No.: J1401D

Matrix (soil/water): WATER Level (low/med): _LOW__

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		138022.5770		133247.0810		3.5		P
Barium		1836.4280		1752.2450		4.7		P
Beryllium		88.3630		77.0000		13.7		P
Boron		132.0000	U	132.0000	U			P
Cadmium		1296.8780		1188.5170		8.7		P
Calcium		123713.1170		118790.6060		4.1		P
Chromium		1560.3720		1440.4170		8.0		P
Copper		8100.9610		7805.1270		3.7		P
Iron		311455.3420		295748.5520		5.2		P
Lead		1698.8840		1126.4880		40.5	*	P
Magnesium		18930.4720		17912.2130		5.5		P
Manganese		7142.7180		6802.8180		4.9		P
Molydenum		187.0000	U	187.0000	U			P
Samarium		748.0000	U	748.0000	U			P
Silicon		11366.5090		10796.8410		5.1		P
Silver		66.0000	U	66.0000	U			P
Sodium		7375.7200		7128.1210		3.4		P
Thallium		1771.0000	U	1771.0000	U			P
Zinc		3736.5020		3666.8060		1.9		P

WHC-SD-WM-DP-062, REV. 0

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6
DUPLICATES

EPA SAMPLE NO.

J1426D

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: _____ SAS No.: _____ SDG No.: J1401D

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		94204.2420		92539.2710		1.8		P
Barium		1287.9460		1266.2650		1.7		P
Beryllium		66.9020		70.6860		5.5		P
Boron		166.4410		132.0000	U	200.0	*	P
Cadmium		907.9290		849.3980		6.7		P
Calcium		76299.8940		75420.3010		1.2		P
Chromium		879.9230		875.5340		0.5		P
Copper		5846.1040		5776.2760		1.2		P
Iron		237985.2860		235159.5070		1.2		P
Lead		1271.1710		985.2810		25.3	*	P
Magnesium		11605.2090		11416.1410		1.6		P
Manganese		5516.3020		5441.3700		1.4		P
Molydenum		187.0000	U	187.0000	U			P
Samarium		748.0000	U	748.0000	U			P
Silicon		10778.7680		10615.2420		1.5		P
Silver		66.0000	U	66.0000	U			P
Sodium		5867.1140		5809.1220		1.0		P
Thallium		1771.0000	U	1771.0000	U			P
Zinc		2738.3290		2670.8550		2.5		P

WHC-SD-WM-DP-062, REV. 0

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

J1426T

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1401D

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		94204.2420		92582.3030		1.7		P
Barium		1287.9460		1263.7020		1.9		P
Beryllium		66.9020		69.4210		3.7		P
Boron		166.4410		132.0000	U	200.0	*	P
Cadmium		907.9290		881.5290		3.0		P
Calcium		76299.8940		75328.3850		1.3		P
Chromium		879.9230		835.2740		5.2		P
Copper		5846.1040		5748.2480		1.7		P
Iron		237985.2860		234642.7490		1.4		P
Lead		1271.1710		968.6380		27.0	*	P
Magnesium		11605.2090		11429.3740		1.5		P
Manganese		5516.3020		5432.7460		1.5		P
Molydenum		187.0000	U	187.0000	U			P
Samarium		748.0000	U	784.3440		200.0	*	P
Silicon		10778.7680		10659.5170		1.1		P
Silver		66.0000	U	66.0000	U			P
Sodium		5867.1140		5842.2540		0.4		P
Thallium		1771.0000	U	1771.0000	U			P
Zinc		2738.3290		2474.5600		10.1		P

WHC-SD-WM-DP-062, REV. 0

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6
DUPLICATES

EPA SAMPLE NO.

J1427D

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1401D

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		184295.0340		180288.3060		2.2		P
Barium		2771.0650		2702.9420		2.5		P
Beryllium		150.2050		140.1070		7.0		P
Boron		132.0000	U	132.0000	U			P
Cadmium		1838.0340		1831.4890		0.4		P
Calcium		128502.2750		125726.5460		2.2		P
Chromium		9939.9410		9600.9100		3.5		P
Copper		8058.2920		7908.0540		1.9		P
Iron		426950.7660		415639.0370		2.7		P
Lead		2222.5500		2046.9570		8.2		P
Magnesium		13148.8060		12723.1280		3.3		P
Manganese		9981.7410		9694.0580		2.9		P
Molydenum		223.8170		187.0000	U	200.0	*	P
Samarium		1160.0600		843.1280		31.6	*	P
Silicon		9167.2130		8978.4750		2.1		P
Silver		66.0000	U	66.0000	U			P
Sodium		9432.9180		9196.3630		2.5		P
Thallium		1771.0000	U	1771.0000	U			P
Zinc		5310.0630		5237.9140		1.4		P

WHC-SD-WM-DP-062, REV. 0

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6
DUPLICATES

EPA SAMPLE NO.

J1427T

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1401D

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		184295.0340		177853.6100		3.6		P
Barium		2771.0650		2638.1080		4.9		P
Beryllium		150.2050		140.1070		7.0		P
Boron		132.0000	U	132.0000	U			P
Cadmium		1838.0340		1715.2410		6.9		P
Calcium		128502.2750		121950.3230		5.2		P
Chromium		9939.9410		9308.0130		6.6		P
Copper		8058.2920		7740.7330		4.0		P
Iron		426950.7660		401511.9130		6.1		P
Lead		2222.5500		1461.3170		41.3	*	P
Magnesium		13148.8060		12361.2060		6.2		P
Manganese		9981.7410		9396.2990		6.0		P
Molydenum		223.8170		197.5490		12.5		P
Samarium		1160.0600		776.3030		39.6	*	P
Silicon		9167.2130		8769.1010		4.4		P
Silver		66.0000	U	66.0000	U			P
Sodium		9432.9180		8957.0470		5.2		P
Thallium		1771.0000	U	1771.0000	U			P
Zinc		5310.0630		5060.9350		4.8		P

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6
DUPLICATES

EPA SAMPLE NO.

J1428D

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1401D

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		68093.1240		68542.3640		0.7		P
Barium		858.0880		875.7100		2.0		P
Beryllium		50.4900		54.2740		7.2		P
Boron		132.0000	U	132.0000	U			P
Cadmium		420.7060		457.6660		8.4		P
Calcium		43706.0580		43897.8210		0.4		P
Chromium		476.4210		418.3520		13.0		P
Copper		1619.9480		1632.5100		0.8		P
Iron		114949.2850		115402.1000		0.4		P
Lead		841.5330		837.6940		0.5		P
Magnesium		4685.0760		4713.4450		0.6		P
Manganese		2465.5400		2454.2760		0.5		P
Molydenum		187.0000	U	187.0000	U			P
Samarium		748.0000	U	748.0000	U			P
Silicon		9917.9960		9997.1740		0.8		P
Silver		66.0000	U	66.0000	U			P
Sodium		3725.2270		3689.3340		1.0		P
Thallium		1771.0000	U	1771.0000	U			P
Zinc		1456.4880		1512.8520		3.8		P

WHC-SD-WM-DP-062, REV. 0

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

J1428T

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1401D

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		68093.1240		69719.0120		2.4		P
Barium		858.0880		889.4490		3.6		P
Beryllium		50.4900		46.7060		7.8		P
Boron		132.0000	U	132.0000	U			P
Cadmium		420.7060		468.6990		10.8		P
Calcium		43706.0580		44942.0070		2.8		P
Chromium		476.4210		450.5930		5.6		P
Copper		1619.9480		1673.7380		3.3		P
ron		114949.2850		118952.0200		3.4		P
Lead		841.5330		1164.6140		32.2	*	P
Magnesium		4685.0760		4835.2590		3.2		P
Manganese		2465.5400		2537.2930		2.9		P
Molydenum		187.0000	U	187.0000	U			P
Samarium		748.0000	U	748.0000	U			P
Silicon		9917.9960		10244.3330		3.2		P
Silver		66.0000	U	66.0000	U			P
Sodium		3725.2270		4129.3120		10.3		P
Thallium		1771.0000	U	1771.0000	U			P
Zinc		1456.4880		1869.8680		24.9	*	P

WHC-SD-WM-DP-062, REV. 0

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1401D

ICP ID Number: ICP-1 Date: 11/08/93

Flame AA ID Number :

Furnace AA ID Number :

WHC-SD-WM-DP-062, REV. 0

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22			38.0	P
Barium	493.41			6.0	P
Beryllium	313.04			3.0	P
Boron	249.68			12.0	P
Cadmium	226.50			8.0	P
Calcium	393.37			19.0	P
Chromium	267.72			11.0	P
Copper	324.75			5.0	P
Iron	259.94			21.0	P
Lead	220.35			64.0	P
Magnesium	279.55			5.0	P
Manganese	257.61			3.0	P
Molydenum	202.03			17.0	P
Samarium	443.43			68.0	P
Silicon	288.16			29.0	P
Silver	328.07			6.0	P
Sodium	589.89			28.0	P
Thallium	190.08			161.0	P
Zinc	213.86			3.0	P

Comments:

11A
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1401D

ICP ID Number: ICP-1 Date: 01/13/94

Analyte	Wave-length (nm)	Interelement Correction Factors for : Al	Ca	Fe	Mg	U
Aluminum	308.22	0.0000000	0.0000000	0.0000000	0.0000000	-0.0041000
Barium	493.41	0.0000000	0.0000000	0.0000000	0.0000000	0.0000420
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Boron	249.68	0.0000000	0.0000000	-0.0017586	0.0000000	0.0000000
Cadmium	226.50	0.0000000	0.0000000	0.0001861	0.0000000	0.0000000
Calcium	393.37	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0001187	0.0000000	0.0005600
Copper	324.75	0.0000000	0.0000000	0.0000000	0.0000000	0.0006117
Iron	259.94	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
	220.35	-0.0026913	0.0000000	-0.0001138	0.0000000	0.0020683
Magnesium	279.55	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.61	0.0000000	0.0005667	0.0000000	0.0000000	0.0000986
Molydenum	202.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Samarium	443.43	0.0000000	0.0019865	-0.0022732	0.0000000	0.0058821
Silicon	288.16	0.0000000	0.0014446	0.0000000	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	-0.0000784	0.0000000	0.0001005
Sodium	589.89	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.08	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.86	0.0000000	0.0000000	-0.0009717	0.0000000	0.0000295

Comments:

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: WHC_PAL

Contract: WHC-PAL

Lab Code: 105KE_ Case No.: _____

SAS No.: _____ SDG No.:J1401D

Instrument ID Number: ICP-1

Method: P_

Start Date: 01/14/94

End Date: 01/14/94

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	BA	BE	B	CD	CA	CR	CU	FE	PB	MG	MN	MO	SM	SI	AG	NA	TL	ZN					
ZZZZZZ	1.00	0824		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ICV	1.00	0948		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
PB	1.00	0951		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1424	1.00	0958		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1424D	1.00	1000		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1424T	1.00	1003		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1425	1.00	1006		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1425D	1.00	1009		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1425T	1.00	1012		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
CCB	1.00	1016		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
CCV	1.00	1019		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1426	1.00	1022		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1426D	1.00	1027		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1426T	1.00	1028		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1427	1.00	1031		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1427D	1.00	1033		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1427T	1.00	1035		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1428	1.00	1039		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1428D	1.00	1041		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
J1428T	1.00	1043		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
RINSE	1.00	1047		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ICSA	1.00	1051		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50PPM U	1.00	1053																									
CCB	1.00	1056		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
CCV	1.00	1058		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-
				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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FORM XIV - IN

ILM02.1

WESTINGHOUSE HANFORD COMPANY WHC-SD-WM-DP-062, REV. 0

222-S LABORATORY

ANALYTICAL BATCH

Segment Serial No. J1401-02, J1424-25, J1415-16, J1426-28	Customer ID: KE65D, KE64A, KE65A, KE71A, KE72A
Analysis: ICP	Sample Prep: NONE

