THIS DOCUMENT WAS TOO LARGE TO SCAN AS A SINGLE DOCUMENT. IT REQUIRED BREAKING INTO SMALLER SECTIONS.

DOCUMENT NUMBER: SD-WM-DP-149

SECTION: 4 OF 4

TITLE: 60 Day Waste Compatibility Safety Issue & Final Results for Tank 241AW102 Grab Samples 2AW-95-1 2AW-95-2 & 2AW-95-3

AUTHOR: Eich RA

RECIPIENT:

DATE: 11/15/95

KEYWORDS:

REFERENCES: EDT-612093

Raymond 10-13-95

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
S95T2309-DUP
File ID: 17a1700.CNF

Counted on: 10/12/95 @22:29
Detector: AEA17
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	376.8	376.8	358.833	358.833	12.000	4.310	6.000	1.125
2	110.6	110.6	300.682	300.544	12.000	4.005	6.000	1.109
3	1071.7	1071.7	226.482	226.482	14.000	5.252	7.000	1.874

PEAK RESULTS
Peak Error Limit: 30%

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	Pu236	0.275	5.755	5.750	0.005	0.02	15.23	2.3	157.7	0.711E-04
2	Pu238	0.077	5.487	5.482	0.005	0.02	4.24	4.6	59.8	0.269E-04
	Am241		5.479	5.482	-.003				45.8	0.206E-04
3	Pu239	0.668	5.147	5.141	0.006	0.02	36.94	1.5	375.0	0.169E-03
	Pu240		5.144	5.141	0.003				375.0	0.169E-03
		---					---			
Totals:		1.020	<--valid peaks only-->				56.41			

DETECTOR CALIBRATION
Energy(MEV) = 4.099 + (0.0046)*Channel
Energy range (MeV): 4.099 TO 6.455
Efficiency = 0.0985 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	26546.0	100.000
Smoothed	26545.0	99.996
Composite fit	27075.7	101.995
Residuals	-529.7	-1.995

Analyzed by: _____
EMB

Spectrum 17a1700.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 6930.2

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3
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........3.
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2
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2.
1
 1
.  1
...... 1
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Raw Data Dump for AEA Spectrum: 17a1700.CNF

1	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.
11	0.	0.	1.	0.	1.	1.	0.	1.	0.	0.
21	0.	1.	0.	1.	0.	0.	0.	0.	1.	0.
31	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
41	1.	1.	0.	0.	1.	1.	1.	0.	0.	0.
51	0.	1.	2.	0.	1.	0.	1.	1.	0.	2.
61	0.	1.	1.	0.	0.	0.	0.	1.	1.	0.
71	1.	0.	0.	0.	0.	0.	0.	1.	1.	0.
81	0.	0.	1.	0.	0.	0.	0.	1.	0.	0.
91	0.	0.	2.	0.	1.	0.	0.	1.	2.	1.
101	1.	0.	0.	0.	1.	3.	2.	0.	1.	0.
111	2.	0.	0.	0.	2.	2.	1.	1.	1.	0.
121	1.	0.	0.	2.	1.	3.	1.	3.	3.	1.
131	1.	1.	2.	4.	1.	4.	1.	4.	2.	5.
141	4.	4.	2.	5.	6.	4.	3.	3.	3.	5.
151	6.	2.	3.	7.	2.	4.	3.	4.	5.	2.
161	4.	2.	2.	2.	2.	6.	4.	9.	6.	2.
171	9.	7.	7.	4.	6.	10.	6.	10.	5.	7.
181	6.	9.	16.	8.	8.	13.	13.	11.	17.	16.
191	17.	24.	20.	36.	33.	29.	37.	44.	62.	51.
201	65.	83.	74.	95.	124.	137.	162.	157.	186.	222.
211	260.	274.	341.	357.	444.	504.	559.	655.	678.	703.
221	820.	875.	936.	982.	1057.	1233.	1176.	1101.	964.	772.
231	465.	274.	142.	50.	12.	2.	0.	0.	1.	2.
241	0.	0.	1.	1.	1.	2.	1.	1.	0.	5.
251	3.	2.	3.	3.	0.	5.	0.	2.	3.	0.
261	2.	2.	1.	0.	5.	0.	5.	5.	5.	3.
271	7.	6.	9.	11.	7.	6.	9.	12.	21.	14.
281	11.	24.	27.	31.	49.	43.	38.	61.	50.	67.
291	85.	93.	95.	89.	97.	88.	92.	116.	127.	122.
301	121.	124.	122.	97.	46.	15.	3.	2.	1.	4.
311	1.	4.	2.	1.	6.	4.	5.	8.	5.	4.
321	7.	4.	4.	13.	7.	10.	11.	8.	12.	18.
331	28.	20.	26.	19.	32.	38.	50.	56.	51.	80.
341	101.	107.	125.	126.	147.	187.	199.	263.	265.	311.
351	308.	318.	308.	281.	332.	359.	386.	369.	394.	425.
361	372.	314.	151.	50.	7.	1.	1.	2.	0.	0.
371	1.	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.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	1.	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.								

Raymond 10.13.95

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
S95T2158-SAM
File ID: 18a1837.CNF

Counted on: 10/12/95 @22:29
Detector: AEA18
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	749.5	749.5	361.612	361.612	10.000	3.697	5.000	0.967
2	32.9	32.9	303.751	303.446	10.000	2.099	5.000	0.553
3	367.8	367.8	229.202	229.201	12.000	5.181	6.000	1.618

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.703	5.755	5.749	0.006	0.02	29.54	1.6	3675.8	0.166E-02
2	Pu238	0.029	5.487	5.481	0.006	0.01	1.20	10.1	203.1	0.915E-04
	Am241		5.479	5.481	-.002				155.6	0.701E-04
3	Pu239	0.325	5.147	5.139	0.008	0.02	13.67	2.4	1666.5	0.751E-03
	Pu240		5.144	5.139	0.005				1666.5	0.751E-03
		---					---			
Totals:		1.057	<--valid peaks only-->				44.40			

DETECTOR CALIBRATION
Energy(MEV) = 4.085 + (0.0046)*Channel
Energy range (MeV): 4.085 TO 6.440
Efficiency = 0.0082 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	20168.0	100.000
Smoothed	20168.0	100.000
Composite fit	21315.9	105.692
Residuals	-1147.9	-5.692

Analyzed by: _____
EMB

Spectrum 18a1837.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 4585.7

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3
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....3
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2
2
2.
1.2.
21
. 1
..   1
....      1
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...................................1
.......................................................................1....
.......................................................1
..1..
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Raw Data Dump for AEA Spectrum: 18a1837.CNF

1	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
11	2.	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.	0.	0.	0.	0.	0.	0.
41	0.	1.	0.	0.	1.	0.	0.	0.	0.	1.
51	1.	1.	0.	0.	1.	0.	0.	0.	2.	0.
61	0.	0.	1.	1.	1.	0.	0.	0.	0.	1.
71	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	1.	0.	0.	2.
91	0.	0.	1.	1.	1.	0.	0.	0.	0.	0.
101	0.	0.	1.	1.	1.	1.	0.	1.	0.	1.
111	0.	1.	1.	1.	0.	2.	1.	0.	0.	0.
121	0.	0.	1.	1.	1.	2.	0.	1.	0.	0.
131	2.	0.	2.	0.	0.	6.	1.	0.	0.	0.
141	1.	0.	2.	2.	2.	3.	1.	0.	2.	0.
151	2.	1.	2.	2.	2.	2.	1.	3.	2.	2.
161	3.	2.	0.	1.	1.	0.	0.	2.	0.	1.
171	2.	3.	4.	3.	4.	3.	2.	4.	2.	4.
181	4.	4.	4.	7.	8.	7.	4.	10.	7.	8.
191	5.	7.	5.	10.	12.	11.	8.	20.	17.	21.
201	24.	26.	29.	45.	30.	51.	37.	47.	71.	66.
211	64.	83.	107.	114.	117.	144.	154.	174.	185.	204.
221	234.	238.	262.	279.	327.	354.	376.	380.	382.	408.
231	365.	353.	235.	115.	67.	43.	8.	3.	0.	0.
241	0.	0.	0.	0.	1.	0.	1.	1.	2.	2.
251	1.	4.	5.	2.	3.	1.	2.	0.	1.	2.
261	0.	1.	1.	2.	3.	2.	3.	4.	3.	1.
271	1.	4.	3.	6.	4.	4.	5.	7.	8.	6.
281	3.	8.	8.	10.	9.	13.	20.	11.	17.	23.
291	14.	19.	25.	20.	41.	37.	33.	26.	34.	31.
301	32.	43.	54.	46.	56.	38.	27.	18.	12.	2.
311	5.	9.	10.	7.	6.	8.	10.	9.	15.	17.
321	14.	11.	16.	14.	16.	23.	25.	21.	20.	38.
331	33.	26.	43.	46.	67.	61.	68.	73.	83.	98.
341	125.	142.	174.	187.	194.	239.	263.	290.	322.	424.
351	454.	488.	570.	587.	590.	568.	546.	568.	669.	733.
361	754.	863.	802.	727.	413.	191.	51.	8.	0.	0.
371	1.	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.	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.	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.								

Raymond 10-13-95

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
SS95T2158-DUP
File ID: 19a1942.CNF

Counted on: 10/12/95 @22:30
Detector: AEA19
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	660.1	660.1	361.068	361.068	12.000	4.072	6.000	1.130
2	37.2	37.2	302.819	302.382	10.000	3.604	5.000	1.084
3	350.4	350.4	229.184	229.184	14.000	5.502	7.000	2.010

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.666	5.755	5.774	-.019	0.02	25.35	1.8	1413.3	0.637E-03
	Cm243		5.779	5.774	0.005				1897.3	0.855E-03
2	Pu238	0.035	5.487	5.499	-.012	0.02	1.33	9.2	100.6	0.453E-04
	Am241		5.479	5.499	-.020				77.0	0.347E-04
3	Pu239	0.316	5.147	5.155	-.008	0.03	12.04	2.6	658.2	0.296E-03
	Pu240		5.144	5.155	-.011				658.2	0.296E-03
		---					---			
Totals:		1.017	<--valid peaks only-->				38.72			

DETECTOR CALIBRATION
Energy(MEV) = 4.077 + (0.0047)*Channel
Energy range (MeV): 4.077 TO 6.484
Efficiency = 0.0183 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	18275.0	100.000
Smoothed	18276.0	100.005
Composite fit	18584.6	101.694
Residuals	-309.6	-1.694

Analyzed by: EMB

Spectrum 19a1942.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 4220.8

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3
...3
........3
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2
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2.
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..  1
.....    1
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.............................................1
.1..
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Raw Data Dump for AEA Spectrum: 19a1942.CNF

1	0.	0.	0.	1.	1.	1.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	2.	0.	0.	2.	1.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	1.	1.	0.	1.	1.
51	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.
61	0.	1.	1.	0.	0.	0.	1.	0.	1.	0.
71	0.	0.	0.	1.	0.	1.	1.	0.	0.	0.
81	0.	2.	0.	2.	0.	1.	0.	0.	0.	0.
91	0.	0.	1.	0.	0.	1.	1.	0.	0.	1.
101	0.	2.	0.	0.	2.	0.	0.	0.	1.	2.
111	1.	0.	0.	1.	0.	1.	0.	0.	0.	0.
121	0.	0.	0.	0.	1.	0.	2.	0.	1.	1.
131	0.	2.	0.	0.	2.	0.	2.	2.	1.	0.
141	5.	0.	2.	1.	2.	0.	3.	4.	3.	3.
151	3.	3.	0.	0.	1.	2.	4.	3.	3.	3.
161	0.	3.	5.	2.	2.	0.	3.	2.	0.	2.
171	2.	3.	4.	5.	2.	1.	4.	0.	3.	3.
181	5.	4.	5.	6.	5.	6.	6.	6.	11.	8.
191	9.	13.	7.	13.	9.	14.	9.	14.	15.	14.
201	14.	23.	30.	24.	26.	32.	36.	31.	45.	56.
211	63.	65.	66.	86.	98.	97.	134.	124.	190.	188.
221	157.	221.	271.	271.	286.	322.	307.	392.	396.	369.
231	362.	287.	223.	153.	77.	46.	20.	3.	1.	1.
241	0.	0.	3.	1.	1.	2.	0.	2.	0.	2.
251	1.	2.	1.	1.	0.	3.	4.	4.	4.	1.
261	0.	1.	0.	1.	5.	2.	4.	2.	1.	1.
271	3.	1.	4.	2.	2.	3.	4.	3.	3.	6.
281	4.	4.	6.	8.	15.	10.	8.	11.	16.	10.
291	30.	25.	37.	23.	29.	33.	43.	29.	37.	44.
301	45.	44.	52.	48.	39.	41.	26.	15.	7.	3.
311	7.	6.	7.	8.	12.	20.	7.	12.	18.	9.
321	20.	15.	15.	25.	20.	19.	25.	23.	35.	30.
331	26.	43.	46.	45.	56.	48.	73.	77.	84.	90.
341	95.	134.	137.	178.	194.	213.	238.	282.	338.	324.
351	430.	492.	509.	489.	541.	475.	526.	566.	637.	708.
361	708.	738.	680.	550.	301.	109.	17.	0.	2.	0.
371	0.	2.	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.	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.								

LABCORE Completed Worklist Report for Worklist# 2717

Analyst: jmv **Instrument:** PU01 **Book#** 104843

Method: LA-943-127 Rev/Mod B-0

Worklist Comment: Determine sample size using Ludlum. --LLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@PU23902 PU23901	LIQUID	1.28E-01	1.21E-1	94.530	% Recovery
1	STD		0		@PU23902 PU23901E	LIQUID	1.00	2.45E+00	2.450	% Ct. Error
1	STD		0		@PU23902 PU23901T	LIQUID	100	6.09E+01	60.900	% Recovery
2	BLNK		0		@PU23902 PU23901	LIQUID	1	<4.30E-6		uCi/mL
2	BLNK		0		@PU23902 PU23901T	LIQUID	100	6.82E+01	68.200	% Recovery
2	BLNK		0		@PU23902 PU23901E	LIQUID	1.00	1.00E+02	100.000	% Ct. Error
2	BLNK		0		@PU23902 PU23801	LIQUID	1	<4.30E-6		uCi/mL
2	BLNK		0		@PU23902 PU23801E	LIQUID	1.00	1.00E+02	100.000	% Ct. Error
3	SAMPLE	S95T002308	0		@PU23902 PU23901	LIQUID	N/A	1.49E-04	1.320e-005	uCi/mL
3	SAMPLE	S95T002308	0		@PU23902 PU23901T	LIQUID	N/A	6.07E+01	1.000e-007	% Recovery
3	SAMPLE	S95T002308	0		@PU23902 PU23901E	LIQUID	N/A	2.36E+00	0.000	% Ct. Error
3	SAMPLE	S95T002308	0		@PU23902 PU23801	LIQUID	N/A	1.90E-05	1.320e-005	uCi/mL
3	SAMPLE	S95T002308	0		@PU23902 PU23801E	LIQUID	N/A	4.58E+00	0.000	% Ct. Error

Final page for worklist# 2717

Analyst Signature **Date** **Analyst Signature** **Date**

12 Oct 95

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 2717

Analyst: JMV **Instrument:** PU01 _____ **Book#** 104-B-43

Method: LA-943-127 Rev/Mod B-0

Worklist Comment: Determine sample size using Ludlum. --LLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@PU23902	LIQUID		
2	BLNK				@PU23902	LIQUID		
3	SAMPLE	S95T002308	0		@PU23902	LIQUID	95000127	AW-102 GRAB

Analytes Requested: PU23801 , PU23801E, PU23901 , PU23901E, PU23901T

Final page for worklist # 2717

Joel M Urquhart 10-5-95
Analyst Signature **Date**

SE Hogan 10/12/95
Analyst Signature **Date**

Joel M Urquhart 10-11-95

Data Entry Comments:
JMV Prep

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WORKBOOK PAGE: STD1

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID

Type	DATE COUNTED		OCT-11-95	PU 236 AEA FRAC	(C236)	STD	0.457
STD	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC	(C238)		0.000
Work List	SAMPLE DILUTION FACTOR	DF	101.000	PU 239 AEA FRAC	(C239)		0.549
2717	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			4593
Test Code	DIGEST DILUTION FACTOR	DDF	1.000	AT COUNT TIME (MIN)			30
@PU23902	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)		5.000
Matrix	DETECTOR NUMBER		3	PU 236 cpm			24.470
LIQUID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm			0.000
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm			29.400
95002913	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME			480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		2221.681	Pu 239/240 µCi/L			1.2142E+02
0	PU-238 TRACER VALUE (dpm/mL		0.000				
Sample Prep	STANDARD BOOK NO		104B43				
N/A	STANDARD VALUE in µCi/mL		0.128				
Sample #							
WORKLIST2717-STD							

Instrument Code	Decay Time = Date Counted - Tracer Preparation Date
AL10541	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)}]
Prepared By	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg)* 1/EFF *C236*100/Pu-236 Decay Corr'd Value * SPKV
SEH	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(2220000 dpm/µCi)]
Chemist	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
LLF	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Analyst	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
JMV	
Date Complete	v RESULTS v
10/12/95	Pu 239/240 µCi/mL 1.21E-01
Analysis Date	Relative Counting Error = 2.4%
10/11/95	
Analysis Time	
01:00 PM	
Sample Point	
AW-102 GRAB	Pu 236 Tracer Recovery = 60.9%

DETECTION LEVELS in µCi/mL
Pu 239/240
1.09E-02

Analyst:	JMV	Date:	12-Oct-95
Signature of Chemist:	LLF	Date:	12 Oct 95

STANDARD.WB1 REV 1.2 943127ML

WORKBOOK PAGE: BLANK2

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

						BLNK
Type	DATE COUNTED		OCT-11-95	PU 236 AEA FRAC	(C236)	1.025
BLNK	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC	(C238)	0.000
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.000
2717	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		2337
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
@PU23902	TRACER BOOK NO		117B43	BACKGROUND in cpm (Bkg)		4.000
Matrix	DETECTOR NUMBER		2	PU 236 cpm		27.510
LIQUID	EFFICIENCY FACTOR	EFF	0.5000	PU 238 cpm		0.000
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		0.000
95002913	TRACER PREPARATION VALUE (dpm/mL)		2265.00	AEA COUNT TIME		480
Rerun	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2221.68	Pu 239/240 µCi/L =	<	4.295E-03
0	PU-238 TRACER VALUE	(dpm/mL)	0.00			

Sample Prep	
N/A	
Sample #	Decay Time = Date Counted - Tracer Preparation Date
WORKLIST2717-BK	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)}]
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg)*C236*100/(Pu-236 Decay Corr'd Value * SPKV*EFF)
AL10540	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
SEH	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
LLF	
Analyst	
JMV	
Date Complete	v RESULTS v
10/12/95	Pu 239/240 µCi/mL < 4.30E-06
Analysis Date	Relative Counting Error = 100.0%
10/11/95	
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.
01:00 PM	Pu 238 µCimL < 4.30E-06
Sample Point	Relative Counting Error = 100.0%
AW-102 GRAB	Pu 236 Tracer Recovery = 68.2%

