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

Document number: SD-WM-DP-147

Section 5 **of** 5

Title: 60 DAY WASTE COMPATIBILITY SAFETY ISSUE and FINAL RESULTS for TANK 241-AW-106, GRAB SAMPLES 6AW-95-1, 6AW-95-2 and 6AW-95-3

Date: 10/31/95 **Revision:** 0

Originator: RUTH A. ESCH
Co: WHC

Recipient:
Co:

References: EDT-613457

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Raymond 9-28-95

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
S95T2037-DUP
File ID: 30a3091.CNF

Counted on: 9/28/95 @11:43
Detector: AEA30
Geometry number: 1
Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1012.8	1012.8	363.169	363.169	10.000	2.833	5.000	0.976
2	151.3	151.3	305.016	304.975	10.000	2.890	5.000	1.018
3	1367.2	1367.2	230.960	230.960	12.000	3.901	6.000	1.770

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	0.436	5.755	5.759	-.004	0.01	31.67	1.6	309.3	0.139E-03
	Cm243		5.779	5.759	0.020				415.2	0.187E-03
2	Pu238	0.064	5.487	5.491	-.004	0.01	4.68	4.2	62.2	0.280E-04
	Am241		5.479	5.491	-.012				47.7	0.215E-04
3	Pu239	0.532	5.147	5.151	-.004	0.02	38.64	1.4	369.8	0.167E-03
	Pu240		5.144	5.151	-.007				369.8	0.167E-03
		---					---			
Totals:		1.033	<--valid peaks only-->				75.00			

DETECTOR CALIBRATION
Energy(MEV) = 4.089 + (0.0046)*Channel
Energy range (MeV): 4.089 TO 6.444
Efficiency = 0.1045 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	34852.0	100.000
Smoothed	34852.4	100.001
Composite fit	35998.2	103.289
Residuals	-1146.2	-3.289

Analyzed by: _____
ALJ

Spectrum 30a3091.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 8717.3

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

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

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

Raw Data Dump for AEA Spectrum: 30a3091.CNF

1	0.	0.	2.	0.	0.	0.	0.	0.	0.	1.
11	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
21	0.	0.	1.	0.	0.	1.	1.	1.	0.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
41	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	1.	0.	1.	0.	0.	1.	0.
61	0.	0.	0.	0.	0.	0.	0.	1.	1.	1.
71	0.	0.	0.	2.	1.	1.	0.	0.	0.	1.
81	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
91	0.	1.	0.	0.	0.	0.	1.	0.	2.	1.
101	1.	1.	1.	0.	0.	0.	2.	1.	0.	0.
111	0.	1.	0.	1.	0.	1.	0.	1.	1.	0.
121	1.	0.	0.	0.	2.	0.	0.	0.	1.	0.
131	1.	0.	1.	0.	0.	0.	0.	1.	1.	0.
141	0.	1.	1.	1.	1.	0.	2.	0.	2.	1.
151	2.	0.	0.	2.	2.	1.	0.	0.	2.	1.
161	2.	0.	0.	1.	2.	0.	1.	0.	0.	1.
171	1.	2.	2.	0.	1.	0.	2.	3.	0.	1.
181	2.	3.	0.	2.	2.	1.	3.	1.	5.	1.
191	3.	3.	5.	5.	5.	5.	10.	5.	9.	10.
201	18.	22.	32.	31.	39.	48.	49.	57.	70.	79.
211	106.	105.	137.	179.	241.	267.	283.	317.	401.	428.
221	567.	580.	652.	713.	774.	882.	954.	1136.	1318.	1474.
231	1614.	1539.	1299.	899.	499.	297.	102.	26.	1.	1.
241	0.	1.	0.	2.	0.	0.	2.	2.	1.	1.
251	2.	1.	2.	1.	3.	7.	7.	8.	7.	3.
261	2.	1.	1.	0.	1.	1.	3.	1.	1.	2.
271	0.	3.	1.	3.	1.	2.	3.	7.	3.	4.
281	13.	9.	16.	9.	10.	28.	14.	12.	32.	29.
291	52.	52.	56.	70.	88.	101.	107.	96.	95.	99.
301	92.	119.	138.	173.	182.	183.	141.	119.	32.	8.
311	4.	2.	0.	0.	2.	0.	2.	1.	1.	1.
321	0.	3.	2.	1.	1.	3.	5.	11.	7.	8.
331	12.	10.	17.	21.	18.	27.	34.	36.	49.	43.
341	72.	75.	82.	105.	135.	193.	183.	232.	287.	320.
351	397.	463.	607.	620.	671.	621.	581.	590.	676.	767.
361	846.	1005.	1181.	1262.	1050.	586.	221.	35.	1.	1.
371	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	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.								

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# 2292

Analyst: akl **Instrument:** AM01 **Book#** _____

Method: LA-953-103 Rev/Mod A-4

Worklist Comment: See chemist for sample size. --LLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@AM24101	AM24101	LIQUID	3.07E-02	2.70E-2	87.950	% Recovery
1	STD		0	@AM24101	AM24101E	LIQUID	1.00	2.35E+00	2.350	% Ct. Error
1	STD		0	@AM24101	AM24101T	LIQUID	100	2.40E+01	24.000	% Recovery
2	BLNK		0	@AM24101	AM24101	LIQUID	1	<2.02E-3		uCi/mL
2	BLNK		0	@AM24101	AM24101E	LIQUID	1.00	1.00E+02	100.000	% Ct. Error
2	BLNK		0	@AM24101	AM24101T	LIQUID	100	5.02E+00	5.020	% Recovery
3	SAMPLE	S95T002031	0	@AM24101	AM24101	LIQUID	N/A	3.23E-03	2.180e-003	uCi/mL
3	SAMPLE	S95T002031	0	@AM24101	AM24101E	LIQUID	N/A	2.47E+00	0.000	% Ct. Error
3	SAMPLE	S95T002031	0	@AM24101	AM24101T	LIQUID	N/A	1.94E+01	1.000e-007	% Recovery
4	DUP	S95T002031	0	@AM24101	AM24101	LIQUID	3.23E-3	<1.12E-3		RPD
4	DUP	S95T002031	0	@AM24101	AM24101E	LIQUID	1.00	3.93E+00	3.930	% Ct. Error
4	DUP	S95T002031	0	@AM24101	AM24101T	LIQUID	100	2.04E+01	20.400	% Recovery
5	SAMPLE	S95T002039	0	@AM24101	AM24101	LIQUID	N/A <	2.39E-03	2.390e-003	uCi/mL
5	SAMPLE	S95T002039	0	@AM24101	AM24101E	LIQUID	N/A	5.34E+00	0.000	% Ct. Error
5	SAMPLE	S95T002039	0	@AM24101	AM24101T	LIQUID	N/A	1.08E+01	1.000e-007	% Recovery
6	DUP	S95T002039	0	@AM24101	AM24101	LIQUID	<2.39E-3	<2.46E-3		RPD
6	DUP	S95T002039	0	@AM24101	AM24101E	LIQUID	1.00	1.01E+01	10.100	% Ct. Error
6	DUP	S95T002039	0	@AM24101	AM24101T	LIQUID	100	9.61E+00	9.610	% Recovery

Final page for worklist# 2292

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

JJ Fitts 25 Sep 95
Reviewer Signature **Date**

DATA NOT USED IN PACKAGE

Data not used due to low tracer recoveries. RJC 10/9/95

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

20

LABCORE Data Entry Template for Worklist# 2292

Analyst: AKL **Instrument:** AM01 _____ **Book #** 104843

Method: LA-953-103 Rev/Mod A-4

Worklist Comment: See chemist for sample size. --LLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@AM24101 AM24101	LIQUID			N/A	uCi/mL
		1	STD				@AM24101 AM24101E	LIQUID			N/A	% Ct. Error
		1	STD				@AM24101 AM24101T	LIQUID			N/A	% Recovery
		2	BLNK				@AM24101 AM24101	LIQUID			N/A	uCi/mL
		2	BLNK				@AM24101 AM24101E	LIQUID			N/A	% Ct. Error
		2	BLNK				@AM24101 AM24101T	LIQUID			N/A	% Recovery
95000126	AW-106 GRAB	3	SAMPLE	S95T002031	0		@AM24101 AM24101	LIQUID	N/A			uCi/mL
95000126	AW-106 GRAB	3	SAMPLE	S95T002031	0		@AM24101 AM24101E	LIQUID	N/A			% Ct. Error
95000126	AW-106 GRAB	3	SAMPLE	S95T002031	0		@AM24101 AM24101T	LIQUID	N/A			% Recovery
95000126	AW-106 GRAB	4	DUP	S95T002031	0		@AM24101 AM24101	LIQUID			N/A	uCi/mL
95000126	AW-106 GRAB	4	DUP	S95T002031	0		@AM24101 AM24101E	LIQUID			N/A	% Ct. Error
95000126	AW-106 GRAB	4	DUP	S95T002031	0		@AM24101 AM24101T	LIQUID			N/A	% Recovery
95000126	AW-106 GRAB	5	SAMPLE	S95T002039	0		@AM24101 AM24101	LIQUID	N/A			uCi/mL
95000126	AW-106 GRAB	5	SAMPLE	S95T002039	0		@AM24101 AM24101E	LIQUID	N/A			% Ct. Error
95000126	AW-106 GRAB	5	SAMPLE	S95T002039	0		@AM24101 AM24101T	LIQUID	N/A			% Recovery
95000126	AW-106 GRAB	6	DUP	S95T002039	0		@AM24101 AM24101	LIQUID			N/A	uCi/mL
95000126	AW-106 GRAB	6	DUP	S95T002039	0		@AM24101 AM24101E	LIQUID			N/A	% Ct. Error
95000126	AW-106 GRAB	6	DUP	S95T002039	0		@AM24101 AM24101T	LIQUID			N/A	% Recovery

Data Entry Comments:

DATA NOT USED IN PACKAGE

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.

LABCORE Data Entry Template for Worklist# 2292

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT

Final page for worklist # 2292

G Lewis 9/19/95
Analyst Signature Date

R Raymond 9·22·95
Analyst Signature Date

DATA
NOT USED
IN PACKAGE

Data Entry Comments:

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.

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (A-3) LIQUID

Type	Date Counted		SEP-20-95	Am 241 AEA Frac.	(C241)	0.372
STD	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.577
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
2292	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		5815
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	2
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		23.75
LIQUID	Detector Number		2	Am 243 cpm		36.84
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002406	Standard Book No		104B43	AEA Count Time	(min)	480
Rerun	Standard Value in µCi/mL		0.03067	Am 241 µCi/L =		2.7026E+01
0				Cm 243/244 µCi/L =	<	1.5119E+01
Sample Prep						
N/A						

Sample Number	Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))
WRKLIST#2292	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))
Instrument Code	
AL10540	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV
VAR	
Chemist	
LLF	
Analyst	
AKL	
Date Completed	
09/22/95	
Analysis Date	
09/19/95	
Analysis Time	
03:00 PM	
Sample Point	
AW-106 GRAB	

Am 241 µCi/mL =	2.70E-02	
Relative Counting Error =	2.4%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		
Cm 243/244 µCi/mL	< 1.51E-02	
Relative Counting Error =	100.0%	
Am 243 Tracer Recovery =	24.0%	

DETECTION LEVELS in µCi/mL	
Am 241	1.51E-02
Cm 243/244	1.51E-02

Analyst:	AKL	Date:	09/22/95
Signature of Chemist:	LLF	Date:	25 Sep 95

STANDARD.WB1 REV 1.2 953103ML

DATA
NOT USED
IN PACKAGE

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (A-3) LIQUID / SOLID

Type	Date Counted		SEP-20-95	Am 241 AEA Frac.	(C241)	BLNK 0
BLNK	Sample Volume in mL	(SS)	0.100	Am 243 AEA Frac.	(C243)	1.026
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2292	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		736
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	2
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		0
LIQUID	Detector Number		2	Am 243 cpm		6.49
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002406				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	2.0226E+00
0				Cm 243/244 µCi/L =	<	2.0226E+00
Sample Prep						
N/A						

Sample Number	Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))
WRKLIST#2292	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))
Instrument Code	
AL10540	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV
VAR	
Chemist	NOTE: Am-241 Result is a LESS THAN Value.
LLF	Am 241 µCi/mL = < 2.02E-03
Analyst	Relative Counting Error = 100.0%
AKL	
Date Completed	NOTE: Cm-243/244 Result is a LESS THAN Value.
09/22/95	Cm 243/244 µCi/mL < 2.02E-03
Analysis Date	Relative Counting Error = 100.0%
09/19/95	Am 243 Tracer Recovery = 5.0%
Analysis Time	
03:00 PM	
Sample Point	
AW-106 GRAB	

DETECTION LEVELS in µCi/mL	
Am 241	2.02E-03
Cm 243/244	2.02E-03

Analyst:	AKL	Date:	09/22/95
Signature of Chemist:	LLF	Date:	25 Sep 95

BLANK.WB1 REV 1.2 953103ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (A-3) LIQUID / SOLID

						SAMPLE
Type	Date Counted		SEP-20-95	Am 241 AEA Frac.	(C241)	0.361
SAMPLE	Sample Volume in mL	(SS)	0.100	Am 243 AEA Frac.	(C243)	0.489
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2292	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		5597
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	2
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		23.35
LIQUID	Detector Number		2	Am 243 cpm		29.94
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002406				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		3.2338E+00
0				Cm 243/244 µCi/L =	<	2.1820E+00
Sample Prep						
N/A						
Sample Number						
S95T002031						
Instrument Code						
AL10540						
Prepared By						
VAR						
Chemist						
LLF						
Analyst						
AKL						
Date Completed						
09/22/95						
Analysis Date						
09/19/95						
Analysis Time						
03:00 PM						
Sample Point						
AW-106 GRAB						

Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

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

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

Am 241 µCi/mL =	3.23E-03	
Relative Counting Error =	2.5%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		
Cm 243/244 µCi/mL	< 2.18E-03	
Relative Counting Error =	100.0%	
Am 243 Tracer Recovery =	19.4%	

DETECTION LEVELS in µCi/mL
Am 241
2.18E-03
Cm 243/244
2.18E-03

Analyst:	AKL	Date:	09/22/95
Signature of Chemist:	LLF	Date:	25 Sep 95

SAMPLE.WB1 REV 1.2 953103ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (A-3) LIQUID / SOLID

							DUP
Type	Date Counted		SEP-20-95	Am 241 AEA Frac.	(C241)		0.175
DUP	Sample Volume in mL	(SS)	0.100	Am 243 AEA Frac.	(C243)		0.907
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)		0
2292	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			3166
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)		2
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			6.18
LIQUID	Detector Number		2	Am 243 cpm			31.93
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95002406				AEA Count Time	(min)		480
Batch				Am 241 µCi/L =		<	1.1225E+00
0				Cm 243/244 µCi/L =		<	1.1225E+00
Sample Point							
N/A							

Sample Number: S95T002031

Instrument Code: AL10540

Prepared By: VAR

Chemist: LLF

Analyst: AKL

Date Counted: 09/22/95

Analysis Date: 09/19/95

Analysis Time: 03:00 PM

Sample Point: AW-106 GRAB

Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

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

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

NOTE: Am-241 Result is a LESS THAN Value.

Am 241 µCi/mL	=	< 1.12E-03
Relative Counting Error	=	3.9%

NOTE: Cm-243/244 Result is a LESS THAN Value.

Cm 243/244 µCi/mL		< 1.12E-03
Relative Counting Error	=	100.0%
Am 243 Tracer Recovery	=	20.4%

DETECTION LEVELS in µCi/mL	
Am 241	1.12E-03
Cm 243/244	1.12E-03

Analyst:	AKL	Date:	09/22/95
Signature of Chemist:	LLF	Date:	25 Sep 95

SAMPLE.WB1 REV 1.2 953103ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM5

Am 241 and Cm 243/244: LA-953-103 (A-3) LIQUID / SOLID

							SAMPLE
Type	Date Counted		SEP-20-95	Am 241 AEA Frac.	(C241)		0.167
SAMPLE	Sample Volume in mL	(SS)	0.100	Am 243 AEA Frac.	(C243)		0.897
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)		0
2292	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			1966
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)		4
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			3.39
LIQUID	Detector Number		3	Am 243 cpm			16.39
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95002406				AEA Count Time	(min)		480
Rerun				Am 241 µCi/L =		<	2.3858E+00
0				Cm 243/244 µCi/L =		<	2.3858E+00
Sample Prep							
N/A							

Sample Number: S95T002039

Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

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

Instrument Code: AL10541

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Prepared By: VAR

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

Chemist: LLF

NOTE: Am-241 Result is a LESS THAN Value.

Am 241 µCi/mL =	< 2.39E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error =	5.3%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241
Cm 243/244 µCi/mL	< 2.39E-03	2.39E-03
Relative Counting Error =	100.0%	Cm 243/244
Am 243 Tracer Recovery =	10.8%	2.39E-03

Analyst: AKL

Date Completed: 09/22/95

Analysis Date: 09/19/95

Analysis Time: 03:00 PM

Sample Point: AW-106 GRAB

Analyst:	AKL	Date:	09/22/95
Signature of Chemist:	LLF	Date:	25 Sep 95

SAMPLE.WB1 REV 1.2 953103ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP6

Am 241 and Cm 243/244: LA-953-103 (A-3) LIQUID / SOLID

							DUP
Type	Date Counted		SEP-20-95	Am 241 AEA Frac.	(C241)		0.142
DUP	Sample Volume in mL	(SS)	0.100	Am 243 AEA Frac.	(C243)		0.842
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)		0
2292	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			1698
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)		4
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			0.91
LIQUID	Detector Number		3	Am 243 cpm			5.37
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95002406				AEA Count Time	(min)		480
Rerun				Am 241 µCi/L =		<	2.4646E+00
0				Cm 243/244 µCi/L =		<	2.4646E+00
Sample Prep							
N/A							
Sample Number							
S95T002039							
Instrument Code							
AL10541							
Prepared By							
VAR							
Chemist							
LLF							
Analyst							
AKL							
Date Completed							
09/22/95							
Analysis Date							
09/19/95							
Analysis Time							
03:00 PM							
Sample Point							
AW-106 GRAB							

Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

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

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

NOTE: Am-241 Result is a LESS THAN Value.

Am 241 µCi/mL	=	< 2.46E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	10.1%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/mL		< 2.46E-03	2.46E-03
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	9.6%	2.46E-03

Analyst:	AKL	Date:	09/22/95
Signature of Chemist:	LLF	Date:	25 Sep 95

SAMPLE.WB1 REV 1.2 953103ML

DATA NOT USED IN PACKAGE

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#2292-ST
File ID: 19a1999.CNF

Counted on: 9/20/95 @ 6:23
Detector: AEA19
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	1041.4	1041.4	302.576	302.576	10.000	4.145	5.000	3.317
2	1784.9	1784.9	257.118	257.118	10.000	3.010	5.000	2.349

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	Pu238	0.372	5.487	5.498	-.011	0.02	23.75	1.8	2703.7	0.122E-02
	Am241		5.479	5.498	-.019				2071.0	0.933E-03
2	Am243	0.577	5.270	5.284	-.014	0.01	36.84	1.5	3050.6	0.137E-02
Totals:		0.950	<--valid peaks only-->				60.59			

DETECTOR CALIBRATION
Energy(MEV) = 4.076 + (0.0047)*Channel
Energy range (MeV): 4.076 TO 6.482
Efficiency = 0.0122 CPM/DPM

DATA NOT USED IN PACKAGE

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	30631.0	100.000
Smoothed	30632.0	100.003
Composite fit	29088.4	94.964
Residuals	1542.6	5.036

Analyzed by: S Cohran 9-22-95
ALJ

WHC-SD-WM-DP-147, REV 0

Spectrum 19a1999.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 8217.7

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DATA NOT USED IN PACKAGE

Raw Data Dump for AEA Spectrum: 19a1999.CNF

1	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
11	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	1.	0.	1.	0.	0.	1.	0.
31	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
41	0.	0.	1.	0.	1.	0.	1.	0.	0.	0.
51	1.	1.	0.	0.	0.	1.	0.	0.	0.	1.
61	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
71	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
91	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
101	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.
111	0.	0.	0.	0.	1.	1.	0.	0.	2.	0.
121	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
131	0.	1.	0.	1.	1.	0.	0.	0.	0.	0.
141	0.	1.	1.	0.	0.	0.	0.	3.	0.	1.
151	0.	1.	4.	1.	1.	1.	0.	1.	0.	0.
161	1.	0.	0.	1.	1.	0.	2.	0.	0.	0.
171	0.	1.	0.	0.	0.	0.	0.	1.	0.	0.
181	0.	0.	1.	0.	0.	3.	1.	0.	0.	1.
191	1.	2.	0.	1.	0.	0.	0.	0.	0.	0.
201	0.	0.	2.	2.	0.	2.	0.	1.	0.	2.
211	0.	1.	1.	1.	0.	1.	2.	0.	2.	3.
221	3.	4.	0.	1.	6.	3.	2.	6.	6.	17.
231	11.	16.	28.	24.	33.	34.	48.	46.	40.	49.
241	75.	102.	117.	148.	218.	258.	347.	377.	536.	513.
251	648.	725.	925.	1200.	1538.	1984.	2222.	2308.	1647.	866.
261	377.	191.	129.	137.	104.	96.	100.	115.	93.	80.
271	69.	53.	49.	39.	25.	9.	9.	10.	14.	15.
281	17.	23.	23.	29.	40.	36.	39.	51.	77.	95.
291	138.	204.	236.	296.	307.	353.	444.	528.	643.	873.
301	1084.	1235.	1299.	1170.	761.	436.	283.	196.	175.	171.
311	134.	95.	78.	53.	34.	18.	11.	6.	1.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
351	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
361	1.	3.	0.	1.	1.	0.	0.	0.	0.	0.
371	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	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.								