Instrument: WB39939	Procedure/ Rev: LA-505-151/D-0
Technologist: B. G. GOECKE	Date: 1-12-94
Starting Time: 9:30	Temperature NA
Ending Time: 11:30	Chemist: B. WELS

Comments:

	Description	Lab ID
1	LUCS CHECK STD	— — —
2	REAG BLANK	— — — —
3	SST4 ICP STD SST4	J1401-5550
4	REAG BLANK	J1402-5650
5	BECHTOLD KE65D SAM.	J1424-5750
6	BECHTOLD KE65D DUP.	J1424-5750
7	BECHTOLD KE65D TRIP	J1424-5750
8	BECHTOLD KE64A SAM	J1425-5750
9	BECHTOLD KE64A DUP	J1425-5750
10	BECHTOLD KE64A TRIP	J1425-5750

	Description	Lab ID
11	SST4 ICP STD	J1415-5550
12	REAG BLK	J1416-5650
13	BECHTOLD KE65A SAM	J1426-5750
14	BECHTOLD KE65A DUP	J1426-5750
15	BECHTOLD KE65A TRIP	J1426-5750
16	BECHTOLD KE71A SAM	J1427-5750
17	BECHTOLD KE71A DUP	J1427-5750
18	BECHTOLD KE71A TRIP	J1427-5750
19		
20	~~NEXT PAGE~~ ↓	

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
~~SST1~~ SST4 ICP	35NOA DIRECT			DIRECT
~~SST2~~				
~~SST3~~				

A-6000-881 (03/92)

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

WHC-SD-WM-DP-062, REV. 0

ANALYTICAL BATCH

Lab Segment Serial No.	Customer ID:
Analysis: ICP	Sample Prep:

Instrument: WB39939	Procedure/ Rev: LA-505-151/D-0
Technologist: B. G. GOECKE	Date:
Starting Time:	Temperature
Ending Time:	Chemist: B. WELS

Comments:

	Description	Lab ID		Description	Lab ID
1	BECKTOLD KE72A SA	J1428-5750	11		
2	BECKTOLD KE72A DUP	J1428-5750	12		
3	BECKTOLD KE72A TRIP	J1428-5750	13		
4	REAG. BLK	----	14		
5	LACS CHECK STD SST4	----	15		
6			16		
7			17		
8			18		
9			19		
10			20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
~~SST1~~ SST4 Exp	35NOA DIRECT			DIRECT
~~SST2~~				
~~SST3~~				

A-6000-881 (03/92)

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Batch 2404

Serial No.	Sample Point	Date	Time Issued	Priority
J 1401.-5550	BECHTOLD	12-15-93	9: 0	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	E14157	0

Sample Size	Customer ID
? SST 4 35 ml 10 ft. DIRECT	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE

Cd 5.146/5(100) = 102.92 ? ✓
Sm 5.077 = 101.54 ✓
B 5.109 = 102.18 ✓
AL 5.037 = 100.74 ✓
Fe 5.062 = 101.24 ✓
Ba 5.051 = 101.02 ✓
Cr 5.146 = 102.92 ✓
Pb 5.112 = 102.24 ✓
Ag 4.984 = 99.68 ✓
Be 5.286 = 105.72 ✓

OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-12-94	13:00	S. Parsons 1-20-94	1-19-94

54-6800-061 (R-10-83)

TL 4.833/5(100) = 96.66 ? ✓
ZN 5.285 = 105.70 ✓
CU 5.108 = 102.16 ✓
MN 5.099 = 101.98 ✓
Mg 5.030 = 100.60 ✓
CA 5.101 = 102.02 ✓
Si 5.145 = 102.90 ✓
NA 5.069 = 101.38 ✓
MO 5.097 = 101.94 ✓

J1401-5550

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1402.-5650	BECHTOLD	12-15-93	9: 4	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? DIRECT	BLK

Remarks, Calculations, Results:

REAGENT BLANK

Si < 29.0 /1000 = <2.90E-2 ✓
Al < 38.0 = < 3.80E-2 ✓
Cu < 5.0 = < 5.00E-3 ✓
Zn 3.33 = 3.33E-3 ✓
Fe < 21.0 = < 2.10E-2 ✓
Ca < 19.0 = < 1.90E-2 ✓
Cr < 11.0 = < 1.10E-2 ✓
Sn < 68.0 = < 6.80E-2 ✓
Ba < 6.0 = < 6.00E-3 ✓
Mg < 5.0 = < 5.00E-3 ✓
OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs	Hrs	Hrs	Hrs	Hrs
			[signature]	

Date	Time Completed	Lab Unit Mgr	
1-12-94	13:30	S. Parrott 1-20-94	1-19-94

54-6800-061 (R-10-83)

NA < 28.0 / 1000 = < 2.80E-2 ✓
Mo < 17.0 = < 1.70E-2 ✓
Ag < 6.0 = < 6.00E-3 ✓
Pb < 64.0 = < 6.40E-2 ✓
Cd < 8.0 = < 8.00E-3 ✓
B < 12.0 = < 1.20E-2 ✓
Mn < 3.0 = < 3.00E-3 ✓
Be < 3.0 = < 3.00E-3 ✓
Tl < 161.0 = < 1.61E-1 ✓

J 1402.5650

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5750	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1mL - 10mL	KE65D

Remarks, Calculations, Results:

Cd 37.2 (11)/1000 = 4.09E-1 ✓ SAM
Sm <68 = 7.48E-1 ✓
B <12 = <1.32E-1 ✓
Al 6.007E3 = 6.61E1 ✓
Fe 1.8284E4 = 2.01E2 ✓
Ba 39.6 = 4.36E-1 ✓
Cr 54.4 = 5.98E-1 ✓
Pb 1.05E2 = 1.16 ✓
Hg <6 = <6.60E-2 ✓
Be 3.10 = 3.41E-2 ✓

over →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-12-94	1330	S. Parry 1-20-94	[illegible] 1-19-94

54-6800-061 (R-10-83)

Tl <161.(11)/1000 = <1.77 ✓
Zn 1.90E2 = 2.09 ✓
Cu 94.5 = 1.04 ✓
Mn 1.88E2 = 2.07 ✓
Mg 6.16E2 = 6.78 ✓
Ca 5.138E3 = 5.65E1 ✓
Si 1.006E3 = 1.11E1 ✓
Na 2.33E2 = 2.56 ✓
Mo <17.0 = <1.87E-1 ✓

J1424-5750

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5750	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1mL - 10mL	KE65D

Remarks, Calculations, Results:

DUP

S: 1.026E3 (11)/1000 = 1.13E1 ✓
AL 6.143E3 = 6.76E1 ✓
CU 91.7 = 1.01 ✓
ZN 200E2 = 2.20 ✓
Fe 1.908E4 = 2.10E2 ✓

CA 5.314E3 = 5.84E1 ✓
CR 53.3 = 5.86E-1 ✓
SM 68.2 = 7.50E-1 ✓
BA 40.1 = 4.41 ✓
MG 6.43E2 = 7.07 ✓
NA 2.33E2 = 2.56 ✓
over →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs	Hrs	Hrs	Hrs	Hrs
				[signature]

Date	Time Completed	Lab Unit Mgr	
1-7L-94	13:31 ✓	S. Parry 1-20-94	1-18-94

54-6800-061 (R-10-83)

MO <17 (11)/1000 = <1.87E-1 ✓
AG <6 = <6.60E-2 ✓
PB 63.4 = 6.97E-1 ✓
CD 28.8 = 3.18E-1 ✓
B <12.0 = <1.32E-1 ✓
MN 1.96E2 = 2.16 ✓
BE 3.44 = 3.78E-2 ✓
TL ~~14.2 = 1.56E-1~~ <161.0 = <1.77 ✓
GG

J1424-5750

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1424.-5750	BECHTOLD	12-16-93	13: 7	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? µL - 10 mL	KE65D

Remarks, Calculations, Results:

Si 1.040E3 (11)/1000 = 1.14E1 TRIP
AL 6.177E3 = 6.79E1 ✓
CU 90.3 = 9.93E-1 ✓
ZN 2.08E2 = 2.30 ✓
Fe 1.918E4 = 2.11E2 ✓
CA 5.342E3 = 5.88E1 ✓
CR 5.23 = 5.75E-1 ✓
SM <6.80 = <7.48E-1 ✓
BA 41.3 = 4.54E-1 ✓
MG 6.44E2 = 7.08 ✓
OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-12-94	13:31	S. Pavey 1-20-94	[signature] 1-18-94

54-6800-061 (R-10-83)

NA 2.36E2 (11)/1000 = 2.60 ✓
MO <17 = <1.87E-1 ✓
Ag <6 = <6.60E-2 ✓
Pb <64 = <7.04E-1 ✓
Cd 32.0 = 3.52E-1 ✓
B <12 = <1.32E-1 ✓
MN 1.96E2 = 2.16 ✓
Be 3.56 = 3.92E-2 ✓
Tl <161 = <1.77 ✓

J1424-5750

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1425.-5750	BECHTOLD	12-16-93	13:17	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1mL-10mL	KE64A

Remarks, Calculations, Results

Si 1.033E3 (11)/1000 = 1.14E1 ✓
AL 1.2547E4 = 1.38E2 ✓
CU 7.36E2 = 8.10 ✓
ZN 3.40E2 = 3.74 ✓
FE 2.8314E4 = 3.11 E2
CA 1.1247E4 = 1.24E2 ✓

{ppm
CR 1.42E2 = 1.56 ✓
SN < 68.0 = < 7.48E-1 ✓
BA 1.67E2 = 1.84 ✓
MG 1.721E3 = 1.89E1 ✓
NA 6.70E2 = 7.37 ✓
OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-12-94	13:40	S. Pavey 1-20-94	[signature] 1-19-94

54-6800-061 (R-10-83)

MO < 17.0 (A)/1000 = < 1.87E-1 ✓ J1425-5750
AG < 6.0 = < 6.60E-2 ✓
PB 1.54E2 = 1.69 ✓
CD 1.18E2 = 1.30 ✓
B < 12.0 = < 1.32E-1 ✓
MN 6.49E2 = 7.14 ✓
BE 8.03 = 8.83E-2 ✓
TL < 161.0 = < 1.77 ✓

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1425.-5750	BECHTOLD	12-16-93	13:17	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? Lal-10mL	KE64A

Remarks, Calculations, Results:

DWP

Si 1.021E3 (11)/1000 = 1.12E1 ✓
AL 1.2394E4 = 1.36E2 ✓
CU 7.29E2 = 8.02 ✓
ZN 3.27E2 = 3.60 ✓
FE 2.8193E4 = 3.10E2 ✓
CA 1.1156E4 = 1.23E2 ✓
CR 1.42E2 = 1.56 ✓
SM <68.0 = < 7.48E-1 ✓
BA 1.65E2 = 1.82 ✓
MG 1.701E3 = 1.87E1 ✓
NA 6.57E2 = 7.23 ✓
MO <17.0 = < 1.87E-1 ✓
OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs	Hrs	Hrs	Hrs	Hrs
			[signature]	

Date	Time Completed	Lab Unit Mgr	
1-12-94	13:40	S. Parry	1-19-94

54-6800-061 (R-10-83)

Ag <6.0 (11)/1000 = < 6.60E-2 ✓
PB 1.50E2 = 1.65 ✓
CD 1.16E2 = 1.28 ✓
B <12.0 = < 1.32E-1 ✓
MN 6.44E2 = 7.08 ✓
BE 8.84 = 9.72E-2 ✓
TL <161.0 = < 1.77 ✓

J1425-5750

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1425.-5750	BECHTOLD	12-16-93	13:17	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1mL-10mL	KE64A

Remarks, Calculations, Results

Si 9.81E2 (11)/1000 = 1.08E1 TRIP
AL 1.2113E4 = 1.33E2 ✓
CU 7.10E2 = 7.81 ✓
ZN 3.33E2 = 3.66 ✓
FE 2.6886E4 = 2.96E2 ✓
CA 1.0799E4 = 1.19E2 ✓
CR 1.31E2 = 1.44 ✓
SM <68.0 = <7.48E-1 ✓
BA 1.59E2 = 1.75 ✓
MG 1.623E3 = 1.78E1 ✓
NA 6.48E2 = 7.13 ✓
OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs	Hrs	Hrs	Hrs	Hrs
				[signature]