DETECTION LEVELS in µCi/mL	
Pu 239/240	4.30E-06
Pu 238	4.30E-06

Analyst:	JMV	Date:	12-Oct-95
Signature of Chemist:	LLF	Date:	12 Oct 95

BLANK.WB1 REV 1.2 943127ML

WORKBOOK PAGE: SAM3

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

							SAMPLE
Type	DATE COUNTED		OCT-11-95	PU 236 AEA FRAC	(C236)		0.374
SAMPLE	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC	(C238)		0.071
Work Unit	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)		0.558
2717	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			5560
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)			30
@PU23902	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)		5.000
Matrix	DETECTOR NUMBER		1	PU 236 cpm			23.920
LIQUID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm			4.550
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm			35.640
95002913	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME			480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		2221.681	Pu 239/240 µCi/L			1.4931E-01
0	PU-238 TRACER VALUE (dpm/mL)		0.000				
Sample Date							
N/A							
Sample #	Decay Time = Date Counted - Tracer Preparation Date						
S95T002308	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)}]						
Instrument ID	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)						
AL10539	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]						
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)						
SEH	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]						
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100						
LLF							
Analyst							
JMV							
Date Counted	v RESULTS v						
10/12/95	Pu 239/240 µCi/mL		1.49E-04				DETECTION LEVELS In µCi/mL
Analyst Date	Relative Counting Error	=	2.4%				
10/11/95							
Analysis Time							Pu 239/240
01:00 PM	Pu 238 µCimL		1.90E-05				1.32E-05
Sample Point	Relative Counting Error	=	4.6%				Pu 238
AW-102 GRAB	Pu 236 Tracer Recovery	=	60.7%				1.32E-05

Analyst:		JMV	Date:	12-Oct-95
Signature of Chemist:		LLF	Date:	12 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

Raymond
10·12·95

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-149, REV. 0

SAMPLE
WORKLIST2717-STD
File ID: 13a1328.CNF

Counted on: 10/11/95 @15:21
Detector: AEA13
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	501.0	501.0	356.136	356.136	14.000	7.575	7.000	1.712
2?	2.7	2.7	300.368	300.368	4.000	0.000	2.000	1.843
3	654.5	654.5	222.883	222.882	16.000	8.554	8.000	2.305

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Ra224	0.457	5.686	5.742	-.056	0.03	24.47	1.8	232.0	0.104E-03
	Pu236		5.755	5.742	0.013				222.5	0.100E-03
2		????		5.486			0.00	1000.		
3	Pu239	0.549	5.147	5.129	0.018	0.04	29.40	1.7	262.0	0.118E-03
	Pu240		5.144	5.129	0.015				262.0	0.118E-03
		---					---			
Totals:		1.006	<--valid peaks only-->				53.87			

DETECTOR CALIBRATION
Energy(MEV) = 4.104 + (0.0046)*Channel
Energy range (MeV): 4.104 TO 6.459
Efficiency = 0.1122 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	25691.0	100.000
Smoothed	25691.0	100.000
Composite fit	25856.4	100.644
Residuals	-165.4	-0.644

Analyzed by: _____
DM

Spectrum 13a1328.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 4774.7

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Raw Data Dump for AEA Spectrum: 13a1328.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.	1.	1.	0.	1.	0.	0.	1.
31	1.	0.	0.	0.	0.	1.	0.	1.	0.	0.
41	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
51	0.	0.	0.	1.	2.	1.	0.	0.	1.	0.
61	0.	0.	0.	0.	0.	2.	0.	1.	0.	0.
71	0.	0.	1.	0.	1.	0.	0.	1.	1.	0.
81	0.	0.	0.	0.	1.	0.	0.	2.	0.	1.
91	0.	2.	0.	0.	2.	0.	1.	2.	0.	0.
101	0.	0.	2.	1.	0.	1.	1.	1.	1.	3.
111	0.	1.	1.	0.	1.	0.	2.	2.	0.	1.
121	1.	2.	1.	0.	1.	0.	5.	1.	1.	3.
131	3.	1.	2.	5.	3.	6.	3.	5.	2.	2.
141	2.	1.	4.	5.	5.	5.	3.	4.	6.	8.
151	3.	5.	3.	5.	5.	5.	4.	4.	4.	7.
161	7.	8.	9.	3.	6.	4.	14.	9.	10.	7.
171	12.	18.	17.	19.	14.	17.	12.	25.	28.	19.
181	34.	35.	32.	34.	44.	33.	38.	47.	58.	44.
191	59.	70.	67.	58.	74.	96.	101.	114.	138.	121.
201	149.	161.	158.	188.	194.	233.	209.	228.	277.	279.
211	328.	359.	381.	420.	413.	484.	580.	534.	625.	612.
221	691.	690.	692.	686.	633.	581.	572.	397.	322.	194.
231	95.	47.	19.	3.	2.	0.	0.	1.	0.	0.
241	2.	0.	0.	3.	0.	2.	1.	0.	0.	0.
251	1.	0.	3.	2.	4.	2.	1.	1.	1.	2.
261	3.	4.	1.	2.	3.	2.	3.	1.	8.	5.
271	4.	1.	4.	1.	3.	4.	2.	2.	9.	5.
281	4.	6.	5.	7.	6.	4.	9.	10.	9.	16.
291	14.	4.	8.	12.	16.	19.	14.	15.	15.	20.
301	22.	13.	14.	18.	10.	13.	20.	22.	9.	11.
311	26.	20.	17.	27.	16.	26.	23.	14.	32.	38.
321	35.	45.	49.	47.	48.	54.	58.	70.	64.	66.
331	77.	73.	109.	94.	126.	128.	150.	172.	185.	204.
341	205.	242.	289.	297.	330.	392.	355.	401.	384.	438.
351	442.	517.	497.	514.	505.	507.	524.	502.	497.	401.
361	307.	217.	127.	52.	14.	2.	0.	0.	1.	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.	1.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	1.	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.								

Raymond 10-12-95

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
WORKLIST2717-BLK
File ID: 14a1433.CNF

Counted on: 10/11/95 @15:22
Detector: AEA14
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	658.5	658.5	357.207	357.207	14.000	6.428	7.000	1.774

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	1.025	5.755	5.745	0.010	0.03	27.51	1.7	286.7	0.129E-03
Totals:		1.025	<--valid peaks only-->				27.51			

DETECTOR CALIBRATION
Energy(MEV) = 4.102 + (0.0046)*Channel
Energy range (MeV): 4.102 TO 6.457
Efficiency = 0.0979 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	12886.0	100.000
Smoothed	12886.0	100.000
Composite fit	13204.5	102.471
Residuals	-318.5	-2.471

Analyzed by: _____
DM

Spectrum 14a1433.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 4923.7

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1
1
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.......................................................................1...
...........................1
1
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Raw Data Dump for AEA Spectrum: 14a1433.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.	1.
31	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
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.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
81	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
101	0.	0.	0.	0.	0.	2.	0.	1.	0.	0.
111	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
121	0.	0.	0.	0.	0.	1.	1.	0.	3.	0.
131	0.	1.	0.	0.	1.	0.	0.	0.	0.	0.
141	1.	0.	0.	1.	0.	1.	0.	0.	0.	0.
151	0.	0.	1.	0.	1.	0.	1.	0.	0.	0.
161	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
171	0.	0.	0.	2.	0.	1.	0.	1.	0.	0.
181	2.	0.	1.	0.	0.	0.	0.	0.	0.	0.
191	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
201	1.	1.	2.	0.	0.	0.	1.	1.	3.	1.
211	1.	1.	1.	4.	5.	4.	7.	4.	4.	7.
221	12.	7.	7.	9.	5.	5.	6.	10.	10.	3.
231	4.	1.	0.	3.	0.	1.	3.	2.	0.	0.
241	0.	0.	2.	0.	3.	2.	1.	1.	3.	1.
251	0.	2.	0.	1.	0.	0.	1.	2.	1.	0.
261	1.	0.	0.	0.	1.	0.	3.	1.	1.	4.
271	1.	2.	1.	1.	2.	2.	0.	0.	2.	1.
281	1.	1.	3.	1.	4.	4.	5.	4.	2.	2.
291	7.	4.	2.	3.	6.	4.	8.	9.	1.	3.
301	7.	10.	6.	4.	3.	3.	7.	3.	4.	10.
311	6.	6.	1.	6.	8.	5.	11.	10.	11.	18.
321	15.	16.	17.	21.	25.	23.	30.	40.	35.	34.
331	51.	47.	76.	85.	76.	84.	118.	128.	137.	186.
341	208.	232.	257.	295.	354.	353.	462.	432.	485.	565.
351	609.	624.	603.	591.	620.	646.	728.	675.	669.	601.
361	472.	369.	211.	102.	41.	5.	2.	3.	0.	1.
371	1.	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.	1.
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.								

Raymond
10-12-95

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
S95T2308-SAM
File ID: 15a1517.CNF

Counted on: 10/11/95 @15:23
Detector: AEA15
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	563.4	563.4	362.537	362.537	14.000	6.991	7.000	1.930
2	108.2	108.2	305.119	305.028	12.000	3.796	6.000	0.911
3	892.5	892.5	229.283	229.281	16.000	7.155	8.000	2.216

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Cm243	0.374	5.779	5.747	0.032	0.03	23.92	1.8	1706.9	0.769E-03
	Pu236		5.755	5.747	0.008				1271.5	0.573E-03
2	Pu238	0.071	5.487	5.482	0.005	0.02	4.55	4.4	329.2	0.148E-03
	Am241		5.479	5.482	-.003				252.1	0.114E-03
3	Pu239	0.558	5.147	5.134	0.013	0.03	35.64	1.5	1856.2	0.836E-03
	Pu240		5.144	5.134	0.010				1856.2	0.836E-03
		---					---			
Totals:		1.003	<--valid peaks only-->				64.11			

DETECTOR CALIBRATION
Energy(MEV) = 4.079 + (0.0046)*Channel
Energy range (MeV): 4.079 TO 6.435
Efficiency = 0.0192 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	30674.0	100.000
Smoothed	30674.0	100.000
Composite fit	30779.6	100.344
Residuals	-105.6	-0.344