DATA NOT USED IN PACKAGE

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#229-BLK
File ID: 20a2004.CNF

Counted on: 9/20/95 @ 6:24
Detector: AEA20
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	106.4	106.4	255.333	255.333	16.000	6.903	8.000	1.112

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	Am243	1.026	5.270	5.270	0.000	0.03	6.49	3.5	323.2	0.146E-03
Totals:		1.026	<--valid peaks only-->				6.49			

DETECTOR CALIBRATION
Energy(MEV) = 4.070 + (0.0047)*Channel
Energy range (MeV): 4.070 TO 6.476
Efficiency = 0.0203 CPM/DPM

TOTAL COUNT DATA:

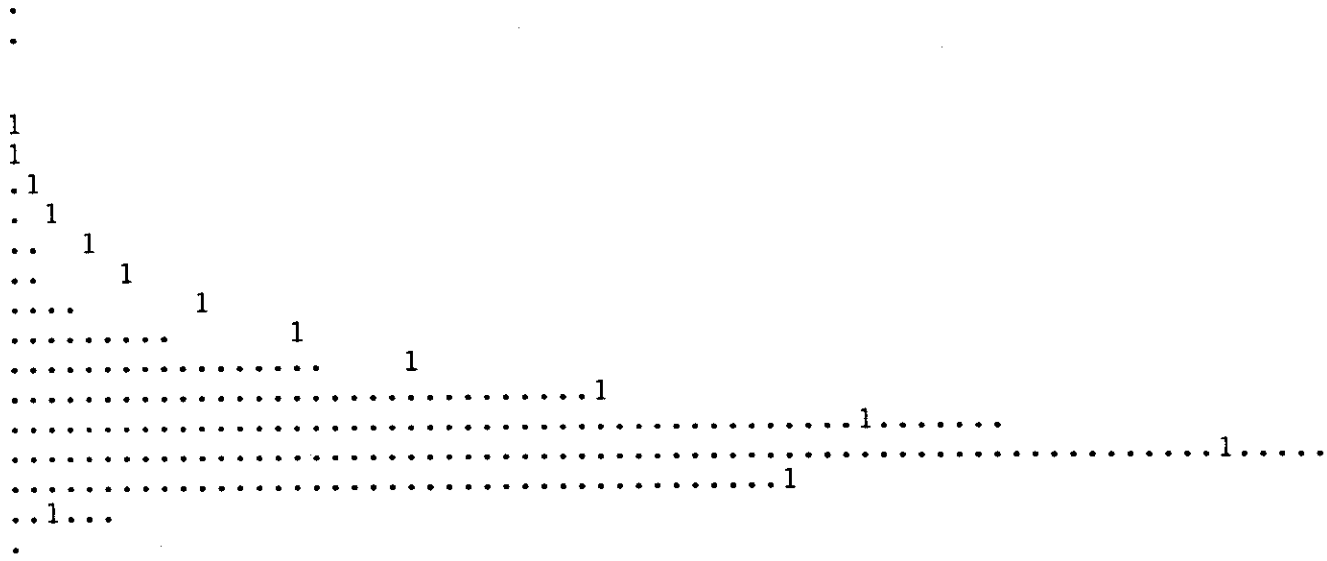
Item	Total	% Recovery
Raw spectrum	3040.0	100.000
Smoothed	3039.7	99.989
Composite fit	3118.0	102.566
Residuals	-78.0	-2.566

Analyzed by: ALJ S. Chism 9/20/95

DATA NOT USED IN PACKAGE

Spectrum 20a2004.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 813.3



DATA NOT USED IN PACKAGE

Raw Data Dump for AEA Spectrum: 20a2004.CNF

1	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
11	0.	0.	1.	0.	1.	0.	2.	0.	0.	0.
21	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	1.	0.	1.	3.	0.	1.	0.
51	1.	2.	0.	0.	0.	1.	0.	0.	1.	0.
61	2.	0.	0.	0.	1.	0.	1.	0.	0.	1.
71	0.	0.	0.	0.	1.	2.	1.	2.	0.	0.
81	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.
91	1.	0.	2.	0.	1.	0.	0.	1.	0.	1.
101	1.	2.	1.	0.	0.	1.	2.	0.	1.	3.
111	0.	0.	0.	3.	0.	2.	0.	2.	0.	2.
121	0.	1.	0.	1.	1.	0.	1.	2.	1.	4.
131	0.	1.	1.	2.	4.	0.	0.	2.	3.	0.
141	4.	3.	1.	2.	2.	2.	1.	1.	0.	2.
151	0.	1.	2.	1.	2.	1.	0.	0.	0.	3.
161	0.	6.	3.	0.	2.	1.	1.	3.	1.	3.
171	2.	1.	2.	3.	1.	0.	2.	2.	1.	4.
181	3.	2.	0.	4.	2.	3.	4.	2.	3.	3.
191	3.	3.	3.	7.	1.	6.	4.	6.	4.	7.
201	3.	4.	3.	4.	2.	6.	4.	5.	4.	6.
211	10.	7.	4.	11.	8.	6.	13.	12.	17.	16.
221	16.	11.	18.	16.	18.	26.	20.	26.	31.	34.
231	33.	35.	38.	46.	45.	44.	55.	59.	60.	48.
241	79.	75.	75.	75.	85.	83.	89.	92.	104.	108.
251	94.	125.	82.	121.	100.	109.	99.	120.	87.	58.
261	25.	17.	12.	8.	13.	4.	5.	7.	5.	1.
271	5.	4.	2.	2.	0.	1.	1.	0.	0.	0.
281	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
291	2.	0.	1.	1.	2.	2.	0.	0.	1.	0.
301	1.	1.	0.	1.	0.	1.	0.	1.	0.	0.
311	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
351	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
361	0.	0.	0.	1.	1.	0.	0.	1.	1.	1.
371	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	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.								

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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
S95T2031-SAM
File ID: 21a2111.CNF

Counted on: 9/20/95 @ 6:25
Detector: AEA21
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	888.0	888.0	300.929	300.929	10.000	4.125	5.000	2.234
2	1158.8	1158.8	255.188	255.186	10.000	3.617	5.000	1.888

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	Pu238	0.381	5.487	5.480	0.007	0.02	23.35	1.9	298.6	0.135E-03
	Am241		5.479	5.480	-.001				228.7	0.103E-03
2	Am243	0.489	5.270	5.270	0.000	0.02	29.94	1.6	278.5	0.125E-03
Totals:		0.870	<--valid peaks only-->				53.29			

DETECTOR CALIBRATION
Energy(MEV) = 4.096 + (0.0046)*Channel
Energy range (MeV): 4.096 TO 6.451
Efficiency = 0.1086 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	29389.0	100.000
Smoothed	29389.0	100.000
Composite fit	25580.9	87.042
Residuals	3808.1	12.958

Analyzed by: J Cchuan 9/20/95
ALJ

DATA NOT USED IN PACKAGE

Spectrum 21a2111.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 6889.7

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WHC-SD-WM-DP-147, REV. 0

DATA NOT USED IN PACKAGE

Raw Data Dump for AEA Spectrum: 21a2111.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	1.	0.	0.	0.	1.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	2.	0.	0.	0.	0.	0.	0.	1.	0.
41	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
71	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	1.	0.	0.	0.	1.	1.	0.	0.
91	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.
101	0.	0.	0.	0.	1.	1.	0.	0.	0.	1.
111	1.	1.	0.	1.	1.	1.	1.	0.	0.	0.
121	2.	1.	0.	0.	1.	0.	0.	1.	0.	2.
131	2.	0.	3.	5.	3.	2.	7.	1.	2.	6.
141	4.	8.	2.	3.	1.	4.	7.	5.	1.	5.
151	5.	9.	8.	8.	9.	5.	10.	6.	7.	5.
161	12.	11.	15.	13.	9.	21.	12.	10.	9.	15.
171	19.	14.	15.	18.	24.	22.	21.	18.	23.	17.
181	20.	16.	20.	21.	17.	22.	15.	34.	27.	26.
191	22.	23.	28.	26.	31.	38.	33.	42.	27.	32.
201	32.	36.	25.	38.	40.	34.	47.	39.	38.	41.
211	47.	55.	54.	49.	40.	61.	43.	52.	57.	57.
221	66.	68.	58.	74.	63.	64.	76.	81.	83.	78.
231	78.	92.	109.	108.	101.	116.	123.	141.	137.	158.
241	201.	203.	244.	283.	376.	422.	465.	499.	528.	586.
251	737.	849.	1051.	1193.	1369.	1485.	1150.	685.	302.	187.
261	140.	95.	118.	115.	106.	121.	105.	84.	70.	87.
271	70.	57.	47.	50.	52.	48.	48.	64.	67.	58.
281	71.	86.	94.	100.	100.	117.	151.	170.	213.	222.
291	283.	294.	370.	410.	411.	479.	587.	678.	743.	1010.
301	1098.	1060.	760.	443.	259.	188.	150.	135.	133.	97.
311	68.	58.	34.	29.	12.	8.	0.	0.	1.	0.
321	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
341	1.	0.	0.	1.	0.	0.	1.	3.	1.	0.
351	0.	0.	2.	3.	0.	3.	0.	2.	0.	2.
361	5.	4.	2.	2.	2.	6.	1.	6.	6.	6.
371	7.	4.	1.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	1.	0.	0.	0.	0.	0.	2.	1.	0.
431	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	1.	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.								

DATA NOT USED IN PACKAGE

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
S95T2031-DUP
File ID: 22a2259.CNF

Counted on: 9/20/95 @ 6:26
Detector: AEA22
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	121.8	121.8	301.253	301.253	12.000	5.675	6.000	1.136
2	659.1	659.1	254.768	254.741	12.000	4.890	6.000	1.014

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	Pu238	0.175	5.487	5.477	0.010	0.03	6.18	3.6	1058.8	0.477E-03
	Am241		5.479	5.477	0.002				811.0	0.365E-03
2	Am243	0.907	5.270	5.263	0.007	0.02	31.93	1.6	3981.9	0.179E-02
Totals:		1.083	<--valid peaks only-->				38.11			

DETECTOR CALIBRATION
Energy(MEV) = 4.091 + (0.0046)*Channel
Energy range (MeV): 4.091 TO 6.446
Efficiency = 0.0081 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	16894.0	100.000
Smoothed	16894.0	100.000
Composite fit	18291.5	108.272
Residuals	-1397.5	-8.272

Analyzed by: S Cochran 9/20/95
ALJ

WHC-SD-WM-DP-147, REV. 0

DATA NOT USED IN PACKAGE

Spectrum 22a2259.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 4923.4

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WHC-SD-WM-DP-147, REV. 0

DATA NOT USED IN PACKAGE

Raw Data Dump for AEA Spectrum: 22a2259.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
71	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
91	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
101	0.	1.	0.	0.	0.	1.	0.	0.	1.	0.
111	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.
121	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
131	1.	0.	0.	0.	0.	2.	0.	2.	0.	1.
141	0.	0.	0.	0.	2.	0.	0.	0.	2.	0.
151	0.	2.	0.	0.	0.	0.	0.	1.	0.	0.
161	0.	1.	2.	1.	3.	2.	1.	0.	2.	0.
171	2.	1.	0.	0.	0.	0.	2.	1.	1.	1.
181	1.	0.	2.	3.	4.	1.	2.	3.	2.	1.
191	1.	4.	2.	6.	6.	3.	3.	4.	8.	6.
201	6.	14.	7.	7.	13.	5.	7.	14.	6.	16.
211	19.	16.	19.	14.	25.	25.	30.	28.	39.	47.
221	40.	54.	53.	66.	61.	95.	90.	100.	122.	126.
231	114.	138.	175.	163.	204.	222.	260.	267.	302.	324.
241	359.	377.	438.	424.	478.	490.	513.	565.	604.	555.
251	639.	626.	629.	681.	700.	740.	686.	485.	261.	145.
261	72.	75.	51.	48.	50.	45.	42.	32.	37.	29.
271	25.	25.	17.	15.	23.	18.	16.	29.	26.	32.
281	30.	34.	39.	49.	54.	47.	53.	67.	80.	97.
291	86.	94.	96.	114.	112.	119.	107.	137.	90.	106.
301	135.	130.	135.	93.	57.	43.	25.	15.	21.	22.
311	8.	16.	5.	7.	1.	0.	2.	0.	0.	0.
321	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
331	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
351	0.	0.	1.	0.	1.	0.	0.	1.	1.	1.
361	1.	0.	3.	1.	2.	1.	1.	0.	0.	1.
371	2.	1.	1.	0.	1.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
421	0.	1.	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.								

DATA NOT USED IN PACKAGE

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
S95T2039-SAM
File ID: 23a2360.CNF

Counted on: 9/20/95 @ 6:27
Detector: AEA23
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	107.0	107.0	301.365	301.365	12.000	4.574	6.000	1.796
2	525.6	525.6	255.166	255.164	12.000	3.834	6.000	1.449

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	Pu238	0.167	5.487	5.487	0.000	0.02	3.39	4.9	47.3	0.213E-04
	Am241		5.479	5.487	-.008				36.2	0.163E-04
2	Am243	0.807	5.270	5.274	-.004	0.02	16.39	2.2	166.4	0.750E-04
Totals:		0.974	<--valid peaks only-->				19.79			

DETECTOR CALIBRATION
Energy(MEV) = 4.101 + (0.0046)*Channel
Energy range (MeV): 4.101 TO 6.456
Efficiency = 0.0995 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	9755.0	100.000
Smoothed	9755.0	100.000
Composite fit	9497.5	97.361
Residuals	257.5	2.639

Analyzed by: S Cochran 9-30-95
ALJ

DATA NOT USED IN PACKAGE

Spectrum 23a2360.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 3328.0

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DATA NOT USED IN PACKAGE

Raw Data Dump for AEA Spectrum: 23a2360.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
71	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
81	0.	0.	0.	1.	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.	0.	0.
111	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
121	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
131	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
141	0.	0.	0.	1.	1.	0.	1.	0.	2.	0.
151	0.	1.	1.	0.	0.	0.	1.	0.	0.	0.
161	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
181	0.	1.	0.	1.	1.	0.	0.	0.	0.	0.
191	0.	0.	0.	0.	1.	2.	1.	1.	0.	0.
201	0.	1.	3.	2.	4.	4.	7.	2.	2.	10.
211	5.	11.	7.	7.	6.	10.	13.	7.	21.	10.
221	17.	20.	20.	21.	35.	25.	34.	47.	34.	33.
231	58.	43.	61.	60.	79.	66.	87.	104.	91.	126.
241	153.	155.	152.	191.	207.	263.	314.	326.	306.	357.
251	359.	356.	464.	557.	628.	608.	547.	339.	189.	88.
261	49.	46.	27.	30.	43.	41.	29.	25.	18.	25.
271	15.	14.	13.	6.	6.	6.	8.	8.	9.	15.
281	12.	12.	17.	23.	20.	34.	23.	26.	33.	37.
291	53.	52.	50.	62.	46.	62.	80.	79.	92.	94.
301	133.	130.	103.	78.	52.	20.	19.	23.	17.	12.
311	8.	8.	8.	4.	0.	0.	0.	1.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
351	0.	0.	0.	1.	0.	1.	2.	0.	1.	0.
361	0.	0.	1.	2.	1.	0.	2.	0.	2.	1.
371	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	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.								

DATA NOT USED IN PACKAGE

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
S95T2039-DUP
File ID: 24a2451.CNF

Counted on: 9/20/95 @ 6:27
Detector: AEA24
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	17.8	17.8	301.079	301.079	10.000	4.921	5.000	0.954
2	113.2	113.2	254.824	254.796	12.000	5.730	6.000	1.263

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	Pu238	0.142	5.487	5.468	0.019	0.02	0.91	9.4	64.4	0.290E-04
	Am241		5.479	5.468	0.011				49.3	0.222E-04
2	Am243	0.842	5.270	5.255	0.015	0.03	5.37	3.9	276.9	0.125E-03
Totals:		0.984	<--valid peaks only-->				6.28			

DETECTOR CALIBRATION
Energy(MEV) = 4.083 + (0.0046)*Channel
Energy range (MeV): 4.083 TO 6.438
Efficiency = 0.0196 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	3065.0	100.000
Smoothed	3065.0	100.000
Composite fit	3016.0	98.402
Residuals	49.0	1.598

Analyzed by: S Cohram 9/20/95
ALJ

DATA NOT USED IN PACKAGE

Spectrum 24a2451.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 832.2

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WHC-SD-WM-DP-147, REV. 0

DATA NOT USED IN PACKAGE

Raw Data Dump for AEA Spectrum: 24a2451.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.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.
91	0.	0.	0.	1.	1.	0.	0.	0.	0.	1.
101	0.	0.	0.	0.	0.	0.	1.	0.	1.	1.
111	0.	0.	0.	0.	0.	1.	1.	0.	1.	0.
121	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
131	0.	0.	0.	2.	0.	0.	0.	0.	1.	1.
141	2.	0.	1.	0.	0.	1.	0.	1.	0.	1.
151	0.	0.	0.	0.	1.	0.	2.	0.	0.	1.
161	1.	1.	2.	3.	1.	0.	2.	0.	0.	0.
171	0.	0.	4.	1.	1.	1.	3.	2.	4.	3.
181	4.	3.	2.	0.	1.	1.	3.	2.	3.	2.
191	1.	2.	3.	3.	3.	4.	11.	1.	0.	3.
201	3.	6.	8.	5.	5.	4.	5.	7.	5.	9.
211	4.	9.	12.	6.	9.	11.	11.	7.	16.	6.
221	21.	9.	14.	22.	12.	14.	33.	20.	32.	21.
231	27.	31.	37.	41.	40.	31.	35.	48.	57.	44.
241	45.	54.	56.	65.	72.	87.	91.	74.	92.	99.
251	108.	105.	118.	117.	125.	116.	120.	97.	57.	31.
261	19.	11.	15.	15.	10.	10.	15.	10.	7.	6.
271	2.	4.	5.	4.	3.	4.	6.	6.	5.	4.
281	4.	4.	3.	8.	10.	12.	8.	9.	8.	7.
291	13.	19.	15.	15.	20.	15.	10.	16.	13.	21.
301	11.	25.	18.	8.	8.	7.	1.	5.	1.	2.
311	4.	0.	0.	0.	1.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	1.	0.	0.	0.	1.	0.	0.	0.	0.	0.
351	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
361	0.	1.	0.	1.	0.	0.	1.	0.	0.	0.
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.								

DATA NOT USED IN PACKAGE

LABCORE Completed Worklist Report for Worklist# 2612

Analyst: rwk **Instrument:** AM01 **Book#** 104B43

Method: LA-953-103 Rev/Mod A-4

Worklist Comment: Use a 1.0 mL sample size. --LLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@AM24101	AM24101 SOLID	3.07E-02	2.61E-2	85.020	% Recovery
1	STD		0		@AM24101	AM24101E SOLID	1.00	2.91E+00	2.910	% Ct. Error
1	STD		0		@AM24101	AM24101T SOLID	100	1.60E+01	16.000	% Recovery
2	BLNK-PREP		0		@AM24101	AM24101 SOLID	1	<1.49E-2		uCi/g
2	BLNK-PREP		0		@AM24101	AM24101E SOLID	1.00	1.00E+02	100.000	% Ct. Error
2	BLNK-PREP		0		@AM24101	AM24101T SOLID	100	6.33E+01	63.300	% Recovery
3	SAMPLE	S95T002021	0	F	@AM24101	AM24101 SOLID	N/A <	1.72E-01	0.172	uCi/g
3	SAMPLE	S95T002021	0	F	@AM24101	AM24101E SOLID	N/A	1.43E+01	0.000	% Ct. Error
3	SAMPLE	S95T002021	0	F	@AM24101	AM24101T SOLID	N/A	7.26E-01	1.000e-007	% Recovery
4	DUP	S95T002021	0	F	@AM24101	AM24101 SOLID	<1.72E-1	<1.54E-1		RPD
4	DUP	S95T002021	0	F	@AM24101	AM24101E SOLID	1.00	1.30E+01	13.000	% Ct. Error
4	DUP	S95T002021	0	F	@AM24101	AM24101T SOLID	100	8.55E-01	0.860	% Recovery

Final page for worklist# 2612

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

KK Fitts 2 Oct 95
Reviewer Signature **Date**

Data not used due to low tracer recovery. RDE 10/4/95

WHC-SD-WM-DP-147, REV. 0

DATA NOT USED IN PACKAGE

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

LABCORE Data Entry Template for Worklist# 2612

Analyst: RK **Instrument:** AM01 _____ **Book#** 104B43

Method: LA-953-103 Rev/Mod 4-4

Worklist Comment: Use a 1.0 mL sample size. --LLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AM24101	SOLID		
2	BLNK-PREP				@AM24101	SOLID		
3	SAMPLE	S95T002021	0	F	@AM24101	SOLID	95000126	AW-106 GRAB
		Analytes Requested: AM24101 , AM24101E, AM24101T						
4	DUP	S95T002021	0	F	@AM24101	SOLID		

Final page for worklist # 2612

Rob Kim 9/28/95
Analyst Signature **Date**

M G Bolman 9/29/95
Analyst Signature **Date**

WHC-SD-WM-DP-147, REV. 0

Data Entry Comments:

DATA NOT USED IN PACKAGE

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

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID

						STD
Type	Date Counted		SEP-28-95	Am 241 AEA Frac.	(C241)	0.384
STD	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.585
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
2612	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		3922
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		15.28
LIQUID	Detector Number		1	Am 243 cpm		24.59
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002784	Standard Book No		104B43	AEA Count Time	(min)	480
Rerun	Standard Value in µCi/mL		0.03067	Am 241 µCi/L =		2.6083E+01
0				Cm 243/244 µCi/L =	<	2.2441E+01
Sample Prep						
N/A						
Sample Number						
WRKLST#2612						
Instrument Code						
AL10539						
Prepared By						
MCB						
Chemist						
LLF						
Analyst						
RWK						
Date Counted						
09/29/95						
Analysis Date						
09/28/95						
Analysis Time						
07:00 AM						
Sample Point						
AW-106 GRAB						

Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

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

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

Am 241 µCi/mL	=	2.61E-02	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	2.9%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/mL		< 2.24E-02	2.24E-02
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	16.0%	2.24E-02

Analyst:	RWK	Date:	09/29/95
Signature of Chemist:	LLF	Date:	SEP 29 1995

STANDARD.WB1 REV 1.2 953103ML

WHC-SD-WM-DP-147, REV. 0

DATA NOT USED IN PACKAGE

I:\953103\OUT\AM2612.WB1 09/29/95

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID / SOLID

Type	Date Counted		SEP-28-95	Am 241 AEA Frac.	(C241)	0
BLNK-PREP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.972
Work Unit	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2612	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		9092
Test Code	Digest Grams of Solids/L	(Dg/L)	2.262	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	3
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		0
SOLID	Detector Number		2	Am 243 cpm		100.56
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002784				AEA Count Time	(min)	480
Rerun				Am 241 µCi/g =	<	1.4909E-02
0				Cm 243/244 µCi/g =	<	1.4909E-02
Sample Prep						
N/A						
Sample Number						
WRKLST#2612						
Instrument Code						
AL10540						
Prepared By						
MCB						
Chemist						
LLF						
Analyst						
RWK						
Date Counted						
09/29/95						
Analysis Date						
09/28/95						
Analysis Time						
07:00 AM						
Sample Point						
AW-106 GRAB						

Am-241 µCi/g = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]

Cm-243/244 µCi/g = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

NOTE: Am-241 Result is a LESS THAN Value.