Date	Time Completed	Lab Unit Mgr	
1-12-94	13:40	S. Lamy 1-20-94	1-19-94

54-6800-061 (R-10-83)

MO <17.0 (11)/1000 = <1.87E-1 ✓
AG <6.0 = <6.60E-2 ✓
PB 1.02E2 = 1.12 ✓
CD 1.08E2 = 1.19 ✓
B <12.0 = <1.32E-1 ✓
MN 6.18E2 = 6.80 ✓
BE 7.00 = 7.70E-2 ✓
TL <161.0 = <1.77 ✓

J1425-5750

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Batch 2405

Serial No.	Sample Point	Date	Time Issued	Priority
J 1415.-5550	BECHTOLD	12-15-93	11:23	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	E14157	0

Sample Size	Customer ID
? SSTY 35NIOA DIRECT	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE

Batched with J1401

WHC-SD-WM-DP-062, REV. 0

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs	Hrs	Hrs	Hrs	Hrs
				[signature]

Date	Time Completed	Lab Unit Mgr	
1-12-94	1354	S. Pauly 1-20-94	1-18-94

54-5800-061 (R-10-83)

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1416.-5650	BECHTOLD	12-15-93	11:24	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? DIRECT	BLK

Remarks, Calculations, Results:

REAGENT BLANK

Si < 29.0/1000 = < 2.90E-2
Al < 38.0 = < 3.80E-2
Cu < 5.0 = < 5.00E-3
Zn < 3.0 = < 3.00E-3
Fe < 21.0 = < 2.10E-2
Ca < 19.0 = < 1.90E-2
Cr < 11.0 = < 1.10E-2
Sn < 68.0 = < 6.80E-2
Ba < 6.0 = < 6.00E-3
Ag < 5.0 = < 5.00E-3

OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				
Hrs	Hrs	Hrs	Hrs	Hrs
			[illegible]	

Date	Time Completed	Lab Unit Mgr	
1-12-94	13:41	S. Lamb 1-20-94	1-18-94

54-6800-061 (R-10-83)

NA < 28.0/1000 = < 2.80E-2
Mo < 17.0 = < 1.70E-2
Ag < 6.0 = < 6.00E-3
Pb < 64.0 = < 6.40E-2
Cd < 8.0 = < 8.00E-3
B < 12.0 = < 1.20E-2
Mn < 3.0 = < 3.00E-3
Be < 3.0 = < 3.00E-3
Tl < 161.0 = < 1.61E-1

J1416-5650

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5750	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1mL-10mL	KE65A

Remarks, Calculations, Results:

Samy

SI 9.80E2 (11)/1000 = 1.08E1 ✓
AL 8.56E3 = 9.42E1 ✓
CU 5.31E2 = 5.84 ✓
ZN 2.50E2 = 2.75 ✓
FE 2.1635E4 = 3.38E2 ✓
CR 6.936E3 = 7.63E1 ✓
CR 80.0 = 8.80E-1 ✓
SM <68.0 = <7.48E-1 ✓
BA 1.17E2 = 1.29 ✓
MG 1.055E3 = 1.16E1 ✓
NA 5.33E2 = 5.86 ✓

OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-12-94	14:10	S. Parry 1-20-94	[illegible] 1-18-94

54-6800-061 (R-10-83)

MO <17.0 (11)/1000 = <1.87E-1 ✓
AG <60 = <6.60E-2 ✓
PB 1.16E2 = 1.28 ✓
CD 825 = 9.07E-1 ✓
B 15.1 = 1.66E-1 ✓
MN 5.01E2 = 5.51 ✓
BE 6.08 = 6.69E-2 ✓
TL <161.0 = <1.77 ✓

J1426-5750

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5750	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1mL - 10mL	KE65A

Remarks, Calculations, Results:

Dup

Si 9.65E2 (11)/1000 = 1.06E1 /
Al 8.413E3 = 9.25E1 /
Cu 5.25E2 = 5.77 /
Zn 2.43E2 = 2.67 /
Fe 2.137E4 = 2.35E2 /
Ca 6.856E3 = 7.54E1 /
Cr 79.6 = 8.76E-1 /
Sb < 68.0 = < 7.48E-1 /
Ba 1.15E2 = 1.26 /
Mg 1.038E3 = 1.14E1 /

over →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs	Hrs	Hrs	Hrs	Hrs
			[signature]	
Date	Time Completed	Lab Unit Mgr		
1-12-94	13:30	S. Pauty 1-20-94	1-18-94	

54-6800-061 (R-10-83)

Na 5.78E2 (11)/1000 = 5.81 /
Mo < 17.0 = < 1.87E-1 /
Ag < 6.0 = < 6.60E-2 /
Pb 89.6 = 9.86E-1 /
Cd 72.2 = 7.49E-1 /
B < 12.0 = < 1.32E-1 /
Mn 4.95E2 = 5.44 /
Be 6.43 = 7.07E-2 /
Tl < 161.0 = < 1.77 /

J1426-5750

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1426.-5750	BECHTOLD	12-16-93	13:18	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1mL-10mL	KE65A

Remarks, Calculations, Results:

S: 9.69E2 (11)/1000 = 1.07E1 TR|P ✓
AL 8.417E3 = 9.26E1 ✓
CU 5.23E2 = 5.75 ✓
ZN 2.25E2 = 2.47 ✓
FE 2.133E4 = 2.35E2 ✓
CA 6.848E3 = 7.53E1 ✓
CR 75.9 = 8.35E-1 ✓
SN 71.3 = 7.84E-1 ✓
BA 1.15E2 = 1.26 ✓
MG 1.039E3 = 1.14E1 ✓
OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs	Hrs	Hrs	Hrs	Hrs
				[signature]

Date	Time Completed	Lab Unit Mgr	
1-12-94	13:55	S. Parry 1-20-94	1-18-94

54-6800-061 (R-10-83)

NA 5.31E2 (11)/1000 = 5.84 ✓
MO <12.0 = <1.87E-1 ✓
AG <6.0 = <6.60E-2 ✓
PB 88.1 = 9.69E-1 ✓
CD 80.1 = 8.81E-1 ✓
B <12.0 = <1.32E-1 ✓
MN 4.94E2 = 5.43 ✓
BE 6.31 = 6.94E-2 ✓
TL <161.0 = <1.77 ✓

J1426-5750

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1427.-5750	BECHTOLD	12-16-93	13:19	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1mL-10mL	KE71A

Remarks, Calculations, Results:

Si 8.33E2 (11)/1000 = 9.16 ✓ 9.4m
Al 1.6754E4 = 1.84E2 ✓
Cu 7.33E2 = 8.06 ✓
Zn 4.83E2 = 5.31 ✓
Fe 3.8914E4 = 4.27E2 ✓
Ca 1.1682E4 = 1.28E2 ✓
Cr 9.04E2 = 9.94 ✓
Sn 1.05E2 = 1.15 ✓
Ba 2.52E2 = 2.77 ✓
Mg 1.195E3 = 1.31E1 ✓

OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-12-94	13:53	S. Pairs 1-20-94	[illegible] 1-18-94

54-6800-061 (R-10-83)

Na 8.57E2 = 9.43 ✓
Mo 20.3 = 2.23E-1 ✓
Ag <6.0 = <6.60E-2 ✓
Pb 2.02E2 = 2.22 ✓
Cd 1.67E2 = 1.84 ✓
B <12.0 = <1.32E-1 ✓
Mn 9.07E2 = 9.98 ✓
Be 13.6 = 1.50E-1 ✓
Ti <161.0 = <1.77 ✓

J1427-5750

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1427.-5750	BECHTOLD	12-16-93	13:19	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1mL-100mL	KE71A

Remarks, Calculations, Results:

Si 8.16E2(11)/1000 = 8.98 DUP
Al 1.6350E4 = 1.80E2 ✓
Cu 7.19E2 = 7.91 ✓
Zn 4.76E2 = 5.24 ✓
Fe 3.7788E4 = 4.16E2 ✓
Cr 1.1430E4 = 1.26E2 ✓
Ni 8.73E2 = 9.60 ✓
Sn 76.6 = 8.43E-1 ✓
Bi 2.46E2 = 2.71 ✓
Ag 1.157E3 = 1.27E1 ✓
over →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[illegible]				[illegible]
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-12-94	13:55	S. Parong	1-18-94

54-6800-061 (R-10-83)

Na 8.36E2(11)/1000 = 9.20 ✓

J1427-5750

Mo <17.0 = <1.87E-1 ✓
As <6.0 = <6.60E-2
Pb. 1.86E2 = 2.05 ✓
Cd 1.66E2 = 1.83 ✓
B <12.0 < <1.32E-1 ✓
Mn 8.81E2 = 1.28 9.69
Be 12.7 = 1.40E-1 ✓
Tl <161.0 = <1.77 ✓

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1427.-5750	BECHTOLD	12-16-93	13:19	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? [illegible]	KE71A

Remarks, Calculations, Results

TRIP

Si 7.97E2 (11)/1000 = 8.77 ✓
Al 1.6168E4 = 1.78E2 ✓
Cu 7.04E2 = 7.74 ✓
Zn 4.60E2 = 5.06 ✓
Fe 3.6501E4 = 4.01E2 ✓

Ca 1.1086E4 = 1.22E2 ✓
Cr 8.46E2 9.31 ✓
Sn 70.6 = 7.77E-1 ✓
Ba 240E2 = 2.64 ✓
Mg 1.124E3 = 1.24E1 ✓

OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-12-94	14:00	S. Lowry 1-20-94	[signature] 1-19-94

54-6800-061 (R-10-83)

Na 8.14E2 (11)/1000 = 8.95 ✓
Mo 18.0 = 1.98E-1 ✓
Ag < 6.0 = < 6.60E-2 ✓
Pb 1.33E2 = 1.46 ✓
Cd 1.56E2 = 1.72 ✓
B < 12.0 = < 1.32E-1 ✓
Mn 8.54E2 = 9.39 ✓
Be 12.7 = 1.40E-1 ✓
Tl < 161.0 = < 1.77 ✓

J1427-5750

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1428.-5750	BECHTOLD	12-16-93	13:20	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1mL-10mL	KE72A

Remarks, Calculations, Results:

Sam

Si 9.02E2 (11)/1000 = 9.92 ✓
Al 6.190E3 = 6.81E1 ✓
Cu 1.47E2 = 1.62 ✓
Zn 1.32E2 = 1.45 ✓
Fe 1.0450E4 = 1.15E2 ✓

Ca 3.973E3 = 4.37E1 ✓
Cr 43.3 = 4.76E-1 ✓
Sr <68.0 = <7.48E-1 ✓
Ba 78.0 = 8.58E-1 ✓
Mg 4.26E2 = 4.69 ✓

OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs	Hrs	Hrs	Hrs	Hrs
				[signature]

Date	Time Completed	Lab Unit Mgr	
1-12-94	14:20	S. Parry	1-19-94

1-20-94

54-6800-061 (R-10-83)

Na 3.38E2 (11)/1000 = 3.73 ✓
Mo <17.0 = <1.87E-1 ✓
As <6.0 = <6.60E-2 ✓
Pb 76.5 = 8.41E-1 ✓
Cd 38.2 = 4.20E-1 ✓
B <12.0 = <1.32E-1 ✓
Mn 224E2 = 2.46 ✓
Be 4.58 = 5.05E-2 ✓
Ti <161.0 = <1.77 ✓

J1428-5750

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1428.-5750	BECHTOLD	12-16-93	13:20	22

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1mL-10mL	KE72A

Remarks, Calculations, Results:

Si 9.09E2 (11)/1000 = ~~11~~ DUP 1.00E4 ✓
AL 6.231 E3 = 6.85E1 ✓
CU 1.48E2 = 1.63 ✓
ZN 1.37E2 = 1.51 ✓
Fe 1.0491E4 = 1.15E2 ✓
CA 3.991E3 = 4.39E1 ✓
CR 38.0 = 4.18E-1 ✓
SN < 68.0 = < 7.48E-1 ✓
BA 79.6 = 8.76E-1 ✓
Mg 4.28E2 = 4.71 ✓

OVER →

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
[signature]				
Hrs	Hrs	Hrs	Hrs	Hrs
			[signature]	
Date	Time Completed	Lab Unit Mgr		
1-12-94	1420	S. Parsons 1-20-94	1-18-94	

54-6800-061 (R-10-83)

NA 3.35E2 (11)/1000 = 3.68 ✓
MO < 17.0 = < 1.87E-1 ✓
AG < 6.0 = < 6.60E-2 ✓
PB 76.1 = 8.37E-1 ✓
CD 41.6 = 4.58E-1 ✓
B < 12.0 = < 1.32E-1 ✓
MN 2.23E2 = 2.45 ✓
BE 4.93 = 5.42E-2 ✓
TL < 161.0 = < 1.77 ✓

J1428-5750

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1428.-5750	BECHTOLD	12-16-93	13:20	22

Determination	Method Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? /AL-10 g L	KE72A

Remarks, Calculations, Results:

SI 9.31E2 (11)/1000 = 1.02E1 /
AL 6.33E3 = 6.97E1 /
CU 1.52E2 = 1.67 /
ZN 1.70E2 = 1.87 /
FE 1.08E4 = 1.19E2 /
CA 4.08E3 = 4.49E1 /
CR 41.0 = 4.51E-1 /
SM <680 = <7.48E-1 /
BA 81.0 = 8.91E-1 /
MG 480E2 = 4.84 /

OVER ?