Analyzed by: _____
DM

WHC-SD-WM-DP-149, REV. 0

Spectrum 15a1517.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 6649.4

```
3
.3
... 3
.......  3
................. 3
.......................................3.....
.......................................................................3..
...........................3
3.


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

Raw Data Dump for AEA Spectrum: 15a1517.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.	2.	0.	0.	0.	0.	0.	0.
31	1.	3.	1.	0.	1.	1.	0.	1.	1.	1.
41	0.	0.	2.	1.	1.	0.	0.	1.	2.	1.
51	2.	0.	0.	0.	0.	1.	0.	2.	0.	1.
61	1.	1.	3.	0.	0.	0.	0.	1.	2.	2.
71	1.	1.	2.	1.	0.	0.	0.	0.	1.	3.
81	0.	1.	2.	1.	0.	0.	0.	1.	0.	2.
91	1.	3.	2.	0.	1.	1.	2.	3.	2.	1.
101	0.	2.	2.	2.	2.	3.	3.	1.	4.	0.
111	2.	1.	1.	1.	1.	3.	7.	1.	1.	4.
121	6.	1.	0.	6.	8.	5.	5.	1.	3.	3.
131	2.	3.	6.	2.	2.	4.	7.	2.	6.	9.
141	8.	9.	5.	4.	7.	7.	9.	4.	9.	6.
151	3.	5.	9.	6.	5.	6.	5.	10.	9.	5.
161	5.	7.	5.	10.	5.	4.	3.	10.	11.	5.
171	6.	8.	10.	7.	7.	12.	5.	11.	12.	11.
181	11.	12.	12.	21.	14.	21.	22.	28.	25.	27.
191	26.	23.	23.	26.	33.	38.	43.	51.	58.	65.
201	65.	73.	70.	104.	95.	108.	119.	134.	157.	153.
211	188.	221.	262.	279.	326.	338.	394.	411.	498.	526.
221	564.	691.	692.	749.	774.	882.	844.	911.	981.	948.
231	881.	821.	692.	541.	355.	235.	110.	52.	16.	8.
241	2.	3.	1.	3.	4.	4.	0.	3.	0.	3.
251	4.	6.	1.	5.	6.	4.	5.	1.	6.	4.
261	2.	2.	3.	6.	2.	4.	4.	6.	8.	6.
271	3.	3.	15.	7.	11.	11.	15.	12.	14.	19.
281	20.	26.	15.	19.	17.	32.	28.	31.	47.	40.
291	55.	69.	57.	70.	71.	86.	89.	99.	81.	98.
301	112.	96.	82.	113.	138.	129.	103.	91.	58.	45.
311	18.	10.	9.	8.	7.	11.	11.	9.	14.	8.
321	14.	15.	7.	21.	21.	20.	20.	22.	25.	33.
331	27.	28.	42.	49.	47.	48.	65.	64.	71.	62.
341	98.	119.	113.	113.	128.	151.	208.	194.	238.	282.
351	324.	328.	407.	401.	474.	465.	462.	529.	519.	516.
361	600.	582.	587.	610.	517.	475.	371.	263.	156.	57.
371	14.	4.	0.	1.	0.	1.	2.	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.	1.
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.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

LABCORE Completed Worklist Report for Worklist# 2911

Analyst: jmv **Instrument:** PU01 **Book#** 104843

Method: LA-943-127 Rev/Mod B-0

Worklist Comment: Determine sample size using Ludlum. --LLF

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@PU23901	PU23901	SOLID	1.28E-01	1.16E-1	90.630	% Recovery
1	STD		0		@PU23901	PU23901T	SOLID	100	7.72E+01	77.200	% Recovery
1	STD		0		@PU23901	PU23901E	SOLID	1	2.15E+00	2.150	% Ct. Error
2	BLNK-PREP		0		@PU23901	PU23901	SOLID	1	<1.06E-2		uCi/g
2	BLNK-PREP		0		@PU23901	PU23901T	SOLID	100	4.10E+01	41.000	% Recovery
2	BLNK-PREP		0		@PU23901	PU23901E	SOLID	1	1.00E+02	100.000	% Ct. Error
3	SAMPLE	S95T002304	0	F	@PU23901	PU23901	SOLID	N/A	1.75E-01	1.620e-002	uCi/g
3	SAMPLE	S95T002304	0	F	@PU23901	PU23901T	SOLID	N/A	6.20E+01	1.000e-007	% Recovery
3	SAMPLE	S95T002304	0	F	@PU23901	PU23901E	SOLID	N/A	2.37E+00	0.000	% Ct. Error
4	DUP	S95T002304	0	F	@PU23901	PU23901	SOLID	1.75E-1	1.59E-1	9.580	RPD
4	DUP	S95T002304	0	F	@PU23901	PU23901T	SOLID	100	7.03E+01	70.300	% Recovery
4	DUP	S95T002304	0	F	@PU23901	PU23901E	SOLID	1.00	2.29E+00	2.290	% Ct. Error
5	SAMPLE	S95T002305	0	F	@PU23901	PU23901	SOLID	N/A	7.03E-01	3.810e-002	uCi/g
5	SAMPLE	S95T002305	0	F	@PU23901	PU23901T	SOLID	N/A	9.33E+01	1.000e-007	% Recovery
5	SAMPLE	S95T002305	0	F	@PU23901	PU23901E	SOLID	N/A	2.00E+00	0.000	% Ct. Error
6	DUP	S95T002305	0	F	@PU23901	PU23901	SOLID	7.03E-1	5.23E+0	152.600	RPD
6	DUP	S95T002305	0	F	@PU23901	PU23901T	SOLID	100	7.29E+01	72.900	% Recovery
6	DUP	S95T002305	0	F	@PU23901	PU23901E	SOLID	1.00	1.71E+00	1.710	% Ct. Error

Final page for worklist# 2911

Analyst Signature **Date** **Analyst Signature** **Date**

LLFitts 18 Oct 95
Reviewer Signature **Date**

Pu-238 activity for both samples. LLF 10/18/95

Rerun S95T2305; high % RPD.

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 2911

Analyst: JMV **Instrument:** PU01 _____ **Book#** 104B43

Method: LA-943-127 Rev/Mod B-0

Worklist Comment: Determine sample size using Ludlum. --LLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@PU23901	SOLID		
2	BLNK-PREP				@PU23901	SOLID		
3	SAMPLE	S95T002304	0	F	@PU23901	SOLID	95000127	AW-102 GRAB
		Analytes Requested: PU23901 , PU23901E, PU23901T						
4	DUP	S95T002304	0	F	@PU23901	SOLID		
5	SAMPLE	S95T002305	0	F	@PU23901	SOLID	95000127	AW-102 GRAB
		Analytes Requested: PU23901 , PU23901E, PU23901T						
6	DUP	S95T002305	0	F	@PU23901	SOLID		

Final page for worklist # 2911

Joel M Van Smith 10-16-95
Analyst Signature **Date**

SE Hogan
Analyst Signature **Date**

Joel M Van Smith 10-17-95

Data Entry Comments:
JMV Prep - Dripp - First Boil Down Electro - 10-17 Electroplated
2305 Sample had floaties in solution not filtered

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WORKBOOK PAGE: STD1

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID

Type	DATE COUNTED		OCT-17-95	PU 236 AEA FRAC	(C236)	STD	0.490
STD	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC	(C238)		0.000
Work List	SAMPLE DILUTION FACTOR	DF	101.000	PU 239 AEA FRAC	(C239)		0.563
2911	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			5382
Test Code	DIGEST DILUTION FACTOR	DDF	1.000	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)		5.000
Matrix	DETECTOR NUMBER		1	PU 236 cpm			32.350
LIQUID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm			0.000
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm			37.180
95003173	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME			480
Rerun	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2212.823	Pu 239/240 µCi/L			1.1567E+02
0	PU-238 TRACER VALUE	(dpm/mL	0.000				
Sample Prep	STANDARD BOOK NO		104B43				
N/A	STANDARD VALUE in µCi/mL		0.128				

Sample #	
WORKLIST2911-STD	
Instrument Code	Decay Time = Date Counted - Tracer Preparation Date
AL10539	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]
Prepared By	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg)* 1/EFF *C236*100/Pu-236 Decay Corr'd Value * SPKV
SEH	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(2220000 dpm/µCi)]
Chemist	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
LLF	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Analyst	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
JMV	
Date Complete	v RESULTS v
10/18/95	Pu 239/240 µCi/mL 1.16E-01
Analysis Date	Relative Counting Error = 2.2%
10/16/95	
Analysis Time	
02:00 PM	
Sample Point	
AW-102 GRAB	Pu 236 Tracer Recovery = 77.2%

DETECTION LEVELS in µCi/mL
Pu 239/240
7.98E-03

Analyst:	JMV	Date:	18-Oct-95
Signature of Chemist:	LLF	Date:	18 Oct 95

STANDARD.WB1 REV 1.2 943127ML

WORKBOOK PAGE: BLANK2

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

Type	DATE COUNTED		OCT-17-95	PU 236 AEA FRAC	(C236)	BLNK-PREP 1.006
BLNK-PREP	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC	(C238)	0.000
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.000
2911	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		1504
Test Code	DIGEST GRAMS of SOLIDS/L	Dg/L	0.6804	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm (Bkg)		5.000
Matrix	DETECTOR NUMBER		2	PU 236 cpm		15.860
SOLID	EFFICIENCY FACTOR	EFF	0.5000	PU 238 cpm		0.000
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		0.000
95003173	TRACER PREPARATION VALUE (dpm/mL)		2265.00	AEA COUNT TIME		480
Rerun	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2212.82	Pu 239/240 µCi/g =	<	1.065E-02
0	PU-238 TRACER VALUE	(dpm/mL)	0.00			

Sample Prep	
N/A	
Sample #	Decay Time = Date Counted - Tracer Preparation Date
WORKLIST2911-BL	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)}]
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg)*C236*100/(Pu-236 Decay Corr'd Value * SPKV*EFF)
AL10540	Pu 239/240 µCi/g = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
SEH	Pu 238 µCi/g = [(Pu 238 dpm)(DF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
LLF	
Analyst	
JMV	

Date Complete	v RESULTS v			
10/18/95	Pu 239/240 µCi/g		< 1.06E-02	DETECTION LEVELS in µCi/g
Analysis Date	Relative Counting Error	=	100.0%	
10/16/95				
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.			Pu 239/240
02:00 PM	Pu 238 µCi/g		< 1.06E-02	1.06E-02
Sample Point	Relative Counting Error	=	100.0%	Pu 238
AW-102 GRAB	Pu 236 Tracer Recovery	=	41.0%	1.06E-02

Analyst:	JMV	Date:	18-Oct-95
Signature of Chemist:	LLF	Date:	18 Oct 95

BLANK.WB1 REV 1.2 943127ML

WORKBOOK PAGE: SAM3

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

Type	DATE COUNTED		OCT-17-95	PU 236 AEA FRAC	(C236)	SAMPLE	0.438
SAMPLE	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC	(C238)		0.043
Work Unit	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)		0.522
2911	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			4847
Task Code	DIGEST GRAMS of SOLIDS/L	Dg/L	0.6804	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)		5.000
Matrix	DETECTOR NUMBER		3	PU 236 cpm			26.280
SOLID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm			2.670
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm			31.300
95003173	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME			480
Dilution	PU-236 DECAY CORR'D VALUE (dpm/mL)		2212.823	Pu 239/240 µCi/g			1.7459E-01
0	PU-238 TRACER VALUE (dpm/mL)		0.000				
Sample Prep							
FUSION01							

Sample #	Decay Time = Date Counted - Tracer Preparation Date
S95T002304	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)
AL10541	Pu 239/240 µCi/g = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
SEH	Pu 238 µCi/g = [(Pu 238 dpm)(DF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Checked By	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
LLF	
Analyst	
JMV	
Date Completed	v RESULTS v
10/18/95	Pu 239/240 µCi/g . 1.75E-01
Analysis Date	Relative Counting Error = 2.4%
10/16/95	
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.
02:00 PM	Pu 238 µCi/g ' < 1.62E-02
Sample Point	Relative Counting Error = 5.8%
AW-102 GRAB	Pu 236 Tracer Recovery = 62.0%

DETECTION LEVELS in µCi/g	
Pu 239/240	1.62E-02
Pu 238	1.62E-02

Analyst:	JMV	Date:	18-Oct-95
Signature of Chemist: LLFritts	LLF	Date:	18 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

WORKBOOK PAGE: DUP4

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

						DUP
Type	DATE COUNTED		OCT-17-95	PU 236 AEA FRAC	(C236)	0.475
DUP	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC	(C238)	0.057
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.507
2911	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		5065
Test Code	DIGEST GRAMS of SOLIDS/L	Dg/L	0.6684	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)	5.000
Matrix	DETECTOR NUMBER		1	PU 236 cpm		29.460
SOLID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm		3.510
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		31.400
95003173	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME		480
Rerun	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2212.823	Pu 239/240 µCi/g		1.5917E-01
0	PU-238 TRACER VALUE	(dpm/mL)	0.000			

Sample Prep
FUSION01
Sample #
S95T002304
Instrument Code
AL10539
Prepared By
SEH
Chemist
LLF
Analyst
JMV
Date Complete
10/18/95
Analysis Date
10/16/95
Analysis Time
02:00 PM
Sample Point
AW-102 GRAB

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)}]

Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)

Pu 239/240 µCi/g = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)

Pu 238 µCi/g = [(Pu 238 dpm)(DF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]

Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

v RESULTS v

Pu 239/240 µCi/g		1.59E-01	
Relative Counting Error	=	2.3%	
Pu 238 µCi/g		1.79E-02	
Relative Counting Error	=	5.1%	
Pu 236 Tracer Recovery	=	70.3%	

DETECTION LEVELS in µCi/g	
Pu 239/240	1.34E-02
Pu 238	1.34E-02

Analyst:	JMV	Date:	18-Oct-95
Signature of Chemist:	LLF	Date:	18 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

WORKBOOK PAGE: SAM5

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

							SAMPLE
	DATE COUNTED		OCT-17-95	PU 236 AEA FRAC	(C236)		0.383
SAMPLE	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC	(C238)		0.065
	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)		0.593
2911	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			8233
	DIGEST GRAMS of SOLIDS/L	Dg/L	2.1948	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)		5.000
	DETECTOR NUMBER		2	PU 236 cpm			32.810
SOLID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm			5.600
	TRACER PREPARATION DATE		09/12/95	PU 239 cpm			50.760
95003173	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME			480
	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2212.823	Pu 239/240 µCi/g			7.0316E-01
0	PU-238 TRACER VALUE	(dpm/mL)	0.000				

FUSION01

S95T002305

AL10540

SEH

LLF

JMV

10/18/95

02:00 PM

AW-102 GRAB

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]

Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)

Pu 239/240 µCi/g = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)

Pu 238 µCi/g = [(Pu 238 dpm)(DF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]

Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

v RESULTS v

				DETECTION LEVELS in µCi/g
Pu 239/240 µCi/g		7.03E-01		Pu 239/240
Relative Counting Error	=	2.0%		3.81E-02
Pu 238 µCi/g		7.71E-02		Pu 238
Relative Counting Error	=	4.1%		3.81E-02
Pu 236 Tracer Recovery	=	93.3%		

Analyst:	JMV	Date:	18-Oct-95
Signature of Chemist:	LLF	Date:	18 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

WORKBOOK PAGE: DUP6

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

							DUP
Type	DATE COUNTED		OCT-17-95	PU 236 AEA FRAC	(C236)		0.079
DUP	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC	(C238)		0.092
Work Unit	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)		0.893
2911	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			30783
Test Code	DIGEST GRAMS of SOLIDS/L	Dg/L	2.1556	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)		5.000
Matrix	DETECTOR NUMBER		3	PU 236 cpm			29.650
SOLID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm			34.610
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm			336.640
95003173	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME			480
Aliquot	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2212.823	Pu 239/240 µCi/g			5.2270E+00
0	PU-238 TRACER VALUE	(dpm/mL)	0.000				
Sample Prep							
FUSION01							
Sample #	Decay Time = Date Counted - Tracer Preparation Date						
S95T002305	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]						
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)						
AL10541	Pu 239/240 µCi/g = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]						
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)						
SEH	Pu 238 µCi/g = [(Pu 238 dpm)(DF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]						
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100						
LLF							
Analyst							
JMV							
Date Counted	v RESULTS v						
10/18/95	Pu 239/240 µCi/g		5.23E+00				DETECTION
Analysis Date	Relative Counting Error	=	1.7%				LEVELS
10/18/95							in µCi/g
Analysis Time							Pu 239/240
02:00 PM	Pu 238 µCi/g		5.39E-01				2.41E-01
Sample Point	Relative Counting Error	=	2.2%				Pu 238
AW-102 GRAB	Pu 236 Tracer Recovery	=	72.9%				2.41E-01

Analyst:	JMV	Date:	18-Oct-95
Signature of Chemist:	LLF	Date:	18 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

Eric Bereda
10-17-95

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
WORKLIST2911-STD
File ID: 13a1341.CNF

Counted on: 10/17/95 @14:31
Detector: AEA13
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak	Peak height		Peak center		FWHM		Tau	
ID	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	509.7	509.7	357.503	357.503	12.000	5.847	6.000	0.873
2	717.1	717.1	224.705	224.698	14.000	6.070	7.000	1.194

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.490	5.755	5.742	0.013	0.03	32.35	1.6	2558.8	0.115E-02
2	Pu239	0.563	5.147	5.132	0.015	0.03	37.18	1.5	2882.2	0.130E-02
	Pu240		5.144	5.132	0.012				2882.2	0.130E-02
		---					---			
Totals:		1.052	<--valid peaks only-->				69.53			

DETECTOR CALIBRATION
Energy(MEV) = 4.098 + (0.0046)*Channel
Energy range (MeV): 4.098 TO 6.453
Efficiency = 0.0129 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	31718.0	100.000
Smoothed	31717.7	99.999
Composite fit	33378.7	105.236
Residuals	-1660.7	-5.236

Analyzed by: _____
SEH

WHC-SD-WM-DP-149, REV. 0

Spectrum 13a1341.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 5062.4

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WHC-SD-WM-DP-149, REV. 0

Raw Data Dump for AEA Spectrum: 13a1341.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.	2.	1.	0.	1.	1.	0.	0.
31	0.	1.	2.	0.	0.	0.	1.	0.	0.	3.
41	0.	1.	1.	2.	1.	3.	1.	1.	0.	2.
51	2.	1.	2.	0.	1.	4.	1.	0.	3.	0.
61	0.	3.	4.	1.	0.	3.	3.	1.	2.	1.
71	2.	2.	0.	0.	5.	3.	4.	3.	4.	2.
81	0.	0.	2.	6.	0.	3.	0.	3.	1.	6.
91	3.	1.	2.	1.	2.	4.	3.	1.	2.	3.
101	4.	4.	3.	4.	6.	3.	1.	4.	4.	4.
111	2.	0.	5.	5.	5.	4.	5.	4.	7.	5.
121	4.	5.	7.	5.	2.	5.	9.	6.	10.	4.
131	6.	3.	6.	7.	12.	3.	9.	9.	9.	10.
141	11.	11.	8.	13.	10.	22.	8.	12.	14.	16.
151	24.	21.	7.	18.	19.	18.	17.	14.	29.	17.
161	16.	19.	23.	16.	26.	19.	21.	26.	38.	43.
171	38.	33.	32.	43.	36.	35.	42.	45.	45.	50.
181	51.	72.	62.	66.	70.	100.	74.	96.	88.	78.
191	86.	94.	134.	98.	116.	117.	150.	155.	166.	193.
201	183.	173.	207.	249.	241.	264.	294.	315.	350.	382.
211	396.	389.	459.	449.	534.	508.	577.	588.	626.	676.
221	683.	706.	732.	717.	757.	745.	721.	622.	489.	262.
231	131.	62.	18.	4.	5.	0.	1.	3.	2.	1.
241	6.	2.	3.	5.	5.	3.	5.	3.	15.	7.
251	10.	4.	4.	8.	8.	7.	10.	3.	2.	12.
261	4.	4.	6.	8.	5.	8.	12.	9.	8.	5.
271	9.	7.	5.	9.	15.	11.	14.	13.	8.	10.
281	8.	13.	13.	10.	14.	21.	17.	16.	18.	18.
291	23.	22.	25.	30.	24.	31.	25.	27.	32.	27.
301	30.	30.	24.	28.	30.	32.	31.	33.	26.	42.
311	32.	43.	41.	47.	42.	53.	46.	44.	49.	60.
321	65.	63.	55.	81.	93.	78.	102.	90.	115.	121.
331	111.	130.	148.	155.	170.	154.	197.	200.	212.	242.
341	293.	288.	320.	332.	359.	408.	387.	455.	483.	456.
351	499.	523.	460.	483.	499.	504.	501.	521.	543.	506.
361	428.	311.	160.	49.	14.	0.	2.	0.	3.	1.
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	1.	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.								

Em Lacela
10-17-95

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
WORKLIST2911-BK
File ID: 14a1445.CNF

Counted on: 10/17/95 @14:32
Detector: AEA14
Geometry number: 1
Count time: 28807. 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	346.0	346.0	358.199	358.199	16.000	8.723	8.000	2.284

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Cm243	1.006	5.779	5.743	0.036	0.04	15.86	2.2	2649.7	0.119E-02
	Pu236		5.755	5.743	0.012				1973.7	0.889E-03
Totals:		1.006	<--valid peaks only-->				15.86			

DETECTOR CALIBRATION
Energy(MEV) = 4.096 + (0.0046)*Channel
Energy range (MeV): 4.096 TO 6.451
Efficiency = 0.0082 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	7568.0	100.000
Smoothed	7568.0	100.000
Composite fit	7615.0	100.622
Residuals	-47.0	-0.622

Analyzed by: _____
SEH

WHC-SD-WM-DP-149, REV. 0

Spectrum 14a1445.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 2584.4

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1
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Raw Data Dump for AEA Spectrum: 14a1445.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.	0.	0.	0.	0.	0.	0.	0.	1.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	1.	0.	0.	0.	0.	0.	1.	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.	0.	0.	0.	0.	0.	1.	0.
111	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
121	1.	0.	0.	1.	2.	1.	0.	0.	0.	0.
131	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
141	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.
151	0.	0.	2.	0.	0.	0.	0.	1.	0.	0.
161	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
171	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
181	0.	0.	0.	0.	2.	1.	0.	0.	0.	0.
191	0.	2.	0.	1.	0.	0.	0.	0.	0.	0.
201	0.	1.	0.	0.	0.	0.	1.	0.	2.	2.
211	0.	4.	3.	2.	3.	1.	2.	1.	2.	5.
221	2.	2.	4.	5.	10.	6.	5.	5.	5.	4.
231	4.	4.	1.	2.	0.	0.	0.	1.	1.	2.
241	0.	0.	1.	2.	3.	2.	1.	1.	1.	0.
251	0.	3.	1.	1.	6.	2.	4.	3.	0.	1.
261	2.	1.	0.	0.	0.	1.	1.	1.	0.	0.
271	0.	1.	2.	0.	1.	0.	0.	0.	0.	1.
281	2.	2.	1.	2.	3.	1.	2.	5.	4.	2.
291	2.	7.	4.	3.	4.	5.	9.	6.	4.	7.
301	11.	6.	7.	6.	5.	3.	3.	1.	4.	1.
311	13.	3.	8.	3.	9.	4.	5.	11.	6.	6.
321	12.	11.	13.	12.	15.	23.	22.	21.	25.	22.
331	27.	35.	43.	39.	52.	59.	73.	83.	89.	111.
341	97.	124.	136.	166.	140.	180.	214.	273.	265.	270.
351	297.	294.	321.	299.	317.	337.	346.	382.	352.	342.
361	314.	298.	232.	178.	110.	83.	37.	18.	4.	0.
371	1.	0.	0.	0.	0.	1.	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.	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.	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.								

Eric Brown
10-17-95

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
S95T2304-SAM
File ID: 15a1528.CNF

Counted on: 10/17/95 @14:33
Detector: AEA15
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	438.7	438.7	354.706	356.796	24.000	10.314	12.000	1.853
2	49.7	49.7	299.099	299.099	22.000	3.607	11.000	0.655
3	545.1	545.1	222.486	222.462	22.000	14.188	11.000	3.007

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Cm243	0.438	5.779	5.750	0.029	0.05	26.28	1.7	1924.8	0.867E-03
	Pu236		5.755	5.750	0.005				1433.8	0.646E-03
2	Pu238	0.043	5.487	5.485	0.002	0.02	2.57	7.5	190.9	0.860E-04
	Am241		5.479	5.485	-.006				146.2	0.659E-04
3	Pu239	0.522	5.147	5.132	0.015	0.07	31.30	1.6	1673.8	0.754E-03
	Pu240		5.144	5.132	0.012				1673.8	0.754E-03
		---					---			
Totals:		1.004	<--valid peaks only-->				60.15			

DETECTOR CALIBRATION
Energy(MEV) = 4.109 + (0.0046)*Channel
Energy range (MeV): 4.109 TO 6.464
Efficiency = 0.0187 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	28766.0	100.000
Smoothed	28766.0	100.000
Composite fit	28870.8	100.364
Residuals	-104.8	-0.364

Analyzed by: _____
SEH

Spectrum 15a1528.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 4166.2

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Raw Data Dump for AEA Spectrum: 15a1528.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.	1.	0.	0.	0.	0.	0.
31	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
41	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
51	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
71	1.	0.	0.	0.	0.	1.	0.	1.	0.	0.
81	0.	2.	1.	0.	1.	0.	0.	0.	1.	3.
91	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
101	1.	0.	2.	0.	1.	0.	0.	2.	0.	0.