Am241 µCi/g	=	< 1.49E-02
Relative Counting Error	=	100.0%

NOTE: Cm-243/244 Result is a LESS THAN Value.

Cm 243/244 µCi/g		< 1.49E-02
Relative Counting Error	=	100.0%
Am 243 Tracer Recovery	=	63.3%

DETECTION LEVELS in µCi/g	
Am 241	1.49E-02
Cm 243/244	1.49E-02

Analyst:	RWK	Date:	09/29/95
Signature of Chemist:	LLF	Date:	2 Oct 95

BLANK.WB1 REV 1.2 953103ML

WHC-SD-WM-DP-147, REV. 0

DATA NOT USED IN PACKAGE

I:\953103\OUT\AM2612.WB1 09/29/95

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID / SOLID

						SAMPLE
Type	Date Counted		SEP-28-95	Am 241 AEA Frac.	(C241)	0.366
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.534
Work Unit	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2612	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		328
Test Code	Digest Grams of Solids/L	(Dg/L)	2.262	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		0.66
SOLID	Detector Number		3	Am 243 cpm		0.97
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002784				AEA Count Time	(min)	480
Rerun				Am 241 µCi/g =	<	1.7180E-01
1				Cm 243/244 µCi/g =	<	1.7180E-01
Sample Prep						
FUSION01						

Sample Number	Am-241 µCi/g = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]
S95T002021	Cm-243/244 µCi/g = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]
Instrument Code	
AL10541	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV
MCB	
Chemist	NOTE: Am-241 Result is a LESS THAN Value.
LLF	Am241 µCi/g = < 1.72E-01
Analyst	Relative Counting Error = 14.3%
RWK	
Date Completed	NOTE: Cm-243/244 Result is a LESS THAN Value.
09/29/95	Cm 243/244 µCi/g < 1.72E-01
Analysis Date	Relative Counting Error = 100.0%
09/28/95	Am 243 Tracer Recovery = 0.7%
Analysis Time	
07:00 AM	
Sample Type	
AW-106 GRAB	

DETECTION LEVELS In µCi/g	
Am 241	1.72E-01
Cm 243/244	1.72E-01

Analyst:	RWK	Date:	09/29/95
Signature of Chemist:	LLF	Date:	2 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

WHC-SD-WM-DP-147, REV. 0

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID / SOLID

							DUP
Type	Date Counted		SEP-28-95	Am 241 AEA Frac.	(C241)		0.336
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.594
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)		0
2612	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			349
Test Code	Digest Grams of Solids/L	(Dg/L)	2.263	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)		5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			0.74
SOLID	Detector Number		3	Am 243 cpm			1.3
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95002784				AEA Count Time	(min)		480
Run				Am 241 µCi/g =		<	1.5439E-01
1				Cm 243/244 µCi/g =		<	1.5439E-01
Sample Prep							
FUSION01							
Sample Number							
S95T002021							
Instrument Code							
AL10541							
Prepared By							
MCB							
Chemist							
LLF							
Analyst							
RWK							
Date Completed							
09/29/95							
Analysis Date							
09/28/95							
Analysis Time							
07:00 AM							
Sample Point							
AW-106 GRAB							

Am-241 µCi/g = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]

Cm-243/244 µCi/g = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

NOTE: Am-241 Result is a LESS THAN Value.

Am241 µCi/g	=	< 1.54E-01	DETECTION LEVELS in µCi/g
Relative Counting Error	=	13.0%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/g		< 1.54E-01	1.54E-01
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	0.9%	1.54E-01

Analyst:	RWK	Date:	09/29/95
Signature of Chemist:	LLF	Date:	2 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

WHC-SD-WM-DP-147, REV. 0

DATA NOT USED IN PACKAGE

I:\953103\OUT\AM2612.WB1 09/29/95

Raymond 9.28.95

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#2612-ST
File ID: 21a2126.CNF

Counted on: 9/28/95 @13:36
Detector: AEA21
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	349.7	349.7	299.545	299.545	12.000	6.016	6.000	1.516
2	549.5	549.5	254.309	254.272	10.000	4.668	5.000	1.071

PEAK RESULTS

Peak Error Limit: 30%

Peak		AEA	Peak Centroid				Count	%err		Activity
ID	Isotope	Frac	Exp.	Obs.	Diff.	FWHM	Rate c/m	@95	d/m	uCi/ea
1	Pu238	0.364	5.487	5.473	0.014	0.03	15.28	2.3	193.3	0.871E-04
	Am241*		5.479	5.473	0.006				148.1	0.667E-04
2	Am243	0.585	5.270	5.264	0.006	0.02	24.59	1.8	226.2	0.102E-03
		---					---			
Totals:		0.949	<--valid peaks only-->				39.87			

DETECTOR CALIBRATION

Energy(MEV) = 4.095 + (0.0046)*Channel
Energy range (MeV): 4.095 TO 6.450
Efficiency = 0.1098 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	20176.0	100.000
Smoothed	20176.0	100.000
Composite fit	19141.0	94.870
Residuals	1035.0	5.130

Analyzed by: _____
ALJ

DATA NOT USED IN PACKAGE

Spectrum 21a2126.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 3997.5

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DATA NOT USED IN PACKAGE

Raw Data Dump for AEA Spectrum: 21a2126.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.
21	0.	0.	0.	0.	1.	0.	0.	0.	2.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
51	1.	2.	0.	0.	0.	2.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	2.	0.	1.	0.	1.
71	0.	0.	1.	1.	0.	2.	0.	0.	0.	1.
81	1.	2.	2.	0.	0.	0.	0.	0.	1.	2.
91	0.	1.	0.	1.	1.	0.	2.	1.	0.	2.
101	1.	3.	1.	2.	3.	1.	1.	4.	2.	1.
111	1.	1.	1.	1.	3.	3.	3.	2.	1.	2.
121	2.	1.	4.	5.	1.	2.	0.	1.	2.	2.
131	7.	1.	4.	4.	2.	4.	2.	2.	2.	2.
141	9.	3.	2.	7.	9.	3.	7.	6.	5.	2.
151	5.	5.	5.	4.	4.	9.	3.	5.	4.	6.
161	8.	4.	9.	8.	10.	12.	9.	8.	9.	7.
171	15.	16.	12.	10.	10.	12.	13.	9.	18.	9.
181	15.	9.	19.	21.	12.	9.	19.	23.	16.	16.
191	22.	25.	15.	20.	26.	18.	23.	30.	31.	24.
201	27.	35.	36.	28.	40.	24.	53.	34.	48.	45.
211	58.	39.	51.	58.	65.	56.	54.	67.	78.	66.
221	77.	77.	97.	85.	89.	113.	119.	111.	130.	128.
231	122.	148.	149.	152.	174.	182.	207.	215.	223.	253.
241	245.	302.	293.	365.	350.	404.	392.	411.	403.	456.
251	495.	512.	593.	566.	642.	625.	469.	258.	164.	109.
261	79.	89.	81.	71.	73.	72.	75.	76.	70.	74.
271	75.	74.	75.	61.	70.	79.	74.	86.	100.	110.
281	106.	115.	125.	123.	129.	160.	150.	187.	190.	203.
291	219.	228.	218.	265.	271.	283.	322.	371.	374.	390.
301	357.	358.	207.	135.	103.	66.	60.	52.	41.	34.
311	23.	15.	13.	4.	8.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
341	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
351	0.	0.	0.	0.	0.	0.	1.	1.	1.	0.
361	1.	1.	0.	1.	1.	1.	0.	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.	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.								

DATA NOT USED IN PACKAGE

Raymond 9-28-95

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#2612-BL
File ID: 22a2275.CNF

Counted on: 9/28/95 @13:37
Detector: AEA22
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	3044.1	3044.1	255.285	255.285	12.000	4.143	6.000	1.460

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	Am243	0.972	5.270	5.256	0.014	0.02	100.58	0.9	5551.9	0.250E-02
otals:		0.972	<--valid peaks only-->				100.58			

DETECTOR CALIBRATION
Energy(MEV) = 4.082 + (0.0046)*Channel
Energy range (MeV): 4.082 TO 6.437
Efficiency = 0.0183 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	49660.0	100.000
Smoothed	49660.0	100.000
Composite fit	48287.1	97.235
Residuals	1372.9	2.765

Analyzed by: _____
ALJ

WHC-SD-WM-DP-147, REV. 0

DATA NOT USED IN PACKAGE

Spectrum 22a2275.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 19705.5

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WHC-SD-WM-DP-147, REV. 0

DATA NOT USED IN PACKAGE

Raw Data Dump for AEA Spectrum: 22a2275.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
11	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
21	0.	0.	0.	1.	0.	0.	1.	1.	0.	1.
31	0.	1.	0.	0.	1.	0.	0.	0.	0.	1.
41	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.
51	0.	1.	0.	3.	0.	1.	0.	0.	0.	1.
61	0.	0.	1.	0.	0.	0.	0.	1.	0.	1.
71	2.	0.	2.	1.	1.	0.	1.	1.	0.	0.
81	3.	1.	1.	1.	3.	1.	0.	1.	1.	0.
91	2.	2.	0.	1.	0.	1.	0.	1.	0.	1.
101	0.	1.	0.	1.	0.	2.	1.	0.	1.	0.
111	1.	2.	0.	1.	0.	1.	2.	1.	0.	1.
121	0.	2.	1.	2.	2.	1.	2.	2.	0.	2.
131	3.	3.	1.	1.	3.	2.	3.	1.	2.	2.
141	1.	4.	3.	0.	0.	3.	3.	2.	3.	3.
151	3.	2.	2.	1.	1.	4.	1.	5.	2.	3.
161	1.	3.	1.	3.	5.	4.	2.	1.	2.	3.
171	0.	7.	8.	6.	6.	2.	4.	4.	6.	8.
181	4.	2.	7.	9.	10.	8.	10.	2.	6.	12.
191	13.	12.	9.	17.	10.	20.	12.	15.	28.	18.
201	18.	29.	14.	31.	30.	18.	28.	29.	39.	29.
211	47.	40.	55.	51.	59.	69.	74.	70.	103.	89.
221	96.	121.	115.	137.	154.	190.	173.	209.	223.	288.
231	305.	319.	403.	410.	479.	528.	540.	648.	702.	788.
241	857.	922.	1100.	1242.	1316.	1478.	1648.	1760.	1893.	2053.
251	2286.	2476.	2692.	3075.	3511.	3558.	3150.	2402.	1283.	610.
261	308.	234.	220.	195.	195.	181.	164.	142.	107.	106.
271	72.	45.	30.	21.	7.	2.	0.	0.	2.	0.
281	0.	1.	3.	2.	4.	0.	1.	1.	5.	2.
291	3.	5.	3.	3.	3.	6.	8.	2.	4.	9.
301	6.	12.	2.	6.	5.	3.	1.	2.	1.	1.
311	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
351	1.	0.	1.	0.	0.	0.	1.	0.	0.	0.
361	0.	1.	0.	0.	1.	2.	0.	1.	3.	1.
371	1.	1.	0.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	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.								

DATA NOT USED IN PACKAGE

Raymond 9-28-95

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
S95T2021-SAM
File ID: 23a2376.CNF

Counted on: 9/28/95 @13:38
Detector: AEA23
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	13.1	13.1	300.722	302.136	10.000	3.385	5.000	0.627
2	17.5	17.5	254.258	255.259	12.000	3.326	6.000	0.549

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	Pu238	0.366	5.487	5.486	0.001	0.02	0.66	11.0	122.7	0.553E-04
	Am241		5.479	5.486	-.007				94.0	0.423E-04
2	Am243	0.534	5.270	5.270	0.000	0.02	0.97	9.5	130.3	0.587E-04
Totals:		0.899	<--valid peaks only-->				1.63			

DETECTOR CALIBRATION
Energy(MEV) = 4.096 + (0.0046)*Channel
Energy range (MeV): 4.096 TO 6.451
Efficiency = 0.0075 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	870.0	100.000
Smoothed	870.0	99.995
Composite fit	782.6	89.949
Residuals	87.4	10.051

Analyzed by: _____
ALJ

DATA NOT USED IN PACKAGE

Spectrum 23a2376.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 123.7

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WHC-SD-WM-DP-147, REV. 0

PAGE NOT USED IN PACKAGE

Raw Data Dump for AEA Spectrum: 23a2376.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.
21	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
31	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
41	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.
71	0.	0.	1.	0.	1.	0.	0.	0.	0.	1.
81	1.	0.	0.	0.	1.	0.	0.	1.	1.	0.
91	0.	0.	1.	0.	0.	0.	1.	1.	0.	0.
101	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
111	0.	0.	2.	0.	1.	0.	0.	1.	0.	1.
121	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
131	1.	1.	1.	1.	1.	1.	1.	0.	1.	2.
141	1.	1.	0.	0.	2.	1.	2.	1.	0.	1.
151	0.	1.	3.	1.	0.	0.	0.	0.	1.	1.
161	2.	1.	0.	3.	1.	3.	1.	2.	0.	1.
171	1.	2.	1.	1.	1.	2.	1.	4.	1.	2.
181	0.	0.	1.	1.	0.	1.	3.	0.	0.	2.
191	2.	1.	2.	0.	2.	1.	2.	4.	1.	2.
201	3.	4.	4.	2.	5.	1.	1.	2.	1.	2.
211	5.	1.	2.	1.	5.	1.	1.	5.	5.	3.
221	4.	8.	3.	3.	5.	6.	5.	6.	3.	11.
231	7.	3.	7.	10.	5.	9.	11.	8.	9.	11.
241	12.	12.	9.	13.	10.	16.	14.	15.	8.	14.
251	14.	14.	15.	20.	22.	20.	21.	14.	8.	2.
261	2.	5.	1.	2.	2.	1.	3.	3.	3.	4.
271	1.	2.	5.	2.	1.	2.	3.	4.	3.	6.
281	4.	4.	7.	6.	6.	4.	6.	5.	9.	5.
291	13.	11.	9.	7.	8.	7.	13.	17.	8.	10.
301	8.	17.	18.	6.	4.	4.	3.	4.	1.	2.
311	2.	0.	1.	0.	1.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
351	0.	0.	0.	0.	1.	0.	0.	0.	2.	1.
361	1.	1.	2.	0.	0.	0.	0.	1.	0.	1.
371	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	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.								

NOT USED IN PACKAGE

Raymond 9-28-95

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
S95T2021-DUP
File ID: 24a2465.CNF

Counted on: 9/28/95 @13:39
Detector: AEA24
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	23.3	23.3	301.239	301.239	12.000	4.585	6.000	1.812
2	36.2	36.2	255.385	255.374	12.000	4.416	6.000	1.388

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	Pu238	0.336	5.487	5.473	0.014	0.02	0.74	10.4	9.8	0.442E-05
	Am241		5.479	5.473	0.006				7.5	0.338E-05
2	Am243	0.594	5.270	5.262	0.008	0.02	1.30	7.9	12.6	0.568E-05
Totals:		0.929	<--valid peaks only-->				2.04			

DETECTOR CALIBRATION
Energy(MEV) = 4.088 + (0.0046)*Channel
Energy range (MeV): 4.088 TO 6.443
Efficiency = 0.1042 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	1052.0	100.000
Smoothed	1052.0	100.000
Composite fit	977.5	92.919
Residuals	74.5	7.081

Analyzed by: _____
ALJ

WHC-SD-WM-DP-147, REV. 0

Spectrum 24a2465.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 229.2

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WHC-SD-WM-DP-147, REV. 0

DATA NOT USED IN PACKAGE

Raw Data Dump for AEA Spectrum: 24a2465.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.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
71	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
81	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	1.	0.	0.	0.	0.	1.	0.	0.	0.	0.
101	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
111	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
121	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
131	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
141	0.	0.	1.	0.	1.	0.	1.	1.	0.	1.
151	0.	1.	0.	0.	0.	0.	1.	0.	0.	0.
161	0.	1.	0.	0.	1.	0.	1.	1.	0.	0.
171	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
181	0.	0.	1.	0.	0.	0.	0.	1.	0.	0.
191	2.	2.	1.	0.	0.	1.	0.	1.	0.	0.
201	2.	1.	1.	0.	2.	2.	0.	0.	0.	2.
211	2.	0.	0.	0.	1.	1.	6.	3.	4.	2.
221	1.	0.	6.	7.	2.	2.	4.	4.	1.	6.
231	3.	11.	5.	7.	6.	5.	10.	9.	10.	11.
241	7.	16.	16.	12.	21.	24.	16.	26.	24.	21.
251	19.	28.	34.	37.	46.	38.	34.	37.	18.	12.
261	6.	2.	1.	3.	2.	0.	4.	3.	3.	2.
271	3.	6.	1.	1.	0.	2.	8.	7.	5.	3.
281	4.	5.	0.	4.	4.	5.	5.	6.	11.	3.
291	12.	10.	16.	11.	10.	9.	12.	26.	21.	20.
301	28.	29.	22.	15.	8.	10.	3.	4.	3.	3.
311	1.	1.	1.	2.	1.	2.	1.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
341	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
351	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
361	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
371	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	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.								