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-22-94	1420	S. Parsons 1-20-94	1-18-94

54-6800-061 (R-10-83)

NA 3.75E2 (11)/1000 = 4.12 /
MO <17.0 = <1.87E-1 /
AG <6.0 = <6.60E-2 /
PB 1.06E2 = 1.17 /
CD 42.6 = 4.69E-1 /
B <12.0 = <1.32E-1 /
MN 2.31E2 = 2.54 /
SR 4.25 = 4.67E-2 /
TL <161.0 = <1.77 /

J1428-5750

WHC-SD-WM-DP-062, REV. 0

Identity 1: SST4 Identity 2: Quality Control 9:47 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	5145.256	5036.928	5107.894	5285.375	5062.193	5100.594	5145.596	-535.960
S.D.	16.484	11.390	11.243	6.648	36.355	14.612	21.788	37.634
% R.S.D.	0.320	0.226	0.220	0.126	0.718	0.286	0.423	7.022

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	5076.800	5051.051	5029.699	5069.166	5096.974	4984.459	5111.676	5114.138
S.D.	6.512	14.281	11.392	25.424	23.631	8.793	3.807	12.305
% R.S.D.	0.128	0.283	0.226	0.502	0.464	0.176	0.074	0.241

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	5108.647	5099.309	5285.707	4833.007
S.D.	12.771	15.965	19.777	28.590
% R.S.D.	0.250	0.313	0.374	0.592

J 1401-02; J1424 + 25
BEC1MDL1
KE65D
KE64A
K-BASIN SAMPLES
B/G

J 1426 + 27 + 28
KE 65A
KE 71A
KE 72A

AR
2-14-94

Identity 1: hno3 reag blk J1402 Identity 2: direct 9:51 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
Or Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	-0.076	10.348	3.171	3.330	1.728	0.803	5.302	36.214
S.D.	2.020	4.429	0.229	0.252	3.681	0.062	1.658	63.658
% R.S.D.	2670.757	42.796	7.205	7.557	213.009	7.693	31.282	175.784

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	-12.690	1.502	1.007	14.409	4.012	-0.103	-8.911	2.939
S.D.	10.905	0.235	0.074	4.824	1.158	0.781	26.890	2.552
% R.S.D.	85.937	15.649	7.317	33.481	28.868	755.591	301.751	86.808

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	6.035	1.653	2.066	-29.318
S.D.	2.827	0.378	0.398	15.124
% R.S.D.	46.844	22.846	19.245	51.588

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1424 sam KE65D Identity 2: 1ml-10ml 9:55 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	1006.429	6007.119	94.523	190.520	18293.906	5138.136	54.448	3907.438
S.D.	8.201	36.618	0.769	2.163	84.627	24.776	5.748	71.240
% R.S.D.	0.815	0.610	0.813	1.135	0.463	0.482	10.557	1.823

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	27.907	39.622	615.990	232.973	0.287	-2.076	104.631	37.159
S.D.	15.113	0.141	2.799	3.292	0.662	0.816	7.462	2.713
% R.S.D.	54.155	0.355	0.454	1.413	230.957	39.296	7.131	7.300

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	7.658	188.351	3.098	-60.205
S.D.	3.743	1.572	0.199	43.316
% R.S.D.	48.873	0.835	6.415	71.948

Identity 1: J1424 dup KE65D Identity 2: 1ml-10ml 10:00 AM January 14, 1994
Task name : KBASIN
Sam'- Weight : 1.0000 Solution Volume : 1.00
Or . Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	1026.240	6143.047	91.742	199.818	19082.325	5314.053	53.269	4182.661
S.D.	2.273	44.559	0.994	0.646	137.804	47.051	4.070	72.336
% R.S.D.	0.221	0.725	1.083	0.323	0.722	0.885	7.640	1.729

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	68.204	40.067	642.877	233.224	4.394	3.114	63.371	28.925
S.D.	30.812	0.065	4.329	8.754	1.033	1.349	3.236	1.941
% R.S.D.	45.176	0.161	0.673	3.753	23.515	43.329	5.107	6.712

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	6.118	196.299	3.443	14.177
S.D.	2.578	1.621	0.199	19.075
% R.S.D.	42.140	0.826	5.774	134.548

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1424 trip KE65D Identity 2: 1ml-10ml 10:03 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	1040.110	6176.619	90.351	208.682	19181.938	5342.333	52.316	4200.768
S.D.	6.048	23.272	0.520	0.407	80.297	17.063	2.892	32.592
% R.S.D.	0.581	0.377	0.576	0.195	0.419	0.319	5.529	0.776

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	65.110	41.284	644.154	236.488	6.973	1.298	42.553	31.929
S.D.	16.442	0.345	2.066	3.790	1.033	1.257	5.040	0.989
% R.S.D.	25.252	0.835	0.321	1.603	14.817	96.862	11.843	3.099

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	3.424	196.352	3.557	39.229
S.D.	3.206	1.067	0.344	11.165
% R.S.D.	93.632	0.543	9.677	28.460

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1425 samp KE64A Identity 2: 1ml-10ml 10:06 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
Or : Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	1033.319	12547.507	736.451	339.682	28314.122	11246.647	141.852	19859.492
S.D.	2.469	35.834	1.942	2.016	102.530	41.393	5.164	66.380
% R.S.D.	0.239	0.286	0.264	0.593	0.362	0.368	3.641	0.334

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	54.014	166.948	1720.952	670.520	2.579	1.978	154.444	117.898
S.D.	16.886	0.393	4.903	4.290	1.865	0.650	21.162	1.653
% R.S.D.	31.261	0.235	0.285	0.640	72.294	32.874	13.702	1.402

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	3.960	649.338	8.033	15.661
S.D.	0.241	1.999	0.000	38.262
% R.S.D.	6.097	0.308	0.000	244.307

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1425 dup KE64A Identity 2: 1ml-10ml 10:09 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	1020.743	12394.388	728.974	326.965	28193.455	11155.817	142.066	19739.987
S.D.	8.824	45.057	2.651	1.262	48.721	37.635	3.501	33.190
% R.S.D.	0.864	0.364	0.364	0.386	0.173	0.337	2.464	0.168

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	65.106	165.012	1700.768	656.797	7.356	1.199	150.475	115.920
S.D.	4.848	0.431	5.097	1.045	0.921	0.477	4.952	1.163
% R.S.D.	7.446	0.261	0.300	0.159	12.524	39.760	3.291	1.003

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	4.014	644.253	8.836	72.940
S.D.	1.934	1.975	0.199	30.252
% R.S.D.	48.188	0.307	2.249	41.475

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1425 trip KE64A Identity 2: 1ml-10ml 10:12 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On : Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	981.531	12113.371	709.557	333.346	26886.232	10799.146	130.947	18965.018
S.D.	4.459	30.107	2.412	1.661	65.024	38.602	0.464	21.728
% R.S.D.	0.454	0.249	0.340	0.498	0.242	0.357	0.355	0.115

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	31.411	159.295	1628.383	648.011	8.406	-2.685	102.408	108.047
S.D.	21.159	0.629	5.864	2.855	3.033	0.619	13.477	2.889
% R.S.D.	67.364	0.395	0.360	0.441	36.079	23.043	13.160	2.674

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	-0.473	618.438	7.000	-1.947
S.D.	2.377	1.787	0.689	28.217
% R.S.D.	502.660	0.289	9.836	1449.612

WHC-SD-WM-DP-062, REV. 0

Identity 1: hno3 reag blk Identity 2: direct 10:16 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	-7.299	4.574	-3.307	1.433	0.157	1.214	5.352	-54.320
S.D.	5.916	5.137	0.924	0.342	2.721	0.071	4.358	73.950
% R.S.D.	81.045	112.305	27.952	23.865	1732.232	5.872	81.429	136.137

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	-22.594	0.154	0.344	-1.489	2.102	-2.386	7.709	-0.097
S.D.	6.124	0.203	0.000	2.609	2.238	1.884	21.521	1.265
% R.S.D.	27.103	131.449	0.000	175.151	106.504	78.984	279.160	1308.333

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	-4.554	-0.207	0.803	-121.651
S.D.	0.466	0.129	0.344	17.154
% R.S.D.	10.240	62.469	42.857	14.101

WHC-SD-WM-DP-062, REV. 0

Identity 1: SST4 Identity 2: Quality Control 10:19 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On : Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	5299.051	5050.027	5134.859	5380.828	5148.765	5123.605	5231.633	-470.776
S.D.	10.460	24.267	20.767	13.193	48.749	18.371	27.386	94.711
% R.S.D.	0.197	0.481	0.404	0.245	0.947	0.359	0.523	20.118

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	5105.773	5054.854	5099.236	5056.782	5166.040	5037.468	5174.216	5187.299
S.D.	37.032	18.731	13.719	35.155	21.409	17.908	17.290	17.135
% R.S.D.	0.725	0.371	0.269	0.695	0.414	0.356	0.334	0.330

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	5188.460	5166.428	5321.853	4821.861
S.D.	25.731	13.223	15.915	31.440
% R.S.D.	0.496	0.256	0.299	0.652

WHC-SD-WM-DP-062, REV. 0

Identity 1: hno3 reag blk J1416 Identity 2: direct 10:22 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	12.898	8.646	1.413	2.170	-3.457	1.482	6.418	181.068
S.D.	5.012	7.947	1.171	0.858	4.546	0.062	3.854	71.240
% R.S.D.	38.859	91.919	82.862	39.545	131.504	4.167	60.049	39.345

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	28.177	1.914	1.449	3.866	9.171	1.652	23.049	7.177
S.D.	14.080	0.371	0.074	7.669	2.783	1.599	37.103	1.705
% R.S.D.	49.970	19.399	5.085	198.380	30.352	96.798	160.973	23.750

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	5.789	1.286	1.377	21.834
S.D.	3.802	0.536	0.398	27.596
% R.S.D.	65.671	41.667	28.868	126.388

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1426 sam KE65A Identity 2: 1ml-10ml 10:24 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	979.888	8564.022	531.464	248.939	21635.026	6936.354	79.993	11754.907
S.D.	0.455	30.590	0.680	1.407	57.592	19.674	1.020	31.362
% R.S.D.	0.046	0.357	0.128	0.565	0.266	0.284	1.274	0.267

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	66.188	117.086	1055.019	533.374	5.254	2.423	115.561	82.539
S.D.	11.124	0.150	2.646	4.556	1.433	0.308	28.298	0.517
% R.S.D.	16.807	0.128	0.251	0.854	27.273	12.714	24.488	0.627