111	0.	0.	3.	2.	0.	2.	1.	1.	2.	1.
121	2.	0.	1.	2.	1.	0.	2.	1.	1.	4.
131	2.	3.	3.	0.	1.	1.	4.	7.	1.	3.
141	4.	5.	2.	6.	1.	1.	7.	2.	2.	3.
151	2.	4.	5.	2.	8.	7.	12.	6.	10.	6.
161	14.	8.	7.	15.	14.	15.	10.	11.	17.	13.
171	19.	23.	20.	21.	21.	33.	32.	30.	39.	33.
181	38.	47.	33.	54.	38.	66.	54.	99.	63.	68.
191	72.	87.	109.	107.	111.	116.	133.	142.	131.	156.
201	182.	203.	198.	233.	234.	225.	276.	301.	333.	321.
211	382.	389.	377.	410.	455.	492.	498.	494.	554.	557.
221	548.	591.	538.	534.	535.	529.	528.	505.	430.	309.
231	238.	119.	72.	25.	5.	3.	2.	2.	0.	2.
241	2.	1.	4.	3.	1.	0.	3.	2.	6.	6.
251	7.	4.	6.	6.	5.	6.	7.	4.	4.	10.
261	4.	6.	7.	10.	13.	10.	8.	12.	15.	19.
271	16.	27.	19.	18.	17.	24.	27.	30.	31.	25.
281	30.	36.	48.	29.	48.	39.	51.	60.	54.	59.
291	70.	63.	72.	83.	70.	59.	66.	75.	61.	83.
301	61.	72.	64.	54.	54.	30.	17.	16.	15.	21.
311	14.	26.	22.	29.	33.	32.	38.	45.	47.	53.
321	39.	52.	68.	73.	70.	76.	95.	84.	113.	108.
331	87.	110.	133.	131.	155.	152.	193.	186.	222.	236.
341	245.	267.	314.	326.	329.	353.	387.	426.	391.	422.
351	460.	421.	451.	472.	420.	434.	437.	449.	402.	410.
361	399.	354.	256.	201.	85.	21.	3.	0.	0.	1.
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.	1.	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.								

Em Bailey
10/17/95

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
S95T2304-DUP
File ID: 16a1619.CNF

Counted on: 10/17/95 @14:34
Detector: AEA16
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	657.1	657.1	361.239	361.239	12.000	6.156	6.000	1.501
2	78.7	78.7	304.229	303.636	10.000	3.677	5.000	0.811
3	785.3	785.3	229.247	229.244	14.000	6.355	7.000	1.879

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.475	5.755	5.760	-.005	0.03	29.46	1.6	296.5	0.134E-03
	Cm243		5.779	5.760	0.019				398.0	0.179E-03
2	Pu238	0.057	5.487	5.495	-.008	0.02	3.51	5.4	48.1	0.217E-04
	Am241		5.479	5.495	-.016				36.8	0.166E-04
3	Pu239	0.507	5.147	5.153	-.006	0.03	31.40	1.6	309.7	0.139E-03
	Pu240		5.144	5.153	-.009				309.7	0.139E-03
		---					---			
Totals:		1.039	<--valid peaks only-->				64.37			

DETECTOR CALIBRATION
Energy(MEV) = 4.098 + (0.0046)*Channel
Energy range (MeV): 4.098 TO 6.453
Efficiency = 0.1014 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	29752.0	100.000
Smoothed	29752.0	100.000
Composite fit	30905.0	103.875
Residuals	-1153.0	-3.875

Analyzed by: _____
SEH

WHC-SD-WM-DP-149, REV. 0

Spectrum 16a1619.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 5903.0

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Raw Data Dump for AEA Spectrum: 16a1619.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.	1.	0.	0.	0.	1.	0.	1.	0.	0.
41	1.	1.	1.	1.	0.	1.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
61	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
71	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	1.	1.	1.	0.	0.	0.	0.
91	0.	0.	0.	0.	1.	0.	1.	2.	1.	1.
101	1.	2.	0.	0.	1.	1.	1.	0.	1.	0.
111	0.	1.	0.	1.	1.	1.	0.	2.	0.	3.
121	0.	0.	2.	1.	0.	0.	0.	2.	2.	0.
131	2.	1.	1.	2.	3.	2.	1.	1.	2.	2.
141	1.	1.	2.	2.	1.	5.	2.	2.	1.	1.
151	2.	1.	2.	3.	4.	2.	2.	1.	4.	0.
161	3.	1.	3.	2.	6.	1.	3.	4.	0.	2.
171	7.	5.	5.	7.	7.	5.	6.	7.	13.	14.
181	6.	9.	14.	9.	12.	11.	14.	13.	12.	18.
191	17.	22.	21.	30.	27.	22.	38.	38.	42.	28.
201	67.	70.	75.	65.	78.	92.	97.	102.	121.	167.
211	171.	186.	209.	277.	275.	317.	362.	431.	431.	496.
221	566.	585.	598.	691.	727.	784.	761.	787.	843.	840.
231	789.	724.	603.	417.	245.	124.	55.	17.	1.	2.
241	1.	1.	1.	3.	0.	1.	2.	1.	0.	3.
251	3.	4.	7.	5.	2.	6.	4.	4.	5.	7.
261	3.	3.	6.	4.	8.	4.	6.	4.	2.	6.
271	2.	4.	6.	2.	9.	7.	8.	12.	13.	9.
281	13.	11.	13.	18.	24.	27.	31.	35.	31.	34.
291	48.	62.	48.	70.	70.	74.	78.	96.	80.	90.
301	88.	96.	91.	81.	109.	92.	96.	56.	24.	14.
311	4.	7.	4.	13.	8.	8.	11.	13.	7.	8.
321	15.	19.	20.	14.	20.	14.	27.	36.	31.	28.
331	38.	39.	35.	51.	51.	65.	85.	91.	105.	93.
341	129.	146.	184.	197.	226.	254.	286.	330.	353.	402.
351	415.	480.	531.	610.	600.	546.	606.	600.	634.	700.
361	676.	707.	639.	643.	556.	365.	173.	59.	5.	2.
371	1.	2.	1.	1.	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.	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.								

Em Davila
10-17-95

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
S95T2305-SAM
File ID: 17a1708.CNF

Counted on: 10/17/95 @14:36
Detector: AEA17
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	705.0	705.0	358.082	358.082	12.000	4.340	6.000	0.930
2	110.4	110.4	300.138	299.788	12.000	3.258	6.000	0.598
3	1215.6	1215.6	225.817	225.813	12.000	5.273	6.000	1.376

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.383	5.755	5.747	0.008	0.02	32.81	1.6	344.8	0.155E-03
2	Pu238	0.065	5.487	5.479	0.008	0.01	5.60	4.3	80.2	0.361E-04
	Am241		5.479	5.479	0.000				61.4	0.277E-04
3	Pu239	0.593	5.147	5.139	0.008	0.02	50.76	1.3	522.8	0.235E-03
	Pu240		5.144	5.139	0.005				522.8	0.235E-03
		---					---			
Totals:		1.042	<--valid peaks only-->				89.18			

DETECTOR CALIBRATION
Energy(MEV) = 4.100 + (0.0046)*Channel
Energy range (MeV): 4.100 TO 6.455
Efficiency = 0.0971 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	41084.0	100.000
Smoothed	41085.5	100.004
Composite fit	42810.0	104.201
Residuals	-1726.0	-4.201

Analyzed by: _____
SEH

WHC-SD-WM-DP-149, REV. 0

Spectrum 17a1708.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 7469.9

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1...2...
1....2..
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Raw Data Dump for AEA Spectrum: 17a1708.CNF

1	0.	0.	0.	0.	2.	1.	0.	1.	0.	0.
11	2.	1.	0.	0.	0.	0.	0.	0.	0.	1.
21	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
31	3.	2.	1.	0.	0.	0.	0.	0.	0.	1.
41	0.	0.	0.	1.	0.	1.	1.	2.	1.	1.
51	0.	1.	0.	0.	2.	1.	0.	0.	1.	0.
61	1.	0.	1.	2.	0.	1.	2.	0.	1.	1.
71	1.	1.	2.	1.	1.	1.	0.	0.	0.	3.
81	0.	0.	1.	4.	3.	4.	3.	1.	3.	1.
91	1.	2.	1.	2.	1.	2.	1.	2.	1.	3.
101	1.	1.	1.	5.	5.	1.	4.	3.	3.	5.
111	3.	5.	1.	7.	2.	6.	4.	7.	2.	4.
121	5.	5.	7.	6.	1.	3.	0.	0.	4.	4.
131	5.	5.	5.	1.	8.	6.	5.	8.	10.	9.
141	8.	5.	8.	7.	11.	5.	9.	7.	9.	12.
151	11.	8.	9.	7.	6.	5.	7.	5.	6.	11.
161	7.	7.	15.	11.	9.	16.	8.	15.	12.	18.
171	8.	14.	21.	28.	23.	11.	22.	16.	19.	38.
181	30.	24.	33.	36.	41.	42.	46.	49.	59.	68.
191	70.	74.	82.	83.	118.	109.	145.	137.	139.	148.
201	182.	211.	194.	252.	250.	270.	318.	365.	398.	390.
211	447.	521.	551.	593.	670.	742.	832.	851.	954.	942.
221	1000.	1035.	1132.	1122.	1333.	1350.	1283.	1172.	952.	690.
231	383.	203.	95.	24.	8.	6.	1.	3.	4.	6.
241	4.	3.	6.	3.	4.	2.	4.	3.	7.	14.
251	2.	8.	3.	5.	5.	10.	4.	6.	8.	7.
261	5.	10.	8.	9.	8.	18.	8.	10.	15.	12.
271	14.	16.	23.	19.	29.	26.	29.	35.	47.	42.
281	32.	47.	64.	62.	64.	66.	70.	101.	92.	97.
291	132.	112.	106.	119.	126.	118.	116.	132.	125.	146.
301	136.	154.	105.	70.	47.	23.	11.	10.	11.	15.
311	23.	13.	21.	26.	12.	18.	16.	27.	23.	30.
321	39.	33.	56.	37.	55.	62.	57.	61.	69.	67.
331	84.	90.	99.	112.	130.	142.	175.	171.	235.	204.
341	231.	308.	308.	360.	388.	407.	501.	498.	525.	585.
351	594.	586.	590.	590.	606.	665.	736.	761.	749.	764.
361	570.	359.	163.	52.	5.	0.	0.	0.	0.	3.
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.	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.	1.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

E M Bowen
10-17-95

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
S95T2305-DUP
File ID: 18a1845.CNF

Counted on: 10/17/95 @14:36
Detector: AEA18
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	492.2	492.2	359.557	359.557	12.000	5.383	6.000	0.850
2	658.2	658.2	301.207	301.083	16.000	5.507	8.000	1.043
3	6408.6	6408.6	227.266	227.261	12.000	6.372	6.000	1.248

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.079	5.755	5.738	0.017	0.02	29.65	1.6	1535.8	0.692E-03
2	Pu238	0.092	5.487	5.469	0.018	0.03	34.61	1.6	2440.2	0.110E-02
	Am241		5.479	5.469	0.010				1869.1	0.842E-03
3	Pu239	0.893	5.147	5.129	0.018	0.03	335.64	0.5	17037.8	0.767E-02
	Pu240		5.144	5.129	0.015				17037.8	0.767E-02
Totals:		1.063	<--valid peaks only-->				399.91			

DETECTOR CALIBRATION
Energy(MEV) = 4.084 + (0.0046)*Channel
Energy range (MeV): 4.084 TO 6.439
Efficiency = 0.0197 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	180521.0	100.000
Smoothed	180527.9	100.004
Composite fit	191982.0	106.349
Residuals	-11461.0	-6.349

Analyzed by: _____
SEH

Spectrum 18a1845.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 46185.8

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WHC-SD-WM-OP-149, REV. 0

Raw Data Dump for AEA Spectrum: 18a1845.CNF

1	0.	0.	3.	7.	6.	5.	3.	5.	0.	3.
11	1.	3.	4.	3.	4.	3.	3.	3.	3.	6.
21	3.	2.	4.	2.	2.	6.	4.	8.	4.	5.
31	6.	4.	6.	6.	5.	7.	4.	4.	3.	3.
41	7.	3.	4.	7.	4.	1.	6.	5.	4.	5.
51	6.	7.	2.	6.	5.	7.	7.	10.	3.	4.
61	5.	8.	6.	5.	2.	8.	7.	5.	7.	1.
71	10.	12.	8.	6.	2.	5.	10.	8.	9.	10.
81	5.	3.	14.	12.	8.	7.	6.	6.	11.	9.
91	7.	11.	8.	9.	9.	15.	11.	12.	12.	12.
101	6.	18.	18.	11.	8.	10.	14.	16.	17.	14.
111	17.	8.	15.	18.	18.	17.	22.	25.	16.	16.
121	17.	25.	15.	25.	25.	21.	21.	23.	24.	19.
131	13.	23.	23.	25.	30.	26.	32.	38.	29.	43.
141	39.	40.	44.	37.	38.	47.	47.	51.	43.	66.
151	71.	74.	52.	58.	51.	81.	63.	48.	84.	86.
161	82.	82.	82.	103.	123.	110.	97.	111.	129.	153.
171	161.	154.	166.	186.	208.	195.	223.	226.	240.	261.
181	300.	281.	359.	334.	393.	443.	466.	471.	522.	533.
191	599.	703.	692.	742.	788.	855.	950.	971.	1123.	1213.
201	1318.	1401.	1536.	1639.	1724.	1931.	2098.	2347.	2480.	2507.
211	2778.	3063.	3308.	3562.	3816.	4128.	4333.	4611.	4954.	5217.
221	5468.	5556.	5950.	6001.	6339.	6564.	6683.	6826.	6578.	6042.
231	5031.	3546.	2019.	1152.	555.	186.	58.	15.	9.	15.
241	18.	21.	21.	17.	18.	20.	19.	15.	29.	25.
251	28.	32.	34.	32.	50.	40.	44.	41.	44.	56.
261	49.	58.	47.	56.	66.	69.	73.	79.	91.	91.
271	126.	106.	130.	140.	140.	165.	166.	203.	193.	236.
281	223.	269.	284.	291.	296.	341.	400.	411.	457.	487.
291	523.	591.	651.	697.	659.	707.	729.	649.	660.	725.
301	735.	650.	762.	701.	553.	400.	178.	63.	16.	12.
311	17.	13.	15.	32.	21.	24.	29.	47.	31.	42.
321	41.	42.	58.	65.	59.	56.	67.	45.	80.	72.
331	87.	106.	95.	128.	132.	146.	140.	150.	182.	175.
341	210.	220.	242.	266.	268.	333.	348.	340.	434.	418.
351	450.	509.	460.	468.	433.	440.	443.	481.	515.	512.
361	527.	471.	412.	258.	131.	46.	5.	1.	0.	1.
371	2.	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.	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.								

LABCORE Completed Worklist Report for Worklist# 2966

Analyst: jmv **Instrument:** PU01 **Book#** 104B43

Method: LA-943-127 Rev/Mod B-0

Worklist Comment: Use a 0.1 mL sample size. --LLF

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@PU23901	PU23901	SOLID	1.28E-01	1.30E-1	101.560	% Recovery
1	STD		0		@PU23901	PU23901T	SOLID	100	2.41E+01	24.100	% Recovery
1	STD		0		@PU23901	PU23901E	SOLID	1	3.95E+00	3.950	% Ct. Error
2	BLNK-PREP		0		@PU23901	PU23901	SOLID	1	<4.19E-2		uCi/g
2	BLNK-PREP		0		@PU23901	PU23901T	SOLID	100	3.25E+01	32.500	% Recovery
2	BLNK-PREP		0		@PU23901	PU23901E	SOLID	1	1.00E+02	100.000	% Ct. Error
3	SAMPLE	S95T002305	0	F	@PU23901	PU23901	SOLID	N/A	8.31E-01	7.380e-002	uCi/g
3	SAMPLE	S95T002305	0	F	@PU23901	PU23901T	SOLID	N/A	5.59E+01	1.000e-007	% Recovery
3	SAMPLE	S95T002305	0	F	@PU23901	PU23901E	SOLID	N/A	2.39E+00	0.000	% Ct. Error
4	DUP	S95T002305	0	F	@PU23901	PU23901	SOLID	8.31E-1	8.16E-1	1.820	RPD
4	DUP	S95T002305	0	F	@PU23901	PU23901T	SOLID	100	5.50E+01	55.000	% Recovery
4	DUP	S95T002305	0	F	@PU23901	PU23901E	SOLID	1.00	2.33E+00	2.330	% Ct. Error

Final page for worklist# 2966

Analyst Signature **Date** **Analyst Signature** **Date**

25 Oct 95

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 2966

Analyst: JMV **Instrument:** PU01 _____ **Book#** 104B43

Method: LA-943-127 Rev/Mod B-0

Worklist Comment: Use a 0.1 mL sample size. --LLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@PU23901	SOLID		
2	BLNK-PREP				@PU23901	SOLID		
3	SAMPLE	S95T002305	0	F	@PU23901	SOLID	95000127	AW-102 GRAB
		Analytes Requested: PU23901 , PU23901E, PU23901T						
4	DUP	S95T002305	0	F	@PU23901	SOLID		

Final page for worklist # 2966

Joseph Mahat 10-19-95
Analyst Signature **Date**

David C. Dunham 10-22-95

SE Hogan 10/25/95
Analyst Signature **Date**

Data Entry Comments: std used to clear OSCR #7111

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WORKBOOK PAGE: STD1

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID

							STD
STD	DATE COUNTED		OCT-24-95	PU 236 AEA FRAC	(C236)		0.428
STD	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC	(C238)		0.000
	SAMPLE DILUTION FACTOR	DF	101.000	PU 239 AEA FRAC	(C239)		0.557
2966	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			2010
	DIGEST DILUTION FACTOR	DDF	1.000	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)		5.000
	DETECTOR NUMBER		1	PU 236 cpm			9.060
LIQUID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm			0.000
	TRACER PREPARATION DATE		09/12/95	PU 239 cpm			11.810
95003262	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME			480
	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2202.532	Pu 239/240 µCi/L			1.3041E+02
0	PU-238 TRACER VALUE	(dpm/mL	0.000				
	STANDARD BOOK NO		104B43				
N/A	STANDARD VALUE in µCi/mL		0.128				

WORKLIST2966-STD

Decay Time = Date Counted - Tracer Preparation Date

AL10639

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)}]

Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg)* 1/EFF *C236*100/Pu-236 Decay Corr'd Value * SPKV

SEH

Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(2220000 dpm/µCi)]

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)

LLF

Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]

Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

JMV

v RESULTS v

10/26/95	Pu 239/240 µCi/mL		1.30E-01	DETECTION LEVELS in µCi/mL
	Relative Counting Error	=	4.0%	
10/19/95				Pu 239/240
03:00 PM				2.91E-02
AW-102 GRAB	Pu 236 Tracer Recovery	=	24.1%	

Analyst:	JMV	Date:	25-Oct-95
Signature of Chemist:	LLF	Date:	25 Oct 95

STANDARD.WB1 REV 1.2 943127ML

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

						BLNK-PREP
	DATE COUNTED		OCT-24-95	PU 236 AEA FRAC	(C236)	0.995
BLNK-PREP	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC	(C238)	0.000
	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.000
2966	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		1200
	DIGEST GRAMS of SOLIDS/L	Dg/L	2.1948	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm (Bkg)		4.000
	DETECTOR NUMBER		2	PU 236 cpm		12.960
SOLID	EFFICIENCY FACTOR	EFF	0.5000	PU 238 cpm		0.000
	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		0.000
95003252	TRACER PREPARATION VALUE (dpm/mL)		2265.00	AEA COUNT TIME		480
	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2202.53	Pu 239/240 µCi/g =	<	4.190E-02
0	PU-238 TRACER VALUE	(dpm/mL)	0.00			
N/A						

Decay Time = Date Counted - Tracer Preparation Date

WORKLIST2966-BL

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)}]

Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg)*C236*100/(Pu-236 Decay Corr'd Value * SPKV*EFF)

AL10540

Pu 239/240 µCi/g = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)

SEH

Pu 238 µCi/g = [(Pu 238 dpm)(DF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]

Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

LLF

JMV

10/25/95

v RESULTS v

10/25/95	Pu 239/240 µCi/g		< 4.19E-02	DETECTION LEVELS in µCi/g
	Relative Counting Error	=	100.0%	
10/19/95				
	NOTE: Pu 238 Result is a LESS THAN Value.			Pu 239/240
03:00 PM	Pu 238 µCi/g		< 4.19E-02	4.19E-02
	Relative Counting Error	=	100.0%	Pu 238
AW-102 GRAB	Pu 236 Tracer Recovery	=	32.5%	4.19E-02

Analyst:	JMV	Date:	25-Oct-95
Signature of Chemist:	LLF	Date:	25 Oct 95

BLANK.WB1 REV 1.2 943127ML

WORKBOOK PAGE: SAM3

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

							SAMPLE
	DATE COUNTED		OCT-24-95	PU 236 AEA FRAC	(C236)		0.329
SAMPLE	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC	(C238)		0.072
	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)		0.605
2966	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			5760
	DIGEST GRAMS of SOLIDS/L	Dg/L	2.1948	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)		5.000
	DETECTOR NUMBER		3	PU 236 cpm			21.700
SOLID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm			4.740
	TRACER PREPARATION DATE		09/12/95	PU 239 cpm			39.880
95003252	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME			480
	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2202.532	Pu 239/240 µCi/g			8.3125E-01
1	PU-238 TRACER VALUE	(dpm/mL)	0.000				

FUSION01

Decay Time = Date Counted - Tracer Preparation Date

S95T002305

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]

Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)

AL10541

Pu 239/240 µCi/g = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)

SEH

Pu 238 µCi/g = [(Pu 238 dpm)(DF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]

Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

LLF

JMV

v RESULTS v

10/25/95	Pu 239/240 µCi/g		8.31E-01	DETECTION LEVELS in µCi/g
	Relative Counting Error	=	2.4%	
10/19/95				Pu 239/240
03:00 PM	Pu 238 µCi/g		9.89E-02	7.38E-02
	Relative Counting Error	=	4.5%	Pu 238
AW-102 GRAB	Pu 236 Tracer Recovery	=	55.9%	7.38E-02

Analyst:	JMV	Date:	25-Oct-95
Signature of Chemist:	LLF	Date:	25 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

							DUP
Type	DATE COUNTED		OCT-24-95	PU 236 AEA FRAC	(C236)		0.338
DUP	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC	(C238)		0.068
Work Unit	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)		0.599
2966	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			5498
Test Code	DIGEST GRAMS of SOLIDS/L	Dg/L	2.1556	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)		4.000
Matrix	DETECTOR NUMBER		2	PU 236 cpm			23.070
SOLID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm			4.660
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm			40.820
95003252	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME			480
Factor	PU-236 DECAY CORR'D VALUE (dpm/mL)		2202.532	Pu 239/240 µCi/g			8.1566E-01
1	PU-238 TRACER VALUE (dpm/mL)		0.000				
Sample Prep							
FUSION01							

Counter	Decay Time = Date Counted - Tracer Preparation Date
S95T002305	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)}]
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)
AL10540	Pu 239/240 µCi/g = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
SEH	Pu 238 µCi/g = [(Pu 238 dpm)(DF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Checked By	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
LLF	
Analyst	
JMV	
Date Completed	v RESULTS v

10/25/95	Pu 239/240 µCi/g		8.16E-01	DETECTION LEVELS in µCi/g
Analysis Date	Relative Counting Error	=	2.3%	
10/19/95				Pu 239/240
Analysis Time				7.42E-02
03:00 PM	Pu 238 µCi/g		9.26E-02	Pu 238
Sample Point	Relative Counting Error	=	4.5%	7.42E-02
AW-102 GRAB	Pu 236 Tracer Recovery	=	55.0%	

Analyst:		JMV	Date:	25-Oct-95
Signature of Chemist:	[signature]	LLF	Date:	25 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

C H Nelson
10-24-95

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
WORKLIST-2966-~~BL~~ STd Dgm
File ID: 20a2067.CNF

Counted on: 10/24/95 @15:15
Detector: AEA20
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	379.4	379.4	358.659	358.659	10.000	2.863	5.000	1.555
2	537.9	537.9	225.741	225.741	10.000	3.509	5.000	2.645

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.428	5.755	5.759	-.004	0.01	9.06	3.0	489.3	0.220E-03
2	Pu239	0.557	5.147	5.147	0.000	0.02	11.81	2.6	624.7	0.281E-03
	Pu240		5.144	5.147	-.003				624.7	0.281E-03
Totals:		0.985	<--valid peaks only-->				20.87			

DETECTOR CALIBRATION
Energy(MEV) = 4.109 + (0.0046)*Channel
Energy range (MeV): 4.109 TO 6.464
Efficiency = 0.0189 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	10171.0	100.000
Smoothed	10170.8	99.998
Composite fit	10020.1	98.516
Residuals	150.9	1.484

Analyzed by: SZC

WHC-SD-WM-DP-149, REV. 0

Spectrum 20a2067.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 2885.8

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

Raw Data Dump for AEA Spectrum: 20a2067.CNF

1	0.	0.	0.	0.	0.	0.	1.	0.	2.	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.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
51	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
61	0.	1.	0.	0.	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.	1.	0.
91	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
101	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
111	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
121	0.	0.	0.	0.	1.	1.	1.	1.	0.	0.
131	0.	1.	0.	0.	1.	1.	0.	1.	0.	0.
141	2.	0.	0.	1.	0.	0.	0.	0.	1.	0.
151	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
161	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
181	0.	0.	0.	2.	0.	0.	0.	1.	0.	0.
191	2.	0.	1.	0.	2.	3.	3.	0.	1.	3.
201	0.	7.	2.	5.	6.	7.	8.	11.	23.	25.
211	26.	50.	52.	77.	115.	128.	116.	160.	170.	191.
221	292.	373.	439.	547.	646.	664.	573.	479.	295.	151.
231	51.	20.	8.	1.	0.	0.	0.	1.	0.	0.
241	0.	1.	0.	0.	0.	0.	0.	1.	1.	1.
251	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
261	0.	0.	1.	0.	0.	0.	0.	1.	0.	1.
271	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
281	0.	1.	0.	0.	1.	0.	1.	0.	1.	6.
291	6.	2.	7.	3.	8.	3.	5.	9.	5.	7.
301	10.	8.	7.	3.	2.	1.	0.	0.	0.	0.
311	0.	0.	2.	0.	0.	0.	0.	2.	1.	0.
321	0.	3.	0.	2.	1.	3.	3.	3.	0.	1.
331	1.	0.	1.	1.	4.	4.	6.	3.	7.	10.
341	9.	27.	31.	25.	70.	95.	91.	152.	166.	161.
351	144.	145.	147.	213.	237.	281.	400.	431.	450.	469.
361	293.	155.	43.	6.	1.	0.	3.	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.	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.								

D. Hyndman
10-24-95

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
WORKLIST-2966-~~ST~~ BLANK D.H.
File ID: 19a1963.CNF

Counted on: 10/24/95 @15:13
Detector: AEA19
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	481.5	481.5	357.124	357.124	12.000	3.384	6.000	1.582

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.995	5.755	5.744	0.011	0.02	12.96	2.5	124.2	0.559E-04
Totals:		0.995	<--valid peaks only-->				12.96			

DETECTOR CALIBRATION
Energy(MEV) = 4.101 + (0.0046)*Channel
Energy range (MeV): 4.101 TO 6.456
Efficiency = 0.1065 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	6251.0	100.000
Smoothed	6251.2	100.003
Composite fit	6220.1	99.506
Residuals	30.9	0.494

Analyzed by: _____
SZC

Spectrum 19a1963.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 3255.5

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1
