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

Document number: SD-WM-DP-178

Section 5 **of** 6

Title: Final Report for Tank 241AY101 Grab Samples 1AY-96-1 Thru 1AY-96-10 & 1AY-96-FB [Pgs. 777 Thru 976]

Date: 07/22/1996 **Revision:** R001

Originator: Esch, RA
Co: WHC

Recipient:
Co:

References: ECN-633305

7928

LA-220-101 / D-1 **Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)**

							DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	7928	GROSS WEIGHT	(W2)		7.3350
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2500
6772	BACKGROUND in cpm	(BKG)	9.0	NET WEIGHT	(W3)		0.0850
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)		9.28
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	783.80	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.81	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96002486	TIME OF SEPARATION	(ST)	13:13	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	03/27/96	DETECTION LIMIT	(Ld)		3.71
0	TIME OF COUNT	(TOC)	22:30	Sr-89/90 CONC in µCi/L			1.8727E+03
Sample Prep	DATE OF COUNT	(DOC)	03/27/96				
N/A							
Sample #							
S96T001359							
Instrument Code							
WB26870							
Prepared By							
SZC							
Chemist							
SLF							
Analyst							
SLH							
Date Complete							
03/28/96							
Analysis Date							
03/27/96							
Analysis Time							
01:13 PM							
Sample Point							
AY-101 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.87E+00	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	2.2%		8.85E-03 µCi/mL
PERCENT CARRIER RECOVERY	85.0%		

Analyst:		SLH	Date:	28-Mar-96
Signature of Chemist:		SLF	Date:	4/1/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM6

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							SAMPLE
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	8154	GROSS WEIGHT	(W2)		7.2795
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1939
6772	BACKGROUND in cpm	(BKG)	9.0	NET WEIGHT	(W3)		0.0856
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)		9.53
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	806.40	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.81	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96002486	TIME OF SEPARATION	(ST)	13:13	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	03/27/96	DETECTION LIMIT	(Ld)		3.71
0	TIME OF COUNT	(TOC)	22:45	Sr-89/90 CONC in µCi/L			1.9085E+03
Sample Prep	DATE OF COUNT	(DOC)	03/27/96				
N/A							
Sample #							
S96T001360							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
SZC	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
SLH	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
03/28/96							
Analysis Date							DETECTION LEVEL
03/27/96	Sr-89/90 CONCENTRATION		1.91E+00		µCi/mL		
Analysis Time							
01:13 PM	RELATIVE COUNTING ERROR		2.2%				8.77E-03 µCi/mL
Sample Point							
AY-101 GRAB	PERCENT CARRIER RECOVERY		85.6%				

Analyst:		SLH	Date:	28-Mar-96
Signature of Chemist:		SLF	Date:	4/1/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP7

LA-220-101 / D-1 **Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)**

							DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	8002	GROSS WEIGHT	(W2)		7.3115
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2253
6772	BACKGROUND in cpm	(BKG)	9.0	NET WEIGHT	(W3)		0.0862
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)		9.70
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	791.20	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.81	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96002486	TIME OF SEPARATION	(ST)	13:13	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	03/27/96	DETECTION LIMIT	(Ld)		3.71
0	TIME OF COUNT	(TOC)	22:55	Sr-89/90 CONC in µCi/L			1.8565E+03
Sample Prep	DATE OF COUNT	(DOC)	03/27/96				
N/A							
Sample #							
S96T001360							
Instrument Code							
WB26870							
Prepared By							
SZC							
Chemist							
SLF							
Analyst							
SLH							
Date Complete							
03/28/96							
Analysis Date							
03/27/96							
Analysis Time							
01:13 PM							
Sample Point							
AY-101 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	1.86E+00	µCi/mL	8.69E-03 µCi/mL
RELATIVE COUNTING ERROR	2.2%		
PERCENT CARRIER RECOVERY	86.2%		

Analyst:		SLH	Date:	28-Mar-96
Signature of Chemist:		SLF	Date:	4/1/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 7166

Analyst: DBS **Instrument:** AB00 12 **Book#** 9B56

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: Ay-101 Grab. Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	SAMPLE	S96T001521	0		@SR90-01	LIQUID	96000257	AY-101 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
4	DUP	S96T001521	0		@SR90-01	LIQUID		
5	SAMPLE	S96T001522	0		@SR90-01	LIQUID	96000257	AY-101 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
6	DUP	S96T001522	0		@SR90-01	LIQUID		

Final page for worklist # 7166

D B Bulpe 4-4-96
Analyst Signature **Date**

Sylvia Z Cohron 4/4/96
Analyst Signature **Date**
Lee Hogan 4/4/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7166

Analyst: dgg **Instrument:** AB12 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Ay-101 Grab. Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01 SR90-01	LIQUID	1.23E-03	1.20E-3	97.560	% Recovery
1	STD		0		@SR90-01 SR90-01C	LIQUID	100	9.30E+01	93.000	% Recovery
1	STD		0		@SR90-01 SR90-01E	LIQUID	1.00	1.91E+00	1.910	% Ct. Error
2	BLNK		0		@SR90-01 SR90-01	LIQUID	1	1.30E-3	0.000	uCi/mL
2	BLNK		0		@SR90-01 SR90-01C	LIQUID	100	9.33E+01	93.300	% Recovery
2	BLNK		0		@SR90-01 SR90-01E	LIQUID	1.00	8.39E+01	83.900	% Ct. Error
3	SAMPLE	S96T001521	0		@SR90-01 SR90-01	LIQUID	N/A	2.34E+00	1.360e-003	uCi/mL
3	SAMPLE	S96T001521	0		@SR90-01 SR90-01C	LIQUID	N/A	9.32E+01	1.000e-004	% Recovery
3	SAMPLE	S96T001521	0		@SR90-01 SR90-01E	LIQUID	N/A	9.64E-01	0.000	% Ct. Error
4	DUP	S96T001521	0		@SR90-01 SR90-01	LIQUID	2.34E+0	2.30E+0	1.720	RPD
4	DUP	S96T001521	0		@SR90-01 SR90-01C	LIQUID	100	9.39E+01	93.900	% Recovery
4	DUP	S96T001521	0		@SR90-01 SR90-01E	LIQUID	1.00	9.59E-01	0.960	% Ct. Error
5	SAMPLE	S96T001522	0		@SR90-01 SR90-01	LIQUID	N/A	1.53E+00	1.320e-003	uCi/mL
5	SAMPLE	S96T001522	0		@SR90-01 SR90-01C	LIQUID	N/A	9.38E+01	1.000e-004	% Recovery
5	SAMPLE	S96T001522	0		@SR90-01 SR90-01E	LIQUID	N/A	1.17E+00	0.000	% Ct. Error
6	DUP	S96T001522	0		@SR90-01 SR90-01	LIQUID	1.53E+0	1.65E+0	7.550	RPD
6	DUP	S96T001522	0		@SR90-01 SR90-01C	LIQUID	100	9.51E+01	95.100	% Recovery
6	DUP	S96T001522	0		@SR90-01 SR90-01E	LIQUID	1.00	1.13E+00	1.130	% Ct. Error