DATA
NOT USED
IN PACKAGE

LABCORE Completed Worklist Report for Worklist# 2570

Analyst: rwk **Instrument:** AM01 **Book#** 104B43

Method: LA-953-103 Rev/Mod A-4

Worklist Comment: Use a 0.5 mL sample size. R(1). --LLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@AM24101	AM24101	LIQUID	3.07E-02	<5.05E-2		% Recovery
1	STD		0	@AM24101	AM24101E	LIQUID	1.00	1.17E+01	11.700	% Ct. Error
1	STD		0	@AM24101	AM24101T	LIQUID	100	1.08E+00	1.080	% Recovery
2	BLNK		0	@AM24101	AM24101	LIQUID	1	<4.05E-4		uCi/mL
2	BLNK		0	@AM24101	AM24101E	LIQUID	1.00	1.00E+02	100.000	% Ct. Error
2	BLNK		0	@AM24101	AM24101T	LIQUID	100	3.25E+00	3.250	% Recovery
3	SAMPLE	S95T002031	0	@AM24101	AM24101	LIQUID	N/A	1.77E-03	1.620e-003	uCi/mL
3	SAMPLE	S95T002031	0	@AM24101	AM24101E	LIQUID	N/A	2.71E+01	0.000	% Ct. Error
3	SAMPLE	S95T002031	0	@AM24101	AM24101T	LIQUID	N/A	1.94E-01	1.000e-007	% Recovery
4	DUP	S95T002031	0	@AM24101	AM24101	LIQUID	1.77E-3	1.36E-3	26.200	RPD
4	DUP	S95T002031	0	@AM24101	AM24101E	LIQUID	1.00	9.84E+00	9.840	% Ct. Error
4	DUP	S95T002031	0	@AM24101	AM24101T	LIQUID	100	7.05E-01	0.710	% Recovery
5	SAMPLE	S95T002039	0	@AM24101	AM24101	LIQUID	N/A	1.23E-03	1.080e-003	uCi/mL
5	SAMPLE	S95T002039	0	@AM24101	AM24101E	LIQUID	N/A	1.35E+01	0.000	% Ct. Error
5	SAMPLE	S95T002039	0	@AM24101	AM24101T	LIQUID	N/A	7.45E-01	1.000e-007	% Recovery
6	DUP	S95T002039	0	@AM24101	AM24101	LIQUID	1.23E-3	1.28E-3	3.980	RPD
6	DUP	S95T002039	0	@AM24101	AM24101E	LIQUID	1.00	2.17E+01	21.700	% Ct. Error
6	DUP	S95T002039	0	@AM24101	AM24101T	LIQUID	100	2.94E-01	0.290	% Recovery

Final page for worklist# 2570

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

2 Oct 95
Reviewer Signature **Date**

DATA
NOT USED
IN PACKAGE

Data not used due to low tracer recovery RAC 10/9/95

WHC-SD-WM-DP-147, REV. 0

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

LABCORE Data Entry Template for Worklist# 2570

Analyst: BK **Instrument:** AM01 _____ **Book#** 104343

Method: LA-953-103 **Rev/Mod** A-4

Worklist Comment: Use a 0.5 mL sample size. R(1). --LLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AM24101	LIQUID		
2	BLNK				@AM24101	LIQUID		
3	SAMPLE	S95T002031	0		@AM24101	LIQUID	95000126	AW-106 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
4	DUP	S95T002031	0		@AM24101	LIQUID		
5	SAMPLE	S95T002039	0		@AM24101	LIQUID	95000126	AW-106 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
6	DUP	S95T002039	0		@AM24101	LIQUID		

Final page for worklist # 2570

Analyst Signature 9/28/95 Date

Analyst Signature 9/29/95 Date

DATA
NOT USED
IN PACKAGE

Data Entry Comments:

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

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID

							STD
Type	Date Counted		SEP-28-95	Am 241 AEA Frac.	(C241)		0.266
STD	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.415
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)		0
2570	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			511
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)		5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			0.97
LIQUID	Detector Number		1	Am 243 cpm			1.5
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95002746	Standard Book No		104B43	AEA Count Time	(min)		480
Result	Standard Value in µCi/mL		0.03067	Am 241 µCi/L =		<	5.0505E+01
0				Cm 243/244 µCi/L =		<	5.0505E+01
Sample Prep							
N/A							
Sample Number	Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))						
WRKLST#2570	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))						
Instrument Code							
AL10539	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100						
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV						
MCB							
Chemist	NOTE: Am-241 Result is a LESS THAN Value.						
LLF	Am 241 µCi/mL	=	< 5.05E-02	DETECTION LEVELS in µCi/mL			
Analyst	Relative Counting Error	=	11.7%				
RWK							
Date Completed	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241			
09/29/95	Cm 243/244 µCi/mL		< 5.05E-02	5.05E-02			
Analysis Date	Relative Counting Error	=	100.0%	Cm 243/244			
09/28/95	Am 243 Tracer Recovery	=	1.1%	5.05E-02			
Analysis Time							
07:00 AM							
Sample Point							
AW-106 GRAB							

Analyst:	RWK	Date:	09/29/95
Signature of Chemist:	LLF	Date:	2 Oct 95

STANDARD.WB1 REV 1.2 953103ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID / SOLID

Type	Date Counted		SEP-28-95	Am 241 AEA Frac.	(C241)	BLNK 0
BLNK	Sample Volume in mL	(SS)	0.500	Am 243 AEA Frac.	(C243)	1.026
Work Unit	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2570	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		528
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	3
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		0
LIQUID	Detector Number		2	Am 243 cpm		3.99
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002746				AEA Count Time	(min)	480
Parent				Am 241 µCi/L =	<	4.0453E-01
0				Cm 243/244 µCi/L =	<	4.0453E-01
Sample Prep						
N/A						
Sample Number						
WRKLST#2570						
Instrument Used						
AL10540						
Prepared By						
MCB						
Chemist						
LLF						
Analyst						
RWK						
Date Completed						
09/29/95						
Analysis Date						
09/28/95						
Analysis Time						
07:00 AM						
Sample Point						
AW-106 GRAB						

Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

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

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

NOTE: Am-241 Result is a LESS THAN Value.

Am 241 µCi/mL	=	< 4.05E-04	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	100.0%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241 4.05E-04
Cm 243/244 µCi/mL		< 4.05E-04	
Relative Counting Error	=	100.0%	Cm 243/244 4.05E-04
Am 243 Tracer Recovery	=	3.3%	

Analyst:	RWK	Date:	09/29/95
Signature of Chemist:	LLF	Date:	2 Oct 95

BLANK.WB1 REV 1.2 953103ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID / SOLID

						SAMPLE
Type	Date Counted		SEP-28-95	Am 241 AEA Frac.	(C241)	0.547
SAMPLE	Sample Volume in mL	(SS)	0.500	Am 243 AEA Frac.	(C243)	0.255
Work Unit	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2570	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		255
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		0.34
LIQUID	Detector Number		3	Am 243 cpm		0.18
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002746				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		1.7737E+00
0				Cm 243/244 µCi/L =	<	1.6213E+00
Sample Prep						
N/A						
Standard Number						
S95T002031						
Instrument Code						
AL10541						
Prepared By						
MCB						
Chemist						
LLF						
Analyst						
RWK						
Date Computed						
09/29/95						
Analysis Date						
09/28/95						
Analysis Time						
07:00 AM						
Sample Type						
AW-106 GRAB						

Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

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

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

Am 241 µCi/mL =	1.77E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error =	27.1%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241 1.62E-03
Cm 243/244 µCi/mL	< 1.62E-03	
Relative Counting Error =	100.0%	Cm 243/244 1.62E-03
Am 243 Tracer Recovery =	0.2%	

Analyst:	RWK	Date:	09/29/95
Signature of Chemist:	LLF	Date:	2 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID / SOLID

Type	Date Counted		SEP-28-95	Am 241 AEA Frac.	(C241)		0.577
DUP	Sample Volume in mL	(SS)	0.500	Am 243 AEA Frac.	(C243)		0.352
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)		0
2570	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			427
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114843	Background in cpm	(Bkg)		5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			2.18
LIQUID	Detector Number		3	Am 243 cpm			1.33
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95002746				AEA Count Time	(min)		480
Rerun				Am 241 µCi/L =			1.3607E+00
0				Cm 243/244 µCi/L =		<	1.1791E+00
Sample Prep							
N/A							
Sample Number							
S95T002031							
Instrument Code							
AL10541							
Prepared By							
MCB							
Chemist							
LLF							
Analyst							
RWK							
Date Counted							
09/29/95							
Analysis Date							
09/28/95							
Analysis Time							
07:00 AM							
Sample Prep							
AW-106 GRAB							

Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

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

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

Am 241 µCi/mL	=	1.36E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	9.8%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241 1.18E-03
Cm 243/244 µCi/mL		< 1.18E-03	
Relative Counting Error	=	100.0%	Cm 243/244 1.18E-03
Am 243 Tracer Recovery	=	0.7%	

Analyst:	RWK	Date:	09/29/95
Signature of Chemist:	LLF	Date:	2 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM5

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID / SOLID

Type	Date Counted		SEP-28-95	Am 241 AEA Frac.	(C241)	SAMPLE	0.557
SAMPLE	Sample Volume in mL	(SS)	0.500	Am 243 AEA Frac.	(C243)		0.383
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)		0
2570	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			419
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)		5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			1.1
LIQUID	Detector Number		1	Am 243 cpm			0.74
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95002746				AEA Count Time	(min)		480
Rerun				Am 241 µCi/L =			1.2289E+00
0				Cm 243/244 µCi/L =		<	1.0837E+00
Sample Prep							
N/A							
Sample Number							
S95T002039							
Instrument Code							
AL10539							
Prepared By							
MCB							
Chemist							
LLF							
Analyst							
RWK							
Date Completed							
09/29/95							
Analysis Date							
09/28/95							
Analysis Time							
07:00 AM							
Sample Type							
AW-106 GRAB							

Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

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

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

Am 241 µCi/mL	=	1.23E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	13.5%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/mL		< 1.08E-03	1.08E-03
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	0.7%	1.08E-03

Analyst:	RWK	Date:	09/29/95
Signature of Chemist:	LLF	Date:	2 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP6

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID / SOLID

Type	Date Counted		SEP-28-95	Am 241 AEA Frac.	(C241)	DUP	0.505
DUP	Sample Volume in mL	(SS)	0.500	Am 243 AEA Frac.	(C243)		0.33
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)		0
2570	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			213
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)		3
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			0.43
LIQUID	Detector Number		2	Am 243 cpm			0.28
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95002746				AEA Count Time	(min)		480
Rerun				Am 241 µCi/L =			1.2778E+00
0				Cm 243/244 µCi/L =		<	1.2577E+00
Sample Prep							
N/A							
Sample Number							
S95T002039							
Instrument Code							
AL10540							
Prepared By							
MCB							
Chemist							
LLF							
Analyst							
RWK							
Date Completed							
09/29/95							
Analysis Date							
09/28/95							
Analysis Time							
07:00 AM							
Sample Point							
AW-106 GRAB							

Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

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

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

Am 241 µCi/mL	=	1.28E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	21.7%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/mL		< 1.26E-03	1.26E-03
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	0.3%	1.26E-03

Analyst:	RWK	Date:	09/29/95
Signature of Chemist:	LLF	Date:	2 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

DATA NOT USED IN PACKAGE

Raymond 9-28-95

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#2570-ST
File ID: 13a1398.CNF

Counted on: 9/28/95 @14:35
Detector: AEA13
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	20.1	20.1	300.233	300.233	12.000	4.069	6.000	0.828
2	34.0	34.0	253.633	253.599	10.000	4.151	5.000	0.947

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	Pu238	0.266	5.487	5.478	0.009	0.02	0.97	9.1	68.7	0.310E-04
	Am241		5.479	5.478	0.001				52.7	0.237E-0
2	Am243	0.415	5.270	5.264	0.006	0.02	1.50	7.6	77.9	0.351E-04
Totals:		0.682	<--valid peaks only-->				2.47			

DETECTOR CALIBRATION
Energy(MEV) = 4.097 + (0.0046)*Channel
Energy range (MeV): 4.097 TO 6.452
Efficiency = 0.0195 CPM/DPM

DATA NOT USED IN PACKAGE

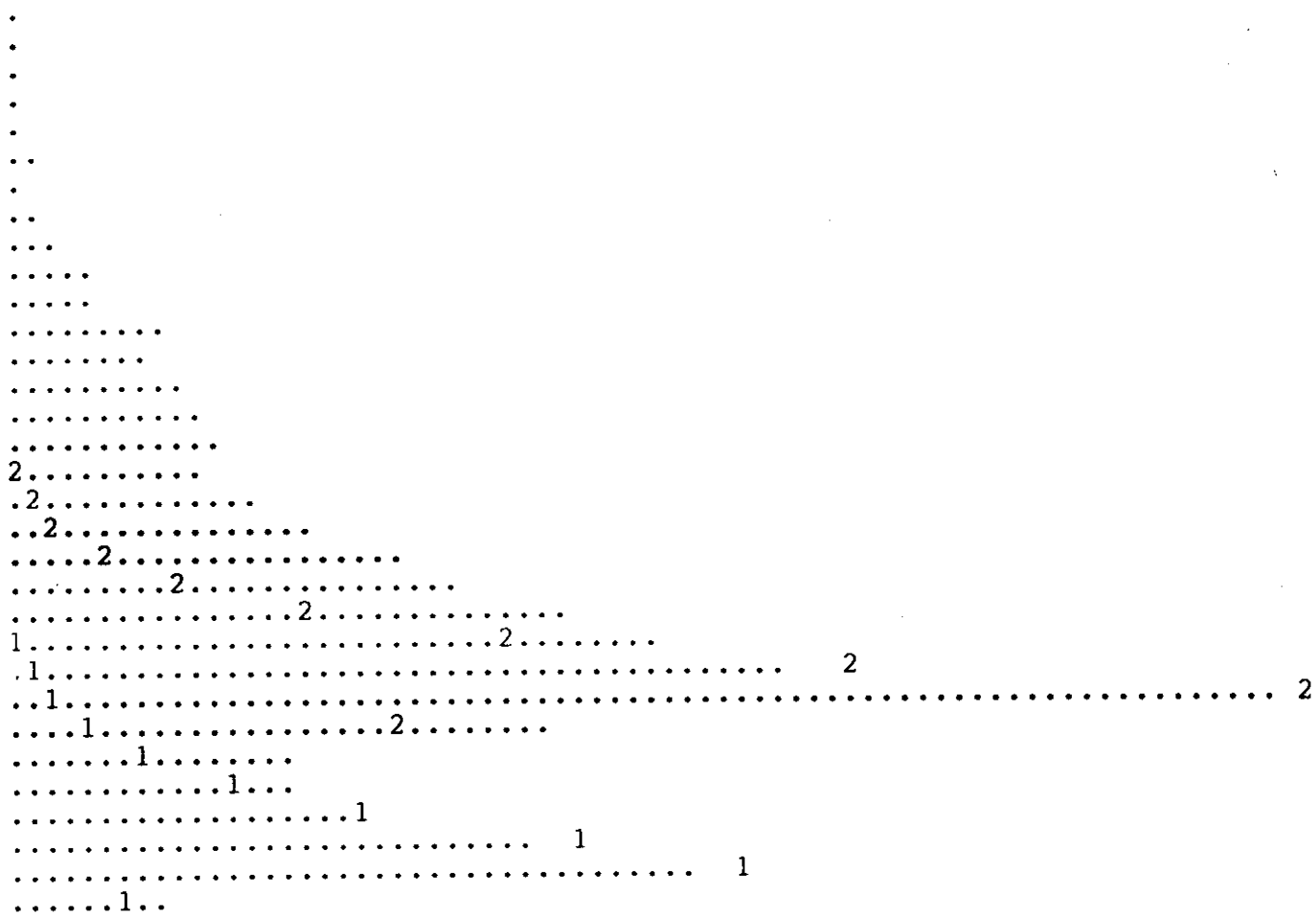
TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	1739.0	100.000
Smoothed	1739.0	100.000
Composite fit	1185.5	68.172
Residuals	553.5	31.828

Analyzed by: ALJ

Spectrum 13a1398.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 234.3



DATA
NOT USED
IN PACKAGE

Raw Data Dump for AEA Spectrum: 13a1398.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.	1.	0.	0.
31	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
41	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	1.	0.	0.	1.	1.
61	0.	1.	0.	0.	3.	0.	0.	1.	1.	1.
71	1.	0.	0.	0.	2.	0.	0.	1.	0.	1.
81	0.	1.	2.	2.	0.	0.	1.	1.	0.	1.
91	0.	1.	0.	1.	1.	1.	1.	0.	0.	4.
101	2.	1.	1.	0.	1.	0.	1.	0.	0.	1.
111	1.	2.	2.	0.	2.	1.	1.	2.	1.	1.
121	1.	2.	2.	2.	1.	1.	2.	2.	2.	4.
131	2.	2.	1.	2.	2.	4.	3.	3.	3.	1.
141	2.	1.	3.	2.	1.	7.	6.	1.	3.	4.
151	5.	7.	6.	2.	3.	4.	2.	1.	3.	3.
161	5.	8.	3.	6.	1.	6.	4.	3.	6.	4.
171	7.	2.	5.	3.	7.	6.	6.	5.	2.	8.
181	7.	5.	3.	9.	4.	4.	6.	2.	3.	5.
191	5.	5.	8.	5.	10.	4.	4.	5.	5.	9.
201	6.	7.	11.	4.	7.	7.	5.	14.	10.	7.
211	8.	9.	11.	9.	6.	15.	14.	14.	9.	8.
221	11.	10.	6.	17.	9.	16.	16.	12.	12.	13.
231	16.	15.	15.	9.	16.	13.	23.	17.	16.	14.
241	11.	20.	16.	25.	17.	18.	17.	21.	30.	28.
251	25.	29.	37.	48.	36.	27.	15.	14.	8.	5.
261	9.	2.	11.	6.	9.	4.	7.	5.	7.	5.
271	8.	9.	3.	2.	5.	7.	12.	8.	12.	5.
281	8.	4.	7.	9.	11.	15.	8.	4.	8.	14.
291	9.	10.	15.	15.	18.	18.	17.	11.	15.	28.
301	21.	19.	11.	9.	7.	2.	4.	1.	0.	1.
311	2.	0.	0.	0.	1.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
351	1.	0.	0.	0.	0.	0.	0.	1.	0.	0.
361	1.	0.	0.	0.	1.	0.	0.	1.	1.	0.
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.	1.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

DATA NOT USED IN PACKAGE

Raymond 9.28.95

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#2570-BL
File ID: 14al401.CNF

Counted on: 9/28/95 @14:36
Detector: AEA14
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	90.5	90.5	252.515	252.515	12.000	6.693	6.000	1.718

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	Am243	1.026	5.270	5.256	0.014	0.03	3.99	4.5	344.1	0.155E-03
Totals:		1.026	<--valid peaks only-->				3.99			

DETECTOR CALIBRATION
Energy(MEV) = 4.095 + (0.0046)*Channel
Energy range (MeV): 4.095 TO 6.450
Efficiency = 0.0117 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	1865.0	100.000
Smoothed	1865.0	100.000
Composite fit	1913.3	102.589
Residuals	-48.3	-2.589

Analyzed by: ALJ

WHC-SD-WM-DP-147, REV. 0

DATA NOT USED IN PACKAGE

Spectrum 14a1401.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 665.6

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WHC-SD-WM-DP-147, REV. 0

DATA
NOT USED
IN PACKAGE

Raw Data Dump for AEA Spectrum: 14a1401.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.	0.	0.
41	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
61	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
91	0.	0.	0.	1.	0.	0.	0.	2.	0.	0.
101	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
111	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
121	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.
131	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
141	0.	1.	0.	1.	0.	1.	2.	0.	0.	1.
151	0.	0.	1.	1.	0.	0.	0.	0.	0.	1.
161	1.	0.	0.	0.	0.	0.	0.	0.	2.	0.
171	0.	0.	0.	1.	1.	1.	0.	0.	0.	0.
181	0.	2.	0.	1.	1.	0.	0.	0.	0.	1.
191	2.	1.	0.	1.	1.	1.	2.	2.	1.	2.
201	2.	0.	3.	2.	4.	1.	3.	3.	1.	0.
211	4.	0.	1.	2.	1.	2.	2.	3.	2.	4.
221	6.	1.	4.	5.	9.	2.	7.	9.	16.	24.
231	21.	12.	16.	22.	21.	26.	30.	37.	44.	44.
241	48.	56.	64.	63.	70.	85.	93.	83.	73.	81.
251	90.	94.	95.	107.	66.	83.	50.	26.	19.	12.
261	9.	9.	1.	5.	6.	3.	1.	4.	4.	4.
271	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
281	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
291	0.	1.	0.	1.	1.	0.	0.	2.	1.	2.
301	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
311	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
351	0.	0.	0.	1.	0.	0.	0.	0.	1.	1.
361	0.	0.	0.	1.	0.	0.	0.	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.	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.	1.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

DATA NOT USED IN PACKAGE

Raymond 9.28.95

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
S95T2031-SAM
File ID: 15a1586.CNF

Counted on: 9/28/95 @14:36
Detector: AEA15
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	14.4	14.4	306.136	304.071	10.000	2.955	5.000	1.631
2	6.8	6.8	259.706	256.796	14.000	3.775	7.000	2.509

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	Pu238	0.547	5.487	5.494	-.007	0.01	0.34	15.2	4.4	0.196E-05
	Am241		5.479	5.494	-.015				3.3	0.150E-0[illegible]
2	Am243	0.256	5.270	5.276	-.006	0.02	0.16	22.4	1.5	0.667E-06
Totals:		0.803	<--valid peaks only-->				0.51			

DETECTOR CALIBRATION
Energy(MEV) = 4.095 + (0.0046)*Channel
Energy range (MeV): 4.095 TO 6.450
Efficiency = 0.1098 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	302.0	100.000
Smoothed	302.0	99.994
Composite fit	242.6	80.332
Residuals	59.4	19.668