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Raw Data Dump for AEA Spectrum: 19a1963.CNF

1	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	1.	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.	1.	0.	0.
101	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
111	0.	0.	0.	1.	0.	0.	1.	0.	0.	1.
121	0.	1.	0.	0.	2.	0.	0.	0.	0.	0.
131	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
141	0.	1.	1.	1.	0.	1.	0.	1.	1.	0.
151	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
161	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.
181	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
191	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
201	0.	1.	0.	1.	0.	1.	0.	1.	1.	2.
211	0.	0.	1.	4.	2.	0.	1.	0.	5.	4.
221	7.	6.	6.	8.	6.	3.	7.	7.	2.	5.
231	2.	2.	0.	0.	0.	0.	0.	1.	1.	0.
241	0.	0.	0.	0.	1.	1.	2.	0.	1.	0.
251	0.	2.	0.	0.	3.	1.	0.	0.	0.	0.
261	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
271	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
281	0.	1.	1.	1.	0.	0.	1.	1.	2.	1.
291	1.	3.	2.	2.	1.	1.	1.	5.	6.	6.
301	2.	5.	1.	0.	1.	0.	0.	1.	0.	0.
311	0.	0.	0.	1.	0.	0.	0.	0.	1.	1.
321	0.	2.	2.	3.	3.	2.	1.	1.	1.	4.
331	3.	3.	1.	7.	3.	11.	11.	11.	34.	38.
341	41.	55.	79.	120.	130.	187.	208.	273.	235.	254.
351	247.	256.	325.	356.	464.	543.	556.	550.	520.	315.
361	162.	42.	8.	3.	0.	0.	0.	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.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	1.	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.								

D. Hamilton
10-24-95

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
S95T2805-SAMPLE
File ID: 21a2173.CNF

Counted on: 10/24/95 @15:18
Detector: AEA21
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	796.0	796.0	360.288	360.288	12.000	3.467	6.000	1.598
2	179.6	179.6	302.087	302.081	12.000	3.699	6.000	1.868
3	1551.6	1551.6	228.219	228.219	12.000	4.607	6.000	2.855

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.329	5.755	5.744	0.011	0.02	21.70	1.9	2767.9	0.125E-02
2	Pu238	0.072	5.487	5.476	0.011	0.02	4.74	4.1	823.3	0.371E-03
	Am241		5.479	5.476	0.003				630.6	0.284E-03
3	Pu239	0.605	5.147	5.137	0.010	0.02	39.88	1.4	4984.8	0.225E-02
	Pu240		5.144	5.137	0.007				4984.8	0.225E-02
		---					---			
Totals:		1.006	<--valid peaks only-->				66.32			

DETECTOR CALIBRATION
Energy(MEV) = 4.087 + (0.0046)*Channel
Energy range (MeV): 4.087 TO 6.442
Efficiency = 0.0080 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	31653.0	100.000
Smoothed	31652.8	99.999
Composite fit	31838.8	100.587
Residuals	-185.8	-0.587

Analyzed by: _____
SZC

Spectrum 21a2173.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 10733.8

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WHC-SD-WM-DP-149, REV. 0

Raw Data Dump for AEA Spectrum: 21a2173.CNF

1	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
11	1.	0.	0.	0.	0.	0.	1.	0.	0.	0.
21	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	0.	1.	1.	1.
41	0.	0.	1.	0.	1.	1.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
61	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
71	0.	0.	1.	0.	1.	0.	0.	1.	0.	0.
81	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
101	1.	0.	2.	0.	0.	0.	1.	0.	1.	0.
111	0.	0.	0.	2.	0.	0.	0.	1.	0.	1.
121	1.	1.	0.	3.	1.	1.	0.	0.	1.	0.
131	1.	0.	0.	1.	3.	2.	2.	3.	1.	0.
141	4.	5.	3.	9.	10.	8.	7.	6.	5.	9.
151	10.	4.	4.	6.	7.	4.	2.	5.	2.	5.
161	0.	1.	2.	0.	1.	0.	1.	1.	4.	0.
171	0.	0.	2.	1.	1.	2.	2.	1.	1.	1.
181	2.	1.	0.	2.	2.	0.	0.	2.	3.	5.
191	1.	2.	3.	2.	3.	2.	3.	4.	4.	3.
201	6.	7.	11.	6.	11.	25.	25.	31.	29.	46.
211	62.	95.	101.	152.	199.	287.	321.	419.	456.	561.
221	698.	776.	953.	1141.	1344.	1552.	1678.	1780.	1775.	1539.
231	1262.	852.	445.	231.	104.	22.	2.	1.	0.	0.
241	0.	0.	0.	0.	1.	0.	0.	1.	0.	2.
251	0.	2.	2.	2.	2.	0.	2.	0.	0.	1.
261	0.	0.	0.	2.	0.	0.	1.	0.	1.	2.
271	3.	2.	0.	2.	1.	0.	1.	4.	1.	3.
281	2.	6.	4.	6.	9.	17.	21.	14.	38.	42.
291	62.	66.	90.	94.	99.	98.	97.	125.	123.	161.
301	207.	220.	201.	169.	132.	77.	32.	9.	0.	1.
311	0.	2.	1.	0.	2.	1.	1.	2.	0.	2.
321	2.	2.	2.	0.	4.	2.	2.	3.	4.	3.
331	2.	4.	2.	3.	4.	6.	9.	11.	18.	16.
341	22.	34.	40.	74.	121.	152.	167.	243.	291.	346.
351	390.	424.	385.	429.	455.	573.	572.	715.	844.	934.
361	939.	826.	613.	327.	101.	23.	0.	3.	4.	1.
371	0.	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.	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.								

D. H. Milbrath
10-24-95

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
S95T2305-DUP
File ID: 22a2220.CNF

Counted on: 10/24/95 @15:19
Detector: AEA22
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	883.1	883.1	362.402	362.402	10.000	3.180	5.000	1.529
2	182.8	182.8	304.124	304.120	10.000	3.060	5.000	1.512
3	1670.6	1670.6	229.446	229.446	10.000	4.188	5.000	2.744

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.338	5.755	5.758	-.0030	.01	23.07	1.9	1929.7	0.869E-03
2	Pu238	0.068	5.487	5.490	-.0030	.01	4.66	4.2	530.9	0.239E-03
	Am241		5.479	5.490	-.011				406.6	0.183E-03
3	Pu239	0.599	5.147	5.146	0.0010	.02	40.82	1.4	3346.1	0.151E-02
	Pu240		5.144	5.146	-.002				3346.1	0.151E-02
Totals:		1.006	<--valid peaks only-->				68.56			

DETECTOR CALIBRATION
Energy(MEV) = 4.091 + (0.0046)*Channel
Energy range (MeV): 4.091 TO 6.446
Efficiency = 0.0122 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	32729.0	100.000
Smoothed	32729.2	100.001
Composite fit	32910.4	100.554
Residuals	-181.4	-0.554

Analyzed by: _____
SZC

Spectrum 22a2220.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 11338.9

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 1
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1.
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Raw Data Dump for AEA Spectrum: 22a2220.CNF

1	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	1.	0.	1.	0.	1.
21	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
31	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	1.	1.	1.	1.	0.	1.	0.
71	0.	1.	0.	1.	0.	1.	1.	0.	0.	0.
81	1.	0.	0.	0.	0.	1.	1.	0.	0.	0.
91	1.	1.	0.	1.	1.	1.	0.	1.	0.	0.
101	0.	1.	0.	0.	1.	0.	0.	0.	1.	1.
111	1.	0.	0.	0.	1.	2.	0.	1.	2.	1.
121	0.	1.	2.	0.	1.	1.	0.	0.	0.	1.
131	1.	0.	0.	0.	1.	1.	1.	0.	1.	2.
141	3.	6.	5.	6.	8.	3.	8.	7.	5.	4.
151	9.	4.	5.	3.	1.	2.	3.	2.	1.	3.
161	0.	0.	3.	2.	2.	0.	3.	0.	5.	1.
171	0.	0.	1.	2.	1.	1.	1.	0.	1.	3.
181	3.	2.	2.	2.	3.	3.	1.	4.	5.	1.
191	3.	4.	3.	0.	5.	5.	3.	8.	7.	6.
201	5.	5.	3.	12.	3.	19.	17.	18.	28.	39.
211	47.	51.	72.	100.	146.	164.	241.	277.	374.	476.
221	529.	639.	769.	911.	1083.	1329.	1551.	1856.	1875.	1958.
231	1786.	1392.	853.	519.	239.	108.	25.	2.	0.	0.
241	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
251	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
261	0.	1.	1.	1.	0.	0.	0.	0.	2.	1.
271	0.	1.	0.	1.	0.	0.	1.	1.	3.	3.
281	2.	5.	2.	3.	8.	5.	11.	11.	19.	27.
291	33.	34.	54.	75.	73.	97.	94.	94.	105.	129.
301	160.	156.	201.	206.	226.	192.	108.	41.	15.	1.
311	0.	2.	1.	0.	0.	0.	0.	0.	1.	2.
321	1.	1.	1.	1.	1.	3.	5.	6.	4.	5.
331	3.	4.	4.	8.	2.	7.	4.	6.	8.	11.
341	15.	18.	17.	26.	49.	65.	91.	119.	179.	253.
351	307.	371.	437.	453.	449.	389.	413.	518.	629.	728.
361	962.	1014.	1083.	942.	679.	319.	117.	25.	5.	1.
371	1.	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.	0.	1.	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.								

LABCORE Completed Worklist Report for Worklist# 2355

Analyst: akl **Instrument:** LSC01 **Book#** NA

Method: LA-365-132 Rev/Mod B-2

Worklist Comment:

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK		0	@SE79-01	SE79-01	LIQUID	1	4.1e-6	0.000	uCi/mL
1	BLNK		0	@SE79-01	SE79-01C	LIQUID	100	82.4	82.400	% Recovery
1	BLNK		0	@SE79-01	SE79-01E	LIQUID	1	3.98	3.980	% Recovery
2	SAMPLE	S95T002017	0	@SE79-01	SE79-01	LIQUID	N/A	1.22e-4	2.210e-006	uCi/mL
2	SAMPLE	S95T002017	0	@SE79-01	SE79-01C	LIQUID	N/A	89.9	1.000e-004	% Recovery
2	SAMPLE	S95T002017	0	@SE79-01	SE79-01E	LIQUID	N/A	1.75	2.210e-006	% Recovery
3	SAMPLE	S95T002308	0	@SE79-01	SE79-01	LIQUID	N/A	4.68E-5	2.340e-006	uCi/mL
3	SAMPLE	S95T002308	0	@SE79-01	SE79-01C	LIQUID	N/A	84.9	1.000e-004	% Recovery
3	SAMPLE	S95T002308	0	@SE79-01	SE79-01E	LIQUID	N/A	2.56	2.340e-006	% Recovery

Final page for worklist# 2355

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date 10/11/95

Units shown for QC (BLK/BKG) may not reflect the actual units.

worklistrpt Version 2.1 05/15/95
10/11/95 10:12

LABCORE Data Entry Template for Worklist# 2355

Analyst: AKL **Instrument:** LSC00 WB27818 **Book #** _____

Method: LA-365-132 Rev/Mod B-2

Worklist Comment:

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK				@SE79-01 SE79-01	LIQUID			N/A	uCi/mL
		1	BLNK				@SE79-01 SE79-01C	LIQUID			N/A	% Recovery
		1	BLNK				@SE79-01 SE79-01E	LIQUID			N/A	% Recovery
95000126	AW-106 GRAB	2	SAMPLE	S95T002017	0		@SE79-01 SE79-01	LIQUID	N/A			uCi/mL
95000126	AW-106 GRAB	2	SAMPLE	S95T002017	0		@SE79-01 SE79-01C	LIQUID	N/A			% Recovery
95000126	AW-106 GRAB	2	SAMPLE	S95T002017	0		@SE79-01 SE79-01E	LIQUID	N/A			% Recovery
95000127	AW-102 GRAB	3	SAMPLE	S95T002308	0		@SE79-01 SE79-01	LIQUID	N/A			uCi/mL
95000127	AW-102 GRAB	3	SAMPLE	S95T002308	0		@SE79-01 SE79-01C	LIQUID	N/A			% Recovery
95000127	AW-102 GRAB	3	SAMPLE	S95T002308	0		@SE79-01 SE79-01E	LIQUID	N/A			% Recovery

Final page for worklist # 2355

G Luis 10/12/95 14:00
Analyst Signature Date

Jennifer L Stephens 10/13/95
Analyst Signature Date

Data Entry Comments: Data Attached

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Worklist 2355

DON'T SAY IT --- *Write It!*

DATE 10/13/95

TO Se79 calculations FROM J. L. Shippen

Blank (7.500339)/(2.22E6)(.3243)(1) = 4.10 E-6 µCi/mL

2017 (243.0664)/(2.22E6)(.8990)(1) = 1.22 E-4 µCi/mL

2308 (38.171650)/(2.22E6)(.8490)(1) = 9/10/13/95 4.68 E-5 µCi/mL

LD = 2.72/60 + 2 (2.33 √(43.74/60))

= 4.4129

Detection limits

2017 (4.4129)/(2.22E6)(.8990)(1) = 2.21 E-6 µCi/mL

2308 (4.4129)/(2.22E6)(.8490)(1) = 2.34 E-6 µCi/mL

USER: 2 ID:C-14: SE-79 PRESET TIME: 50.00 THU 12 OCT 1995 19:03
SAMPLE REPEAT: 1 CYCLE REPEAT: 1 SCR:N RS232:N
H#: 1 AQC:Y QCF:N RCM:Y 2 PHASE MONITOR:Y POST CHK:N VIAL:G VOLUME:1
RCM-TIME: 0.10 INT:999.95
CHANNEL 1-LL: 0 UL: 700 2SIGMA: 0.10 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0

SINGLE LABEL DPM SET UP ON 24 AUG 1993 13:15

WHC-SD-WM-DP-149, REV. 0

UNKNOWN ID:C14 OR SE79. LS5801 UNKNOWN REPLICATES: 1
UNKNOWN NORM FACTOR ISO1:@ 1.00000
UNKNOWN UNITS ISO1:DPM
UNKNOWN HALF LIFE CORRECTION:N
INDIVIDUAL UNKNOWN NORM FACTORS:N BACKGROUND QUENCH CURVES:Y
STANDARD ID:BECKMAN LOT 000322 QUENCH LIMITS LOW:0.000 HIGH:299.0
HALF LIFE(DAYS) ISO1: 2092825.
STANDARD DPM ISO1: 158966.0

SAM	POS	CH	CPM	2SIG%	TIME	EL TIME	AVG H#	RCM%	2P	ERR
B1	**- 1	1	43.74	4.28	50.00	51.78	136.0	1.58	**	

BACKGROUND QUENCH CURVES: CONSTANT

CHANNEL 1
QUENCH CURVE COEFFICIENTS
A: 43.74000 B:0.00000000 C:0.00000000 D:0.00000000000

BACKGROUND QUENCH CURVE CORRELATION TABLE

BKG	H#	MEASURED CPM.	CALCULATED CPM.	PERCENT DIFF.	FLAG
1	136.0	43.74	43.74	0.00	

BACKGROUND QUENCH LIMITS LOW:0.000 HIGH:1000.
TOTAL QUENCH LIMITS LOW:0.000 HIGH:299.0

SAM	POS	CH	CPM	2SIG%	TIME	EL TIME	AVG H#	RCM%	2P	ERR
1	**- 3	1	50.48	3.98	50.00	103.84	138.0	4.09	**	
	ISO1 %EFF CH1:89.86						ISO1 DPM :7.500339			
2	**- 4	1	260.16	1.75	50.00	155.80	148.0	0.62	**	
	ISO1 %EFF CH1:89.04						ISO1 DPM :243.0664			
3	**- 5	1	121.86	2.56	50.00	207.77	154.0	2.29	**	
	ISO1 %EFF CH1:88.60						ISO1 DPM :88.17650			

SE 79 Worklist # 2355

DON'T SAY IT ... *Write It!*

DATE 10-12-95

TO Counting Room FROM Celita Hurson

Blank: w_2: .7775
w_1: .7610

WHC-SD-WM-DF-149, REV. 0

S95T 2017: w_2: .7862
w_1: .7682

S95T 2308: w_2: .7896
w_1: .7726

Sample size = 1 mL

"TO MAKE LIFE LAST, PUT SAFETY FIRST"

DON'T SAY IT ... *Write It!*

DATE 10/13/95

TO Se79 calculations FROM J.L. Shippen

Blank (7.500339)/(2.22E6)(.3243)(1) = 4.10 E-6 µCi/mL
2017 (243.0664)/(2.22E6)(.8990)(1) = 1.22 E-4 µCi/mL
2308 (38.17650)/(2.22E6)(.8490)(1) = 9/10/13/95 4.68 E-5 µCi/m

$L_D = 2.72/50 + 2\left(2.33\sqrt{43.74/50}\right)$
$= 4.4129$

Detection limits
2017 (4.4129)/(2.22E6)(.8990)(1) = 2.21 E-6 µCi/mL
2308 (4.4129)/(2.22E6)(.8490)(1) = 2.34 E-6 µCi/mL

"TO MAKE LIFE LAST, PUT SAFETY FIRST"

LABCORE Completed Worklist Report for Worklist# 2698

Analyst: dpb **Instrument:** U01 **Book#** 138852

Method: LA-905 009 **Rev/Mod** A-1

Worklist Comment:

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@U-01	U-02	LIQUID	8.44E-02	7.99E-02	94.670	% Recovery
2	BLNK		0	@U-01	U-02	LIQUID	1	6.51E-04	0.000	ug/mL
3	SAMPLE	S95T002308	0	@U-01	U-02	LIQUID	N/A	1.68E+01	4.070e-002	ug/mL
3	SAMPLE	S95T002308	0	@U-01	U-02E	LIQUID	N/A	1.21E+00	0.000	% Inst Error
4	SAMPLE	S95T002309	0	@U-01	U-02	LIQUID	N/A	1.24E+01	4.070e-002	ug/mL
4	SAMPLE	S95T002309	0	@U-01	U-02E	LIQUID	N/A	1.18E+00	0.000	% Inst Error
5	DUP	S95T002309	0	@U-01	U-02	LIQUID	1.24E+01	1.01E+01	20.440	RPD
6	SAMPLE	S95T002158	0	@U-01	U-02	LIQUID	N/A	3.05E+00	3.700e-003	ug/mL
6	SAMPLE	S95T002158	0	@U-01	U-02E	LIQUID	N/A	1.48E+00	0.000	% Inst Error
7	DUP	S95T002158	0	@U-01	U-02	LIQUID	3.05E+00	3.10E+00	1.630	RPD

Final page for worklist# 2698

Analyst Signature **Date** **Analyst Signature** **Date**

10/11/95
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 2698

Analyst: PFB **Instrument:** U01 _____ **Book#** 138B52

Method: LA-925-009 Rev/Mod A-1

Worklist Comment:

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD	138852			@U-01	LIQUID		
2	BLNK				@U-01	LIQUID		
3	SAMPLE	S95T002308	0		@U-01	LIQUID	95000127	AW-102 GRAB
		Analytes Requested:			U-02	, U-02E		
4	SAMPLE	S95T002309	0		@U-01	LIQUID	95000127	AW-102 GRAB
		Analytes Requested:			U-02	, U-02E		
5	DUP	S95T002309	0		@U-01	LIQUID		
6	SAMPLE	S95T002158	0		@U-01	LIQUID	95000127	AW-102 GRAB
		Analytes Requested:			U-02	, U-02E		
7	DUP	S95T002158	0		@U-01	LIQUID		

Final page for worklist # 2698

Daniel P. Bromley
Analyst Signature **Date**

D. B. Griffin 10-9-95
Analyst Signature **Date**

L. Jones 10-11-95

Data Entry Comments: Standard sample prep: 10 mL → 10 mL
All others sample prep: .1 mL → 10 mL
Sample size: 1 mL

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

URANIUM ANALYSIS

Worklist 2698

Sample ID 138B52
Description LMCS STD.
Ref. Ratio 1.014
Laser Pulses 500
Lifetime 208 + .345 us
R2 .9999
Integrated 87593
Range: HIGH

Date/Time 10/09/95/13:02:29
Cal Y=8.70E+07X+329.121
Intensity 5612 (t= 39 us)
Conc 7.99E-05 + 2.45E-06 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 7.99E-05 + 2.45E-06 g/L

Sample ID BLANK
Description AW-102 GRAB
Ref. Ratio 1.024
Laser Pulses 500
Lifetime 212 + .894 us
R2 .9992
Integrated 51242
Range: LOW

Date/Time 10/09/95/13:10:36
Cal Y=6.40E+09X0
Intensity 3264 (t= 39 us)
Conc 6.51E-07 + 8.72E-09 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 6.51E-07 + 8.72E-09 g/L

Sample ID S95T002308
Description AW-102 GRAB
Ref. Ratio 1.045
Laser Pulses 500
Lifetime 236 + .576 us
R2 .9998
Integrated 864545
Range: LOW

Date/Time 10/09/95/13:19:50
Cal Y=6.40E+09X0
Intensity 50300 (t= 143 us)
Conc 1.53E-05 + 1.85E-07 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 1.53E-05 + 1.85E-07 g/L

Dilution 1-10

Sample ID S95T002309
Description AW-102 GRAB
Ref. Ratio 1.057
Laser Pulses 500
Lifetime 215 + .424 us
R2 .9998
Integrated 751255
Range: LOW

Date/Time 10/09/95/13:27:51
Cal Y=6.40E+09X0
Intensity 47153 (t= 78 us)
Conc 1.13E-05 + 1.33E-07 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 1.13E-05 + 1.33E-07 g/L

Dilution 1-10

Sample ID S95T002309DUP
Description AW-102 GRAB
Ref. Ratio 1.049
Laser Pulses 500
Lifetime 218 + .579 us
R2 .9997
Integrated 742246
Range: LOW

Date/Time 10/09/95/13:37:53
Cal Y=6.40E+09X0
Intensity 46587 (t= 39 us)
Conc 9.18E-06 + 1.11E-07 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 9.18E-06 + 1.11E-07 g/L

Dilution 1-10

Sample ID S95T002158
Description AW-102 GRAB
Ref. Ratio 1.065
Laser Pulses 500
Lifetime 203 + .681 us
R2 .9995
Integrated 723719
Range: LOW

Date/Time 10/09/95/13:42:04
Cal Y=6.40E+09X0
Intensity 48057 (t= 273 us)
Conc 3.05E-05 + 4.52E-07 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 3.05E-05 + 4.52E-07 g/L

URANIUM ANALYSIS

Sample ID S95T002158DUP	Date/Time 10/09/95/13:46:24
Description AW-102 GRAB	Cal Y=6.40E+09X0
Ref. Ratio 1.064	Intensity 49046 (t= 247 us)
Laser Pulses 500	Conc 3.10E-05 + 3.88E-07 g/L
Lifetime 185 + .347 us	Dilution Factor 1 mL/mL
R2 .9999	
Integrated 690583	FINAL RESULT 3.10E-05 + 3.88E-07 g/L
Range: LOW	

WORKBOOK PAGE: STD1

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
STD			STANDARD
Work List	STANDARD BOOK #		138B52
2698	VOLUME OF SAMPLE (mL)	(SS)	1.00
Test Code	DILUTION FACTOR OF SAMPLE	(DF)	1.00
@U-01	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
Matrix	LIFETIME IN MICROSECONDS		208.00
LIQUID	R2 VALUE		0.9999
Batch Number	RANGE (HIGH OR LOW)		HIGH
95002887	INSTRUMENT UNCERTAINTY	(IU)	2.45E-06
Rerun	INSTRUMENT RESULT	(IR)	7.99E-05
0	DETECTION LEVEL (µg/mL)		3.70E-05
Sample Prep			
N/A	RESULT (µg/mL)		7.99E-02
Sample #	VALUE OF STANDARD		8.44E-02
138B52	%RECOVERY		94.67
Instrument Code	RELATIVE % UNCERTAINTY		3.1
N\A			
Prepared By			
RCJ	Result = DF * PF * IR * 1000		
Chemist			
JLS	Detection Level = 3.70 E-08 * DF * PF * 1000		
Analyst			
DPB	% Recovery = Result / Value of Standard * 100		
Date Completed			
10/11/95	Relative % Uncertainty = IU / IR * 100		
Analysis Date			
10/09/95			
Analysis Time			
01:02 PM			
Sample Source			
AW-102 GRAB			

Analyst:	DPB	Date:	11-Oct-95
Signature of Chemist:	JLS	Date:	10/11/95

STANDARD.WB1 REV 1.2 925009ML

WORKBOOK PAGE: BLANK2

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
BLNK			BLANK
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
2698	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
Matrix	LIFETIME IN MICROSECONDS		212.00
LIQUID	R2 VALUE		0.9992
Batch Number	RANGE (HIGH OR LOW)		LOW
95002887	INSTRUMENT UNCERTAINTY	(IU)	8.72E-09
Rerun	INSTRUMENT RESULT	(IR)	6.51E-07
0	DETECTION LEVEL (µg/mL)		3.70E-05
Sample Prep			
N/A			
Sample #	RESULT (µg/mL)		6.51E-04
BLANK	RELATIVE % UNCERTAINTY		1.3
Instrument Code			
N\A			
Prepared By			
RCJ			
Chemist			
JLS			
Analyst			
DPB			
Date Analyzed			
10/11/95			
Analyzed Date			
10/09/95			
Analyzed Time			
01:02 PM			
Sample Point			
AW-102 GRAB			

Result = DF * PF * DDF * IR * 1000

Detection Level = 3.70 E-08 * DF * PF * DDF * 1000

Relative % Uncertainty = IU / IR * 100

Analyst:	DPB	Date:	11-Oct-95
Signature of Chemist:	JLS	Date:	10/11/95

BLANK.WB1 REV 1.2 925009ML

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			SAMPLE
SAMPLE	VOLUME OF SAMPLE (mL)	(SS)	1.00
Work List	DILUTION FACTOR OF SAMPLE	(DF)	11.00
2698	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
Test Code	DIGEST DILUTION FACTOR	(DDF)	1.0000
@U-01	LIFETIME IN MICROSECONDS		236.00
Matrix	R2 VALUE		0.9998
LIQUID	RANGE (HIGH OR LOW)		LOW
Batch Number	INSTRUMENT UNCERTAINTY	(IU)	1.85E-07
95002887	INSTRUMENT RESULT	(IR)	1.53E-05
Rerun	DETECTION LEVEL (µg/mL)		4.07E-02
0			
Sample Prep	CONCENTRATION IN SOLUTION (g/L)		1.68E-02
N/A	RESULT (µg/mL)		1.68E+01
Sample No.	RELATIVE % UNCERTAINTY		1.2
S95T002308			
Instrument Code			
N\A			
Prepared By			
RCJ			
Chemist			
JLS			
Analyst			
DPB			
Date Completed			
10/11/95			
Date Received			
10/09/95			
Analysis Time			
01:02 PM			
Sample Description			
AW-102 GRAB			

Result = DF * PF * DDF * IR * 1000

Detection Level = 3.70 E-08 * DF * PF * DDF * 1000

Relative % Uncertainty = IU / IR * 100

Analyst:	DPB	Date:	11-Oct-95
Signature of Chemist:	JLS	Date:	10/11/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM4

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
2698	DILUTION FACTOR OF SAMPLE	(DF)	11.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
Matrix	LIFETIME IN MICROSECONDS		215.00
LIQUID	R2 VALUE		0.9998
Batch Number	RANGE (HIGH OR LOW)		LOW
95002887	INSTRUMENT UNCERTAINTY	(IU)	1.33E-07
Rerun	INSTRUMENT RESULT	(IR)	1.13E-05
0	DETECTION LEVEL (µg/mL)		4.07E-02
Sample Prep			
N/A	CONCENTRATION IN SOLUTION (g/L)		1.24E-02
Sample ID	RESULT (µg/mL)		1.24E+01
S95T002309	RELATIVE % UNCERTAINTY		1.2
Instrument Code			
N\A			
Prepared By	Result = DF * PF * DDF * IR * 1000		
RCJ			
Chemist	Detection Level = 3.70 E-08 * DF * PF * DDF * 1000		
JLS			
Analyst	Relative % Uncertainty = IU / IR * 100		
DPB			
Date Completed			
10/11/95			
Analysis Date			
10/09/95			
Analysis Time			
01:02 PM			
Sample Source			
AW-102 GRAB			

Analyst:	DPB	Date:	11-Oct-95
Signature of Chemist:	JLS	Date:	10/11/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: DUP5

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			DUP
DUP	VOLUME OF SAMPLE (mL)	(SS)	1.00
Work List	DILUTION FACTOR OF SAMPLE	(DF)	11.00
2698	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
Test Codes	DIGEST DILUTION FACTOR	(DDF)	1.0000
@U-01	LIFETIME IN MICROSECONDS		218.00
Matrix	R2 VALUE		0.9997
LIQUID	RANGE (HIGH OR LOW)		LOW
Batch Number	INSTRUMENT UNCERTAINTY	(IU)	1.11E-07
95002887	INSTRUMENT RESULT	(IR)	9.18E-06
Rerun #	DETECTION LEVEL (µg/mL)		4.07E-02
0			
Sample Group	CONCENTRATION IN SOLUTION (g/L)		1.01E-02
N/A	RESULT (µg/mL)		1.01E+01
Sample Id	RELATIVE % UNCERTAINTY		1.2
S95T002309			
Instrument Codes			
N\A			
Prepared By	Result = DF * PF * DDF * IR * 1000		
RCJ			
Chemist	Detection Level = 3.70 E-08 * DF * PF * DDF * 1000		
JLS			
Analyzed	Relative % Uncertainty = IU / IR * 100		
DPB			
Date Extracted			
10/11/95			
Analyzed			
10/09/95			
Analyzed Time			
01:02 PM			
Sample Type			
AW-102 GRAB			

Analyst:		DPB	Date:	11-Oct-95
Signature of Chemist:		JLS	Date:	10/11/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM6

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
2698	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
Matrix	LIFETIME IN MICROSECONDS		203.00
LIQUID	R2 VALUE		0.9995
Batch Number	RANGE (HIGH OR LOW)		LOW
95002887	INSTRUMENT UNCERTAINTY	(IU)	4.52E-07
Rerun	INSTRUMENT RESULT	(IR)	3.05E-05
0	DETECTION LEVEL (µg/mL)		3.70E-03
Sample Prep			
N/A	CONCENTRATION IN SOLUTION (g/L)		3.05E-03
Sample	RESULT (µg/mL)		3.05E+00
S95T002158	RELATIVE % UNCERTAINTY		1.5
Instrument Code			
N\A			
Prepared By			
RCJ			
Chemist			
JLS			
Analyst			
DPB			
Date Prepared			
10/11/95			
Date Analyzed			
10/09/95			
Time Analyzed			
01:02 PM			
Sample Source			
AW-102 GRAB			

Result = DF * PF * DDF * IR * 1000

Detection Level = 3.70 E-08 * DF * PF * DDF * 1000

Relative % Uncertainty = IU / IR * 100

Analyst:	DPB	Date:	11-Oct-95
Signature of Chemist:	JLS	Date:	10/11/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: DUP7