Final page for worklist# 7166

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

4/5/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	10665	GROSS WEIGHT	(W2)		7.2864
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1934
7166	BACKGROUND in cpm	(BKG)	3.7	NET WEIGHT	(W3)		0.0930
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		2.33
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1062.80	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.16	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96002888	TIME OF SEPARATION	(ST)	02:55	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/04/96	DETECTION LIMIT	(Ld)		2.41
0	TIME OF COUNT	(TOC)	05:15	Sr-89/90 CONC. in µCi/L			1.1983E+00
Sample Prep	DATE OF COUNT	(DOC)	04/04/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2302E-03				
WL7166							
Instrument Code							
WB27811							
Prepared By							
SZC							
Chemist							
SLF							
Analyst							
DGG							
Date Complete							
04/04/96							
Analysis Date							
04/04/96							
Analysis Time							
02:55 AM							
Sample Point							
AY-101 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0

RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.20E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.9%		2.72E-06 µCi/L
PERCENT CARRIER RECOVERY	93.0%		

Analyst:	DGG	Date:	04-Apr-96
Signature of Chemist:	SLF	Date:	4/5/96

STANDARD.WB1 REV 1.2 22010NML

782

60

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

SS Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	60	GROSS WEIGHT	(W2)	7.2141
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1208
7166	BACKGROUND in cpm	(BKG)	3.7	NET WEIGHT	(W3)	0.0933
Test Codes	SAMPLE VOLUME in mL	(SS)	0.200	DELTA TIME (HOURS)	(DT)	2.50
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	2.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.16	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96002888	TIME OF SEPARATION	(ST)	02:55	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/04/96	DETECTION LIMIT	(Ld)	2.41
0	TIME OF COUNT	(TOC)	05:25	Sr-89/90 CONC in µCi/L		1.3029E+00
Sample Prep	DATE OF COUNT	(DOC)	04/04/96			

BLNK

N/A

Sample #

WL7166

Instrument Code

WB27811

Prepared By

SZC

Chemist

SLF

Analyst

DGG

Date Complete

04/04/96

Analysis Date

04/04/96

Analysis Time

02:55 AM

Sample Point

AY-101 GRAB

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.30E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	83.9%		1.36E-03 µCi/mL
PERCENT CARRIER RECOVERY	93.3%		

Analyst:	DGG	Date:	04-Apr-96
Signature of Chemist:	SLF	Date:	4/5/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM3

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	41481	GROSS WEIGHT	(W2)		7.0988
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0056
7166	BACKGROUND in cpm	(BKG)	3.7	NET WEIGHT	(W3)		0.0932
Test Code	SAMPLE VOLUME in mL	(SS)	0.200	DELTA TIME (HOURS)	(DT)		2.75
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	4144.40	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.16	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96002888	TIME OF SEPARATION	(ST)	02:55	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/04/96	DETECTION LIMIT	(Ld)		2.41
0	TIME OF COUNT	(TOC)	05:40	Sr-89/90 CONC in µCi/L			2.3435E+03
Sample Prep	DATE OF COUNT	(DOC)	04/04/96				
N/A							
Sample #							
S96T001521							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
SZC	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
DGG	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
04/04/96							
Analysis Date							DETECTION LEVEL
04/04/96	Sr-89/90 CONCENTRATION			2.34E+00		µCi/mL	
Analysis Time							
02:55 AM	RELATIVE COUNTING ERROR			1.0%			1.36E-03 µCi/mL
Sample Point							
AY-101 GRAB	PERCENT CARRIER RECOVERY			93.2%			

Analyst:		DGG	Date:	04-Apr-96
Signature of Chemist:		SLF	Date:	4/5/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP4

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	41850	GROSS WEIGHT	(W2)		7.8651
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.7712
7166	BACKGROUND in cpm	(BKG)	3.7	NET WEIGHT	(W3)		0.0939
Test Codes	SAMPLE VOLUME in mL	(SS)	0.200	DELTA TIME (HOURS)	(DT)		4.45
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	4181.30	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.16	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96002888	TIME OF SEPARATION	(ST)	02:55	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/04/96	DETECTION LIMIT	(Ld)		2.41
0	TIME OF COUNT	(TOC)	07:22	Sr-89/90 CONC in µCi/L			2.3029E+03
Sample Prep	DATE OF COUNT	(DOC)	04/04/96				
N/A							
Sample #							
S96T001521							
Instrument Code							
WB27811							
Prepared By							
SZC							
Chemist							
SLF							
Analyst							
DGG							
Date Complete							
04/04/96							
Analysis Date							
04/04/96							
Analysis Time							
02:55 AM							
Sample Point							
AY-101 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

				DETECTION LEVEL
Sr-89/90 CONCENTRATION	2.30E+00	µCi/mL		
RELATIVE COUNTING ERROR	1.0%			1.33E-03 µCi/mL
PERCENT CARRIER RECOVERY	93.9%			

Analyst:	DGG	Date:	04-Apr-96
Signature of Chemist:	SLF	Date:	4/5/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM5