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	15.131	501.482	6.082	75.301
S.D.	1.924	1.794	0.398	12.980
% R.S.D.	12.713	0.358	6.536	17.237

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1426 dup KE65A Identity 2: 1ml-10ml 10:26 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	965.022	8412.661	525.116	242.805	21378.137	6856.391	79.594	11570.218
S.D.	2.453	24.597	1.261	1.433	104.584	22.188	4.502	12.545
% R.S.D.	0.254	0.292	0.240	0.590	0.489	0.324	5.656	0.108

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	58.583	115.115	1037.831	528.102	4.681	3.514	89.571	77.218
S.D.	14.556	0.200	2.884	3.068	1.879	0.305	19.938	0.520
% R.S.D.	24.847	0.174	0.278	0.581	40.148	8.674	22.260	0.673

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	7.582	494.670	6.426	77.547
S.D.	1.461	2.556	0.398	33.868
% R.S.D.	19.269	0.517	6.186	43.674

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1426 trip KE65A Identity 2: 1ml-10ml 10:28 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
Or Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	969.047	8416.573	522.568	224.960	21331.159	6848.035	75.935	11700.587
S.D.	4.426	40.412	2.212	0.217	52.383	32.656	6.606	54.681
% R.S.D.	0.457	0.480	0.423	0.097	0.246	0.477	8.700	0.467

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	71.304	114.882	1039.034	531.114	7.833	1.363	88.058	80.139
S.D.	22.821	0.064	1.881	2.319	0.758	1.566	12.478	2.023
% R.S.D.	32.006	0.056	0.181	0.437	9.680	114.907	14.170	2.525

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	2.443	493.886	6.311	63.776
S.D.	3.339	2.512	0.344	82.578
% R.S.D.	136.637	0.509	5.455	129.481

Identity 1: J1427.sam KE71A Identity 2: 1ml-10ml 10:30 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	833.383	16754.094	732.572	482.733	38813.706	11682.025	903.631	29405.374
S.D.	4.770	49.011	3.132	3.698	138.980	47.220	3.543	78.342
% R.S.D.	0.572	0.293	0.428	0.766	0.358	0.404	0.392	0.266

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	105.460	251.915	1195.346	857.538	20.347	1.266	202.050	167.094
S.D.	22.560	0.608	4.329	11.580	1.471	0.366	7.660	3.003
% R.S.D.	21.392	0.241	0.362	1.350	7.228	28.922	3.791	1.797

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	0.987	907.431	13.655	103.223
S.D.	2.071	5.109	0.526	20.753
% R.S.D.	209.859	0.563	3.851	20.105

Identity 1: J1427 dup KE71A Identity 2: 1ml-10ml 10:32 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
Or : Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	816.225	16389.846	718.914	476.175	37785.367	11429.686	872.810	28590.570
S.D.	7.363	12.124	1.658	1.055	35.703	6.479	4.695	57.487
% R.S.D.	0.902	0.074	0.231	0.222	0.094	0.057	0.538	0.201

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	76.648	245.722	1156.648	836.033	16.526	0.528	186.087	166.499
S.D.	11.602	0.313	1.128	3.068	2.663	0.905	6.625	2.221
% R.S.D.	15.136	0.127	0.097	0.367	16.113	171.383	3.560	1.334

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	1.781	881.278	12.737	72.278
S.D.	2.275	2.753	0.199	22.762
% R.S.D.	127.784	0.312	1.560	31.493

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1427 trip KE71A Identity 2: 1ml-10ml 10:35 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	797.191	16168.510	703.703	460.085	36501.083	11086.393	846.183	27942.348
S.D.	5.680	46.976	2.717	1.493	88.085	20.316	4.401	66.380
% R.S.D.	0.713	0.291	0.386	0.324	0.241	0.183	0.520	0.238

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	70.573	239.828	1123.746	814.277	17.959	-0.088	132.847	155.931
S.D.	12.062	0.097	3.046	3.417	1.006	0.626	3.891	1.257
% R.S.D.	17.091	0.040	0.271	0.420	5.604	710.132	2.929	0.806

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	0.468	854.209	12.737	97.233
S.D.	3.383	2.439	0.526	22.380
% R.S.D.	722.352	0.286	4.128	23.017

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1428.sam KE72A Identity 2: 1ml-10ml 10:38 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
Or : Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	901.636	6190.284	147.268	132.408	10449.935	3973.278	43.311	7402.042
S.D.	10.795	12.885	0.907	0.835	45.167	3.624	5.223	119.669
% R.S.D.	1.197	0.208	0.616	0.631	0.432	0.091	12.059	1.617

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	66.519	78.008	425.916	338.657	3.917	0.247	76.503	38.246
S.D.	20.715	0.180	1.371	11.870	1.442	1.242	12.447	1.561
% R.S.D.	31.141	0.230	0.322	3.505	36.829	501.896	16.270	4.082

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	-1.553	224.140	4.590	79.405
S.D.	3.338	0.599	0.000	57.660
% R.S.D.	215.005	0.267	0.000	72.615

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1428.dup KE72A Identity 2: 1ml-10ml 10:40 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	908.834	6231.124	148.410	137.532	10491.100	3990.711	38.032	7315.130
S.D.	11.851	30.975	0.848	3.543	51.850	18.552	3.729	51.342
% R.S.D.	1.304	0.497	0.571	2.576	0.494	0.465	9.805	0.702

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	61.866	79.610	428.495	335.394	7.738	-0.158	76.154	41.606
S.D.	22.019	0.145	2.341	5.919	2.151	0.644	38.249	1.237
% R.S.D.	35.592	0.182	0.546	1.765	27.798	409.110	50.226	2.974

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	-1.273	223.117	4.934	39.518
S.D.	3.051	0.855	0.344	21.568
% R.S.D.	239.631	0.383	6.977	54.577

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1428.trip KE72A Identity 2: 1ml-10ml 10:43 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
Or : Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	931.303	6338.092	152.158	169.988	10813.820	4085.637	40.963	7478.091
S.D.	8.104	19.622	0.814	1.311	92.796	17.603	2.893	34.923
% R.S.D.	0.870	0.310	0.535	0.771	0.858	0.431	7.063	0.467

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	56.186	80.859	439.569	375.391	4.012	-0.408	105.875	42.609
S.D.	34.539	0.087	1.000	14.239	0.438	1.172	26.491	0.398
% R.S.D.	61.473	0.107	0.228	3.793	10.911	287.062	25.021	0.934

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	-2.924	230.663	4.246	31.098
S.D.	1.847	1.182	0.000	51.913
% R.S.D.	63.190	0.513	0.000	166.935

WHC-SD-WM-DP-062, REV. 0

Identity 1: hno3 reag blk Identity 2: direct 10:46 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	-8.638	2.364	-3.505	1.018	-1.571	1.544	7.034	32.592
S.D.	5.806	6.902	0.971	0.859	4.496	0.123	0.219	53.591
% R.S.D.	67.216	291.885	27.712	84.414	286.179	8.000	3.118	164.429

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	7.145	-0.135	0.344	15.246	2.579	-1.717	18.911	3.699
S.D.	25.942	0.656	0.074	11.140	2.437	1.618	5.692	0.810
% R.S.D.	363.080	487.663	21.429	73.069	94.500	94.224	30.101	21.887

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	-3.403	1.160	0.230	-20.587
S.D.	2.491	0.120	0.526	34.307
% R.S.D.	73.189	10.356	229.129	166.649

JK 1-14-94
50ppm check

Identity 1: ~~ICSA~~ Identity 2: 50ppm al,fe,ca 10:50 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
Or Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	19.154	51840.018	2.131	7.738	51736.054	49375.054	1.598	-43.456
S.D.	1.571	107.949	0.323	0.624	131.602	77.700	2.836	16.595
% R.S.D.	8.204	0.208	15.169	8.063	0.254	0.157	177.463	38.188

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	44.081	0.211	1.154	21.187	3.917	-2.758	95.434	7.737
S.D.	13.757	0.249	0.074	4.745	0.876	1.306	22.436	0.538
% R.S.D.	31.208	118.145	6.383	22.397	22.354	47.355	23.510	6.953

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	-2.220	19.732	0.689	-0.259
S.D.	2.218	0.369	0.526	13.541
% R.S.D.	99.878	1.868	76.376	5220.349

JK 1-14-94

Identity 1: 50ppm U Identity 2: 50ppm ~~cr,fe,ca~~ 10:53 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	-74.343	13.416	-12.643	2.192	25.296	20.582	9.463	52473.383
S.D.	3.037	3.663	1.237	0.747	3.266	1.041	4.000	155.296
% R.S.D.	4.085	27.300	9.786	34.087	12.910	5.059	42.271	0.296

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	85.873	-0.846	-1.571	-45.587	2.484	2.093	-43.100	2.272
S.D.	8.867	0.088	0.074	3.802	1.354	1.783	19.280	1.587
% R.S.D.	10.326	10.387	4.688	8.339	54.529	85.202	44.733	69.825

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	-1.286	-0.071	-5.164	228.985
S.D.	2.046	0.259	0.199	2.160
% R.S.D.	159.066	364.081	3.849	0.943

Identity 1: hno3 reag blk Identity 2: direct 10:56 AM January 14, 1994
Task name : KBASIN
Sam[illegible] Weight : 1.0000 Solution Volume : 1.00
Or[illegible] Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	-0.879	6.068	-2.828	0.988	-2.514	1.400	6.590	112.262
S.D.	3.244	2.069	1.289	0.128	5.185	0.036	1.888	61.776
% R.S.D.	368.976	34.099	45.587	12.939	206.249	2.547	28.650	55.028

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	22.324	0.985	0.147	4.201	3.439	-0.892	-7.183	3.630
S.D.	10.646	0.199	0.113	9.397	2.437	0.478	26.587	0.802
% R.S.D.	47.688	20.190	76.376	223.711	70.875	53.523	370.161	22.104

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	-5.298	0.975	0.574	29.322
S.D.	1.906	0.378	0.526	18.845
% R.S.D.	35.980	38.700	91.652	64.271

Identity 1: SST4 Identity 2: Quality Control 10:57 AM January 14, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	5154.403	5019.876	5093.339	5285.483	5036.740	5065.377	5089.818	-478.018
S.D.	19.264	14.633	13.987	16.985	34.026	14.692	29.224	12.545
% R.S.D.	0.374	0.291	0.275	0.321	0.676	0.290	0.574	2.624

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	4996.141	4992.466	4969.664	4998.793	5004.694	5006.530	5102.018	5033.279
S.D.	19.001	13.650	16.337	6.025	13.378	12.719	10.028	15.769
% R.S.D.	0.380	0.273	0.329	0.121	0.267	0.254	0.197	0.313

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	5126.758	5064.237	5170.266	4800.541
S.D.	11.611	20.378	24.619	33.775
% R.S.D.	0.226	0.402	0.476	0.704

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

J1439D
CASE NARRATIVE - ICP

WHCPAL LABORATORIES
WHCPAL/CUSTOMER SAMPLE NOS: J1445 KE83B
J1446 KE83D

INORGANIC ANALYSIS

The data evaluation for this project will follow the guidelines specified in "Sampling and Analysis Plan for 105-KE Basin Filter Backwash Pit," (WHC-SD-NR-PLN-013). Contained in this report is the evaluation of the data generated by Westinghouse Hanford Company - Processing and Analytical Laboratories (WHC-PAL), 222-S Laboratory. Information will be organized by quality control parameter.

INITIAL AND CONTINUING CALIBRATION VERIFICATION
All instrument calibration requirements were within specified control limits of ±25% during analysis.

INITIAL AND CONTINUING CALIBRATION BLANKS
All ICB and CCB analytical measurements were 0±2xIDL (Instrument Detection Limits).