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			DUP
DUP	VOLUME OF SAMPLE (mL)	(SS)	1.00
Work List	DILUTION FACTOR OF SAMPLE	(DF)	1.00
2698	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
Test Code	DIGEST DILUTION FACTOR	(DDF)	1.0000
@U-01	LIFETIME IN MICROSECONDS		185.00
Matrix	R2 VALUE		0.9999
LIQUID	RANGE (HIGH OR LOW)		LOW
Batch Number	INSTRUMENT UNCERTAINTY	(IU)	3.88E-07
95002887	INSTRUMENT RESULT	(IR)	3.10E-05
Replicate	DETECTION LEVEL (µg/mL)		3.70E-03
0			
Sample Prep	CONCENTRATION IN SOLUTION (g/L)		3.10E-03
N/A	RESULT (µg/mL)		3.10E+00
Sample Id	RELATIVE % UNCERTAINTY		1.3
S95T002158			
Instrument Code			
N\A			
Prepared By			
RCJ			
Orientation			
JLS			
Analyzed By			
DPB			
Date Completed			
10/11/95			
Date Prepared			
10/09/95			
Time Completed			
01:02 PM			
Sample Type			
AW-102 GRAB			

Result = DF * PF * DDF * IR * 1000

Detection Level = 3.70 E-08 * DF * PF * DDF * 1000

Relative % Uncertainty = IU / IR * 100

Analyst:	DPB	Date:	11-Oct-95
Signature of Chemist:	JLS	Date:	10/11/95

SAMPLE.WB1 REV 1.2 925009ML

LABCORE Completed Worklist Report for Worklist# 3179

Analyst: dgg **Instrument:** U01 **Book#** 148852

Method: LA-925-009 **Rev/Mod** A-1

Worklist Comment: 0.1 - 10 mL sample prep / jls

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		au-01	U-02	SOLID	8.44E-02	8.90E-02	105.450	% Recovery
2	BLNK-PREP		0		au-01	U-02	SOLID	1	5.44E+02	544.000	ug/g
3	SAMPLE	S95T002304	0	F	au-01	U-02	SOLID	N/A	9.10E+03	5.440	ug/g
3	SAMPLE	S95T002304	0	F	au-01	U-02E	SOLID	N/A	3.18E+00	0.000	% Inst Error
4	DUP	S95T002304	0	F	au-01	U-02	SOLID	9.10E+03	9.14E+03	0.440	RPD
5	SAMPLE	S95T002305	0	F	au-01	U-02	SOLID	N/A	3.34E+04	1.690	ug/g
5	SAMPLE	S95T002305	0	F	au-01	U-02E	SOLID	N/A	3.18E+00	0.000	% Inst Error
6	DUP	S95T002305	0	F	au-01	U-02	SOLID	3.34E+04	3.13E+04	6.490	RPD

Final page for worklist# 3179

Analyst Signature **Date** **Analyst Signature** **Date**

Jennifer L. Skippen 11/8/95
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 3179

Analyst: [illegible] **Instrument:** U01 _____ **Book#** 148B52

Method: LA-925-009 Rev/Mod A1

Worklist Comment: 0.1 - 10 mL sample prep / jls

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD	148B52			@U-01	SOLID		
2	BLNK-PREP				@U-01	SOLID		
3	SAMPLE	S95T002304	0	F	@U-01	SOLID	95000127	AW-102 GRAB
		Analytes Requested:			U-02	, U-02E		
4	DUP	S95T002304	0	F	@U-01	SOLID		
5	SAMPLE	S95T002305	0	F	@U-01	SOLID	95000127	AW-102 GRAB
		Analytes Requested:			U-02	, U-02E		
6	DUP	S95T002305	0	F	@U-01	SOLID		

Final page for worklist # 3179

Kim Thomas 11-8-95
Analyst Signature **Date**

[illegible] Buffum 11-5-95
Analyst Signature **Date**

~~Kred~~ KRS
Prepped by Kristin run by [illegible] Buffum

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

URANIUM ANALYSIS

Sample ID 148852
Description LMCS STD.
Ref. Ratio 1.063
Laser Pulses 500
Lifetime 289 + 1.362 us
R2 .999
Integrated 102831
Range: HIGH

Date/Time 11/05/95/12:42:20
Cal Y=7.44E+07X-3.82E+02
Intensity 5477 (t= 39
Conc 8.90E-05 + 2.86E-06 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 8.90E-05 + 2.86E-06 g/L

Sample ID PREP-BLANK
Description AW-102 GRAB
Ref. Ratio 1.066
Laser Pulses 500
Lifetime 189 + .347 us
R2 .9999
Integrated 221653
Range: LOW

Date/Time 11/05/95/12:45:46
Cal Y=5.51E+09X0
Intensity 15233 (t= 39 us)
Conc 3.70E-06 + 4.48E-08 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 3.70E-06 + 4.48E-08 g/L

Sample ID S95T002304
Description AW-102 GRAB
Ref. Ratio 1.071
Laser Pulses 500
Lifetime 269 + .991 us
R2 .9994
Integrated 65111
Range: HIGH

Date/Time 11/05/95/12:49:26
Cal Y=7.44E+07X-3.82E+02
Intensity 3616 (t= 39 us)
Conc 6.19E-05 + 1.97E-06 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 6.19E-05 + 1.97E-06 g/L

Sample ID S95T002304DUP
Description AW-102 GRAB
Ref. Ratio 1.073
Laser Pulses 500
Lifetime 252 + .978 us
R2 .9994
Integrated 60553
Range: HIGH

Date/Time 11/05/95/12:52:50
Cal Y=7.44E+07X-3.82E+02
Intensity 3397 (t= 39 us)
Conc 6.11E-05 + 1.96E-06 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 6.11E-05 + 1.96E-06 g/L

Sample ID S95T002305
Description AW-102 GRAB
Ref. Ratio 1.075
Laser Pulses 500
Lifetime 238 + .717 us
R2 .9996
Integrated 745773
Range: HIGH

Date/Time 11/05/95/12:55:29
Cal Y=7.44E+07X-3.82E+02
Intensity 44604 (t= 39 us)
Conc 7.33E-04 + 2.33E-05 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 7.33E-04 + 2.33E-05 g/L

Sample ID S95T002305DUP
Description AW-102 GRAB
Ref. Ratio 1.077
Laser Pulses 500
Lifetime 257 + .613 us
R2 .9998
Integrated 738313
Range: HIGH

Date/Time 11/05/95/12:59:19
Cal Y=7.44E+07X-3.82E+02
Intensity 41391 (t= 39 us)
Conc 6.75E-04 + 2.14E-05 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 6.75E-04 + 2.14E-05 g/L

I:\92500 9\IN\3179.TXT Output Name: U3179

NA Sample Volume: NA Date/Time: 11-5-95 / 1245

	Sample ID	Sample Size	Preparation Factor	Dilution Factor	Digest Number	Comments
	148B52	1 ml	10-10			
	BINK PREP	1 ml	.100-10		.6804	
	S95T2304	1 ml	.100-10		.6804	
	S95T2304	1 ml	.100-10		.6684	
	S95T2305	1 ml	.100-10		2.1948	
DUP	S95T2305	1 ml	.100-10		2.1556	
SAM						
DUP						
SAM						
DUP						
SAM						

WORKBOOK PAGE: STD1

WHC-SD-WM-UP-149, REV. 0

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
STD			STANDARD
Work List	STANDARD BOOK #		148B52
3179	VOLUME OF SAMPLE (mL)	(SS)	1.00
Test Code	DILUTION FACTOR OF SAMPLE	(DF)	1.00
@U-01	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
Matrix	LIFETIME IN MICROSECONDS		289.00
LIQUID	R2 VALUE		0.9990
Batch Number	RANGE (HIGH OR LOW)		HIGH
95003526	INSTRUMENT UNCERTAINTY	(IU)	2.86E-06
Rerun	INSTRUMENT RESULT	(IR)	8.90E-05
0	DETECTION LEVEL (µg/mL)		3.70E-05
Sample Prep			
N/A	RESULT (µg/mL)		8.90E-02
Sample #	VALUE OF STANDARD		8.44E-02
WL3179	%RECOVERY		105.45
Instrument Code	RELATIVE % UNCERTAINTY		3.2
U01			
Prepared By			
JLS	Result = DF * PF * IR * 1000		
Chemist			
JLS	Detection Level = 3.70 E-08 * DF * PF * 1000		
Analyst			
DGG	% Recovery = Result / Value of Standard * 100		
Date Complete			
11/07/95	Relative % Uncertainty = IU / IR * 100		
Analysis Date			
11/05/95			
Analysis Time			
12:45 PM			
Sample Point			
AW-102 GRAB			

Analyst:	DGG	Date:	07-Nov-95
Signature of Chemist: Jennifer L Sanger	JLS	Date:	11/8/95

STANDARD.WB1 REV 1.2 925009ML

WORKBOOK PAGE: BLANK2

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
BLNK-PREP			BLANK
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
3179	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST FACTOR	(Dg/L)	0.6804
Matrix	LIFETIME IN MICROSECONDS		189.00
SOLID	R2 VALUE		0.9999
Batch Number	RANGE (HIGH OR LOW)		LOW
95003526	INSTRUMENT UNCERTAINTY	(IU)	4.48E-08
Rerun	INSTRUMENT RESULT	(IR)	3.70E-06
0	DETECTION LEVEL µg/g		5.44E+00
Sample Prep			
N/A	CONCENTRATION IN SOLUTION (g/L)		3.70E-04
Sample #	RESULT (µg/g)		5.44E+02
BLANK	RELATIVE % UNCERTAINTY		1.2
Instrument Code			
U01			
Prepared By			
JLS			
Chemist			
JLS			
Analyst			
DGG			
Date Complete			
11/07/95			
Analysis Date			
11/05/95			
Analysis Time			
12:45 PM			
Sample Point			
AW-102 GRAB			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	DGG	Date:	07-Nov-95
Signature of Chemist:	JLS	Date:	11/8/95

BLANK.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM3

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
3179	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST FACTOR	(Dg/L)	0.6804
Matrix	LIFETIME IN MICROSECONDS		269.00
SOLID	R2 VALUE		0.9994
Batch Number	RANGE (HIGH OR LOW)		HIGH
95003526	INSTRUMENT UNCERTAINTY	(IU)	1.97E-06
Rerun	INSTRUMENT RESULT	(IR)	6.19E-05
2	DETECTION LEVEL µg/g		5.44E+00
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		6.19E-03
Sample #	RESULT (µg/g)		9.10E+03
S95T002304	RELATIVE % UNCERTAINTY		3.2
Instrument Code			
U01			
Prepared By			
JLS			
Chemist			
JLS			
Analyst			
DGG			
Date Complete			
11/07/95			
Analysis Date			
11/05/95			
Analysis Time			
12:45 PM			
Sample Point			
AW-102 GRAB			

Result = Conc. In Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration In Solution (g/L) = IR * DF * PF

Analyst:	DGG	Date:	07-Nov-95
Signature of Chemist:	JLS	Date:	11/8/95

SAMPLE.WB1 REV 1.2 925009ML

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
DUP			DUP
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
3179	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST FACTOR	(Dg/L)	0.6684
Matrix	LIFETIME IN MICROSECONDS		252.00
SOLID	R2 VALUE		0.9994
Batch Number	RANGE (HIGH OR LOW)		HIGH
95003526	INSTRUMENT UNCERTAINTY	(IU)	1.96E-06
Recup	INSTRUMENT RESULT	(IR)	6.11E-05
2	DETECTION LEVEL µg/g		5.54E+00
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		6.11E-03
Sample #	RESULT (µg/g)		9.14E+03
S95T002304	RELATIVE % UNCERTAINTY		3.2
Instrument Code			
U01			
Prepared By			
JLS			
Chemist			
JLS			
Analyst			
DGG			
Date Complete			
11/07/95			
Analysis Date			
11/05/95			
Analysis Time			
12:45 PM			
Sample Point			
AW-102 GRAB			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	DGG	Date:	07-Nov-95
Signature of Chemist:	JLS	Date:	11/8/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM5

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
3179	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1948
Matrix	LIFETIME IN MICROSECONDS		238.00
SOLID	R2 VALUE		0.9996
Batch Number	RANGE (HIGH OR LOW)		HIGH
95003526	INSTRUMENT UNCERTAINTY	(IU)	2.33E-05
Rerun	INSTRUMENT RESULT	(IR)	7.33E-04
2	DETECTION LEVEL µg/g		1.69E+00
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		7.33E-02
Sample #	RESULT (µg/g)		3.34E+04
S95T002305	RELATIVE % UNCERTAINTY		3.2
Instrument Code			
U01			
Prepared By			
JLS			
Chemist			
JLS			
Analyst			
DGG			
Date Complete			
11/07/95			
Analysis Date			
11/05/95			
Analysis Time			
12:45 PM			
Sample Point			
AW-102 GRAB			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	DGG	Date:	07-Nov-95
Signature of Chemist:	JLS	Date:	11/8/95

SAMPLE.WB1 REV 1.2 925009ML

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			DUP
DUP			
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
3179	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1556
Matrix	LIFETIME IN MICROSECONDS		257.00
SOLID	R2 VALUE		0.9998
Batch Number	RANGE (HIGH OR LOW)		HIGH
95003526	INSTRUMENT UNCERTAINTY	(IU)	2.14E-05
Rerun	INSTRUMENT RESULT	(IR)	6.75E-04
2	DETECTION LEVEL µg/g		1.72E+00
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		6.75E-02
Sample #	RESULT (µg/g)		3.13E+04
S95T002305	RELATIVE % UNCERTAINTY		3.2
Instrument Code			
U01			
Prepared By			
JLS			
Chemist			
JLS			
Analyst			
DGG			
Date Complete			
11/07/95			
Analysis Date			
11/05/95			
Analysis Time			
12:45 PM			
Sample Point			
AW-102 GRAB			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	DGG	Date:	07-Nov-95
Signature of Chemist:	JLS	Date:	11/8/95

SAMPLE.WB1 REV 1.2 925009ML

THE FOLLOWING ANALYSES ARE INCLUDED IN THE DATA PACKAGE BUT THE RESULTS HAVE NOT BEEN REPORTED IN THE FINAL SUMMARY REPORTS.

LABCORE Completed Worklist Report for Worklist# 2927

Analyst: dgg **Instrument:** U01 **Book#** 138852

Method: LA-925 009 Rev/Mod A-1

Worklist Comment: 1-10 mL sample prep / 1 ml sample size / jls

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@U-01	U-02	SOLID	8.44E-02	8.59E-02	101.780	% Recovery
2	BLNK-PREP		0		@U-01	U-02	SOLID	1	5.16E+04	5.160e+004	ug/g
3	SAMPLE	S95T002304	0	F	@U-01	U-02	SOLID	N/A	7.20E+03	0.544	ug/g
3	SAMPLE	S95T002304	0	F	@U-01	U-02E	SOLID	N/A	3.10E+00	0.000	% Inst Error
4	DUP	S95T002304	0	F	@U-01	U-02	SOLID	7.20E+03	6.57E+03	9.150	RPD
5	SAMPLE	S95T002305	0	F	@U-01	U-02	SOLID	N/A	2.17E+04	0.169	ug/g
5	SAMPLE	S95T002305	0	F	@U-01	U-02E	SOLID	N/A	3.19E+00	0.000	% Inst Error
6	DUP	S95T002305	0	F	@U-01	U-02	SOLID	2.17E+04	2.18E+04	0.460	RPD

Final page for worklist# 2927

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date 10/25/95

Samples will be rerun to investigate high blank result.
10/25/95

DATA NOT USED IN PACKAGE

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 2927

Analyst: 038 **Instrument:** U01 _____ **Book#** 138352

Method: LA-925-009 Rev/Mod A1

Worklist Comment: 1-10 mL sample prep / 1 ml sample size / jls

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@U-01	SOLID		
2	BLNK-PREP				@U-01	SOLID		
3	SAMPLE	S95T002304	0	F	@U-01	SOLID	95000127	AW-102 GRAB
		Analytes Requested:			U-02	, U-02E		
4	DUP	S95T002304	0	F	@U-01	SOLID		
5	SAMPLE	S95T002305	0	F	@U-01	SOLID	95000127	AW-102 GRAB
		Analytes Requested:			U-02	, U-02E		
6	DUP	S95T002305	0	F	@U-01	SOLID		

Final page for worklist # 2927

D B Griffin 10-23-95
Analyst Signature **Date**

[illegible] 10-24-95
Analyst Signature **Date**

DATA
NOT USED
IN PACKAGE

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Uranium Data Collection Sheet

Download File Name: I:\9250C9\IN\2927.TXT **Output Name:** U2927

Spike Book Number:_____ **Spike Volume:**_____ **Date/Time:** 10-23-95 / 0630

Sample Type	Sample Number	Sample Size	Preparation Factor	Dilution Factor	Digest Factor	Comments
STD		1 ml	10 → 10			
BLNK		1 ml	1 → 10		.6804	
SAM	S95T2304	1 ml	1 → 10		.6804	
DUP	S95T2304	1 ml	1 → 10		.6684	
SPK						
SAM	S95T2305	1 ml	1 → 10		2.1948	
DUP	S95T2305	1 ml	1 → 10		2.1556	
SPK						
SAM						
DUP						
SAM						
DUP						
SAM						

DATA NOT USED IN PACKAGE

URANIUM ANALYSIS

DATA NOT USED IN PACKAGE

Worklist # 2927

Sample ID 138B52
Description LMCS STD.
Ref. Ratio 1.038
Laser Pulses 500
Lifetime 241 + .325 us
R2 .9999
Integrated 117800
Range: HIGH

Date/Time 10/23/95/05:22:37
Cal Y=1.05E+08X-5.77E+02
Intensity 6756 (t= 39 us)
Conc 8.59E-05 + 2.64E-06 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 8.59E-05 + 2.64E-06 g/L

Sample ID BLNK-PREP
Description AW-102 GRAB
Ref. Ratio 1.043
Laser Pulses 500
Lifetime 251 + .47 us
R2 .9999
Integrated 875218
Range: HIGH

Date/Time 10/23/95/05:25:38
Cal Y=1.05E+08X-5.77E+02
Intensity 48791 (t= 494 us)
Conc 3.51E-03 + 1.10E-04 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 3.51E-03 + 1.10E-04 g/L

Sample ID S95T002304
Description AW-102 GRAB
Ref. Ratio 1.044
Laser Pulses 500
Lifetime 240 + .611 us
R2 .9997
Integrated 708939
Range: HIGH

Date/Time 10/23/95/05:29:10
Cal Y=1.05E+08X-5.77E+02
Intensity 41499 (t= 39 us)
Conc 4.90E-04 + 1.52E-05 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 4.90E-04 + 1.52E-05 g/L

Sample ID S95T002304DUP
Description AW-102 GRAB
Ref. Ratio 1.045
Laser Pulses 500
Lifetime 231 + .542 us
R2 .9998
Integrated 611358
Range: HIGH

Date/Time 10/23/95/05:31:35
Cal Y=1.05E+08X-5.77E+02
Intensity 37238 (t= 39 us)
Conc 4.39E-04 + 1.36E-05 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 4.39E-04 + 1.36E-05 g/L

Sample ID S95T002305
Description AW-102 GRAB
Ref. Ratio 1.041
Laser Pulses 500
Lifetime 177 + .393 us
R2 .9998
Integrated 649855
Range: HIGH

Date/Time 10/23/95/05:34:57
Cal Y=1.05E+08X-5.77E+02
Intensity 48591 (t= 403 us)
Conc 4.76E-03 + 1.52E-04 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 4.76E-03 + 1.52E-04 g/L

Sample ID S95T002305DUP
Description AW-102 GRAB
Ref. Ratio 1.053
Laser Pulses 500
Lifetime 182 + .391 us
R2 .9998
Integrated 650255
Range: HIGH

Date/Time 10/23/95/05:37:05
Cal Y=1.05E+08X-5.77E+02
Intensity 47630 (t= 416 us)
Conc 4.70E-03 + 1.50E-04 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 4.70E-03 + 1.50E-04 g/L

WORKBOOK PAGE: STD1

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
STD			STANDARD
Work List	STANDARD BOOK #		138B52
2927	VOLUME OF SAMPLE (mL)	(SS)	1.00
Test Code	DILUTION FACTOR OF SAMPLE	(DF)	1.00
@U-01	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
Matrix	LIFETIME IN MICROSECONDS		241.00
LIQUID	R2 VALUE		0.9999
Batch Number	RANGE (HIGH OR LOW)		HIGH
95003204	INSTRUMENT UNCERTAINTY	(IU)	2.64E-06
Rerun	INSTRUMENT RESULT	(IR)	8.59E-05
0	DETECTION LEVEL (µg/mL)		3.70E-05
Sample Prep			
N/A	RESULT (µg/mL)		8.59E-02
Sample #	VALUE OF STANDARD		8.44E-02
WRKLIST 2927	%RECOVERY		101.78
Instrument Code	RELATIVE % UNCERTAINTY		3.1
UO1			
Prepared By			
GJH			
Chemist			
JLS			
Analyst			
DGG			
Date Completed			
10/24/95			
Analysis Date			
10/23/95			
Analysis Time			
05:37 AM			
Sample Code			
AW-102			

Result = DF * PF * IR * 1000

Detection Level = 3.70 E-08 * DF * PF * PF * 1000

% Recovery = Result / Value of Standard * 100

Relative % Uncertainty = IU / IR * 100

DATA NOT USED IN PACKAGE

Analyst:	DGG	Date:	24-Oct-95
Signature of Chemist:	JLS	Date:	10/24/95

STANDARD.WB1 REV 1.2 925009ML

WORKBOOK PAGE: BLANK2

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
BLNK-PREP			BLANK
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
2927	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	0.6804
Matrix	LIFETIME IN MICROSECONDS		251.00
SOLID	R2 VALUE		0.9999
Batch Number	RANGE (HIGH OR LOW)		HIGH
95003204	INSTRUMENT UNCERTAINTY	(IU)	1.10E-04
Rerun	INSTRUMENT RESULT	(IR)	3.51E-03
0	DETECTION LEVEL µg/g		5.44E-01
Sample Prep			
N/A	CONCENTRATION IN SOLUTION (g/L)		3.51E-02
Sample #	RESULT (µg/g)		5.16E+04
WRKLIST 2927	RELATIVE % UNCERTAINTY		3.1
Instrument Code			
UO1			
Prepared By			
GJH			
Chemistry			
JLS			
Analyzed By			
DGG			
Date Completed			
10/24/95			
Analyzed Date			
10/23/95			
Analyzed Time			
05:37 AM			
Sample Point			
AW-102			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

DATA NOT USED IN PACKAGE

Analyst:	DGG	Date:	24-Oct-95
Signature of Chemist:	JLS	Date:	10/25/95

BLANK.WB1 REV 1.2 925009ML

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
2927	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	0.6804
Matrix	LIFETIME IN MICROSECONDS		240.00
SOLID	R2 VALUE		0.9997
Batch Number	RANGE (HIGH OR LOW)		HIGH
95003204	INSTRUMENT UNCERTAINTY	(IU)	1.52E-05
Rerun	INSTRUMENT RESULT	(IR)	4.90E-04
0	DETECTION LEVEL µg/g		5.44E-01
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		4.90E-03
Sample #	RESULT (µg/g)		7.20E+03
S95T002304	RELATIVE % UNCERTAINTY		3.1
Instrument Code			
UO1			
Prepared By			
GJH			
Chemist			
JLS			
Analyst			
DGG			
Date Prepared			
10/24/95			
Analyzed Date			
10/23/95			
Analyzed Time			
05:37 AM			
Sample Point			
AW-102			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

DATA NOT USED IN PACKAGE

Analyst:		DGG	Date:	24-Oct-95
Signature of Chemist:	Jennifer J. Schuppan	JLS	Date:	10/25/95

SAMPLE.WB1 REV 1.2 925009ML

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
DUP			DUP
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
2927	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	0.6684
Matrix	LIFETIME IN MICROSECONDS		231.00
SOLID	R2 VALUE		0.9998
Batch Number	RANGE (HIGH OR LOW)		HIGH
95003204	INSTRUMENT UNCERTAINTY	(IU)	1.36E-05
Rerun	INSTRUMENT RESULT	(IR)	4.39E-04
0	DETECTION LEVEL µg/g		5.54E-01
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		4.39E-03
Sample#	RESULT (µg/g)		6.57E+03
S95T002304	RELATIVE % UNCERTAINTY		3.1
Instrument Code			
UO1			
Prepared By			
GJH			
Chemist			
JLS			
Analyst			
DGG			
Date Completed			
10/24/95			
Analysis Date			
10/23/95			
Analysis Time			
05:37 AM			
Batch Number			
AW-102			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

DATA NOT USED IN PACKAGE

Analyst:	DGG	Date:	24-Oct-95
Signature of Chemist:	JLS	Date:	10/25/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM5

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
2927	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1948
Matrix	LIFETIME IN MICROSECONDS		177.00
SOLID	R2 VALUE		0.9998
Batch Number	RANGE (HIGH OR LOW)		HIGH
95003204	INSTRUMENT UNCERTAINTY	(IU)	1.52E-04
Rerun	INSTRUMENT RESULT	(IR)	4.76E-03
0	DETECTION LEVEL µg/g		1.69E-01
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		4.76E-02
Sample #	RESULT (µg/g)		2.17E+04
S95T002305	RELATIVE % UNCERTAINTY		3.2
Instrument Code			
UO1			
Prepared By			
GJH			
Chemist			
JLS			
Analyst			
DGG			
Date/Time			
10/24/95			
Analyze Date			
10/23/95			
Analyze Time			
05:37 AM			
Sample Point			
AW-102			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

DATA NOT USED IN PACKAGE

Analyst:	DGG	Date:	24-Oct-95
Signature of Chemist:	JLS	Date:	10/25/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: DUP6

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
DUP			DUP
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
2927	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1556
Matrix	LIFETIME IN MICROSECONDS		182.00
SOLID	R2 VALUE		0.9998
Batch Number	RANGE (HIGH OR LOW)		HIGH
95003204	INSTRUMENT UNCERTAINTY	(IU)	1.50E-04
Rerun	INSTRUMENT RESULT	(IR)	4.70E-03
0	DETECTION LEVEL µg/g		1.72E-01
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		4.70E-02
Sample #	RESULT (µg/g)		2.18E+04
S95T002305	RELATIVE % UNCERTAINTY		3.2
Instrument Code			
UO1			
Prepared By			
GJH			
Chemist			
JLS			
Analyst			
DGG			
Date Completed			
10/24/95			
[illegible]			
10/23/95			
[illegible]			
05:37 AM			
[illegible]			
AW-102			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

DATA NOT USED IN PACKAGE

Analyst:	DGG	Date:	24-Oct-95
Signature of Chemist: Jennifer J. Delgado	JLS	Date:	10/25/95

SAMPLE.WB1 REV 1.2 925009ML

LABCORE Data Entry Template for Worklist# 3015

Analyst: DPB **Instrument:** U01 _____ **Book#** 148B52

Method: LA-925-009 Rev/Mod A-1

Worklist Comment: .1 - 10 mL sample prep / jls

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@U-01	SOLID		
2	BLNK-PREP				@U-01	SOLID		
3	SAMPLE	S95T002304	O	F	@U-01	SOLID	95000127	AW-102 GRAB
		Analytes Requested:			U-02	, U-02E		
4	DUP	S95T002304	O	F	@U-01	SOLID		
5	SAMPLE	S95T002305	O	F	@U-01	SOLID	95000127	AW-102 GRAB
		Analytes Requested:			U-02	, U-02E		
6	DUP	S95T002305	O	F	@U-01	SOLID		

Final page for worklist # 3015

Pamela J. Bromley 10/30/95
Analyst Signature **Date**

[illegible] 10-30-95
Analyst Signature **Date**

Batch will be rerun to investigate high result on blank and high RPD between sample S95T002304 and duplicate.

Jennifer L. Dupper 10/31/95

DATA NOT USED IN PACKAGE

Data Entry Comments: 10 mL → 10 mL sample prep for standard
.1 mL → 10 mL sample prep for all others

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Uranium Data Collection Sheet

Download File Name: I:\995C09\IN\3015.TXT **Output Name:** U3015

Spike Book Number:_____ **Spike Volume:**_____ **Date/Time:**_____

Sample Type	Sample Number	Sample Size	Preparation Factor	Dilution Factor	Digest Factor	Comments
STD		1 mL				
BLNK		1 mL			.6804	
SAM	595T002304	1 mL			.6804	
DUP	595T002304	1 mL			.6684	
SPK						
SAM	595T002305	1 mL			2.1948	
DUP	595T002305	1 mL			2.1556	
SPK						
SAM						
DUP						DATA NOT USED IN PACKAGE
SAM						
DUP						
SAM						