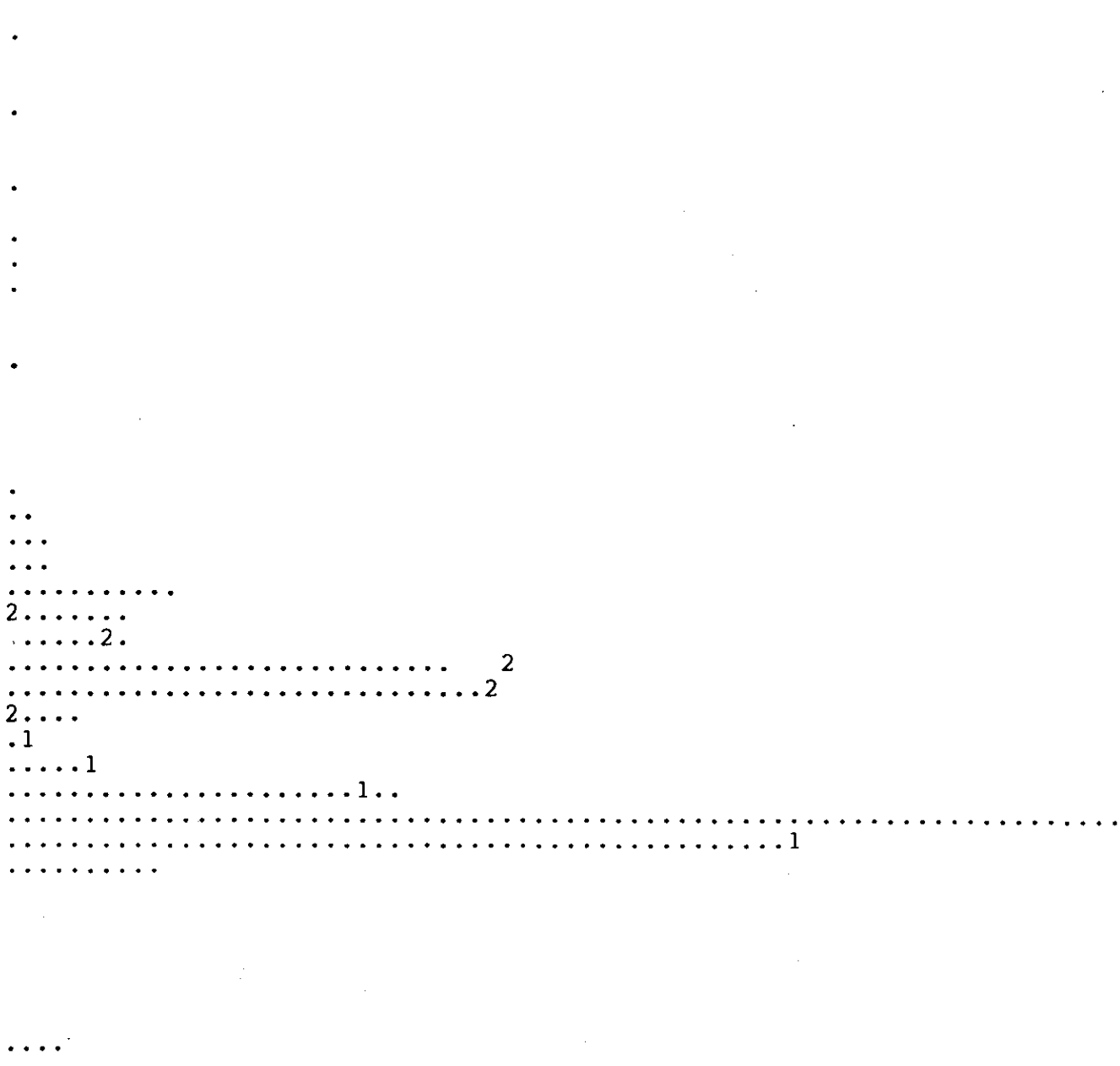
Analyzed by: ALJ

DATA NOT USED IN PACKAGE

WHC-SD-WM-DP-147, REV. 0

Spectrum 15a1586.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 72.1



DATA
NOT USED
IN PACKAGE

Raw Data Dump for AEA Spectrum: 15a1586.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.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
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.	1.	0.	0.	0.	0.	1.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
101	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
111	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
121	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
131	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.
141	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
151	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
161	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
181	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
191	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
201	1.	0.	0.	0.	0.	2.	0.	0.	2.	0.
211	0.	0.	0.	1.	0.	1.	0.	1.	0.	1.
221	1.	0.	0.	1.	0.	1.	1.	1.	3.	1.
231	2.	5.	2.	1.	0.	0.	1.	0.	2.	1.
241	0.	0.	3.	0.	2.	1.	1.	1.	1.	3.
251	2.	2.	4.	5.	6.	11.	7.	5.	9.	2.
261	4.	0.	1.	0.	2.	1.	1.	0.	0.	0.
271	0.	0.	0.	0.	1.	0.	1.	0.	0.	1.
281	0.	0.	1.	1.	0.	2.	1.	0.	4.	2.
291	0.	2.	5.	8.	5.	4.	5.	7.	8.	9.
301	11.	10.	7.	24.	15.	10.	6.	2.	2.	2.
311	4.	3.	2.	1.	0.	3.	0.	1.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
351	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
361	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
371	1.	1.	1.	2.	1.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	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	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

DATA NOT USED IN PACKAGE

Raymond 9-28-95

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
S95T2031-DUP
File ID: 16a1678.CNF

Counted on: 9/28/95 @14:37
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	86.4	86.4	300.879	300.879	12.000	4.284	6.000	2.613
2	58.5	58.5	255.607	255.605	10.000	3.294	5.000	2.149

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	Pu238	0.577	5.487	5.477	0.010	0.02	2.18	6.1	157.1	0.708E-04
	Am241		5.479	5.477	0.002				120.3	0.542E-04
2	Am243	0.352	5.270	5.269	0.001	0.02	1.33	7.8	69.6	0.314E-04
Totals:		0.929	<--valid peaks only-->				3.51			

DETECTOR CALIBRATION
Energy(MEV) = 4.093 + (0.0046)*Channel
Energy range (MeV): 4.093 TO 6.448
Efficiency = 0.0193 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	1815.0	100.000
Smoothed	1815.0	100.000
Composite fit	1686.9	92.943
Residuals	128.1	7.057

Analyzed by: _____
ALJ

DATA NOT USED IN PACKAGE

Spectrum 16a1678.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 563.8

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DATA NOT USED IN PACKAGE

Raw Data Dump for AEA Spectrum: 16a1678.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.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
101	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
111	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
121	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
131	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.
141	0.	0.	1.	0.	0.	0.	0.	2.	0.	0.
151	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
161	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	1.	0.	0.	1.	0.	0.	1.	0.
181	0.	0.	1.	0.	0.	0.	1.	0.	1.	0.
191	1.	0.	0.	0.	0.	0.	1.	1.	0.	2.
201	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
211	0.	1.	0.	0.	0.	1.	4.	2.	0.	1.
221	2.	1.	3.	1.	1.	0.	0.	3.	1.	6.
231	1.	7.	1.	4.	3.	2.	3.	2.	9.	5.
241	7.	9.	10.	9.	9.	15.	19.	26.	15.	25.
251	25.	43.	42.	59.	73.	71.	70.	41.	24.	10.
261	4.	5.	5.	4.	4.	5.	5.	4.	2.	6.
271	4.	1.	1.	4.	0.	2.	5.	4.	2.	7.
281	5.	7.	5.	2.	7.	13.	11.	21.	14.	14.
291	26.	29.	33.	32.	49.	37.	57.	68.	80.	99.
301	108.	96.	78.	42.	35.	15.	22.	8.	10.	5.
311	3.	3.	2.	3.	1.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
351	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
361	1.	0.	0.	0.	0.	1.	0.	1.	1.	0.
371	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
441	0.	0.	0.	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.								

DATA NOT USED IN PACKAGE

Raymond 9.28.95

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
S95T2039-SAM
File ID: 17a1771.CNF

Counted on: 9/28/95 @14:38
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	23.7	23.7	299.359	299.209	12.000	5.456	6.000	1.238
2	15.1	15.1	252.877	252.836	12.000	4.413	6.000	0.886

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	**Pu238**	**0.567**	**5.487**	**5.472**	**0.015**	**0.03**	**1.10**	**8.5**	**205.6**	**0.926E-04**
	Am241		**5.479**	**5.472**	**0.007**				**157.4**	**0.709E-04**
2	**Am243**	**0.383**	**5.270**	**5.258**	**0.012**	**0.02**	**0.74**	**11.1**	**101.1**	**0.455E-04**
Totals:		0.951	<--valid peaks only-->				1.84			

DETECTOR CALIBRATION
Energy(MEV) = 4.095 + (0.0046)*Channel
Energy range (MeV): 4.095 TO 6.450
Efficiency = 0.0074 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	927.0	100.000
Smoothed	927.0	99.99
Composite fit	881.1	95.04
Residuals	45.9	4.96

DATA NOT USED IN PACKAGE

Analyzed by: _____
ALJ

Spectrum 17a1771.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 152.5

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DATA
NOT USED
IN PACKAGE

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Raw Data Dump for AEA Spectrum: 17a1771.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
21	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
41	0.	0.	0.	1.	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.	1.	0.	1.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
101	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
111	0.	0.	0.	0.	1.	0.	1.	0.	1.	0.
121	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
131	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
141	1.	2.	0.	1.	1.	0.	0.	1.	1.	0.
151	1.	0.	1.	0.	1.	0.	0.	0.	0.	0.
161	1.	0.	1.	0.	1.	1.	0.	0.	1.	0.
171	0.	1.	0.	2.	0.	1.	0.	0.	0.	0.
181	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.
191	0.	2.	0.	1.	0.	2.	2.	0.	2.	2.
201	1.	4.	1.	1.	0.	1.	1.	0.	5.	0.
211	2.	3.	1.	0.	3.	2.	0.	4.	2.	4.
221	3.	1.	3.	2.	4.	5.	4.	6.	5.	4.
231	2.	4.	6.	3.	5.	7.	8.	3.	9.	10.
241	19.	9.	9.	13.	22.	9.	8.	10.	15.	15.
251	15.	18.	17.	21.	13.	16.	6.	6.	1.	7.
261	1.	2.	2.	4.	3.	1.	3.	4.	4.	7.
271	6.	5.	2.	5.	7.	5.	9.	3.	7.	12.
281	10.	8.	11.	8.	5.	12.	12.	15.	18.	18.
291	12.	19.	12.	19.	15.	21.	21.	23.	25.	29.
301	27.	12.	9.	10.	6.	4.	4.	4.	4.	2.
311	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
351	1.	1.	4.	0.	0.	0.	1.	1.	0.	1.
361	0.	0.	0.	0.	0.	2.	0.	1.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	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.								

DATA
NOT USED
IN PACKAGE

Raymond 9-28-95

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
S95T2039-DUP
File ID: 18a1809.CNF

Counted on: 9/28/95 @14:40
Detector: AEA18
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	16.5	16.5	304.145	301.619	12.000	4.322	6.000	2.449
2	9.7	9.7	257.439	255.959	10.000	3.778	5.000	1.638

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	Pu238	0.508	5.487	5.485	0.002	0.02	0.43	13.6	6.0	0.271E-05
	Am241		5.479	5.485	-.006				4.6	0.208E-05
2	Am243	0.330	5.270	5.275	-.005	0.02	0.28	16.9	2.8	0.128E-05
Totals:		0.838	<--valid peaks only-->				0.71			

DETECTOR CALIBRATION
Energy(MEV) = 4.097 + (0.0046)*Channel
Energy range (MeV): 4.097 TO 6.453
Efficiency = 0.0993 CPM/DPM

DATA NOT USED IN PACKAGE

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	407.0	100.000
Smoothed	407.0	99.996
Composite fit	341.1	83.820
Residuals	65.9	16.180

Analyzed by: _____
ALJ

Spectrum 18a1809.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 102.0

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DATA
NOT USED
IN PACKAGE

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Raw Data Dump for AEA Spectrum: 18a1809.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.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
91	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
101	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
111	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
121	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
131	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.
141	0.	0.	1.	0.	0.	2.	0.	1.	0.	1.
151	1.	0.	0.	1.	1.	0.	0.	0.	0.	0.
161	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
181	1.	0.	0.	0.	1.	0.	2.	0.	0.	0.
191	0.	0.	0.	1.	0.	0.	0.	2.	0.	0.
201	1.	1.	0.	0.	1.	0.	1.	0.	0.	0.
211	0.	0.	0.	0.	1.	2.	0.	1.	2.	0.
221	1.	1.	1.	1.	1.	2.	0.	1.	4.	3.
231	2.	1.	0.	2.	0.	1.	1.	0.	2.	3.
241	1.	4.	1.	1.	2.	3.	4.	10.	3.	9.
251	3.	8.	7.	7.	12.	11.	13.	8.	5.	3.
261	2.	0.	2.	0.	2.	0.	0.	0.	2.	0.
271	0.	1.	1.	0.	2.	1.	2.	2.	1.	3.
281	4.	0.	0.	1.	3.	2.	4.	3.	1.	4.
291	7.	8.	4.	6.	6.	6.	8.	9.	8.	19.
301	21.	20.	21.	8.	12.	5.	4.	4.	4.	0.
311	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
351	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
361	1.	1.	1.	0.	0.	0.	1.	0.	1.	0.
371	1.	2.	0.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

DATA NOT USED IN PACKAGE

WHC-SD-WM-DP-147, REV. 0

LABCORE Completed Worklist Report for Worklist# 2291

Analyst: akl **Instrument:** AM01 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: See chemist for sample size. --LLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@AM24101	AM24101	LIQUID	3.07E-02	2.63E-2	85.670	% Recovery
1	STD		0	@AM24101	AM24101E	LIQUID	1.00	1.40E+00	1.400	% Ct. Error
1	STD		0	@AM24101	AM24101T	LIQUID	100	7.66E+01	76.600	% Recovery
2	BLNK		0	@AM24101	AM24101	LIQUID	1	<2.11E-3		uCi/mL
2	BLNK		0	@AM24101	AM24101E	LIQUID	1.00	1.00E+02	100.000	% Ct. Error
2	BLNK		0	@AM24101	AM24101T	LIQUID	100	1.10E+01	11.000	% Recovery
3	SAMPLE	S95T002017	0	@AM24101	AM24101	LIQUID	N/A <	1.09E-03	1.090e-003	uCi/mL
3	SAMPLE	S95T002017	0	@AM24101	AM24101E	LIQUID	N/A	1.00E+02	0.000	% Ct. Error
3	SAMPLE	S95T002017	0	@AM24101	AM24101T	LIQUID	N/A	1.46E+01	1.000e-007	% Recovery

Final page for worklist# 2291

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

LJ Fitts 22 Sep 95
Reviewer Signature **Date**

DATA
NOT USED
IN PACKAGE

NOT USED IN
FINAL RESULTS

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

20

LABCORE Data Entry Template for Worklist# 2291

Analyst: AKL **Instrument:** AM01 _____ **Book #** 104543

Method: LA-953-103 Rev/Mod _____

Worklist Comment: See chemist for sample size. --LLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@AM24101 AM24101	LIQUID			N/A	uCi/mL
		1	STD				@AM24101 AM24101E	LIQUID			N/A	% Ct. Error
		1	STD				@AM24101 AM24101T	LIQUID			N/A	% Recovery
		2	BLNK				@AM24101 AM24101	LIQUID			N/A	uCi/mL
		2	BLNK				@AM24101 AM24101E	LIQUID			N/A	% Ct. Error
		2	BLNK				@AM24101 AM24101T	LIQUID			N/A	% Recovery
95000126	AW-106 GRAB	3	SAMPLE	S95T002017	0		@AM24101 AM24101	LIQUID	N/A			uCi/mL
95000126	AW-106 GRAB	3	SAMPLE	S95T002017	0		@AM24101 AM24101E	LIQUID	N/A			% Ct. Error
95000126	AW-106 GRAB	3	SAMPLE	S95T002017	0		@AM24101 AM24101T	LIQUID	N/A			% Recovery

Final page for worklist # 2291

A Lewis 9/20/95
Analyst Signature **Date**

C.J. Opinn 9-20-95
Analyst Signature **Date**

NOT USED IN FINAL RESULTS

Data Entry Comments:

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.

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (A-3) LIQUID

							STD
	Date Counted		SEP-20-95	Am 241 AEA Frac.	(C241)		0.356
STD	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.568
	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)		0
2291	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			18791
	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)		5
	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			56.91
LIQUID	Detector Number		1	Am 243 cpm			106.71
	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95002405	Standard Book No		104B43	AEA Count Time	(min)		480
	Standard Value in µCi/mL		0.03067	Am 241 µCi/L =			2.6274E+01
0				Cm 243/244 µCi/L =		<	4.8168E+00

N/A

Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

WORKLIST2291-STD

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

AL10539

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

CJO

LLF

AKL

09/21/95

09/20/95

02:50 PM

AW-106

Am 241 µCi/mL	=	2.63E-02	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	1.4%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241 4.82E-03
Cm 243/244 µCi/mL		< 4.82E-03	
Relative Counting Error	=	100.0%	Cm 243/244 4.82E-03
Am 243 Tracer Recovery	=	76.6%	

Analyst:	AKL	Date:	09/21/95
Signature of Chemist:	LLF	Date:	21 Sep 95

STANDARD.WB1 REV 1.2 953103ML

NOT USED IN FINAL RESULTS

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (A-3) LIQUID / SOLID

	Date Counted		SEP-20-95	Am 241 AEA Frac.	(C241)	BLNK	0
BLNK	Sample Volume in mL	(SS)	0.100	Am 243 AEA Frac.	(C243)		0.896
	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)		0
2291	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			1757
	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)		2
	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			0
LIQUID	Detector Number		2	Am 243 cpm			15.98
	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95002405				AEA Count Time	(min)		480
				Am 241 µCi/L =		<	2.1053E+00
0				Cm 243/244 µCi/L =		<	2.1053E+00
N/A							

Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

WORKLIST2291-BLAN

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

AL10540

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

CJO

NOTE: Am-241 Result is a LESS THAN Value.

LLF

Am 241 µCi/mL	=	< 2.11E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	100.0%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/mL		< 2.11E-03	2.11E-03
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	11.0%	2.11E-03

AKL

09/21/95

09/20/95

02:00 PM

AW-108

Analyst:	AKL	Date:	09/21/95
Signature of Chemist:	LLF	Date:	21 Sep 95

BLANK.WB1 REV 1.2 953103ML

NOT USED IN FINAL RESULTS

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (A-3) LIQUID / SOLID

							SAMPLE
	Date Counted		SEP-20-95	Am 241 AEA Frac.	(C241)		0
SAMPLE	Sample Volume in mL	(SS)	0.100	Am 243 AEA Frac.	(C243)		1.296
	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)		0
2291	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			1681
	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)		4
	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			0
LIQUID	Detector Number		3	Am 243 cpm			21.63
	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95002405				AEA Count Time	(min)		480
				Am 241 µCi/L =		<	1.0939E+00
0				Cm 243/244 µCi/L =		<	1.0939E+00

N/A

Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

S95T002017 Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

AL10541

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

CJO

NOTE: Am-241 Result is a LESS THAN Value.

LLF

Am 241 µCi/mL	=	< 1.09E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	100.0%	
			Am 241 1.09E-03
NOTE: Cm-243/244 Result is a LESS THAN Value.			
Cm 243/244 µCi/mL		< 1.09E-03	
Relative Counting Error	=	100.0%	Cm 243/244 1.09E-03
Am 243 Tracer Recovery	=	14.6%	

AKL

09/21/95

09/20/95

02:00 PM

AW-108

Analyst:	AKL	Date:	09/21/95
Signature of Chemist:	LLF	Date:	21 Sep 95

SAMPLE.WB1 REV 1.2 953103ML

NOT USED IN FINAL RESULTS

LABCORE Completed Worklist Report for Worklist# 2355

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

Method: LA-365-133 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** 10/16/95

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

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

C Lewis 10/12/95 14:00
Analyst Signature **Date**

Jennifer J Slaughter 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.

54-9000-101 (9-89)

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

Worklist 2355

DATE 10/13/95

TO Sr 79 calculations FROM J. L. Stripper

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 (88.17650)/(2.22E6)(.8490)(1) = ~~2~~ 10/13/95 4.68 E-5 µCi/m

LD = 2.72/50 + 2 (2.33 $\sqrt{43.74/50}$)

= 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"

USER: 2 ID:C-14: SE-79 PRESET TIME: 50.00 THU 12 OCT 1995 18:03
SAMPLE REPEAT: 1 CYCLE REPEAT: 1 SCR:N RS232:N
H#: 1 ADC: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

UNKNOWN ID:C14 OR SE79. LS5801 UNKNOWN REPLICATES: 1
UNKNOWN NORM FACTOR ISO1:0 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 # 23355

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

DATE 10-12-95

TO Counting Room FROM Alita Hurson

WHC-SD-WM-DP-147, REV. 0

Blank: w_2: .7775
w_1: .7610

595T 2017: w_2: .7862
w_1: .7682

595T 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. Skipper

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 (88.17650)/(2.22E6)(.8490)(1) = 4.68 E-5 µCi/mL

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

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# 2484

Analyst: dgg **Instrument:** U01 **Book#** 138B52

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

Worklist Comment:

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		BU-01	U-02	SOLID	8.44E-02	8.17E-02	96.800	% Recovery
2	BLNK-PREP		0		BU-01	U-02	SOLID	1	1.48E+00	1.480	ug/g
3	SAMPLE	S95T002021	0	F	BU-01	U-02	SOLID	N/A	1.04E+03	1.640e-002	ug/g
3	SAMPLE	S95T002021	0	F	BU-01	U-02E	SOLID	N/A	3.09E+00	0.000	% Inst Error
4	DUP	S95T002021	0	F	BU-01	U-02	SOLID	1.04E+03	1.14E+03	9.170	RPD
5	SPK	S95T002021	0	F	BU-01	U-02	SOLID	5.69E+01	9.00E+01	158.170	% Recovery
6	SAMPLE	S95T002037	0	F	BU-01	U-02	SOLID	N/A	1.70E+03	1.680e-002	ug/g
6	SAMPLE	S95T002037	0	F	BU-01	U-02E	SOLID	N/A	3.17E+00	0.000	% Inst Error
7	DUP	S95T002037	0	F	BU-01	U-02	SOLID	1.70E+03	1.71E+03	0.590	RPD
8	SPK	S95T002037	0	F	BU-01	U-02	SOLID	5.69E+01	1.02E+02	179.260	% Recovery

Final page for worklist# 2484

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

10/13/95
Reviewer Signature **Date**

Spike recovery high due to high amounts of uranium in sample. RPD % between sample and duplicate within limits.

10/13/95.

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

LABCORE Data Entry Template for Worklist# 2484

Analyst: DGG **Instrument:** U01 **Book #** 138B52

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

Worklist Comment:

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST		MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				aU-01	U-02	SOLID			N/A	ug/g
		2	BLNK-PREP				aU-01	U-02	SOLID			N/A	ug/g
95000126	AW-106 GRAB	3	SAMPLE	S95T002021	0	F	aU-01	U-02	SOLID	N/A			ug/g
95000126	AW-106 GRAB	3	SAMPLE	S95T002021	0	F	aU-01	U-02E	SOLID	N/A			% Inst Error
95000126	AW-106 GRAB	4	DUP	S95T002021	0	F	aU-01	U-02	SOLID			N/A	ug/g
95000126	AW-106 GRAB	5	SPK	S95T002021	0	F	aU-01	U-02	SOLID			N/A	ug/g
95000126	AW-106 GRAB	6	SAMPLE	S95T002037	0	F	aU-01	U-02	SOLID	N/A			ug/g
95000126	AW-106 GRAB	6	SAMPLE	S95T002037	0	F	aU-01	U-02E	SOLID	N/A			% Inst Error
95000126	AW-106 GRAB	7	DUP	S95T002037	0	F	aU-01	U-02	SOLID			N/A	ug/g
95000126	AW-106 GRAB	8	SPK	S95T002037	0	F	aU-01	U-02	SOLID			N/A	ug/g

Final page for worklist # 2484

10-10-95
Analyst Signature **Date**

10-12-95
Analyst Signature **Date**

Data Entry Comments:

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.