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	27937	GROSS WEIGHT	(W2)		7.2816
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1878
7166	BACKGROUND in cpm	(BKG)	3.7	NET WEIGHT	(W3)		0.0938
Test Code	SAMPLE VOLUME in mL	(SS)	0.200	DELTA TIME (HOURS)	(DT)		4.67
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	2790.00	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.16	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96002888	TIME OF SEPARATION	(ST)	02:55	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/04/96	DETECTION LIMIT	(Ld)		2.41
0	TIME OF COUNT	(TOC)	07:35	Sr-89/90 CONC in µCi/L			1.5346E+03
Sample Prep	DATE OF COUNT	(DOC)	04/04/96				
N/A							
Sample #							
S96T001522							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
SZC	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
DGG	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
04/04/96							
Analysis Date							DETECTION
04/04/96	Sr-89/90 CONCENTRATION			1.53E+00		µCi/mL	LEVEL
Analysis Time							
02:55 AM	RELATIVE COUNTING ERROR			1.2%			1.32E-03
Sample Point							µCi/mL
AY-101 GRAB	PERCENT CARRIER RECOVERY			93.8%			

Analyst:		DGG	Date:	04-Apr-96
Signature of Chemist:		SLF	Date:	4/5/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP6

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	30444	GROSS WEIGHT	(W2)		7.1635
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0684
7166	BACKGROUND in cpm	(BKG)	3.7	NET WEIGHT	(W3)		0.0951
Test Code	SAMPLE VOLUME in mL	(SS)	0.200	DELTA TIME (HOURS)	(DT)		4.92
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	3040.70	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.16	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96002888	TIME OF SEPARATION	(ST)	02:55	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/04/96	DETECTION LIMIT	(Ld)		2.41
0	TIME OF COUNT	(TOC)	07:50	Sr-89/90 CONC in µCi/L			1.6452E+03
Sample Prep	DATE OF COUNT	(DOC)	04/04/96				
N/A							
Sample #							
S96T001522							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
SZC	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
DGG	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
04/04/96							
Analysis Date							DETECTION LEVEL
04/04/96	Sr-89/90 CONCENTRATION			1.65E+00		µCi/mL	
Analysis Time							
02:55 AM	RELATIVE COUNTING ERROR			1.1%			1.30E-03 µCi/mL
Sample Point							
AY-101 GRAB	PERCENT CARRIER RECOVERY			95.1%			

Analyst:	DGG	Date:	04-Apr-96
Signature of Chemist:	SLF	Date:	4/5/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 8213

Analyst: DPB **Instrument:** AB00 12 **Book#** 9B56

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: Determine Sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T001208	0		@SR90-01	LIQUID	96000210	AY-101 GRAB
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5	DUP	S96T001208	0		@SR90-01	LIQUID		

Final page for worklist # 8213

Daniel P. Bromley 5/4/96 1655
Analyst Signature **Date**

[illegible] 5/7/96
Analyst Signature **Date**

Sue E. Hogan 5/8/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8213

Analyst: seh **Instrument:** AB12 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine Sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@SR90-01	SR90-01	LIQUID	1.23E-03	1.31E-3	106.504	% Recovery
1	STD		0	@SR90-01	SR90-01C	LIQUID	100	7.42E+01	74.200	% Recovery
1	STD		0	@SR90-01	SR90-01E	LIQUID	1.00	2.00E+00	2.000	% Ct. Error
2	BLNK		0	@SR90-01	SR90-01	LIQUID	1	5.54E-7	5.540e-007	uCi/mL
2	BLNK		0	@SR90-01	SR90-01C	LIQUID	100	8.63E+01	86.300	% Recovery
2	BLNK		0	@SR90-01	SR90-01E	LIQUID	1.00	8.95E+01	89.500	% Ct. Error
3	BLNK/BKG		0	@SR90-01	SR90-01	LIQUID	1	1.50E+00	1.500	uCi/mL
4	SAMPLE	S96T001208	0	@SR90-01	SR90-01	LIQUID	N/A	2.05E-04	619.0e-009	uCi/mL
4	SAMPLE	S96T001208	0	@SR90-01	SR90-01C	LIQUID	N/A	8.77E+01	0.0e+000	% Recovery
4	SAMPLE	S96T001208	0	@SR90-01	SR90-01E	LIQUID	N/A	2.07E+00	0.0e+000	% Ct. Error
5	DUP	S96T001208	0	@SR90-01	SR90-01	LIQUID	2.05E-4	2.08E-4	1.453	RPD
5	DUP	S96T001208	0	@SR90-01	SR90-01C	LIQUID	100	8.91E+01	89.100	% Recovery
5	DUP	S96T001208	0	@SR90-01	SR90-01E	LIQUID	1.00	2.04E+00	2.040	% Ct. Error

Final page for worklist# 8213

Analyst Signature Date

Analyst Signature Date

5/13/96

Reviewer Signature Date

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

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	9763	GROSS WEIGHT	(W2)		7.0980
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0238
8213	BACKGROUND in cpm	(BKG)	4.8	NET WEIGHT	(W3)		0.0742
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		6.83
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	971.50	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.32	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96004094	TIME OF SEPARATION	(ST)	13:45	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/04/96	DETECTION LIMIT	(Ld)		2.73
0	TIME OF COUNT	(TOC)	20:35	Sr-89/90 CONC. in µCi/L			1.3073E+00
Sample Prep	DATE OF COUNT	(DOC)	05/04/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2278E-03				
WL8213							
Instrument Code							
WB27811							
Prepared By							
MCB							
Chemist							
JLS							
Analyst							
DPB							
Date Complete							
05/07/96							
Analysis Date							
05/04/96							
Analysis Time							
01:45 PM							
Sample Point							
AY-101 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0

RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.31E-03	µCi/mL
RELATIVE COUNTING ERROR	2.0%	
PERCENT CARRIER RECOVERY	74.2%	