```
ple ID  STD                          Date/Time  10/30/95/04:27:54
cription                             Cal Y=1.01E+08X+228.887
F. Ratio 1.002                       Intensity 6791        (t=  39      us)
ser Pulses 500                       Conc 7.73E-05 + 2.36E-06 g/L
Pwtime 30.7 + .393 us                Dilution Factor 1 mL/mL
.9996
erated 108628          FINAL RESULT  7.73E-05 + 2.36E-06 g/L
ge: HIGH
```

DATA
NOT USED
IN PACKAGE

Sample ID PREPBLANK
Description
Ref. Ratio 1.004
Laser Pulses 500
Lifetime [illegible] + .777 us
R2 .7773
Integrated [illegible]
Ranges HIGH

Date/Time 10/30/95/03:06:07
Cal Y=1.031E+08X+28.887
Intensity 2880 (t= 39 us)
Conc 4.20E-05 + 9.88E-07 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 3.20E-05 + 9.88E-07 g/L

Sample ID PREPBLANK
Description
Ref. Ratio 1.017
Laser Pulses 500
Lifetime 777 + .776 us
R2 .9997
Integrated 1025562
Ranges LOW

Date/Time 10/30/95/03:08:08
Cal Y=8.36E+09X0
Intensity 50647 (t= 481 us)
Conc 3.11E-05 + 4.05E-07 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 3.11E-05 + 4.05E-07 g/L

DATA NOT USED IN PACKAGE

Sample ID 230[illegible]
Description
Ref. Ratio 1.00
Laser Pulses 500
Lifetime 237 + .855 us
r2 .9996
Integrated 73207
Range High

Date/Time 10/30/95/03:10:27
Cal Y=1.01E+08X+223.887
Intensity 3621 (t= 39 us)
Conc 4.20E-05 + 1.30E-06 g/l
Dilution Factor 1 ml/ml
FINAL RESULT 4.20E-05 + 1.30E-06 g/L

Sample ID 230[illegible]
Description
Ref. Ratio 1.014
Laser Pulses 500
Lifetime 290 + .878 us
r2 .9996
Integrated 108604
Range: Low

Date/Time 10/30/95/03:11:04
Cal Y=9.56E+09X0
Intensity 51080 (t= 333 us)
Conc 3.91E-05 + 5.39E-07 g/L
Dilution Factor 1 ml/ml
FINAL RESULT 3.91E-05 + 5.39E-07 g/L

DATA
NOT USED
IN PACKAGE

Sample ID [illegible]
Description
S/N Ratio 1.010
Scan Pulses 300
Lifetime 270 + .236 us
Z .5557
Integrated 111304
Range HIGH

Date/Time 10/30/95/03:12:54
Cal Y=1.01E+06X+228.287
Intensity 3726 (t= .09 us)
Conc 6.46E-05 + 1.99E-06 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 6.46E-05 + 1.99E-06 g/L

DATA NOT USED IN PACKAGE