Uranium Data Collection Sheet

Download File Name: I:\925009\IN\2484.TXT ~~3-Digit~~ Output Name: 2484

Spike Book Number: 22B55 Spike Volume: .100 ml Date/Time: 10-10-95 / 1445

Sample Type	Sample Number	Sample Size	Preparation Factor	Dilution Factor	Digest Factor	Comments
STD	138B52	1.0 ml	10 → 10			
BLNK	BLNK-Prep	1.0 ml	10 → 10			
SAM	595T00-2021	1.0 ml	10 → 10			
DUP	595T00-2021	1.0 ml	10 → 10			
SPK	595T00-2021	1.0 ml	10 → 10			
SAM	595T00-2037	1.0 ml	10 → 10			
DUP	595T00-2037	1.0 ml	10 → 10			
SPK	595T00-2037	1.0 ml	10 → 10			
SAM						
DUP						
SAM						
DUP						
SAM						

URANIUM ANALYSIS

Sample ID 138B52
Description LMCS STD.
Ref. Ratio .868
Laser Pulses 500
Lifetime 208 + .975 us
R2 .9991
Integrated 89735
Range: HIGH

Date/Time 10/10/95/10:31:33
Cal Y=8.70E+07X+329.121
Intensity 5842 (t= 39 us)
Conc 8.17E-05 + 2.59E-06 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 8.17E-05 + 2.59E-06 ug/L

Sample ID BLANK PREP.
Description AW-106 GRAB
Ref. Ratio .878
Laser Pulses 500
Lifetime 135 + .258 us
R2 .9998
Integrated 156348
Range: LOW

Date/Time 10/10/95/10:36:41
Cal Y=6.40E+09X0
Intensity 14782 (t= 39 us)
Conc 3.34E-06 + 4.12E-08 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 3.34E-06 + 4.12E-08 ug/L

Sample ID S95T002021
Description AW-106 GRAB
Ref. Ratio .893
Laser Pulses 500
Lifetime 177 + .297 us
R2 .9999
Integrated 795269
Range: HIGH

Date/Time 10/10/95/10:40:14
Cal Y=8.70E+07X+329.121
Intensity 58771 (t= 208 us)
Conc 2.35E-03 + 7.27E-05 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 2.35E-03 + 7.27E-05 ug/L

Sample ID S95T002021DUP
Description AW-106 GRAB
Ref. Ratio .878
Laser Pulses 500
Lifetime 154 + .247 us
R2 .9999
Integrated 704939
Range: HIGH

Date/Time 10/10/95/10:43:58
Cal Y=8.70E+07X+329.121
Intensity 58138 (t= 195 us)
Conc 2.59E-03 + 8.01E-05 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 2.59E-03 + 8.01E-05 ug/L

Sample ID S95T002021SPK
Description AW-106 GRAB
Ref. Ratio .895
Laser Pulses 500
Lifetime 177 + .31 us
R2 .9999
Integrated 767502
Range: HIGH

Date/Time 10/10/95/10:46:39
Cal Y=8.70E+07X+329.121
Intensity 56923 (t= 273 us)
Conc 3.25E-03 + 1.01E-04 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 3.25E-03 + 1.01E-04 ug/L

Sample ID S95T002037
Description AW-106 GRAB
Ref. Ratio .888
Laser Pulses 500
Lifetime 153 + .339 us
R2 .9998
Integrated 656430
Range: HIGH

Date/Time 10/10/95/10:51:12
Cal Y=8.70E+07X+329.121
Intensity 55591 (t= 260 us)
Conc 3.75E-03 + 1.19E-04 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 3.75E-03 + 1.19E-04 ug/L

URANIUM ANALYSIS

Sample ID S95T002037SPK	Date/Time 10/10/95/13:32:33
Description AW-106 GRAB	Cal Y=8.70E+07X+329.121
Ref. Ratio .853	Intensity 58788 (t= 286 us)
Laser Pulses 500	Conc 4.77E-03 + 1.48E-04 ug/L
Lifetime 152 + .239 us	Dilution Factor 1 mL/mL
R2 .9999	
Integrated 696297	FINAL RESULT 4.77E-03 + 1.48E-04 ug/L
Range: HIGH	

Sample ID S95T002037DUP	Date/Time 10/10/95/10:53:51
Description AW-106 GRAB	Cal Y=8.70E+07X+329.121
Ref. Ratio .893	Intensity 57635 (t= 273 us)
Laser Pulses 500	Conc 3.78E-03 + 1.19E-04 ug/L
Lifetime 163 + .354 us	Dilution Factor 1 mL/mL
R2 .9998	
Integrated 721663	FINAL RESULT 3.78E-03 + 1.19E-04 ug/L
Range: HIGH	

WORKBOOK PAGE: STD1

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

STD			STANDARD
	STANDARD BOOK #		138B52
2484	VOLUME OF SAMPLE (mL)	(SS)	1.00
	DILUTION FACTOR OF SAMPLE	(DF)	1.00
@U-01	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
	LIFETIME IN MICROSECONDS		208.00
LIQUID	R2 VALUE		0.9991
	RANGE (HIGH OR LOW)		HIGH
95002631	INSTRUMENT UNCERTAINTY	(IU)	2.59E-06
	INSTRUMENT RESULT	(IR)	8.17E-05
0	DETECTION LEVEL (µg/mL)		3.70E-05
N/A	RESULT (µg/mL)		8.17E-02
	VALUE OF STANDARD		8.44E-02
138B52	%RECOVERY		96.80
	RELATIVE % UNCERTAINTY		3.2
N/A			
RCJ	Result = DF * PF * IR * 1000		
JLS	Detection Level = 3.70 E-08 * DF * PF * 1000		
DGG	% Recovery = Result / Value of Standard * 100		
10/12/95	Relative % Uncertainty = IU / IR * 100		
10/10/95			
01:32 PM			
AW-106 GRAB			

Analyst:	DGG	Date:	12-Oct-95
Signature of Chemist:	JLS	Date:	10/12/95

STANDARD.WB1 REV 1.2 925009ML

WORKBOOK PAGE: BLANK2

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

BLNK-PREP			BLANK
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2484	DILUTION FACTOR OF SAMPLE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
@U-01	DIGEST FACTOR	(Dg/L)	2.2620
	LIFETIME IN MICROSECONDS		135.00
SOLID	R2 VALUE		0.9998
	RANGE (HIGH OR LOW)		LOW
95002631	INSTRUMENT UNCERTAINTY	(IU)	4.12E-08
	INSTRUMENT RESULT	(IR)	3.34E-06
0	DETECTION LEVEL µg/g		1.64E-02
N/A	CONCENTRATION IN SOLUTION (g/L)		3.34E-06
	RESULT (µg/g)		1.48E+00
BLANK	RELATIVE % UNCERTAINTY		1.2
N\A			
RCJ			
JLS			
DGG			
10/12/95			
10/10/95			
01:32 PM			
AW-106 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:	12-Oct-95
Signature of Chemist:	JLS	Date:	10/13/95

BLANK.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM3

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

SAMPLE			SAMPLE
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2484	DILUTION FACTOR OF SAMPLE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
@U-01	DIGEST FACTOR	(Dg/L)	2.2620
	LIFETIME IN MICROSECONDS		177.00
SOLID	R2 VALUE		0.9999
	RANGE (HIGH OR LOW)		HIGH
95002631	INSTRUMENT UNCERTAINTY	(IU)	7.27E-05
	INSTRUMENT RESULT	(IR)	2.35E-03
0	DETECTION LEVEL µg/g		1.64E-02
FUSION01	CONCENTRATION IN SOLUTION (g/L)		2.35E-03
	RESULT (µg/g)		1.04E+03
S95T002021	RELATIVE % UNCERTAINTY		3.1
N\A			
	Result = Conc. in Solution (g/L) * 1000000 / Dg/L		
RCJ			
	Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF		
JLS			
	Relative % Uncertainty = IU / IR * 100		
DGG			
	Concentration in Solution (g/L) = IR * DF * PF		
10/12/95			
10/10/95			
01:32 PM			
AW-106 GRAB			

Analyst:	DGG	Date:	12-Oct-95
Signature of Chemist:	JLS	Date:	10/13/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: DUP4

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

DUP			DUP
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2484	DILUTION FACTOR OF SAMPLE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
@U-01	DIGEST FACTOR	(Dg/L)	2.2628
	LIFETIME IN MICROSECONDS		154.00
SOLID	R2 VALUE		0.9999
	RANGE (HIGH OR LOW)		HIGH
95002631	INSTRUMENT UNCERTAINTY	(IU)	8.01E-05
	INSTRUMENT RESULT	(IR)	2.59E-03
0	DETECTION LEVEL µg/g		1.64E-02
FUSION01	CONCENTRATION IN SOLUTION (g/L)		2.59E-03
	RESULT (µg/g)		1.14E+03
S95T002021	RELATIVE % UNCERTAINTY		3.1
N\A			
	Result = Conc. in Solution (g/L) * 1000000 / Dg/L		
RCJ			
	Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF		
JLS			
	Relative % Uncertainty = IU / IR * 100		
DGG			
	Concentration in Solution (g/L) = IR * DF * PF		
10/12/95			
10/10/95			
01:32 PM			
AW-106 GRAB			

Analyst:	DGG	Date:	12-Oct-95
Signature of Chemist:	JLS	Date:	10/13/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SPIKE5

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

			SPIKE
SPK	SPIKE BOOK #		22B55
	VOLUME OF SAMPLE + SPIKE (mL)	(SS)	1.00
2484	DILUTION FACTOR OF SAMPLE + SPIKE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF)	1.00
@U-01	DIGEST FACTOR OF SAMPLE	(DDF)	2.2620
	LIFETIME IN MICROSECONDS		177.00
SOLID	R2 VALUE		0.9999
	RANGE (HIGH OR LOW)		HIGH
95002631	INSTRUMENT RESULT	(IR)	3.25E-03
	CONCENTRATION IN SOLUTION (g/L)	(CONC)	3.25E-03
0	SPIKE VALUE (g/L)	(SV)	5.69E-02
	INITIAL VOLUME OF SPIKE (mL)	(IV)	0.10
FUSION01	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV)	10.00
	CONCENTRATION IN SOLUTION (g/L) FROM SAMPLE FO	(SR)	2.35E-03
S95T002021			
N\A	Concentration = IR * DF * PF		
RCJ	QC Actual (µg/mL) = SV (g/L) * 1000		
JLS	QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000		
DGG	% Recovery = QC FOUND / QC ACTUAL		
10/12/95			
10/10/95	QC ACTUAL	=	5.69E+01 µg/mL
	QC FOUND	=	9.00E+01 µg/mL
01:32 PM	% SPIKE RECOVERY	=	158.2%
AW-106 GRAB			

Analyst:	DGG	Date:	12-Oct-95
Signature of Chemist:	JLS	Date:	10/13/95

SPIKE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM6

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

SAMPLE			SAMPLE
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2484	DILUTION FACTOR OF SAMPLE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
@U-01	DIGEST FACTOR	(Dg/L)	2.2012
	LIFETIME IN MICROSECONDS		153.00
SOLID	R2 VALUE		0.9998
	RANGE (HIGH OR LOW)		HIGH
95002631	INSTRUMENT UNCERTAINTY	(IU)	1.19E-04
	INSTRUMENT RESULT	(IR)	3.75E-03
0	DETECTION LEVEL µg/g		1.68E-02
FUSION01	CONCENTRATION IN SOLUTION (g/L)		3.75E-03
	RESULT (µg/g)		1.70E+03
S95T002037	RELATIVE % UNCERTAINTY		3.2
N\A			
	Result = Conc. in Solution (g/L) * 1000000 / Dg/L		
RCJ			
	Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF		
JLS			
	Relative % Uncertainty = IU / IR * 100		
DGG			
	Concentration in Solution (g/L) = IR * DF * PF		
10/12/95			
10/10/95			
01:32 PM			
AW-106 GRAB			

Analyst:	DGG	Date:	12-Oct-95
Signature of Chemist:	JLS	Date:	10/13/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: DUP7

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

DUP			DUP
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2484	DILUTION FACTOR OF SAMPLE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
@U-01	DIGEST FACTOR	(Dg/L)	2.2148
	LIFETIME IN MICROSECONDS		163.00
SOLID	R2 VALUE		0.9998
	RANGE (HIGH OR LOW)		HIGH
95002631	INSTRUMENT UNCERTAINTY	(IU)	1.19E-04
	INSTRUMENT RESULT	(IR)	3.78E-03
0	DETECTION LEVEL µg/g		1.67E-02
FUSION01	CONCENTRATION IN SOLUTION (g/L)		3.78E-03
	RESULT (µg/g)		1.71E+03
S95T002037	RELATIVE % UNCERTAINTY		3.1
N\A			
	Result = Conc. in Solution (g/L) * 1000000 / Dg/L		
RCJ			
	Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF		
JLS			
	Relative % Uncertainty = IU / IR * 100		
DGG			
	Concentration in Solution (g/L) = IR * DF * PF		
10/12/95			
10/10/95			
01:32 PM			
AW-106 GRAB			

Analyst:	DGG	Date:	12-Oct-95
Signature of Chemist:	JLS	Date:	10/13/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SPIKE8

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

			SPIKE
SPK	SPIKE BOOK #		22B55
	VOLUME OF SAMPLE + SPIKE (mL)	(SS)	1.00
2484	DILUTION FACTOR OF SAMPLE + SPIKE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF)	1.00
@U-01	DIGEST FACTOR OF SAMPLE	(DDF)	2.2012
	LIFETIME IN MICROSECONDS		152.00
SOLID	R2 VALUE		0.9999
	RANGE (HIGH OR LOW)		HIGH
95002631	INSTRUMENT RESULT	(IR)	4.77E-03
	CONCENTRATION IN SOLUTION (g/L)	(CONC)	4.77E-03
0	SPIKE VALUE (g/L)	(SV)	5.69E-02
	INITIAL VOLUME OF SPIKE (mL)	(IV)	0.10
FUSION01	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV)	10.00
	CONCENTRATION IN SOLUTION (g/L) FROM SAMPLE FO	(SR)	3.75E-03
S95T002037			
N\A	Concentration = IR * DF * PF		
RCJ	QC Actual (µg/mL) = SV (g/L) * 1000		
JLS	QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000		
DGG	% Recovery = QC FOUND / QC ACTUAL		
10/12/95			
10/10/95	QC ACTUAL	=	5.69E+01 µg/mL
	QC FOUND	=	1.02E+02 µg/mL
01:32 PM	% SPIKE RECOVERY	=	179.3%
AW-106 GRAB			

Analyst:	DGG	Date:	12-Oct-95
Signature of Chemist:	JLS	Date:	10/13/95

SPIKE.WB1 REV 1.2 925009ML

AW/CG

LABCORE Completed Worklist Report for Worklist# 2721

Analyst: smf **Instrument:** U01 **Book#** 138853

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

WHC-SD-WM-DP-147, REV. 0

Worklist Comment: 1-10 ml sample prep / jls

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@U-01	U-02	LIQUID	8.44E-02	7.94E-02	94.080	% Recovery
2	BLNK		0	@U-01	U-02	LIQUID	1	2.90E-03	0.000	ug/mL
3	SAMPLE	S95T002017	0	@U-01	U-02	LIQUID	N/A	7.11E+01	4.480e-002	ug/mL
3	SAMPLE	S95T002017	0	@U-01	U-02E	LIQUID	N/A	4.17E+00	0.000	% Inst Error
4	SAMPLE	S95T002031	0	@U-01	U-02	LIQUID	N/A	2.88E+01	4.480e-002	ug/mL
4	SAMPLE	S95T002031	0	@U-01	U-02E	LIQUID	N/A	1.26E+00	0.000	% Inst Error
5	DUP	S95T002031	0	@U-01	U-02	LIQUID	2.88E+01	2.67E+01	7.570	RPD
6	SPK	S95T002031	0	@U-01	U-02	LIQUID	5.69E+01	3.39E+01	59.580	% Recovery
7	SAMPLE	S95T002039	0	@U-01	U-02	LIQUID	N/A	2.86E+01	4.480e-002	ug/mL
7	SAMPLE	S95T002039	0	@U-01	U-02E	LIQUID	N/A	1.30E+00	0.000	% Inst Error
8	DUP	S95T002039	0	@U-01	U-02	LIQUID	2.86E+01	3.34E+01	15.480	RPD
9	SPK	S95T002039	0	@U-01	U-02	LIQUID	ERR	0.00E+00		% Recovery

Comments Section:

gs 10-11-95 These comments pertained to original analysis.

Comments for sample# S95T002017 **and test** @U-01
Technician did not include sample result with raw instrument data - result marked "nr" for "no result" / sample will be rerun / jls

Comments for sample# S95T002031 **and test** @U-01 .
Technician did not document sample size - results marked "nr" for "no result" / sample will be rerun / jls

Comments for sample# S95T002039 **and test** @U-01 .
Technician used wrong solution for spike - recovery value marked as "nr" for "no result" / sample will be rerun / jls

No spike recovery on S95T002039 due to insufficient sample. Low spike recovery on S95T002031 acceptable.

Final page for worklist# 2721

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

Jennifer L. Seppens 10/11/95
Reviewer Signature **Date**

Results for sample S95T002031 not used from this worklist. Will rerun once more to try to get better spk. recovery. RGE 10/18/95

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

LABCORE Data Entry Template for Worklist# 2721

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

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

Worklist Comment: 1-10 ml sample prep / jls WHC-SD-WM-DP-147, REV. 0

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@U-01	LIQUID	10ml → 10ml	
2	BLNK				@U-01	LIQUID	10ml → 10ml	
3	SAMPLE	S95T002017	0		@U-01	LIQUID	95000126	AW-106 GRAB
		Analytes Requested:			U-02	, U-02E		
4	SAMPLE	S95T002031	0		@U-01	LIQUID	95000126	AW-106 GRAB
		Analytes Requested:			U-02	, U-02E		
5	DUP	S95T002031	0		@U-01	LIQUID		
6	SPK	S95T002031	0		@U-01	LIQUID	+ .100ml #22B55	
7	SAMPLE	S95T002039	0		@U-01	LIQUID	95000126	AW-106 GRAB
		Analytes Requested:			U-02	, U-02E		
8	DUP	S95T002039	0		@U-01	LIQUID	— insufficient sample	
9	SPK	S95T002039	0		@U-01	LIQUID	" "	

Final page for worklist # 2721

Susie M. Dalton
Analyst Signature **Date**

Rob Kim 10-6-95
Analyst Signature **Date**
10-11-95

Data Entry Comments:

S95T002035 DUP — 0.5 ml - 10ml prep. SMF

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

Sample ID [illegible]
Description ~~[illegible]~~ RK AW-106
Ref. Ratio 1.03
Laser Pulses 500
Lifetime 164 + 1.363 us
R2 .9976
Integrated 83007
Range: HIGH

Date/Time 10/06/95/10:14:06
Cal Y=8.73E+07X+1008.074
Intensity 3594 (t= 39 us)
Conc 7.94E-05 + 2.73E-06 G/L
Dilution Factor 1 mL/mL

FINAL RESULT 7.94E-05 + 2.73E-06 G/L

Sample ID BLANK
Description ~~[illegible]~~ AW-106
Ref. Ratio 1.03
Laser Pulses 500
Lifetime + us
R2
Integrated 0
Range: HIGH
Sample <= Blank

Date/Time 10/06/95/10:24:20
Cal Y=8.73E+07X+1008.074
Intensity -430 (t= 39 us)
Conc + G/L
Dilution Factor X mL/mL

FINAL RESULT

Sample ID BLANK
Description ~~[illegible]~~ RK AW-106
Ref. Ratio 1.019
Laser Pulses 500
Lifetime 188 + .456 us
R2 .9997
Integrated 223238
Range: LOW

Date/Time 10/06/95/10:25:01
Cal Y=7.14E+09X0
Intensity 15336 (t= 39 us)
Conc 2.90E-06 + 3.64E-08 G/L
Dilution Factor 1 mL/mL

FINAL RESULT 2.90E-06 + 3.64E-08 G/L

Sample ID 595T002017
Description ~~[illegible]~~ RK AW-106
Ref. Ratio 1.024
Laser Pulses 500
Lifetime + us
R2
Integrated 0
Range: LOW
Sample <= Blank

Date/Time 10/06/95/11:20:48
Cal Y=7.14E+09X0
Intensity -228 (t= 39 us)
Conc + G/L
Dilution Factor X mL/mL

FINAL RESULT

Sample ID 595T002017
Description ~~[illegible]~~ RK AW-106
Ref. Ratio 1.047
Laser Pulses 500
Lifetime 154 + 1.768 us
R2 .9944
Integrated 51424
Range: HIGH

Date/Time 10/06/95/11:24:32
Cal Y=8.73E+07X+1008.074
Intensity 3923 (t= 39 us)
Conc 5.88E-05 + 2.45E-06 G/L
Dilution Factor 1 mL/mL

1-10-1-10

FINAL RESULT 5.88E-05 + 2.45E-06 G/L

Sample ID S95T002031 Date/Time 10/06/95/11:44:03
Description U-01 Cal Y=8.73E+07X+1008.074
Ref. Ratio 1.049 Intensity 1118 (t= 39 us)
Laser Pulses 500 Conc 1.00E-05 + 6.76E-07 G/L
Lifetime 172 + 4.71 us Dilution Factor 1 mL/mL
R2 .9689
Integrated 17779 FINAL RESULT 1.00E-05 + 6.76E-07 G/L
Range: HIGH

Sample ID S95T002031 Date/Time 10/06/95/11:44:44
Description RK ~~U-01~~ AW-106 Cal Y=7.14E+09X0
Ref. Ratio 1.028 Intensity 49479 (t= 286 us)
Laser Pulses 500 Conc 2.38E-05 + 3.01E-07 G/L
Lifetime 242 + .517 us Dilution Factor 1 mL/mL
R2 .9998
Integrated 860637 FINAL RESULT 2.38E-05 + 3.01E-07 G/L
Range: LOW