DETECTION LEVEL

3.67E-06 µCi/L

Analyst:	DPB	Date:	07-May-96
Signature of Chemist:	JLS	Date:	5/13/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							BLNK
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
BLNK	TOTAL COUNTS	(TC)	72	GROSS WEIGHT	(W2)		7.1668
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0805
8213	BACKGROUND in cpm	(BKG)	4.8	NET WEIGHT	(W3)		0.0863
Test Code	SAMPLE VOLUME in mL	(SS)	5.000	DELTA TIME (HOURS)	(DT)		7.00
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	2.40	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.32	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96004094	TIME OF SEPARATION	(ST)	13:45	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/04/96	1.250	(Ld)		2.73
0	TIME OF COUNT	(TOC)	20:45	Sr-89/90 CONC in µCi/L			5.5439E-04
Sample Prep	DATE OF COUNT	(DOC)	05/04/96				
N/A							
Sample #							
WL8213							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
DPB	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/07/96							
Analysis Date							DETECTION LEVEL
05/04/96	Sr-89/90 CONCENTRATION			5.54E-07	µCi/mL		
Analysis Time							
01:45 PM	RELATIVE COUNTING ERROR			89.5%			6.31E-07 µCi/mL
Sample Point							
AY-101 GRAB	PERCENT CARRIER RECOVERY			86.3%			

Analyst:		DPB	Date:	07-May-96
Signature of Chemist:		JLS	Date:	5/13/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	9107	GROSS WEIGHT	(W2)	7.1122
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0245
8213	BACKGROUND in cpm	(BKG)	4.8	NET WEIGHT	(W3)	0.0877
Test Code	SAMPLE VOLUME in mL	(SS)	5.000	DELTA TIME (HOURS)	(DT)	7.25
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	905.90	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.32	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96004094	TIME OF SEPARATION	(ST)	13:45	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/04/96	DETECTION LIMIT	(Ld)	2.73
0	TIME OF COUNT	(TOC)	21:00	Sr-89/90 CONC in µCi/L		2.0539E-01
Sample Prep	DATE OF COUNT	(DOC)	05/04/96			
N/A						
Sample #						
S96T001208						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
DPB	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/07/96						
Analysis Date						DETECTION LEVEL
05/04/96	Sr-89/90 CONCENTRATION		2.05E-04		µCi/mL	
Analysis Time						
01:45 PM	RELATIVE COUNTING ERROR		2.1%			6.19E-07 µCi/mL
Sample Point						
AY-101 GRAB	PERCENT CARRIER RECOVERY		87.7%			

Analyst:		DPB	Date:	07-May-96
Signature of Chemist:		JLS	Date:	5/13/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	9392	GROSS WEIGHT	(W2)	7.1366
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0475
8213	BACKGROUND in cpm	(BKG)	4.8	NET WEIGHT	(W3)	0.0891
Test Code	SAMPLE VOLUME in mL	(SS)	5.000	DELTA TIME (HOURS)	(DT)	7.42
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	934.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.32	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96004094	TIME OF SEPARATION	(ST)	13:45	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/04/96	DETECTION LIMIT	(Ld)	2.73
0	TIME OF COUNT	(TOC)	21:10	Sr-89/90 CONC in µCi/L		2.0817E-01
Sample Prep	DATE OF COUNT	(DOC)	05/04/96			
N/A						
Sample #						
S96T001208						
Instrument Code						
WB27811						
Prepared By						
MCB						
Chemist						
JLS						
Analyst						
DPB						
Date Complete						
05/07/96						
Analysis Date						
05/04/96						
Analysis Time						
01:45 PM						
Sample Point						
AY-101 GRAB						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	2.08E-04	µCi/mL	6.08E-07 µCi/mL
RELATIVE COUNTING ERROR	2.0%		
PERCENT CARRIER RECOVERY	89.1%		

Analyst:	DPB	Date:	07-May-96
Signature of Chemist:	JLS	Date:	5/13/96

SAMPLE.WB1 REV 1.2 22010NML

RUSH

06/06/96 08:46
A-0004-1

LABCORE Data Entry Template for Worklist# 9671

Analyst: DPB **Instrument:** AB00 12 **Book#** 9656

Method: LA-220-101 Rev/Mod D-1 ~~WHC-SD-WM-DP-186, REV. 0~~ ~~WHC-SD-WM-DP-178, REV.~~ 6/10/96

Worklist Comment: 0.100 - 10 - 0.100 sample size / rerun / jls WHC-SD-WM-DP-178, REV. 1

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T001361	0		@SR90-01	LIQUID	96000257	AY-101 GRAB
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5	DUP	S96T001361	0		@SR90-01	LIQUID		

Final page for worklist # 9671

Daniel P. Bromley 6/7/96 0430
Analyst Signature **Date**

Analyst Signature **Date** 6/7/96
Sue E. Hogan 6/7/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9671

Analyst: dpb **Instrument:** AB12 **Book#** 9856

Method: LA-320-101 Rev/Mod D-1 ~~WHC-SD-WM-DP-178, REV.~~ 6/10/96

Worklist Comment: 0.100 - 10 - 0.100 sample size / rerun / jls WHC-SD-WM-DP-178, REV. 1

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@SR90-01	SR90-01	LIQUID	1.23E-03	1.24E-3	100.813	% Recovery
1	STD		0	@SR90-01	SR90-01C	LIQUID	100	8.79E+01	87.900	% Recovery
1	STD		0	@SR90-01	SR90-01E	LIQUID	1.00	1.87E+00	1.870	% Ct. Erro
2	BLNK		0	@SR90-01	SR90-01	LIQUID	1	4.05E-3	40.500e-004	uCi/mL
2	BLNK		0	@SR90-01	SR90-01C	LIQUID	100	8.88E+01	88.800	% Recovery
2	BLNK		0	@SR90-01	SR90-01E	LIQUID	1.00	4.15E+01	41.500	uCi/mL
3	BLNK/BKG		0	@SR90-01	SR90-01	LIQUID	1	4.27E+00	4.270	BLNK/BKG
4	SAMPLE	S96T001361	0	@SR90-01	SR90-01	LIQUID	N/A	1.96E+00	153.0e-005	uCi/mL
4	SAMPLE	S96T001361	0	@SR90-01	SR90-01C	LIQUID	N/A	8.80E+01	0.0e+000	% Recovery
4	SAMPLE	S96T001361	0	@SR90-01	SR90-01E	LIQUID	N/A	1.49E+00	0.0e+000	% Ct. Error
5	DUP	S96T001361	0	@SR90-01	SR90-01	LIQUID	1.96E+0	1.91E+0	2.584	RPD
5	DUP	S96T001361	0	@SR90-01	SR90-01C	LIQUID	100	8.92E+01	89.200	% Recovery
5	DUP	S96T001361	0	@SR90-01	SR90-01E	LIQUID	1.00	1.49E+00	1.490	% Cnt Err