PRECISION
Precision requirements were met for all analytes except
For J1445: Thallium (30.2%).
For J1446: Sodium (240.5%) and Lead (27.1%).
Failures for Lead and Thallium are attributed to the low levels (<5xIDL) of these analytes in the samples. The failure for Sodium is attributed to the high triplicate value which can not be explained at this time. The criterion for precision is 25% calculated as two times the standard deviation of triplicate analyses divided by the mean.

COMMENTS
The interference check samples were inadvertently omitted from this analysis. The customer-supplied reagent blank (J1402-5650) was used as the ICB.

Brian Wels
1-21-94
Brian Wels
Senior Scientist, WHCPAL

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: _____ SAS No.: _____ SDG No.:J1439D

SOW No.: ILM02

WHC-SD-WM-DP-062, REV. 0

EPA Sample No.	Lab Sample ID
J1445	J1445
J1445T	J1445T
J1445D	J1445D
J1446	J1446
J1446T	J1446T
J1446D	J1446D

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Thomas Boshaw Name: TH Boshaw

Date: 1/24/94 Title: Mgr Inorganic Chem.

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J1445

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1439D

Matrix (soil/water): WATER Lab Sample ID: J1445

Level (low/med): LOW Date Received: 01/04/94

% Solids: 0.0

WHC-SD-WM-DP-062, REV. 0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	392000			P
7440-39-3	Barium	1120			P
7440-41-7	Beryllium	180			P
7440-42-8	Boron	132	U		P
7440-43-9	Cadmium	733			P
7440-70-2	Calcium	19900			P
7440-47-3	Chromium	3350			P
7440-50-8	Copper	8750			P
7439-89-6	Iron	704000			P
7439-92-1	Lead	6750			P
7439-95-4	Magnesium	6980			P
7439-96-5	Manganese	4390			P
7439-98-7	Molydenum	187	U		P
7440-19-9	Samarium	1820		*	P
7440-21-3	Silicon	8780			P
7440-22-4	Silver	66.0	U		P
7440-23-5	Sodium	5010			P
7440-28-0	Thallium	2720		*	P
7440-66-6	Zinc	6890			P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

J1446

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1439D

Matrix (soil/water): WATER Lab Sample ID: J1446

Level (low/med): LOW Date Received: 01/04/94

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

WHC-SD-WM-DP-062, REV. 0

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	95200			P
7440-39-3	Barium	937			P
7440-41-7	Beryllium	81.8			P
7440-42-8	Boron	132	U		P
7440-43-9	Cadmium	717			P
7440-70-2	Calcium	73600			P
7440-47-3	Chromium	796			P
7440-50-8	Copper	1450			P
7439-89-6	Iron	287000			P
7439-92-1	Lead	1280		*	P
7439-95-4	Magnesium	7510			P
7439-96-5	Manganese	4520			P
7439-98-7	Molydenum	187	U		P
7440-19-9	Samarium	748	U		P
7440-21-3	Silicon	10100			P
7440-22-4	Silver	66.0	U		P
7440-23-5	Sodium	3690		*	P
7440-28-0	Thallium	1770	U		P
7440-66-6	Zinc	3160			P

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

ILM02.1

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2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: WHC_PAL_____ Contract: WHC-PAL___

Lab Code: 105KE_ Case No.: _____ SAS No.: _____ SDG No.: J1439D

Initial Calibration Source: INORG VENT__

Continuing Calibration Source: INORG VENT__

WHC-SD-WM-DP-062, REV. 0

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	5000.0	4962.73	99.3	5000.0	4984.68	99.7			P
Barium	5000.0	5001.35	100.0	5000.0	4995.68	99.9			P
Beryllium	5000.0	5131.59	102.6	5000.0	5115.99	102.3			P
Boron	5000.0	5100.35	102.0	5000.0	5054.85	101.1			P
Cadmium	5000.0	4873.94	97.5	5000.0	4835.39	96.7			P
C ium	5000.0	5042.56	100.9	5000.0	5030.65	100.6			P
C. mium	5000.0	5019.02	100.4	5000.0	4985.72	99.7			P
Copper	5000.0	5098.57	102.0	5000.0	5106.42	102.1			P
Iron	5000.0	4961.21	99.2	5000.0	4923.81	98.5			P
Lead	5000.0	5104.66	102.1	5000.0	5029.07	100.6			P
Magnesium	5000.0	4897.27	97.9	5000.0	4882.89	97.7			P
Manganese	5000.0	4995.78	99.9	5000.0	4965.84	99.3			P
Molydenum	5000.0	4957.42	99.1	5000.0	4935.72	98.7			P
Samarium	5000.0	5032.53	100.7	5000.0	5076.10	101.5			P
Silicon	5000.0	4834.96	96.7	5000.0	4694.74	93.9			P
Silver	5000.0	5003.75	100.1	5000.0	5002.04	100.0			P
Sodium	5000.0	5046.83	100.9	5000.0	5077.40	101.5			P
Thallium	5000.0	4937.22	98.7	5000.0	4945.63	98.9			P
Zinc	5000.0	5105.86	102.1	5000.0	5198.29	104.0			P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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3
BLANKS

Lab Name: WHC_PAL_____ Contract: WHC-PAL___

Lab Code: 105KE_ Case No.: _____ SAS No.: _____ SDG No.: J1439D

Preparation Blank Matrix (soil/water): _____ WHC-SD-WM-DP-062, REV. 0

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	38.0	U	38.0	U							P
Barium	6.0	U	6.0	U							P
Beryllium	3.0	U	3.0	U							P
Boron	-14.5		-14.9								P
Cadmium	8.0	U	8.0	U							P
Calcium	19.0	U	19.0	U							P
Chromium	11.0	U	11.0	U							P
Copper	5.0	U	5.0	U							P
Iron	21.0	U	21.0	U							P
Lead	64.0	U	64.0	U							P
Magnesium	5.0	U	5.0	U							P
Manganese	3.0	U	3.0	U							P
Molydenum	17.0	U	17.0	U							P
Samarium	68.0	U	68.0	U							P
Silicon	29.0	U	29.0	U							P
Silver	6.0	U	6.0	U							P
Sodium	28.0	U	28.0	U							P
Thallium	161.0	U	161.0	U							P
Zinc	3.0	U	3.0	U							P

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6
DUPLICATES

EPA SAMPLE NO.

J1445D

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1439D

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		391649.1920		400682.8870		2.3		P
Barium		1117.9300		1142.3170		2.2		P
Beryllium		179.6410		188.8590		5.0		P
Boron		132.0000	U	132.0000	U			P
Cadmium		733.4800		734.7010		0.2		P
Calcium		19930.4710		20519.6310		2.9		P
Chromium		3346.7720		3368.4970		0.6		P
Copper		8754.8670		8929.6350		2.0		P
ron		703965.3500		739908.5100		5.0		P
Lead		6750.4580		6576.0310		2.6		P
Magnesium		6982.7340		7315.5830		4.7		P
Manganese		4390.1550		4619.6810		5.1		P
Molydenum		187.0000	U	187.0000	U			P
Samarium		1819.0150		2249.0600		21.1	*	P
Silicon		8777.3730		9086.0770		3.5		P
Silver		66.0000	U	66.0000	U			P
Sodium		5014.7460		5136.1860		2.4		P
Thallium		2715.6580		3241.8980		17.7		P
Zinc		6889.2340		7308.7300		5.9		P

WHC-SD-WM-DP-062, REV. 0

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

J1445T

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: _____ SAS No.: _____ SDG No.: J1439D

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		391649.1920		402298.7320		2.7		P
Barium		1117.9300		1159.6090		3.7		P
Beryllium		179.6410		194.6120		8.0		P
Boron		132.0000	U	132.0000	U			P
Cadmium		733.4800		764.8850		4.2		P
Calcium		19930.4710		21073.0190		5.6		P
Chromium		3346.7720		3409.8130		1.9		P
Copper		8754.8670		9013.5870		2.9		P
Iron		703965.3500		747033.6390		5.9		P
Lead		6750.4580		6851.5480		1.5		P
Magnesium		6982.7340		7365.6770		5.3		P
Manganese		4390.1550		4642.2970		5.6		P
Molydenum		187.0000	U	187.0000	U			P
Samarium		1819.0150		2147.0900		16.5		P
Silicon		8777.3730		9107.1090		3.7		P
Silver		66.0000	U	66.0000	U			P
Sodium		5014.7460		5238.9480		4.4		P
Thallium		2715.6580		3687.0130		30.3	*	P
Zinc		6889.2340		7327.3970		6.2		P

WHC-SD-WM-DP-062, REV. 0

FORM VI - IN

ILM02.1

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6
DUPLICATES

EPA SAMPLE NO.

J1446D

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1439D

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		95154.8730		93671.4570		1.6		P
Barium		936.5290		921.7780		1.6		P
Beryllium		81.7630		72.5450		11.9		P
Boron		132.0000	U	132.0000	U			P
Cadmium		716.6940		671.4950		6.5		P
Calcium		73594.3450		71452.1390		3.0		P
Chromium		795.5310		812.9440		2.2		P
Copper		1449.2940		1409.4300		2.8		P
ron		287498.3540		278225.5300		3.3		P
Lead		1279.5090		1191.4320		7.1		P
Magnesium		7511.4930		7291.9000		3.0		P
Manganese		4518.2280		4357.4740		3.6		P
Molydenum		187.0000	U	187.0000	U			P
Samarium		748.0000	U	748.0000	U			P
Silicon		10071.6330		9846.1000		2.3		P
Silver		66.0000	U	66.0000	U			P
Sodium		3692.8980		3716.2510		0.6		P
Thallium		1771.0000	U	1771.0000	U			P
Zinc		3164.6010		3064.3360		3.2		P

WHC-SD-WM-DP-062, REV. 0

FORM VI - IN

ILMO2.1

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6
DUPLICATES

EPA SAMPLE NO.

J1446T

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: Sas No.: SDG No.: J1439D

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		95154.8730		95871.7540		0.8		P
Barium		936.5290		910.8110		2.8		P
Beryllium		81.7630		79.4530		2.9		P
Boron		132.0000	U	132.0000	U			P
Cadmium		716.6940		647.1190		10.2		P
Calcium		73594.3450		70787.5630		3.9		P
Chromium		795.5310		784.3220		1.4		P
Copper		1449.2940		1388.3650		4.3		P
Iron		287498.3540		274555.8090		4.6		P
Lead		1279.5090		976.8550		26.8	*	P
Magnesium		7511.4930		7258.3390		3.4		P
Manganese		4518.2280		4325.6180		4.4		P
Molydenum		187.0000	U	187.0000	U			P
Samarium		748.0000	U	748.0000	U			P
Silicon		10071.6330		9871.4660		2.0		P
Silver		66.0000	U	66.0000	U			P
Sodium		3692.8980		28953.8260		154.8	*	P
Thallium		1771.0000	U	1771.0000	U			P
Zinc		3164.6010		3111.9110		1.7		P

WHC-SD-WM-DP-062, REV. 0

FORM VI - IN

ILM02.1

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1439D

ICP ID Number: ICP-1 Date: 11/08/93

Flame AA ID Number :

Furnace AA ID Number :

WHC-SD-WM-DP-062, REV. 0

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22			38.0	P
Barium	493.41			6.0	P
Beryllium	313.04			3.0	P
Boron	249.68			12.0	P
Cadmium	226.50			8.0	P
Calcium	393.37			19.0	P
Chromium	267.72			11.0	P
Copper	324.75			5.0	P
Iron	259.94			21.0	P
Lead	220.35			64.0	P
Magnesium	279.55			5.0	P
Manganese	257.61			3.0	P
Molydenum	202.03			17.0	P
Samarium	443.43			68.0	P
Silicon	288.16			29.0	P
Silver	328.07			6.0	P
Sodium	589.89			28.0	P
Thallium	190.08			161.0	P
Zinc	213.86			3.0	P

Comments:

FORM X - IN ILM02.