```
Sample: 1L   [illegible]                    Date/Time   10/30/95/03:16:32
Description                                 Cal Y=1.01E+08X+228.887
Ref. Ratio 1.017                            Intensity 49218      (t=  .59      us)
Laser Pulse# 900                            Conc: 5.80E-04 + 1.79E-05 g/L
Lifetime 274 + .709 us                      Dilution Factor 1 mL/mL
r2 .9997
Integrated 924776          FINAL RESULT  5.80E-04 + 1.79E-05 g/L
Range: HIGH
```

DATA NOT USED IN PACKAGE

```
Sample ID   [illegible]                    Date/Time   10/30/95/03:20:56
Description                                Cal Y=1.01E+08X+[illegible]
Gr. Ratio 1.014                            Intensity 45367        (t=  39        us)
Laser Pulses 500                           Conc 5.32E-04 + 1.63E-05 g/L
Lifetime 281 + .58 us                      Dilution Factor 1 mL/mL
r .9978
Integrated 965698          FINAL RESULT   5.32E-04 + 1.63E-05 g/L
Range: HIGH
```

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: STD1

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			STANDARD
STD	STANDARD BOOK #		148B52
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
3015	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
@U-01	LIFETIME IN MICROSECONDS		307.00
Matrix	R2 VALUE		0.9996
LIQUID	RANGE (HIGH OR LOW)		HIGH
Batch Number	INSTRUMENT UNCERTAINTY	(IU)	2.38E-06
95003365	INSTRUMENT RESULT	(IR)	7.73E-05
Rerun	DETECTION LEVEL (µg/mL)		3.70E-05
0			
Sample Prep	RESULT (µg/mL)		7.73E-02
N/A	VALUE OF STANDARD		8.44E-02
Sample #	%RECOVERY		91.59
148B52	RELATIVE % UNCERTAINTY		3.1
Instrument Code			
U01			
Prepared By			
RCJ			
Chemist			
JLS			
Analyst			
DPB			
Date Complete			
10/30/95			
Analysis Date			
10/30/95			
Analysis Time			
04:27 AM			
Sample Point			
AW-102 GRAB			

Result = DF * PF * IR * 1000

Detection Level = 3.70 E-08 * DF * PF * 1000

% Recovery = Result / Value of Standard * 100

Relative % Uncertainty = IU / IR * 100

DATA NOT USED IN PACKAGE

Analyst:	DPB	Date:	30-Oct-95
Signature of Chemist:	JLS	Date:	10/31/95

STANDARD.WB1 REV 1.2 925009ML

WORKBOOK PAGE: BLANK2

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
BLNK-PREP			BLANK
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
3015	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST FACTOR	(Dg/L)	0.6804
Matrix	LIFETIME IN MICROSECONDS		299.00
SOLID	R2 VALUE		0.9997
Batch Number	RANGE (HIGH OR LOW)		LOW
95003365	INSTRUMENT UNCERTAINTY	(IU)	4.05E-07
Rerun	INSTRUMENT RESULT	(IR)	3.11E-05
0	DETECTION LEVEL µg/g		5.44E+00
Sample Prep			
N/A	CONCENTRATION IN SOLUTION (g/L)		3.11E-03
Sample #	RESULT (µg/g)		4.57E+03
BLANK	RELATIVE % UNCERTAINTY		1.3
Instrument Code			
U01			
Prepared By			
RCJ			
Chemist			
JLS			
Analyst			
DPB			
Date Complete			
10/30/95			
Analysis Date			
10/30/95			
Analysis Time			
04:27 AM			
Sample Point			
AW-102 GRAB			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

DATA
NOT USED
IN PACKAGE

Analyst:	DPB	Date:	30-Oct-95
Signature of Chemist:	JLS	Date:	10/31/95

BLANK.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM3

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
3015	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST FACTOR	(Dg/L)	0.6804
Matrix	LIFETIME IN MICROSECONDS		290.00
SOLID	R2 VALUE		0.9996
Batch Number	RANGE (HIGH OR LOW)		LOW
95003365	INSTRUMENT UNCERTAINTY	(IU)	5.39E-07
Rerun	INSTRUMENT RESULT	(IR)	3.91E-05
1	DETECTION LEVEL µg/g		5.44E+00
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		3.91E-03
Sample #	RESULT (µg/g)		5.75E+03
S95T002304	RELATIVE % UNCERTAINTY		1.4
Instrument Code			
U01			
Prepared By			
RCJ			
Chemist			
JLS			
Analyst			
DPB			
Date Complete			
10/30/95			
Analysis Date			
10/30/95			
Analysis Time			
04:27 AM			
Sample Point			
AW-102 GRAB			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

DATA NOT USED IN PACKAGE

Analyst:	DPB	Date:	30-Oct-95
Signature of Chemist:	JLS	Date:	10/31/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: DUP4

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type:			
DUP			DUP
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
3015	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST FACTOR	(Dg/L)	0.6684
Matrix	LIFETIME IN MICROSECONDS		290.00
SOLID	R2 VALUE		0.9997
Batch Number	RANGE (HIGH OR LOW)		HIGH
95003365	INSTRUMENT UNCERTAINTY	(IU)	1.99E-06
Rerun	INSTRUMENT RESULT	(IR)	6.46E-05
1	DETECTION LEVEL µg/g		5.54E+00
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		6.46E-03
Sample #	RESULT (µg/g)		9.66E+03
S95T002304	RELATIVE % UNCERTAINTY		3.1
Instrument Code			
U01			
Prepared By			
RCJ			
Chemist			
JLS			
Analyst			
DPB			
Date Complete			
10/30/95			
Analysis Date			
10/30/95			
Analysis Time			
04:27 AM			
Sample Point			
AW-102 GRAB			

Result = Conc. In Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration In Solution (g/L) = IR * DF * PF

DATA
NOT USED
IN PACKAGE

Analyst:	DPB	Date:	30-Oct-95
Signature of Chemist:	JLS	Date:	10/31/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM5

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
3015	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1948
Matrix	LIFETIME IN MICROSECONDS		274.00
SOLID	R2 VALUE		0.9997
Batch Number	RANGE (HIGH OR LOW)		HIGH
95003365	INSTRUMENT UNCERTAINTY	(IU)	1.79E-05
Return	INSTRUMENT RESULT	(IR)	5.80E-04
1	DETECTION LEVEL µg/g		1.69E+00
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		5.80E-02
Sample #	RESULT (µg/g)		2.64E+04
S95T002305	RELATIVE % UNCERTAINTY		3.1
Instrument Code			
U01			
Prepared By			
RCJ			
Chemist			
JLS			
Analyst			
DPB			
Date Complete			
10/30/95			
Analysis Date			
10/30/95			
Analysis Time			
04:27 AM			
Sample Location			
AW-102 GRAB			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

DATA NOT USED IN PACKAGE

Analyst:	DPB	Date:	30-Oct-95
Signature of Chemist:	JLS	Date:	10/31/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: DUP6

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
DUP			DUP
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
3015	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1556
Matrix	LIFETIME IN MICROSECONDS		281.00
SOLID	R2 VALUE		0.9998
Batch Number	RANGE (HIGH OR LOW)		HIGH
95003365	INSTRUMENT UNCERTAINTY	(IU)	1.63E-05
Rerun	INSTRUMENT RESULT	(IR)	5.32E-04
1	DETECTION LEVEL µg/g		1.72E+00
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		5.32E-02
Sample #	RESULT (µg/g)		2.47E+04
S95T002305	RELATIVE % UNCERTAINTY		3.1
Instrument Code			
U01			
Prepared By	Result = Conc. In Solution (g/L) * 1000000 / Dg/L		
RCJ			
Chemist	Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF		
JLS			
Analyst	Relative % Uncertainty = IU / IR * 100		
DPB			
Date Complete	Concentration In Solution (g/L) = IR * DF * PF		
10/30/95			
Analysis Date			
10/30/95			
Analysis Time			
04:27 AM			
Sample Point			
AW-102 GRAB			

DATA
NOT USED
IN PACKAGE

Analyst:	DPB	Date:	30-Oct-95
Signature of Chemist:	JLS	Date:	10/31/95

SAMPLE.WB1 REV 1.2 925009ML

DISTRIBUTION SHEET

To Distribution	From Production Planning and Control	Page 1 of 2
		Date: 11/13/95
Project Title/Work Order WHC-SD-WM-DP-149, Rev. 0, "60-Day Waste Compatibility Safety Issue and Final Results for Tank 241-AW-102, Grab Samples 2AW-95-1, 2AW-95-2 and 2AW-95-3"		EDT NO.: EDT-612093
		ECN NO.: N/A

Name	MSIN	Text With all Attach	EDT/ECN ONLY
Pacific Northwest Laboratory			
J. R. Gormsen	K7-28		X
S. J. Harris	K7-22	X	
K. L. Silvers	P7-27		X
U.S. Department of Energy, RL			
C. A. Babel	S7-54	X	
Westinghouse Hanford Company			
J. N. Appel	G3-21		X
H. Babad	S7-30	X	
T. M. Blaak	S5-13		
R. A. Esch	T6-06	X	
C. E. Golberg	H5-49		X
V. W. Hall	T6-03	X	
D. C. Hetzer	S6-31		X
L. Jensen	T6-07	X	
G. D. Johnson	S7-15	X	
J. M. Jones	S5-13	X	
N. W. Kirch	R2-11	X	
M. J. Kupfer	H5-49	X	
E. Q. Le	R1-43	X	
J. E. Meacham	S7-15	X	
P. M. Morant	H4-25	X	
R. J. Nicklas	R1-43	X	
K. L. Powell	T6-06		X
A. D. Rice	T6-06	X	
D. A. Reynolds	R2-11	X	
B. C. Simpson	R2-12		X
L. A. Tusler	R2-11	X	
J. A. Voogd	H5-03		X
Central Files	A3-88	2	
EDMC	H6-08	X	
LTIC	T6-03		X
TCRC	R2-12	X	
TFIC (Tank Farm Information Center)	R1-20		X

DISTRIBUTION SHEET

To Distribution	From Production Planning and Control	Page 2 of 2
		Date: 11/13/95
Project Title/Work Order WHC-SD-WM-DP-149, Rev. 0, 60-Day Waste Compatibility Safety Issue and Final Results for Tank 241-AW-102, Grab Samples 2AW-95-1, 2AW-95-2 and 2AW-95-3"		EDT NO.: EDT-612093
		ECN NO.: N/A

Name	MSIN	Text With all Attach	EDT/ECN ONLY	
Washington State Department of Ecology Single-Shell Tank Unit Manager A. B. Stone	B5-18	X		
U. S. Department of Energy Jim Poppiti 12800 Middlebrook Rd. Trevion II, EM-36 Germantown, MD 20874			X	
Los Alamos Technical Associates A. T. DiCenso 309 Bradley Blvd. Richland, WA 99352		X		