Final page for worklist# 9671

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

Jennifer L. Stepien 6/7/96
Reviewer Signature **Date**

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

WHC-SD-WM-DP-178, REV. 1

~~WHC-SD-WM-DP-178, REV.~~ 6/10/96

~~WHC-SD-WM-DP-186, REV.~~ 0

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	11035	GROSS WEIGHT	(W2)		7.1365
Work Date	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0486
9671	BACKGROUND in cpm	(BKG)	1.1	NET WEIGHT	(W3)		0.0879
Client Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		7.50
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1102.40	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Sample Number	CRITICAL LEVEL	(Lc)	0.63	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96005839	TIME OF SEPARATION	(ST)	23:50	Rmax			N/A
Rerun #	DATE OF SEPARATION	(SD)	06/06/96	DETECTION LIMIT	(Ld)		1.35
0	TIME OF COUNT	(TOC)	07:20	Sr-89/90 CONC. in µCi/L			1.2437E+00
Sample Prep	DATE OF COUNT	(DOC)	06/07/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2252E-03				
WL9671							
Instrument Code							
WB27811							
Prepared By							
MCB							
Chemist							
JLS							
Analyst							
DPB							
Date Complete							
06/07/96							
Analysis Date							
06/06/96							
Analysis Time							
11:50 PM							
Sample Point							
AY-101 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0

RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.24E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.9%		1.53E-06 µCi/L
PERCENT CARRIER RECOVERY	87.9%		

Analyst:	DPB	Date:	07-Jun-96
Signature of Chemist:	JLS	Date:	6/7/96

STANDARD WB1 REV 1.2 22010NML

~~WHC-SD-WM-DP-186, REV. 0~~ HMW 6/10/96
WHC-SD-WM-DP-178, REV. 1

WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Type						BLNK
BLNK	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	47	GROSS WEIGHT	(W2)	7.0608
9671	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9720
Test Code	BACKGROUND in cpm	(BKG)	1.1	NET WEIGHT	(W3)	0.0888
@SR90-01	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	7.83
Matrix	DILUTION FACTOR	(DF)	101			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	3.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
96005839	CRITICAL LEVEL	(Lc)	0.63	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	23:50	Rmax		N/A
0	DATE OF SEPARATION	(SD)	06/06/96	DETECTION LIMIT	(Ld)	1.35
Sample Prep	TIME OF COUNT	(TOC)	07:40	Sr-89/90 CONC in µCi/L		4.0466E+00
N/A	DATE OF COUNT	(DOC)	06/07/96			

Sample #	
WL9671	
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
DPB	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
06/07/96	
Analysis Date	
06/06/96	
Analysis Time	
11:50 PM	
Sample Point	
AY-101 GRAB	

Sr-89/90 CONCENTRATION	4.05E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	41.5%		1.52E-03 µCi/mL
PERCENT CARRIER RECOVERY	88.8%		

Analyst:	DPB	Date:	07-Jun-96
Signature of Chemist:	JLS	Date:	6/7/96

BLANK.WB1 REV 1.2 22010NML

797

~~WHC-SD-WM-DP-186, REV. 0~~ 6/10/96

WHC-SD-WM-DP-178, REV. 1

WORKBOOK PAGE: SAM4

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	17290	GROSS WEIGHT	(W2)		7.1605
Worker	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0725
9671	BACKGROUND in cpm	(BKG)	1.1	NET WEIGHT	(W3)		0.0880
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		8.00
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1727.90	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.63	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96005839	TIME OF SEPARATION	(ST)	23:50	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	06/06/96	DETECTION LIMIT	(Ld)		1.35
0	TIME OF COUNT	(TOC)	07:50	Sr-89/90 CONC in µCi/L			1.9566E+03
Sample Prep	DATE OF COUNT	(DOC)	06/07/96				
N/A							
Sample #							
S96T001361							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
DPB	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
06/07/96							
Analysis Date							DETECTION LEVEL
06/06/96	Sr-89/90 CONCENTRATION			1.96E+00		µCi/mL	
Analysis Time							
11:50 PM	RELATIVE COUNTING ERROR			1.5%			1.53E-03 µCi/mL
Sample Point							
AY-101 GRAB	PERCENT CARRIER RECOVERY			88.0%			

Analyst:	DPB	Date:	07-Jun-96
Signature of Chemist:	JLS	Date:	6/7/96

SAMPLE.WB1 REV 1.2 22010NML

~~WHC-SD-WM-DP-186, REV. 0~~ WHC-SD-WM-DP-178, REV. 1 JMW 6/10/96

WORKBOOK PAGE: DUP5

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	17234	GROSS WEIGHT	(W2)	7.0562
Work Cell	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9670
9671	BACKGROUND in cpm	(BKG)	1.1	NET WEIGHT	(W3)	0.0892
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	8.50
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1722.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.63	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96005839	TIME OF SEPARATION	(ST)	23:50	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	06/06/96	DETECTION LIMIT	(Ld)	1.35
0	TIME OF COUNT	(TOC)	08:20	Sr-89/90 CONC in µCi/L		1.9144E+03
Sample Prep	DATE OF COUNT	(DOC)	06/07/96			
N/A						
Sample #						
S96T001361						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Instrument Code				
WB27811				
Prepared By				
MCB				
Chemist				
JLS				
Analyst				
DPB				
Date Complete				
06/07/96				
Analysis Date				DETECTION LEVEL
06/06/96	Sr-89/90 CONCENTRATION	1.91E+00	µCi/mL	
Analysis Time				
11:50 PM	RELATIVE COUNTING ERROR	1.5%		1.51E-03 µCi/mL
Sample Point				
AY-101 GRAB	PERCENT CARRIER RECOVERY	89.2%		

Analyst:		DPB	Date:	07-Jun-96
Signature of Chemist:	J L Shuppen	JLS	Date:	6/7/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 10170

Analyst: AKL **Instrument:** AB00 12 **Book#** 9656

Method: LA-220-101 Rev/Mod D-1

Worklist Comment: AY-101 @SR90-01 Determine SS using ludlum.