11A
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: WHC_PAL Contract: WHC-PAL

Lab Code: 105KE Case No.: SAS No.: SDG No.: J1439D

ICP ID Number: ICP-1 Date: 01/13/94

Analyte	Wave-length (nm)	Interelement Correction Factors for : Al	Ca	Fe	Mg	U
Aluminum	308.22	0.0000000	0.0000000	0.0000000	0.0000000	-0.0041000
Barium	493.41	0.0000000	0.0000000	0.0000000	0.0000000	0.0000420
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Boron	249.68	0.0000000	0.0000000	-0.0017586	0.0000000	0.0000000
Cadmium	226.50	0.0000000	0.0000000	0.0001861	0.0000000	0.0000000
Calcium	393.37	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0001187	0.0000000	0.0005600
Copper	324.75	0.0000000	0.0000000	0.0000000	0.0000000	0.0006117
Iron	259.94	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.35	-0.0026913	0.0000000	-0.0001138	0.0000000	0.0020683
Magnesium	279.55	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.61	0.0000000	0.0005667	0.0000000	0.0000000	0.0000986
Molydenum	202.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Samarium	443.43	0.0000000	0.0019865	-0.0022732	0.0000000	0.0058821
Silicon	288.16	0.0000000	0.0014446	0.0000000	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	-0.0000784	0.0000000	0.0001005
Sodium	589.89	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.08	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.86	0.0000000	0.0000000	-0.0009717	0.0000000	0.0000295

Comments:

U.S. EPA - CLP

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ANALYSIS RUN LOG

WHC-SD-WM-DP-062, REV. 0

Lab Name: WHC_PAL

Contract: WHC-PAL

Lab Code: 105KE_ Case No.: _____

SAS No.: _____ SDG No.:J1439D

Instrument ID Number: ICP-1

Method: P_

Start Date: 01/17/94

End Date: 01/17/94

EPA Sample No.	D/F	Time	% R	Analytes																						
				AL	BA	BE	B	CD	CA	CR	CU	FE	PB	MG	MN	MO	SM	SI	AG	NA	TL	ZN					
ZZZZZZ	1.00	0809																									
ZZZZZZ	1.00	0813																									
ICV	1.00	0823		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
J1439	1.00	0952																									
ICB	1.00	0957		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
J1445	1.00	1004		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
J1445D	1.00	1008		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
J1445T	1.00	1010		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
J1446	1.00	1017		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
[illegible]6D	1.00	1020		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
[illegible]6T	1.00	1023		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
CCB	1.00	1032		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
CCV	1.00	1035		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					

FORM XIV - IN

ILM02.1

WESTINGHOUSE HANFORD COMPANY

222-S LABORATORY

ANALYTICAL BATCH

WHC-SD-WM-DP-062, REV. 0

Lab Segment Serial No. J1445, J1446	Customer ID: KE83B, KE83D
Analysis: ICP	Sample Prep: Direct

Instrument: W839939	Procedure/ Rev: LG-505-151 / D.0
Technologist: D.K. Sato	Date: 1-17-94
Starting Time: 1230	Temperature N/a
Ending Time: 1530	Chemist: B. Weis

Comments:

	Description	Lab ID		Description	Lab ID
1	INITIAL LMCS CHECK STD	J1439-5550	11		
2	REAGENT BLANK	J1440-5650	12		
3	Sample KE83B	J1445-5750	13		
4	Dup. Sample KE83B	J1445-5750	14		
5	Trip. Sample KE83B	J1445-5750	15		
6	Sample KE83D	J1446-5750	16		
7	Dup Sample KE83D	J1446-5750	17		
8	Trip Sample KE83D	J1446-5750	18		
9	Reagent Blank	- - - - -	19		
10	Lmcs Check Std	- - - - -	20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
Lmcs Check Std SS#4	35N10-A / direct			

A-6000-HH1 (03/93)

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Batch 2517

Serial No.	Sample Point	Date	Time Issued	Priority
J 1439.-5550	BECHTOLD	1- 4-94	10:49	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	% RECOVERY	E14157	0

Sample Size	Customer ID
? SST ICP 35N/OA DIRECT	STD

Remarks, Calculations, Results:

LMCS CHECK SAMPLE

Si 4684/5000 (100) = 93.48 % ✓
Al 4960/5000 = 99.20 % ✓
Ca 5064/5000 = 101.28 % ✓
Zn 5075/5000 = 101.50 % ✓
Fe 4869/5000 = 97.38 % ✓
Ca 4996/5000 = 99.92 % ✓
Cr 4952/5000 = 99.04 % ✓
Sm 5105/5000 = 102.10 % ✓
Ba 4979/5000 = 99.58 % ✓
Mg 4854/5000 = 97.08 % ✓

over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
D.K. Lato				
Hrs	Hrs	Hrs	Hrs	Hrs
				D.K. Lato 1-18-94

Date	Time Completed	Lab Unit Mgr	
1-17-94	1530	S. Parker 1-19-94	D.K. Lato 1-17-94

54-6800-061 (R-10-83)

Na 5074/5000 (100) = 101.48 % ✓
Mo 4917/5000 = 98.34 % ✓
Ag 4953/5000 = 99.06 % ✓
Pb 4982/5000 = 99.64 % ✓
Cd 4795/5000 = 95.90 % ✓
B 5030/5000 = 100.60 % ✓
Mn 4926/5000 = 98.52 % ✓
Be 5100/5000 = 102.00 % ✓
Tl 4872/5000 = 97.44 % ✓

J1439-5550

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1440.-5650	BECHTOLD	1- 4-94	10:52	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? DIRECT	BLANK

Remarks, Calculations, Results:

REAGENT BLANK

Si <28/1000 = <2.8 E^{-2} ug/ml

Al <38/1000 = <3.80 E^{-2}

Cu <5/1000 = <5.00 E^{-3}

Zn <3/1000 = <3.00 E^{-3}

Fe <21/1000 = <2.10 E^{-2}

Ca <19/1000 = <1.90 E^{-2}

Cr <11/1000 = <1.10 E^{-2}

Sn <68/1000 = <6.80 E^{-2}

Ba <6/1000 = <6.00 E^{-3}

Mg <5/1000 = <5.00 E^{-3}

over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
D.K. Sato				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-17-94	1530	S. Powell 1-19-94	D.K. Sato 1-17-94

54-6800-061 (R-10-83)

Na <28/1000 = <2.80 E^{-2}

Mo <17/1000 = <1.70 E^{-2}

Ag <6/1000 = <6.00 E^{-3}

Pb <64/1000 = <6.40 E^{-2}

Cd <8/1000 = <8.00 E^{-3}

B <12/1000 = <1.20 E^{-2}

Mn <3/1000 = <3.00 E^{-3}

Be <3/1000 = <3.00 E^{-3}

Tl <161/1000 = <1.61 E^{-1}

J1440-5650

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1445.-5750	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? /mL-10mL	KE83B

Remarks, Calculations, Results:

SAM

Si 798 x 11/1000 = 8.78 mg/mL ✓
Al 35604 = 3.92E+2 ✓
Cu 796 = 8.76 ✓
Zn 636 = 6.89 ✓
Fe 63997 = 7.04E+2 ✓
Ca 1812 = 1.99E+1 ✓
Cr 304 = 3.34 ✓
Sr 165 = 1.82 ✓
Ba 102 = 1.12 ✓

over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
D.K. 1/6/0				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-17-94	1530	S. Parag 1-17-94	D.K. 1-17-94

54-6800-061 (R-10-83)

DK 1-17-94

Mg ~~454~~ 635 x 11/1000 = 6.98 mg/mL ✓
Na 456 = 5.02 ✓
Mo <17 = <1.87E-1 ✓
Ag <6 = <6.60E-2 ✓
Pb 614 = 6.75 ✓
Cd 66.7 = 7.34E-1 ✓
B <12 = <1.32E-1 ✓
Mn 399 = 4.39 ✓
Be 16.3 = 1.79E-1 ✓
Tl 247 = 2.72 ✓

J1445-5750

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1445.-5750	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1 mL - 10 mL	KE83B

Remarks, Calculations, Results:

Dup

Si 826 x 11/1000 = 9.09 mg/ml ✓
Al 36424 = 4.01 E+2 ✓
Cu 812 = 8.93 ✓
Zn 664 = 7.30 ✓

Fe 67744 = 7.40 E+2 ✓
Ca 1865 = 2.05 E+1 ✓
Cr 306 = 3.37 ✓
Sm 204 = 2.24 ✓
Ba 104 = 1.14 ✓
Mg 665 = 7.32 ✓

Over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
D.K. Lefd				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-17-94	1530	S. Perry 1-19-94	D.K. Lefd 1-18-94

54-6800-061 (R-10-83)

Na 467 x 11/1000 = 5.14 mg/ml ✓
Mo <17 = < 1.87 E-1 ✓
Ag <6 = < 6.60 E-2 ✓
Pb 598 = 6.58 ✓
Cd 66.8 = 7.35 E-1 ✓
B <12 = < 1.32 E-1 ✓
Mn 420 = 4.62 ✓
Be 17.2 = 1.89 E-1 ✓
Tl 295 = 3.24 ✓

J1445-5750

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1445.-5750	BECHTOLD	1- 4-94	12: 3	26

Determination	Method/Standard	Result Units	Charge Code #	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1mL - 10mL	KE83B

Remarks, Calculations, Results:

TRIP

Si 828 x 11/1000 = 9.11 mg/mL ✓
Al 36573 = 4.02 E+2 ✓
Cu 819 = 9.01 ✓
Zn 664 = 7.33 ✓
Fe 67912 = 7.47 E+2 ✓
Ca 1916 = 2.11 E+1 ✓
Cr 310 = 3.41 ✓
Sr 195 = 2.14 ✓
Ba 105 = 1.14 ✓
Mg 670 = 7.37 ✓

over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
D.K. [illegible]				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-17-94	1530	S. Parry 1-19-94	D.K. [illegible] 1.18.94

54-6800-061 (R-10-83)

Na 476 x 11/1000 = 5.24 mg/mL ✓
Mo <17 = <1.87 E-1 ✓
Ag <6 = <6.60 E-2 ✓
Pb 623 = 6.85 ✓
Cd 69.5 = 7.64 E-1 ✓
B <12 = <1.32 E-1 ✓
Mn 422 = 4.64 ✓
Be 17.7 = 1.95 E-1 ✓
Tl 335 = 3.68 ✓

J1445-5750

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1446.-5750	BECHTOLD	1- 4-94	12:26	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1ml-10ml	KE83D

Remarks, Calculations, Results

SAM

Si 916 x 11/1000 = 1.01 E+1 ug/ml ✓

Al 8650 = 9.52 E+1 ✓

Cu 132 = 1.45 ✓

Zn 288 = 3.17 ✓

Fe 24136 = ~~3.20 E+2~~ 2.87 E+2 DR 1-13-94

Ca 6490 = 7.36 E+1 ✓

Cr 72.3 = 7.95 E-1 ✓

DR 1-17-94 Sn ~~57.8~~ = <68 = <7.48 E-1 ✓

Ba 85.1 = 9.36 E-1 ✓

Mg 683 = 7.51 ✓

Over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
D.K. Lyle				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-17-94	1530	S. Pairg 1-19-94	D.K. Lyle 1.18.94

54-6800-061 (R-10-83)

Na 336 x 11/1000 = 3.70 ✓

Mo <17 = <1.87 E-1 ✓

Ag <6 = <6.60 E-2 ✓

Pb 116 = 1.28 ✓

Cd 65.2 = 7.17 E-1 ✓

B <12 = <1.32 E-1 ✓

Mn 411 = 4.52 ✓

Be 7.43 = 8.17 E-2 ✓

Tl ~~139~~ <161 = <1.77 ✓

DR 1-17-94

J1446-5750

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1446.-5750	BECHTOLD	1- 4-94	12:26	26

Determination	Method/Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1mL-10mL	KE83D

Remarks, Calculations, Results:

Dup

Si 885 x 11/1000 = 9.84 ug/mL

Al 8516 = 9.37 E^{+1}

Cu 128 = 1.41

Zn 279 = 3.07

Fe 25293 = 2.78 E^{+2}

Ca 6494 = 7.14 E^{+1}

Cr 73.9 = 8.13 E^{-1}

DE 1-17-94 ~~Sn 59.3~~ = <68 = <7.48 E^{-1}

Ba 83.8 = 9.24 E^{-1}

Mg 463 = 7.29

over

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
D.K. Lee				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-17-94	1530	S. Pang 1-18-94	D.K. Lee 1-18-94

54-6800-061 (R-10-83)

Na 338 x 11/1000 = 3.72

Mo <17 = <1.87 E^{-1}

Ag <6 = <6.60 E^{-2}

Pb 108 = 1.19

Cd 61.0 = 6.71 E^{-1}

B <12 = <1.32 E^{-1}

Mn 396 = 4.36

Be 6.60 = 7.26 E^{-2}

Tl ~~126~~ <161 = <1.77

DE 1-17-94

J1446-5750

WHC-SD-WM-DP-062, REV. 0

INDUCTIVELY COUPLED PLASMA ANALYSIS - UNDIGESTED SAMPLE

Serial No.	Sample Point	Date	Time Issued	Priority
J 1446.-5750	BECHTOLD	1- 4-94	12:26	26

Determination	Method-Standard	Result Units	Charge Code	Reruns
ICP-LIQ	LA-505-151	uG/ML	E14157	0

Sample Size	Customer ID
? 1uL - 10uL	KE83D

Remarks, Calculations, Results:

TRIP.