1-10-1-10

Sample ID S95T002031 Date/Time 10/06/95/11:56:54
Description RK ~~U-01 DUP~~ AW-106 Dup. Cal Y=8.73E+07X+1008.074
Ref. Ratio 1.058 Intensity 1006 (t= 39 us)
Laser Pulses 500 Conc 7.61E-06 + 3.99E-07 G/L
Lifetime 189 + 4.006 us Dilution Factor 1 mL/mL
R2 .981
Integrated 17788 FINAL RESULT 7.61E-06 + 3.99E-07 G/L
Range: HIGH

Sample ID S95T002031 Date/Time 10/06/95/11:57:35
Description RK ~~U-01 DUP~~ AW-106 Dup. Cal Y=7.14E+09X0
Ref. Ratio 1.039 Intensity 50081 (t= 273 us)
Laser Pulses 500 Conc 2.21E-05 + 3.03E-07 G/L
Lifetime 250 + .766 us Dilution Factor 1 mL/mL
R2 .9996
Integrated 894890 FINAL RESULT 2.21E-05 + 3.03E-07 G/L
Range: LOW

1-10-1-10

Sample ID S95T002031 Date/Time 10/06/95/13:13:58
Description RK ~~U-01~~ SPIKE AW-106 Cal Y=8.73E+07X+1008.074
Ref. Ratio 1.038 Intensity 1380 (t= 39 us)
Laser Pulses 500 Conc 1.95E-05 + 1.66E-06 G/L
Lifetime 137 + 3.992 us Dilution Factor 1 mL/mL
R2 .9655
Integrated 18723 FINAL RESULT 1.95E-05 + 1.66E-06 G/L
Range: HIGH

Sample ID S95T002031 Date/Time 10/06/95/13:14:39
Description ~~U-04~~ SPIKE AW-106 Cal Y=7.14E+09X0
Ref. Ratio 1.035 Intensity 50433 (t= 260 us)
Laser Pulses 500 Conc 2.66E-05 + 3.42E-07 G/L
Lifetime 208 + .411 us Dilution Factor 1 mL/mL
R2 .9998
Integrated 790269 FINAL RESULT 2.66E-05 + 3.42E-07 G/L
Range: LOW

1-10-1-10

Sample ID S95T002039 Date/Time 10/06/95/13:39:11
Description AW-106 Cal Y=8.73E+07X+1008.074
Ref. Ratio 1.044 Intensity 1054 (t= 39 us)
Laser Pulses 500 Conc 1.65E-05 + 1.93E-06 G/L
Lifetime 125 + 5.16 us Dilution Factor 1 mL/mL
R2 .9389
Integrated 14652 FINAL RESULT 1.65E-05 + 1.93E-06 G/L
Range: HIGH

Sample ID S95T002039 Date/Time 10/06/95/13:39:56
Description AW-106 Cal Y=7.14E+09X0
Ref. Ratio 1.023 Intensity 48747 (t= 247 us)
Laser Pulses 500 Conc 2.36E-05 + 3.06E-07 G/L
Lifetime 208 + .452 us Dilution Factor 1 mL/mL
R2 .9998
Integrated 751176 FINAL RESULT 2.36E-05 + 3.06E-07 G/L
Range: LOW

1-10-1-10

Sample ID S95T002039 Date/Time 10/06/95/13:59:41
Description AW-106 DUP Cal Y=8.73E+07X+1008.074
Ref. Ratio 1.065 Intensity 392 (t= 39 us)
Laser Pulses 500 Conc 3.27E-07 + 7.30E-08 G/L
Lifetime 83 + 8.237 us Dilution Factor 1 mL/mL
R2 .8558
Integrated 3436 FINAL RESULT 3.27E-07 + 7.30E-08 G/L
Range: HIGH

Sample ID S95T002039 Date/Time 10/06/95/14:00:37
Description AW-106 DUP Cal Y=7.14E+09X0
Ref. Ratio 1.045 Intensity 49402 (t= 117 us)
Laser Pulses 500 Conc 1.38E-05 + 1.77E-07 G/L
Lifetime 186 + .401 us Dilution Factor 1 mL/mL
R2 .9998
Integrated 694615 FINAL RESULT 1.38E-05 + 1.77E-07 G/L
Range: LOW

1-10-1-10

WORKBOOK PAGE: STD1

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

STD			STANDARD
	STANDARD BOOK #		138B52
2721	VOLUME OF SAMPLE (mL)	(SS)	1.00
	DILUTION FACTOR OF SAMPLE	(DF)	1.00
@U-01	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
	LIFETIME IN MICROSECONDS		184.00
LIQUID	R2 VALUE		0.9976
	RANGE (HIGH OR LOW)		HIGH
95002926	INSTRUMENT UNCERTAINTY	(IU)	2.73E-06
	INSTRUMENT RESULT	(IR)	7.94E-05
0	DETECTION LEVEL (µg/mL)		3.70E-05
N/A	RESULT (µg/mL)		7.94E-02
	VALUE OF STANDARD		8.44E-02
138B52	%RECOVERY		94.08
	RELATIVE % UNCERTAINTY		3.4
N/A			
RCJ	Result = DF * PF * IR * 1000		
JLS	Detection Level = 3.70 E-08 * DF * PF * 1000		
SMF	% Recovery = Result / Value of Standard * 100		
10/11/95	Relative % Uncertainty = IU / IR * 100		
10/06/95			
10:14 AM			
AW-106 GRAB			

Analyst:	SMF	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

BLNK			BLANK
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2721	DILUTION FACTOR OF SAMPLE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		188.00
LIQUID	R2 VALUE		0.9997
	RANGE (HIGH OR LOW)		LOW
95002926	INSTRUMENT UNCERTAINTY	(IU)	3.64E-08
	INSTRUMENT RESULT	(IR)	2.90E-06
0	DETECTION LEVEL (µg/mL)		3.70E-05
N/A			
	RESULT (µg/mL)		2.90E-03
BLANK	RELATIVE % UNCERTAINTY		1.3
N\A			
RCJ			
JLS			
SMF			
10/11/95			
10/06/95			
10:14 AM			
AW-106 GRAB			

Result = DF * PF * DDF * IR * 1000

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

Relative % Uncertainty = IU / IR * 100

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

BLANK.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM3

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

SAMPLE			SAMPLE
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2721	DILUTION FACTOR OF SAMPLE	(DF)	121.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		154.00
LIQUID	R2 VALUE		0.9944
	RANGE (HIGH OR LOW)		HIGH
95002926	INSTRUMENT UNCERTAINTY	(IU)	2.45E-06
	INSTRUMENT RESULT	(IR)	5.88E-05
0	DETECTION LEVEL (µg/mL)		4.48E-02
N/A	CONCENTRATION IN SOLUTION (g/L)		7.11E-02
	RESULT (µg/mL)		7.11E+01
S95T002017	RELATIVE % UNCERTAINTY		4.2

N\A

RCJ

JLS

SMF

10/11/95

10/06/95

10:14 AM

AW-106 GRAB

Result = DF * PF * DDF * IR * 1000

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

Relative % Uncertainty = IU / IR * 100

Analyst:	SMF	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

SAMPLE			SAMPLE
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2721	DILUTION FACTOR OF SAMPLE	(DF)	121.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		242.00
LIQUID	R2 VALUE		0.9998
	RANGE (HIGH OR LOW)		LOW
95002926	INSTRUMENT UNCERTAINTY	(IU)	3.01E-07
	INSTRUMENT RESULT	(IR)	2.38E-05
0	DETECTION LEVEL (µg/mL)		4.48E-02
N/A	CONCENTRATION IN SOLUTION (g/L)		2.88E-02
	RESULT (µg/mL)		2.88E+01
S95T002031	RELATIVE % UNCERTAINTY		1.3
N\A			
	Result = DF * PF * DDF * IR * 1000		
RCJ			
	Detection Level = 3.70 E-08 * DF * PF * DDF * 1000		
JLS			
	Relative % Uncertainty = IU / IR * 100		
SMF			
10/11/95			
10/06/95			
10:14 AM			
AW-106 GRAB			

Analyst:	SMF	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

DUP			DUP
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2721	DILUTION FACTOR OF SAMPLE	(DF)	121.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		250.00
LIQUID	R2 VALUE		0.9996
	RANGE (HIGH OR LOW)		LOW
95002926	INSTRUMENT UNCERTAINTY	(IU)	3.03E-07
	INSTRUMENT RESULT	(IR)	2.21E-05
0	DETECTION LEVEL (µg/mL)		4.48E-02
N/A	CONCENTRATION IN SOLUTION (g/L)		2.67E-02
	RESULT (µg/mL)		2.67E+01
S95T002031	RELATIVE % UNCERTAINTY		1.4

N/A

Result = DF * PF * DDF * IR * 1000

RCJ

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

JLS

Relative % Uncertainty = IU / IR * 100

SMF

10/11/95

10/06/95

10:14 AM

AW-106 GRAB

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

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SPIKE6

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

			SPIKE
SPK	SPIKE BOOK #		22B55
	VOLUME OF SAMPLE + SPIKE (mL)	(SS)	1.00
2721	DILUTION FACTOR OF SAMPLE + SPIKE	(DF)	121.00
	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF)	10.00
@U-01	DIGEST DILUTION FACTOR OF SAMPLE	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		208.00
LIQUID	R2 VALUE		0.9998
	RANGE (HIGH OR LOW)		LOW
95002926	INSTRUMENT RESULT	(IR)	2.66E-05
	CONCENTRATION IN SOLUTION (g/L)	(CONC)	3.22E-02
0	SPIKE VALUE (g/L)	(SV)	5.69E-02
	INITIAL VOLUME OF SPIKE (mL)	(IV)	0.10
N/A	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV)	1.00
	CONCENTRATION IN SOLUTION (g/L) FROM SAMPLE FO	(SR)	2.88E-02
S95T002031			
N\A	Concentration = IR * DF * PF		
RCJ	QC Actual (µg/mL) = SV (g/L) * 1000		
JLS	QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000		
SMF	% Recovery = QC FOUND / QC ACTUAL		
10/11/95			

10/06/95	QC ACTUAL	=	5.69E+01	µg/mL
	QC FOUND	=	3.39E+01	µg/mL
10:14 AM	% SPIKE RECOVERY	=	59.5%	
AW-106 GRAB				

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

SPIKE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM7

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

SAMPLE			SAMPLE
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2721	DILUTION FACTOR OF SAMPLE	(DF)	121.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		208.00
LIQUID	R2 VALUE		0.9998
	RANGE (HIGH OR LOW)		LOW
95002926	INSTRUMENT UNCERTAINTY	(IU)	3.06E-07
	INSTRUMENT RESULT	(IR)	2.36E-05
0	DETECTION LEVEL (µg/mL)		4.48E-02
N/A	CONCENTRATION IN SOLUTION (g/L)		2.86E-02
	RESULT (µg/mL)		2.86E+01
S95T002039	RELATIVE % UNCERTAINTY		1.3
N/A			
	Result = DF * PF * DDF * IR * 1000		
RCJ			
	Detection Level = 3.70 E-08 * DF * PF * DDF * 1000		
JLS			
	Relative % Uncertainty = IU / IR * 100		
SMF			
10/11/95			
10/06/95			
10:14 AM			
AW-106 GRAB			

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

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: DUP8

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

DUP			DUP
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2721	DILUTION FACTOR OF SAMPLE	(DF)	121.00
	PREPARATION FACTOR OF SAMPLE	(PF)	20.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		186.00
LIQUID	R2 VALUE		0.9998
	RANGE (HIGH OR LOW)		LOW
95002926	INSTRUMENT UNCERTAINTY	(IU)	1.77E-07
	INSTRUMENT RESULT	(IR)	1.38E-05
0	DETECTION LEVEL (µg/mL)		8.95E-02
N/A	CONCENTRATION IN SOLUTION (g/L)		3.34E-02
	RESULT (µg/mL)		3.34E+01
S95T002039	RELATIVE % UNCERTAINTY		1.3
N\A			
	Result = DF * PF * DDF * IR * 1000		
RCJ			
	Detection Level = 3.70 E-08 * DF * PF * DDF * 1000		
JLS			
	Relative % Uncertainty = IU / IR * 100		
SMF			
10/11/95			
10/06/95			
10:14 AM			
AW-106 GRAB			

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

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SPIKE9

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

			SPIKE
SPK	SPIKE BOOK #		N\A
	VOLUME OF SAMPLE + SPIKE (mL)	(SS)	N\A
2721	DILUTION FACTOR OF SAMPLE + SPIKE	(DF)	N\A
	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF)	N\A
@U-01	DIGEST DILUTION FACTOR OF SAMPLE	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		N\A
LIQUID	R2 VALUE		N\A
	RANGE (HIGH OR LOW)		N\A
95002926	INSTRUMENT RESULT	(IR)	N\A
	CONCENTRATION IN SOLUTION (g/L)	(CONC)	0.00E+00
0	SPIKE VALUE (g/L)	(SV)	ERR
	INITIAL VOLUME OF SPIKE (mL)	(IV)	N\A
N/A	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV)	N\A
	CONCENTRATION IN SOLUTION (g/L) FROM SAMPLE FO	(SR)	2.86E-02
S95T002039			
N\A	Concentration = IR * DF * PF		
RCJ	QC Actual (µg/mL) = SV (g/L) * 1000		
JLS	QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000		
SMF	% Recovery = QC FOUND / QC ACTUAL		
10/11/95			

ERR

10/06/95	QC ACTUAL	=	ERR	µg/mL
	QC FOUND	ERR	ERR	µg/mL
10:14 AM	% SPIKE RECOVERY	ERR	ERR	
AW-106 GRAB				

Analyst:		SMF	Date:	11-Oct-95
Signature of Chemist:	J. L. Sluppen	JLS	Date:	10/11/95

SPIKE.WB1 REV 1.2 925009ML

LABCORE Completed Worklist Report for Worklist# 2965

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

Method: LA-925-009 **Rev/Mod** A1

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

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@U-01	U-02	LIQUID	8.44E-02	8.13E-02	96.330	% Recovery
2	BLNK		0	@U-01	U-02	LIQUID	1	1.13E-01	0.110	ug/mL
3	SAMPLE	S95T002031	0	@U-01	U-02	LIQUID	N/A	5.04E+01	4.070e-002	ug/mL
3	SAMPLE	S95T002031	0	@U-01	U-02E	LIQUID	N/A	1.27E+00	0.000	% Inst Error
4	DUP	S95T002031	0	@U-01	U-02	LIQUID	5.04E+01	5.59E+01	10.350	RPD
5	SPK	S95T002031	0	@U-01	U-02	LIQUID	5.69E+01	7.94E+01	139.540	% Recovery

Comments Section:

Comments for sample# S95T002031 **and test** @U-01 .
Technician did not document sample size - results marked "nr" for "no result" / sample will be rerun / jls

These comments pertain to original run gb 10/19/95

Final page for worklist# 2965

Analyst Signature **Date**

Analyst Signature **Date**

Jennifer H. Shipley 10/19/95
Reviewer Signature **Date**

If duplicate result was used in spike recovery calculation, recovery would be within QC limits.

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

LABCORE Data Entry Template for Worklist# 2965

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

Method: LA-925-009 Rev/Mod A1

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD	138B52			@U-01	LIQUID		
2	BLNK				@U-01	LIQUID		
3	SAMPLE	S95T002031	0		@U-01	LIQUID	95000126	AW-106 GRAB
		Analytes Requested:			U-02	, U-02E		
4	DUP	S95T002031	0		@U-01	LIQUID		
5	SPK	S95T002031	0		@U-01	LIQUID		

Final page for worklist # 2965

DB Buffum 10-18-95
Analyst Signature Date

[illegible] 10/19/95
Analyst Signature Date

Data Entry Comments: Spk: .100 ml sample + .100 ml spk → 10 ml 0.5M HNO3

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

URANIUM ANALYSIS

Sample ID 138B52
Description LMCS STD.
Ref. Ratio 1.014
Laser Pulses 500
Lifetime 217 + 1.236 us
R2 .9986
Integrated 73702
Range: HIGH

Date/Time 10/18/95/19:07:17
Cal Y=7.23E+07X-6.56E+01
Intensity 4863 (t= 39 us)
Conc 8.13E-05 + 2.74E-06 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 8.13E-05 + 2.74E-06 ~~ug/L~~ g/L 10/18/95

Sample ID BLANK
Description AW-106 GRAB
Ref. Ratio 1.02
Laser Pulses 500
Lifetime 256 + .491 us
R2 .9998
Integrated 92304
Range: LOW

Date/Time 10/18/95/19:11:07
Cal Y=5.52E+09X0
Intensity 5107 (t= 39 us)
Conc 1.13E-06 + 1.34E-08 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 1.13E-06 + 1.34E-08 ~~ug/L~~ g/L

Sample ID S95T002031
Description AW-106 GRAB
Ref. Ratio 1.031
Laser Pulses 500
Lifetime 197 + .346 us
R2 .9999
Integrated 72103y
Range: LOW

Date/Time 10/18/95/19:22:21
Cal Y=5.52E+09X0
Intensity 48754 (t= 312 us)
Conc 4.58E-05 + 5.80E-07 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 4.58E-05 + 5.80E-07 ~~ug/L~~ g/L

Dilution 1-10

Sample ID S95T002031DUP
Description AW-106 GRAB
Ref. Ratio 1.039
Laser Pulses 500
Lifetime 206 + .649 us
R2 .9996
Integrated 43131
Range: HIGH

Date/Time 10/18/95/19:30:00
Cal Y=7.23E+07X-6.56E+01
Intensity 2882 (t= 39 us)
Conc 5.08E-05 + 1.66E-06 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 5.08E-05 + 1.66E-06 ~~ug/L~~ g/L

Dilution 1-10

Sample ID S95T002031SPK
Description AW-106 GRAB
Ref. Ratio 1.018
Laser Pulses 500
Lifetime 217 + .628 us
R2 .9996
Integrated 106525
Range: HIGH

Date/Time 10/18/95/19:45:38
Cal Y=7.23E+07X-6.56E+01
Intensity 6685 (t= 39 us)
Conc 1.18E-04 + 3.84E-06 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 1.18E-04 + 3.84E-06 ~~ug/L~~ g/L

Dilution 1-10

Uranium Data Collection Sheet

Download File Name: I:\925009\IN\2965.TXT **Output Name:** U2965

Spike Book Number: 22B55 **Spike Volume:** .100 ml **Date/Time:** 10-18-95 / 2230

Sample Type	Sample Number	Sample Size	Preparation Factor	Dilution Factor	Digest Factor	Comments
STD	138B52	1 ml	10 → 10			
BLNK		1 ml	.100 → 10			
SAM	S95T00-2031	1 ml	.100 → 10	1-10		
DUP	S95T00-2031	1 ml	.100 → 10	1-10		
SPK	S95T00-2031	1 ml	.100 → 10	1-10		
SAM						
DUP						
SPK						
SAM						
DUP						
SAM						
DUP						
SAM						

WORKBOOK PAGE: STD1

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

STD			STANDARD
	STANDARD BOOK #		138B52
2965	VOLUME OF SAMPLE (mL)	(SS)	1.00
	DILUTION FACTOR OF SAMPLE	(DF)	1.00
@U-01	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
	LIFETIME IN MICROSECONDS		217.00
LIQUID	R2 VALUE		0.9986
	RANGE (HIGH OR LOW)		HIGH
95003248	INSTRUMENT UNCERTAINTY	(IU)	2.74E-06
	INSTRUMENT RESULT	(IR)	8.13E-05
0	DETECTION LEVEL (µg/mL)		3.70E-05
N/A	RESULT (µg/mL)		8.13E-02
	VALUE OF STANDARD		8.44E-02
WL2965	%RECOVERY		96.33
	RELATIVE % UNCERTAINTY		3.4
U01			
JLS	Result = DF * PF * IR * 1000		
JLS	Detection Level = 3.70 E-08 * DF * PF * 1000		
DGG	% Recovery = Result / Value of Standard * 100		
10/19/95	Relative % Uncertainty = IU / IR * 100		
10/19/95			
10:30 PM			
AW-106 GRAB			

Analyst:	DGG	Date:	19-Oct-95
Signature of Chemist: Jennifer L. Slipper	JLS	Date:	10/19/95

STANDARD.WB1 REV 1.2 925009ML

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

BLNK			BLANK
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2965	DILUTION FACTOR OF SAMPLE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		256.00
LIQUID	R2 VALUE		0.9998
	RANGE (HIGH OR LOW)		LOW
95003248	INSTRUMENT UNCERTAINTY	(IU)	1.34E-08
	INSTRUMENT RESULT	(IR)	1.13E-06
0	DETECTION LEVEL (µg/mL)		3.70E-03
N/A			
	RESULT (µg/mL)		1.13E-01
BLANK	RELATIVE % UNCERTAINTY		1.2

U01

JLS

JLS

DGG

10/19/95

10/18/95

10:30 PM

AW-106 GRAB

Result = DF * PF * DDF * IR * 1000

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

Relative % Uncertainty = IU / IR * 100

Analyst:	DGG	Date:	19-Oct-95
Signature of Chemist:	JLS	Date:	10/19/95

BLANK.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM3

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

SAMPLE			SAMPLE
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2965	DILUTION FACTOR OF SAMPLE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		197.00
LIQUID	R2 VALUE		0.9999
	RANGE (HIGH OR LOW)		LOW
95003248	INSTRUMENT UNCERTAINTY	(IU)	5.80E-07
	INSTRUMENT RESULT	(IR)	4.58E-05
0	DETECTION LEVEL (µg/mL)		4.07E-02
N/A	CONCENTRATION IN SOLUTION (g/L)		5.04E-02
	RESULT (µg/mL)		5.04E+01
S95T002031	RELATIVE % UNCERTAINTY		1.3