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	SOLID		
2	BLNK-PREP				@SR90-01	SOLID		
3	SAMPLE	S96T003467	0	A	@SR90-01	SOLID	96000210	AY-101 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
4	DUP	S96T003467	0	A	@SR90-01	SOLID		

Final page for worklist # 10170

G Lewis 6/21/96
Analyst Signature **Date**

W C Bivens 6/24/96
Analyst Signature **Date**

Sue E. Hogan 6-24-96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 10170

Analyst: akl **Instrument:** AB12 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: AY-101 @SR90-01 Determine SS using ludlum.

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01	SR90-01	SOLID	1.22E-03	1.16E-3	95.082	% Recovery
1	STD		0		@SR90-01	SR90-01C	SOLID	100	9.16E+01	91.600	% Recovery
1	STD		0		@SR90-01	SR90-01E	SOLID	1.00	1.94E+00	1.940	% Ct. Erro
2	BLNK-PREP		0		@SR90-01	SR90-01	SOLID	1	<4.76E-1		uCi/g
2	BLNK-PREP		0		@SR90-01	SR90-01C	SOLID	100	9.13E+01	91.300	% Recovery
2	BLNK-PREP		0		@SR90-01	SR90-01E	SOLID	1.00	3.18E+02	318.000	uCi/g
3	SAMPLE	S96T003467	0	A	@SR90-01	SR90-01	SOLID	N/A	4.69E+03	647.0e-003	uCi/g
3	SAMPLE	S96T003467	0	A	@SR90-01	SR90-01C	SOLID	N/A	9.07E+01	0.0e+000	% Recovery
3	SAMPLE	S96T003467	0	A	@SR90-01	SR90-01E	SOLID	N/A	5.50E-01	0.0e+000	% Ct. Error
4	DUP	S96T003467	0	A	@SR90-01	SR90-01	SOLID	4.69E+3	4.52E+3	3.692	RPD
4	DUP	S96T003467	0	A	@SR90-01	SR90-01C	SOLID	100	9.09E+01	90.900	% Recovery
4	DUP	S96T003467	0	A	@SR90-01	SR90-01E	SOLID	1.00	6.80E-01	0.680	% Cnt Err

Final page for worklist# 10170

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

6/26/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

							STANDARD
Sample Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	10273	GROSS WEIGHT	(W2)		7.3291
Workbook	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2375
10170	BACKGROUND in cpm	(BKG)	1.9	NET WEIGHT	(W3)		0.0916
Sample Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		3.58
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1025.40	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.83	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96006400	TIME OF SEPARATION	(ST)	13:50	Rmax			N/A
Replicate	DATE OF SEPARATION	(SD)	06/21/96	DETECTION LIMIT	(Ld)		1.75
0	TIME OF COUNT	(TOC)	17:25	Sr-89/90 CONC. in µCi/L			1.1574E+00
Sample Prep	DATE OF COUNT	(DOC)	06/21/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2240E-03				
wl10170							
Instrument Code							
WB27811							
Prepared By							
MCB							
Chemist							
JLS							
Analyst							
AKL							
Date Complete							
06/24/96							
Analysis Date							
06/21/96							
Analysis Time							
03:30 PM							
Sample Point							
AY-101 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0

RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.16E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.9%		1.98E-06 µCi/L
PERCENT CARRIER RECOVERY	91.6%		

Analyst:	AKL	Date:	24-Jun-96
Signature of Chemist:	Jennifer L. Slupecki JLS	Date:	6/26/96

STANDARD.WB1 REV 2.0 22010NML

WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

Sample Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		BLNK-PREP 1.000
BLNK-PREP	TOTAL COUNTS	(TC)	23	GROSS WEIGHT	(W2)		7.3154
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2241
10170	BACKGROUND in cpm	(BKG)	1.9	NET WEIGHT	(W3)		0.0913
Project Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		3.83
@SR90-01	DILUTION FACTOR	DF	101				
Sample Matrix	DIGEST FACTOR (g/L)	(D g/L	3.1				
SOLID	SAMPLE COUNT RATE	(Rs)	0.40	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.83	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96006400	TIME OF SEPARATION	(ST)	13:50	Rmax			1.29
Aliquot #	DATE OF SEPARATION	(SD)	06/21/96	DETECTION LIMIT	(Ld)		1.75
0	TIME OF COUNT	(TOC)	17:40	Sr-89/90 CONC in µCi/g		<	4.7597E-01
Sample Prep	DATE OF COUNT	(DOC)	06/21/96				
N/A							
Sample #							
WL10170							

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*(Dg/L)*REC*2220000)
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
AKL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
06/24/96	
Analysis Date	
06/21/96	Sr-89/90 CONCENTRATION < 4.76E-01 µCi/g
Analysis Time	LESS THAN Value was Determined from Rmax.
03:30 PM	RELATIVE COUNTING ERROR 317.6%
Sample Point	
AY-101 GRAB	PERCENT CARRIER RECOVERY 91.3%

DETECTION LEVEL 6.44E-01 µCi/g

Analyst:	AKL	Date:	24-Jun-96
Signature of Chemist:	JLS	Date:	6/26/96

BLANK.WB1 REV 2.0 22010NML

WORKBOOK PAGE: SAM3

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							SAMPLE
Sample Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	126996	GROSS WEIGHT	(W2)		7.3273
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2366
10170	BACKGROUND in cpm	(BKG)	1.9	NET WEIGHT	(W3)		0.0907
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		4.08
@SR90-01	DILUTION FACTOR	DF	101				
Matrix	DIGEST FACTOR (g/L)	(D g/L	3.1				
SOLID	SAMPLE COUNT RATE	(Rs)	12697.70	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.83	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96006400	TIME OF SEPARATION	(ST)	13:50	Rmax			N/A
Rerun #	DATE OF SEPARATION	(SD)	06/21/96	DETECTION LIMIT	(Ld)		1.75
0	TIME OF COUNT	(TOC)	17:55	Sr-89/90 CONC in µCi/g			4.6898E+03
Sample Prep	DATE OF COUNT	(DOC)	06/21/96				
ACIDIG01							
Sample #							
S96T003467							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*(Dg/L)*REC*2220000)						
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96						
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
AKL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
06/24/96							
Analysis Date							DETECTION LEVEL
06/21/96	Sr-89/90 CONCENTRATION		4.69E+03		µCi/g		
Analysis Time							
03:30 PM	RELATIVE COUNTING ERROR		0.6%				6.47E-01 µCi/g
Sample Point							
AY-101 GRAB	PERCENT CARRIER RECOVERY		90.7%				