Si 897 x 11/1000 = 9.87 ug/ml ✓
Al 8716 = 9.59 E+1 ✓
Cu 124 = 1.39 ✓
Zn 283 = 3.11 ✓

Fe 24960 = 2.74 E+2 ✓
Ca 4435 = 7.08 E+1 ✓
Cr 71.3 = 7.84 E-1 ✓
DK 1-17-94 ~~Sn 353~~ → <68 = <7.48 E-1 ✓
Ba 82.8 = 9.11 E-1 ✓
Mg 640 = 7.26 ✓

GWR

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
D.K. Lold				
Hrs	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr	
1-17-94	1530	S. Parrott 1-18-94	D.K. Lold 1-18-94

54-6800-061 (R-10-83)

Na 2632 x 11/1000 = 2.90 E+1 ✓
Mo <17 = <1.87 E-1 ✓
Ag <6 = <6.60 E-2
Pb 88.8 = 9.77 E-1 ✓
Cd 58.8 = 6.47 E-1 ✓
B <12 = <1.32 E-1 ✓
Mn 393 = 4.32 ✓
Be 7.22 = 7.94 E-2 ✓
Tl <161 = <1.77 ✓

J1446-5750

WHC-SD-WM-DP-062, REV. 0

Identity 1: SST4 Identity 2: Quality Control 9:51 AM January 17, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-[illegible] Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	4684.516	4959.650	5063.795	5074.950	4868.918	4995.744	4951.969	-548.764
S.D.	31.721	9.880	10.836	14.116	9.113	10.897	15.933	43.380
% R.S.D.	0.677	0.199	0.214	0.278	0.187	0.218	0.322	7.905

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	5105.412	4979.144	4854.312	5073.921	4917.063	4952.909	4982.550	4795.238
S.D.	12.852	11.199	12.131	23.389	13.381	13.518	34.951	9.667
% R.S.D.	0.252	0.225	0.250	0.461	0.272	0.273	0.701	0.202

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	5030.306	4925.556	5100.497	4871.945
S.D.	10.460	13.307	13.870	9.114
% R.S.D.	0.208	0.270	0.272	0.187

WHC-SD-WM-DP-062, REV. 0

D.K. [illegible]
1-17-94
Bechtold KE
J1439 – J1446

Identity 1: 1440 reag blk Identity 2: direct 9:57 AM January 17, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	-14.129	-12.006	1.984	-0.890	4.266	-0.117	5.831	-135.454
S.D.	1.070	1.469	1.174	0.222	1.074	0.034	0.565	30.079
% R.S.D.	7.575	12.234	59.145	24.905	25.165	28.867	9.695	22.206

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	-4.216	0.938	0.045	10.456	-0.349	-1.738	41.656	0.502
S.D.	9.120	0.031	0.067	4.273	1.057	0.694	23.735	0.439
% R.S.D.	216.298	3.310	150.000	40.869	303.112	39.927	56.978	87.434

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	-14.474	0.462	0.000	79.676
S.D.	2.208	0.366	0.314	25.692
% R.S.D.	15.255	79.167	1855262.335	32.246

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1445 BECHTOLD KE83B Identity 2: 1ml-10ml 10:02 AM January 17, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-' Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	797.943	35604.472	795.897	626.294	63996.850	1811.861	304.252	60166.018
S.D.	4.595	66.543	3.336	3.735	192.524	4.424	4.996	116.183
% R.S.D.	0.576	0.187	0.419	0.596	0.301	0.244	1.642	0.193

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	165.365	101.630	634.794	455.886	6.537	2.611	613.678	66.680
S.D.	13.304	0.491	1.336	6.364	1.715	1.052	27.285	1.304
% R.S.D.	8.045	0.483	0.211	1.396	26.230	40.283	4.446	1.956

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	2.022	399.105	16.331	246.878
S.D.	2.623	0.869	0.831	36.509
% R.S.D.	129.711	0.218	5.088	14.788

WHC-SD-WM-DP-062, REV. 0

D.K. [illegible]
1-17-94
Bechtold K.E.
J1439-J1444

Identity 1: J1445 BECHTOLD dup Identity 2: 1ml-10ml 10:07 AM January 17, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	826.007	36425.717	811.785	664.430	67264.410	1865.421	306.227	61940.817
S.D.	5.166	64.602	1.044	1.882	71.044	4.099	0.773	109.777
% R.S.D.	0.625	0.177	0.129	0.283	0.106	0.220	0.253	0.177

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	204.460	103.847	665.053	466.926	5.404	2.133	597.821	66.791
S.D.	11.484	0.176	1.399	6.371	2.580	0.868	11.247	0.875
% R.S.D.	5.617	0.170	0.210	1.364	47.738	40.671	1.881	1.310

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	1.229	419.971	17.169	294.718
S.D.	1.169	3.296	0.181	12.991
% R.S.D.	95.155	0.785	1.056	4.408

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1445 BECHTOLD trip Identity 2: 1ml-10ml 10:10 AM January 17, 1994
Task name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	827.919	36572.612	819.417	666.127	67912.149	1915.729	309.983	62590.303
S.D.	4.592	133.931	3.616	0.381	263.859	6.330	4.442	238.135
% R.S.D.	0.555	0.366	0.441	0.057	0.389	0.330	1.433	0.380

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	195.190	105.419	669.607	476.268	5.317	1.785	622.868	69.535
S.D.	16.710	0.144	1.811	3.341	3.626	0.796	15.834	1.934
% R.S.D.	8.561	0.136	0.270	0.702	68.205	44.618	2.542	2.782

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	3.182	422.027	17.692	335.183
S.D.	2.352	1.376	0.181	25.346
% R.S.D.	73.920	0.326	1.025	7.562

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1446 BECHTOLD KE83D Identity 2: 1ml-10ml 10:16 AM January 17, 1994

Task name : KBASIN

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	915.603	8650.443	131.754	287.691	26136.214	6690.395	72.321	14542.234
S.D.	4.906	16.970	0.323	0.856	55.455	13.552	3.747	27.568
% R.S.D.	0.536	0.196	0.245	0.297	0.212	0.203	5.181	0.190

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	57.775	85.139	682.863	335.718	-2.876	-0.668	116.319	65.154
S.D.	9.235	0.222	1.821	2.514	3.399	1.260	15.367	2.573
% R.S.D.	15.984	0.261	0.267	0.749	118.182	188.606	13.211	3.949

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	-9.158	410.748	7.433	138.868
S.D.	3.001	1.674	0.363	39.198
% R.S.D.	32.771	0.407	4.879	28.226

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1446 BECHTOLD dup Identity 2: 1ml-10ml 10:20 AM January 17, 1994

Task name : KBASIN

Sample Weight : 1.0000 Solution Volume : 1.00

On Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	895.100	8515.587	128.130	278.576	25293.230	6495.649	73.904	14250.486
S.D.	1.070	16.419	0.561	1.929	92.953	15.227	4.795	47.748
% R.S.D.	0.120	0.193	0.438	0.692	0.368	0.234	6.488	0.335

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	59.308	83.798	662.900	337.841	0.000	-0.054	108.311	61.045
S.D.	13.205	0.164	1.428	1.638	2.234	0.789	40.174	1.832
% R.S.D.	22.266	0.196	0.215	0.485	55382779.464	1460.721	37.091	3.001

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	-15.860	396.134	6.595	125.977
S.D.	0.539	0.918	0.314	15.139
% R.S.D.	3.401	0.232	4.762	12.017

WHC-SD-WM-DP-062, REV. 0

Identity 1: J1446 BECHTOLD trip Identity 2: 1ml-10ml 10:23 AM January 17, 1994

Task name : KBASIN

Sample Weight : 1.0000 Solution Volume : 1.00

On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	897.406	8715.614	126.215	282.901	24959.619	6435.233	71.302	14042.095
S.D.	3.895	11.319	0.733	1.150	98.985	13.113	1.492	62.517
% R.S.D.	0.434	0.130	0.581	0.406	0.397	0.204	2.093	0.445

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	35.285	82.801	659.849	2632.166	2.702	-1.315	88.805	58.829
S.D.	5.206	0.065	1.083	17.045	1.487	0.346	37.264	2.245
% R.S.D.	14.755	0.079	0.164	0.648	55.028	26.275	41.962	3.816

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	-13.388	393.238	7.223	55.639
S.D.	1.681	2.814	0.314	20.689
% R.S.D.	12.553	0.716	4.348	37.184

WHC-SD-WM-DP-062, REV. 0

Identity 1: hno3 reag blk Identity 2: direct 10:31 AM January 17, 1994

Task name : KBASIN

Sample Weight : 1.0000 Solution Volume : 1.00

C Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	-13.779	-15.385	-1.022	-0.973	-5.261	0.097	0.088	59.044
S.D.	1.618	5.371	0.648	0.344	8.522	0.034	2.726	65.070
% R.S.D.	11.742	34.912	63.387	35.403	161.963	34.642	3109.287	110.206

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	12.137	0.619	-0.090	11.645	-3.225	-0.704	-11.213	1.942
S.D.	17.753	0.332	0.067	15.170	1.927	0.752	13.038	0.884
% R.S.D.	146.269	53.687	75.000	130.268	59.766	106.846	116.272	45.508

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	-14.856	-0.840	0.000	106.224
S.D.	2.635	0.006	0.000	47.915
% R.S.D.	17.741	0.765	0.000	45.108

WHC-SD-WM-DP-062, REV. 0

'dentity 1: SST4 Identity 2: Quality Control 10:34 AM January 17, 1994
'ask name : KBASIN
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Si (ppb)	Al (ppb)	Cu (ppb)	Zn (ppb)	Fe (ppb)	Ca (ppb)	Cr (ppb)	U (ppb)
Mean	4694.741	4984.676	5106.423	5198.290	4923.808	5030.646	4985.725	-461.934
S.D.	16.198	17.569	5.530	9.780	12.283	4.530	12.703	55.135
% R.S.D.	0.345	0.352	0.108	0.188	0.249	0.090	0.255	11.936

	Sm (ppb)	Ba (ppb)	Mg (ppb)	Na (ppb)	Mo (ppb)	Ag (ppb)	Pb (ppb)	Cd (ppb)
Mean	5076.098	4995.682	4882.889	5077.403	4935.715	5002.045	5029.070	4835.390
S.D.	16.963	6.748	9.470	10.692	5.825	6.147	14.076	10.464
% R.S.D.	0.334	0.135	0.194	0.211	0.118	0.123	0.280	0.216

	B (ppb)	Mn (ppb)	Be (ppb)	Tl (ppb)
Mean	5054.848	4965.842	5115.991	4945.634
S.D.	2.701	18.086	6.485	53.335
% R.S.D.	0.053	0.364	0.127	1.078

WHC-SD-WM-DP-062, REV. 0