U01

JLS

JLS

DGG

10/19/95

10/18/95

10:30 PM

AW-106 GRAB

Result = DF * PF * DDF * IR * 1000

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

Relative % Uncertainty = IU / IR * 100

Analyst:	DGG	Date:	19-Oct-95
Signature of Chemist:	JLS	Date:	10/19/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: DUP4

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

DUP			DUP
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2965	DILUTION FACTOR OF SAMPLE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		206.00
LIQUID	R2 VALUE		0.9996
	RANGE (HIGH OR LOW)		HIGH
95003248	INSTRUMENT UNCERTAINTY	(IU)	1.68E-06
	INSTRUMENT RESULT	(IR)	5.08E-05
0	DETECTION LEVEL (µg/mL)		4.07E-02
N/A	CONCENTRATION IN SOLUTION (g/L)		5.59E-02
	RESULT (µg/mL)		5.59E+01
S95T002031	RELATIVE % UNCERTAINTY		3.3
UJ01			
	Result = DF * PF * DDF * IR * 1000		
JLS			
	Detection Level = 3.70 E-08 * DF * PF * DDF * 1000		
JLS			
	Relative % Uncertainty = IU / IR * 100		
DGG			
10/19/95			
10/19/95			
10:30 PM			
AW-106 GRAB			

Analyst:	DGG	Date:	19-Oct-95
Signature of Chemist: Jennifer L. Shepherd	JLS	Date:	10/19/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SPIKE5

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

			SPIKE
SPK	SPIKE BOOK #		22B55
	VOLUME OF SAMPLE + SPIKE (mL)	(SS)	1.00
2965	DILUTION FACTOR OF SAMPLE + SPIKE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF)	100.00
@U-01	DIGEST DILUTION FACTOR OF SAMPLE	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		217.00
LIQUID	R2 VALUE		0.9996
	RANGE (HIGH OR LOW)		HIGH
95003248	INSTRUMENT RESULT	(IR)	1.19E-04
	CONCENTRATION IN SOLUTION (g/L)	(CONC)	1.30E-01
0	SPIKE VALUE (g/L)	(SV)	5.69E-02
	INITIAL VOLUME OF SPIKE (mL)	(IV)	0.10
N/A	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV)	0.10
	CONCENTRATION IN SOLUTION (g/L) FROM SAMPLE FOR	(SR)	5.04E-02
S95T002031			
U01	Concentration = IR * DF * PF		
JLS	QC Actual (µg/mL) = SV (g/L) * 1000		
JLS	QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000		
DGG	% Recovery = QC FOUND / QC ACTUAL		
10/19/95			
10/19/95	QC ACTUAL	=	5.69E+01 µg/mL
	QC FOUND	=	7.94E+01 µg/mL
10:30 PM	% SPIKE RECOVERY	=	139.6%
AW-104 GRAB			

Analyst:	DGG	Date:	19-Oct-95
Signature of Chemist:	JLS	Date:	10/19/95

SPIKE.WB1 REV 1.2 925009ML

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

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LABCORE Completed Worklist Report for Worklist# 2305

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

Method: LA-925-009 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-2	1.56e-2	18.480	% Recovery
2	BLNK		0	@U-01	U-02	LIQUID	1	2.94e-2	3.000e-002	ug/mL
3	SAMPLE	S95T002017	0	@U-01	U-02	LIQUID	N/A	nr	5.000e-008	ug/mL
3	SAMPLE	S95T002017	0	@U-01	U-02E	LIQUID	N/A	nr	0.000	% Inst Error
4	SAMPLE	S95T002031	0	@U-01	U-02	LIQUID	N/A	nr	5.000e-008	ug/mL
4	SAMPLE	S95T002031	0	@U-01	U-02E	LIQUID	N/A	nr	0.000	% Inst Error
5	DUP	S95T002031	0	@U-01	U-02	LIQUID	nr	nr		RPD
6	SPK	S95T002031	0	@U-01	U-02	LIQUID	100	nr		% Recovery
7	SAMPLE	S95T002039	0	@U-01	U-02	LIQUID	N/A	1.06	5.000e-008	ug/mL
7	SAMPLE	S95T002039	0	@U-01	U-02E	LIQUID	N/A	2	0.000	% Inst Error
8	DUP	S95T002039	0	@U-01	U-02	LIQUID	1.06	1.21	13.220	RPD
9	SPK	S95T002039	0	@U-01	U-02	LIQUID	100	nr		% Recovery

Comments Section:

Comments for sample# S95T002017 **and test** @U-01 .
Technician did not include sample result with raw instrument data - result marked "nr" for "no result" / sample will be rerun / jls

Comments for sample# S95T002031 **and test** @U-01 .
Technician did not document sample size - results marked "nr" for "no result" / sample will be rerun / jls

Comments for sample# S95T002039 **and test** @U-01 .
Technician used wrong solution for spike - recovery value marked as "nr" for "no result" / sample will be rerun / jls

Final page for worklist# 2305

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

Jennifer L. Simpson 10/3/95
Reviewer Signature **Date**

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

LABCORE Data Entry Template for Worklist# 2305

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

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

Worklist Comment:

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD			@U-01	U-02	LIQUID			N/A	ug/mL
		2	BLNK			@U-01	U-02	LIQUID			N/A	ug/mL
95000126	AW-106 GRAB	3	SAMPLE	S95T002017	0	@U-01	U-02	LIQUID	N/A			ug/mL
95000126	AW-106 GRAB	3	SAMPLE	S95T002017	0	@U-01	U-02E	LIQUID	N/A			% Inst Error
95000126	AW-106 GRAB	4	SAMPLE	S95T002031	0	@U-01	U-02	LIQUID	N/A			ug/mL
95000126	AW-106 GRAB	4	SAMPLE	S95T002031	0	@U-01	U-02E	LIQUID	N/A			% Inst Error
95000126	AW-106 GRAB	5	DUP	S95T002031	0	@U-01	U-02	LIQUID			N/A	ug/mL
95000126	AW-106 GRAB	6	SPK	S95T002031	0	@U-01	U-02	LIQUID			N/A	ug/mL
95000126	AW-106 GRAB	7	SAMPLE	S95T002039	0	@U-01	U-02	LIQUID	N/A			ug/mL
95000126	AW-106 GRAB	7	SAMPLE	S95T002039	0	@U-01	U-02E	LIQUID	N/A			% Inst Erro.
95000126	AW-106 GRAB	8	DUP	S95T002039	0	@U-01	U-02	LIQUID			N/A	ug/mL
95000126	AW-106 GRAB	9	SPK	S95T002039	0	@U-01	U-02	LIQUID			N/A	ug/mL

Final page for worklist # 2305

Danny P. Bromley 9/26/95
Analyst Signature **Date**

R D Meyer 9/27/95

[illegible] 10/3/95
Analyst Signature **Date**

Data Entry Comments: Standard (ENVSTD 138B52) sample prep: 10mL → 10mL
Sample prep for all samples, dups and spikes: 0.5mL → 10mL
0.050mL of UCAL standard 10B55 used as spike

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.

Uranium Data Collection Sheet

Download File Name: I:\925009\IN\2305.TXT 3-Digit Output Name: 305

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

Sample Type	Sample Number	Sample Size	Preparation Factor	Dilution Factor	Digest Factor	Comments
STD		1ml				
BLNK		1ml-10				
SAM	S95T002017	1-10				
DUP		1-				
SPK						
SAM	S95T002039	1ml-10				
DUP	S95T002039	1ml-10				
SPK	S95T002039	1ml-10				
SAM						
DUP						
SAM						
DUP						
SAM						

WORKBOOK PAGE: STD1

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

STD			STANDARD
	STANDARD BOOK #		138B62
2305	VOLUME OF SAMPLE (mL)	(SS)	1.00
	DILUTION FACTOR OF SAMPLE	(DF)	1.00
@U-01	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
	LIFETIME IN MICROSECONDS		266.00
LIQUID	R2 VALUE		0.9997
	RANGE (HIGH OR LOW)		HIGH
95002448	INSTRUMENT UNCERTAINTY	(IU)	4.95E-07
	INSTRUMENT RESULT	(IR)	1.56E-05
0	DETECTION LEVEL (µg/mL)		3.70E-05
N/A	RESULT (µg/mL)		1.56E-02
	VALUE OF STANDARD		8.44E-02
WL2305	%RECOVERY		18.48
	RELATIVE % UNCERTAINTY		3.2
AL10721			
JLS	Result = DF * PF * IR * 1000		
JLS	Detection Level = 3.70 E-08 * DF * PF * 1000		
RDM	% Recovery = Result / Value of Standard * 100		
10/03/95	Relative % Uncertainty = IU / IR * 100		
08/27/95			
02:15 PM			
AW-108			

Analyst:	RDM	Date:	03-Oct-95
Signature of Chemist:	JLS	Date:	10/3/95

STANDARD.WB1 REV 1.2 925009ML

WORKBOOK PAGE: BLANK2

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

BLNK			BLANK
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2305	DILUTION FACTOR OF SAMPLE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		57.00
LIQUID	R2 VALUE		0.9616
	RANGE (HIGH OR LOW)		LOW
95002448	INSTRUMENT UNCERTAINTY	(IU)	4.57E-07
	INSTRUMENT RESULT	(IR)	2.67E-05
0	DETECTION LEVEL (µg/mL)		4.07E-04
N/A			
	RESULT (µg/mL)		2.94E-02
WL2305	RELATIVE % UNCERTAINTY		17.1
AL10721			
JLS			
JLS			
RDM			
10/03/95			
09/27/95			
02:15 PM			
AW-106			

Result = DF * PF * DDF * IR * 1000

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

Relative % Uncertainty = IU / IR * 100

Analyst:	RDM	Date:	03-Oct-95
Signature of Chemist:	JLS	Date:	10/3/95

BLANK.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM3

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

SAMPLE			SAMPLE
	VOLUME OF SAMPLE (mL)	(SS)	NA
2305	DILUTION FACTOR OF SAMPLE	(DF)	NA
	PREPARATION FACTOR OF SAMPLE	(PF)	NA
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		NA
LIQUID	R2 VALUE		NA
	RANGE (HIGH OR LOW)		NA
95002448	INSTRUMENT UNCERTAINTY	(IU)	NA
	INSTRUMENT RESULT	(IR)	NA
0	DETECTION LEVEL (µg/mL)		0.00E+00
N/A	CONCENTRATION IN SOLUTION (g/L)		0.00E+00
	RESULT (µg/mL)		0.00E+00
S95T002017	RELATIVE % UNCERTAINTY		ERR

AL10721

JLS

JLS

RDM

10/03/95

09/27/95

02:15 PM

AW-106

Result = DF * PF * DDF * IR * 1000

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

Relative % Uncertainty = IU / IR * 100

Analyst:	RDM	Date:	03-Oct-95
Signature of Chemist:	JLS	Date:	10/3/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM4

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

SAMPLE			SAMPLE
	VOLUME OF SAMPLE (mL)	(SS)	NA
2305	DILUTION FACTOR OF SAMPLE	(DF)	NA
	PREPARATION FACTOR OF SAMPLE	(PF)	NA
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		NA
LIQUID	R2 VALUE		NA
	RANGE (HIGH OR LOW)		NA
95002448	INSTRUMENT UNCERTAINTY	(IU)	NA
	INSTRUMENT RESULT	(IR)	NA
0	DETECTION LEVEL (µg/mL)		0.00E+00
N/A	CONCENTRATION IN SOLUTION (g/L)		0.00E+00
	RESULT (µg/mL)		0.00E+00
S95T002031	RELATIVE % UNCERTAINTY		ERR

AL10721

JLS

JLS

RDM

10/03/95

09/27/95

02:15 PM

AW-106

Result = DF * PF * DDF * IR * 1000

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

Relative % Uncertainty = IU / IR * 100

Analyst:	RDM	Date:	03-Oct-95
Signature of Chemist:	JLS	Date:	10/3/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: DUP5

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

DUP			DUP
	VOLUME OF SAMPLE (mL)	(SS)	NA
2305	DILUTION FACTOR OF SAMPLE	(DF)	NA
	PREPARATION FACTOR OF SAMPLE	(PF)	NA
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		NA
LIQUID	R2 VALUE		NA
	RANGE (HIGH OR LOW)		NA
95002448	INSTRUMENT UNCERTAINTY	(IU)	NA
	INSTRUMENT RESULT	(IR)	NA
0	DETECTION LEVEL (µg/mL)		0.00E+00
N/A	CONCENTRATION IN SOLUTION (g/L)		0.00E+00
	RESULT (µg/mL)		0.00E+00
S95T002031	RELATIVE % UNCERTAINTY		ERR

AL10721
JLS
JLS
RDM
10/03/95
09/27/95
02:15 PM
AW-106

Result = DF * PF * DDF * IR * 1000

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

Relative % Uncertainty = IU / IR * 100

Analyst:	RDM	Date:	03-Oct-95
Signature of Chemist:	JLS	Date:	10/3/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SPIKE6

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

			SPIKE
SPK	SPIKE BOOK #		NA
	VOLUME OF SAMPLE + SPIKE (mL)	(SS)	NA
2305	DILUTION FACTOR OF SAMPLE + SPIKE	(DF)	NA
	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF)	NA
QU-01	DIGEST DILUTION FACTOR OF SAMPLE	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		NA
LIQUID	R2 VALUE		NA
	RANGE (HIGH OR LOW)		NA
95002449	INSTRUMENT RESULT	(IR)	NA
	CONCENTRATION IN SOLUTION (g/L)	(CONC)	0.00E+00
0	SPIKE VALUE (g/L)	(SV)	ERR
	INITIAL VOLUME OF SPIKE (mL)	(IV)	NA
N/A	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV)	NA
	CONCENTRATION IN SOLUTION (g/L) FROM SAMPLE FOR	(SR)	0.00E+00
S95T002031			
AL10721	Concentration = IR * DF * PF		
JLS	QC Actual (µg/mL) = SV (g/L) * 1000		
JLS	QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000		
RDM	% Recovery = QC FOUND / QC ACTUAL		
10/03/95			

ERR

04/27/95	QC ACTUAL	=	ERR	µg/mL
	QC FOUND	ERR	ERR	µg/mL
02:18 PM	% SPIKE RECOVERY	ERR	ERR	
AW-106				

Analyst:		RDM	Date:	03-Oct-95
Signature of Chemist:		JLS	Date:	10/3/95

SPIKE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SAM7

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

SAMPLE			SAMPLE
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2305	DILUTION FACTOR OF SAMPLE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE	(PF)	21.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		161.00
LIQUID	R2 VALUE		0.9992
	RANGE (HIGH OR LOW)		LOW
95002448	INSTRUMENT UNCERTAINTY	(IU)	9.18E-08
	INSTRUMENT RESULT	(IR)	4.60E-06
0	DETECTION LEVEL (µg/mL)		8.55E-03
N/A	CONCENTRATION IN SOLUTION (g/L)		1.06E-03
	RESULT (µg/mL)		1.06E+00
S95T002039	RELATIVE % UNCERTAINTY		2.0

AL10721

JLS

JLS

RDM

10/03/95

09/27/95

02:15 PM

AW-106

Result = DF * PF * DDF * IR * 1000

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

Relative % Uncertainty = IU / IR * 100

Analyst:	RDM	Date:	03-Oct-95
Signature of Chemist:	JLS	Date:	10/3/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: DUP8

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

DUP			DUP
	VOLUME OF SAMPLE (mL)	(SS)	1.00
2305	DILUTION FACTOR OF SAMPLE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE	(PF)	21.00
@U-01	DIGEST DILUTION FACTOR	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		184.00
LIQUID	R2 VALUE		0.9984
	RANGE (HIGH OR LOW)		LOW
95002448	INSTRUMENT UNCERTAINTY	(IU)	1.28E-07
	INSTRUMENT RESULT	(IR)	5.23E-06
0	DETECTION LEVEL (µg/mL)		8.55E-03
N/A	CONCENTRATION IN SOLUTION (g/L)		1.21E-03
	RESULT (µg/mL)		1.21E+00
S95T002039	RELATIVE % UNCERTAINTY		2.5
AL10721			
JLS	Result = DF * PF * DDF * IR * 1000		
JLS	Detection Level = 3.70 E-08 * DF * PF * DDF * 1000		
RDM	Relative % Uncertainty = IU / IR * 100		
10/03/95			
09/27/95			
02:15 PM			
AW-106			

Analyst:	RDM	Date:	03-Oct-95
Signature of Chemist:	JLS	Date:	10/3/95

SAMPLE.WB1 REV 1.2 925009ML

WORKBOOK PAGE: SPIKE9

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

			SPIKE
SPK	SPIKE BOOK #		NA
	VOLUME OF SAMPLE + SPIKE (mL)	(SS)	1.00
2305	DILUTION FACTOR OF SAMPLE + SPIKE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF)	21.00
@U-01	DIGEST DILUTION FACTOR OF SAMPLE	(DDF)	1.0000
	LIFETIME IN MICROSECONDS		183.00
LIQUID	R2 VALUE		0.9975
	RANGE (HIGH OR LOW)		LOW
95002448	INSTRUMENT RESULT	(IR)	6.74E-06
	CONCENTRATION IN SOLUTION (g/L)	(CONC)	1.56E-03
0	SPIKE VALUE (g/L)	(SV)	NA
	INITIAL VOLUME OF SPIKE (mL)	(IV)	0.05
N/A	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV)	0.50
	CONCENTRATION IN SOLUTION (g/L) FROM SAMPLE FOR	(SR)	1.06E-03
S95T002039			
AL-10721	Concentration = IR * DF * PF		
JLS	QC Actual (µg/mL) = SV (g/L) * 1000		
JLS	QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000		
RDM	% Recovery = QC FOUND / QC ACTUAL		
10/03/95			
09/27/95	QC ACTUAL	=	0.00E+00 µg/mL
	QC FOUND	=	4.94E+00 µg/mL
02:15 PM	% SPIKE RECOVERY	=	
AW-106			

Analyst:		RDM	Date:	03-Oct-95
Signature of Chemist:		JLS	Date:	10/3/95

SPIKE.WB1 REV 1.2 925009ML

URANIUM ANALYSIS

Sample ID 5fD
Description WORKLIST 2305
Ref. Ratio 1.041
Laser Pulses 500
Lifetime 266 + .696 us
R2 .9997
Integrated 139465
Range: HIGH

Date/Time 09/27/95/13:32:47
Cal Y=6.58E+08X-1.17E+03
Intensity 7505 (t= 39 us)
Conc 1.56E-05 + 4.95E-07 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 1.56E-05 + 4.95E-07 g/L

Sample ID BLK
Description WORKLIST 2305
Ref. Ratio 1.055
Laser Pulses 500
Lifetime 57 + 2.282 us
R2 .9616
Integrated 281068
Range: LOW

Date/Time 09/27/95/14:22:46
Cal Y=6.35E+10X0
Intensity 46076 (t= 39 us)
Conc 2.67E-06 + 4.57E-07 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 2.67E-06 + 4.57E-07 g/L

Sample ID 2031
Description WORKLIST 2305
Ref. Ratio 1.051
Laser Pulses 500
Lifetime 192 + 1.272 us
R2 .9981
Integrated 660035
Range: LOW

Date/Time 09/27/95/13:56:40
Cal Y=6.35E+10X0
Intensity 48056 (t= 468 us)
Conc 8.64E-06 + 2.53E-07 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 8.64E-06 + 2.53E-07 g/L

Sample ID 2031DUP
Description WORKLIST 2305
Ref. Ratio 1.052
Laser Pulses 500
Lifetime 191 + 1.497 us
R2 .9974
Integrated 660747
Range: LOW

Date/Time 09/27/95/13:58:16
Cal Y=6.35E+10X0
Intensity 48770 (t= 442 us)
Conc 7.71E-06 + 2.55E-07 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 7.71E-06 + 2.55E-07 g/L

Sample ID 2031SPIKE
Description WORKLIST 2305
Ref. Ratio 1.082
Laser Pulses 500
Lifetime 191 + 1.057 us
R2 .9987
Integrated 667833
Range: LOW

Date/Time 09/27/95/14:01:08
Cal Y=6.35E+10X0
Intensity 48295 (t= 481 us)
Conc 9.58E-06 + 2.44E-07 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 9.58E-06 + 2.44E-07 g/L

Sample ID 2039
Description WORKLIST 2305
Ref. Ratio 1.077
Laser Pulses 500
Lifetime 151 + .641 us
R2 .9992
Integrated 529385
Range: LOW

Date/Time 09/27/95/14:04:49
Cal Y=6.35E+10X0
Intensity 46081 (t= 273 us)
Conc 4.60E-06 + 9.19E-08 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 4.60E-06 + 9.19E-08 g/L

URANIUM ANALYSIS

Sample ID 2039DUP
Description WORKLIST 2305
Ref. Ratio 1.068
Laser Pulses 500
Lifetime 184 + 1.112 us
R2 .9984
Integrated 650038
Range: LOW

Date/Time 09/27/95/14:10:42
Cal Y=6.35E+10X0
Intensity 48125 (t= 351 us)
Conc 5.23E-06 + 1.29E-07 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 5.23E-06 + 1.29E-07 g/L

Sample ID 2039SPIKE
Description WORKLIST 2305
Ref. Ratio 1.064
Laser Pulses 500
Lifetime 183 + 1.4 us
R2 .9975
Integrated 621339
Range: LOW

Date/Time 09/27/95/14:12:56
Cal Y=6.35E+10X0
Intensity 47356 (t= 403 us)
Conc 6.74E-06 + 2.17E-07 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 6.74E-06 + 2.17E-07 g/L