Analyst:	AKL	Date:	24-Jun-96
Signature of Chemist:	JLS	Date:	6/26/96

SAMPLE.WB1 REV 2.0 22010NM

WORKBOOK PAGE: DUP4

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

WHC-SD-WM-DP-178, REV. 1

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	83193	GROSS WEIGHT	(W2)	7.2806
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1897
10170	BACKGROUND in cpm	(BKG)	1.9	NET WEIGHT	(W3)	0.0909
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	4.25
@SR90-01	DILUTION FACTOR	DF	101			
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.1			
SOLID	SAMPLE COUNT RATE	(Rs)	8317.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.83	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96006400	TIME OF SEPARATION	(ST)	13:50	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	06/21/96	DETECTION LIMIT	(Ld)	1.75
0	TIME OF COUNT	(TOC)	18:05	Sr-89/90 CONC in µCi/g		4.5166E+03
Sample Prep	DATE OF COUNT	(DOC)	06/21/96			
ACIDIG01						
Sample #						
S96T003467						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*(Dg/L)*REC*2220000)
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = (The Square Root of (TC + BKG * CT) / (TC - BKG * CT))*1.96
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
AKL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
06/24/96	
Analysis Date	
06/21/96	
Analysis Time	
03:30 PM	
Sample Point	
AY-101 GRAB	

Sr-89/90 CONCENTRATION	4.52E+03	µCi/g	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.7%		9.51E-01 µCi/g
PERCENT CARRIER RECOVERY	90.9%		

Analyst:	AKL	Date:	24-Jun-96
Signature of Chemist:	JLS	Date:	6/26/96

SAMPLE.WB1 REV 2.0 22010NML

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

LABCORE Data Entry Template for Worklist# 7088

Analyst: JDS **Instrument:** AB00 12 **Book#** 9B56

Method: LA-220-101 Rev/Mod D-~~2~~ 1 SLF 4/10/96

Worklist Comment: AY-101 GRAB & C-~~101~~ 106 GRAB: DET. SAMP. SIZE USING LUDLUM. lc KMZ 6/5/96

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T001361	0		@SR90-01	LIQUID	96000257	AY-101 GRAB
	Analytes Requested:	SR90-01 , SR90-01C, SR90-01E						
5	DUP	S96T001361	0		@SR90-01	LIQUID		
6	SAMPLE	S96T001566	0		@SR90-01	LIQUID	96000174	C-106 GRAB
	Analytes Requested:	SR90-01 , SR90-01C, SR90-01E						
7	DUP	S96T001566	0		@SR90-01	LIQUID		

Final page for worklist # 7088

Analyst Signature **Date**

Analyst Signature **Date** 4/10/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7088

Analyst: jds **Instrument:** AB12 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: AY-101 GRAB & C-~~101~~ 106 GRAB: DET. SAMP. SIZE USING LUDLUM. lc
RHE 6/5/96

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@SR90-01 SR90-01	LIQUID	1.23E-03	1.19E-3	96.750	% Recovery
1	STD			0	@SR90-01 SR90-01C	LIQUID	100	8.84E+01	88.400	% Recovery
1	STD			0	@SR90-01 SR90-01E	LIQUID	1.00	1.84E+00	1.840	% Ct. Error
2	BLNK			0	@SR90-01 SR90-01	LIQUID	1	1.16E-2	1.000e-002	uCi/mL
2	BLNK			0	@SR90-01 SR90-01C	LIQUID	100	9.30E+01	93.000	% Recovery
2	BLNK			0	@SR90-01 SR90-01E	LIQUID	1.00	3.85E+01	38.500	% Ct. Error
3	BLNK/BKG			0	@SR90-01 SR90-01	LIQUID	1	2.77E+00	2.770	uCi/mL
4	SAMPLE	S96T001361		0	@SR90-01 SR90-01	LIQUID	N/A	5.63E-01	4.730e-003	uCi/mL
4	SAMPLE	S96T001361		0	@SR90-01 SR90-01C	LIQUID	N/A	9.11E+01	1.000e-004	% Recovery
4	SAMPLE	S96T001361		0	@SR90-01 SR90-01E	LIQUID	N/A	3.86E+00	0.000	% Ct. Error
5	DUP	S96T001361		0	@SR90-01 SR90-01	LIQUID	5.63E-1	5.48E-1	2.700	RPD
5	DUP	S96T001361		0	@SR90-01 SR90-01C	LIQUID	100	9.21E+01	92.100	% Recovery
5	DUP	S96T001361		0	@SR90-01 SR90-01E	LIQUID	1.00	3.89E+00	3.890	% Ct. Error
6	SAMPLE	S96T001566		0	@SR90-01 SR90-01	LIQUID	N/A	6.39E-02	2.400e-002	uCi/mL
6	SAMPLE	S96T001566		0	@SR90-01 SR90-01C	LIQUID	N/A	8.59E+01	1.000e-004	% Recovery
6	SAMPLE	S96T001566		0	@SR90-01 SR90-01E	LIQUID	N/A	3.65E+01	0.000	% Ct. Error
7	DUP	S96T001566		0	@SR90-01 SR90-01	LIQUID	6.39E-2	8.86E-2	32.390	RPD
7	DUP	S96T001566		0	@SR90-01 SR90-01C	LIQUID	100	8.69E+01	86.900	% Recovery
7	DUP	S96T001566		0	@SR90-01 SR90-01E	LIQUID	1.00	2.84E+01	28.400	% Ct. Error

Final page for worklist# 7088

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

4/10/96
Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1 WHC-SD-WM-DP-178, REV. 1

Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1) LIQUIDS

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	11388	GROSS WEIGHT	(W2)		7.3239
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2355
7088	BACKGROUND in cpm	(BKG)	3.1	NET WEIGHT	(W3)		0.0884
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		14.87
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1135.70	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.06	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96002801	TIME OF SEPARATION	(ST)	14:20	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/09/96	DETECTION LIMIT	(Ld)		2.21
0	TIME OF COUNT	(TOC)	05:12	Sr-89/90 CONC. in µCi/L			1.1881E+00
Sample Prep	DATE OF COUNT	(DOC)	04/10/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2298E-03				
WL7088							
Instrument Code							
WB27811	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
Prepared By	Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0						
MCB	RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
Chemist	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
SLF	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
Analyst	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
JDS	NOTE: Expected weight = CVA * 0.1						
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
04/10/96	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
Analysis Date							DETECTION LEVEL
04/09/96	Sr-89/90 CONCENTRATION			1.19E-03		µCi/mL	
Analysis Time							
02:20 PM	RELATIVE COUNTING ERROR			1.8%			2.31E-06 µCi/L
Sample Point							
AY-101 GRAB	PERCENT CARRIER RECOVERY			88.4%			

Analyst:		JDS	Date:	10-Apr-96
Signature of Chemist:		SLF	Date:	4/10/96

STANDARD.WB1 REV 1.2 22010NML

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WORKBOOK PAGE: BLANK2

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							BLNK
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
BLNK	TOTAL COUNTS	(TC)	86	GROSS WEIGHT	(W2)		7.3315
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2385
7088	BACKGROUND in cpm	(BKG)	3.1	NET WEIGHT	(W3)		0.0930
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		15.17
@SR90-01	DILUTION FACTOR	(DF)	2121				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	5.50	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.06	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96002801	TIME OF SEPARATION	(ST)	14:20	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/09/96	DETECTION LIMIT	(Ld)		2.21
0	TIME OF COUNT	(TOC)	05:30	Sr-89/90 CONC in µCi/L			1.1569E+01
Sample Prep	DATE OF COUNT	(DOC)	04/10/96				
N/A							
Sample #							
WL7088							
Instrument Code							
WB27811							
Prepared By							
MCB							
Chemist							
SLF							
Analyst							
JDS							
Date Complete							
04/10/96							
Analysis Date							
04/09/96							
Analysis Time							
02:20 PM							
Sample Point							
AY-101 GRAB							

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	1.16E-02	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	38.5%		4.65E-03 µCi/mL
PERCENT CARRIER RECOVERY	93.0%		

Analyst:	JDS	Date:	10-Apr-96
Signature of Chemist:	SLF	Date:	4/10/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	2668	GROSS WEIGHT	(W2)	7.3414
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2503
7088	BACKGROUND in cpm	(BKG)	3.1	NET WEIGHT	(W3)	0.0911
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	15.75
@SR90-01	DILUTION FACTOR	(DF)	2121			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	263.70	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.06	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96002801	TIME OF SEPARATION	(ST)	14:20	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/09/96	DETECTION LIMIT	(Ld)	2.21
0	TIME OF COUNT	(TOC)	06:05	Sr-89/90 CONC in µCi/L		5.6339E+02
Sample Prep	DATE OF COUNT	(DOC)	04/10/96			
N/A						
Sample #						
S96T001361						
Instrument Code						
WB27811						
Prepared By						
MCB						
Chemist						
SLF						
Analyst						
JDS						
Date Complete						
04/10/96						
Analysis Date						
04/09/96						
Analysis Time						
02:20 PM						
Sample Point						
AY-101 GRAB						

Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)

Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)

NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)

Percent Carrier Recovery = (Net Weight / Expected weight) * 100

NOTE: Expected weight = CVA * 0.1

Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Sr-89/90 CONCENTRATION	5.63E-01	µCi/mL
RELATIVE COUNTING ERROR	3.9%	
PERCENT CARRIER RECOVERY	91.1%	

DETECTION LEVEL 4.73E-03 µCi/mL

Analyst:	JDS	Date:	10-Apr-96
Signature of Chemist:	SLF	Date:	4/10/96

SAMPLE.WB1 REV 1.2 22010NML

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WORKBOOK PAGE: DUP5

LA-220-101 / D-1 Sr-89/90 : LA-220-101 (D-1), 102 (E-3), 104 (D-1)

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	2632	GROSS WEIGHT	(W2)		7.3442
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2521
7088	BACKGROUND in cpm	(BKG)	3.1	NET WEIGHT	(W3)		0.0921
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		16.17
@SR90-01	DILUTION FACTOR	(DF)	2121				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	260.10	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.06	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96002801	TIME OF SEPARATION	(ST)	14:20	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/09/96	DETECTION LIMIT	(Ld)		2.21
0	TIME OF COUNT	(TOC)	06:30	Sr-89/90 CONC in µCi/L			5.4770E+02
Sample Prep	DATE OF COUNT	(DOC)	04/10/96				
N/A							
Sample #							
S96T001361							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
JDS	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
04/10/96							
Analysis Date							DETECTION LEVEL
04/09/96	Sr-89/90 CONCENTRATION			5.48E-01		µCi/mL	
Analysis Time							
02:20 PM	RELATIVE COUNTING ERROR			3.9%			4.66E-03 µCi/mL
Sample Point							
AY-101 GRAB	PERCENT CARRIER RECOVERY			92.1%			

Analyst:		JDS	Date:	10-Apr-96
Signature of Chemist:		SLF	Date:	4/10/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 6801

Analyst: AKL **Instrument:** AM01 13 **Book#** 104B43

Method: LA-953-103 Rev/Mod _____

Worklist Comment: Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AM24101	LIQUID		
2	BLNK				@AM24101	LIQUID		
3	SAMPLE	S96T001263	0		@AM24101	LIQUID	96000210	AY-101 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
4	DUP	S96T001263	0		@AM24101	LIQUID		
5	SAMPLE	S96T001264	0		@AM24101	LIQUID	96000210	AY-101 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
6	DUP	S96T001264	0		@AM24101	LIQUID		
7	SAMPLE	S96T001265	0		@AM24101	LIQUID	96000210	AY-101 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
8	DUP	S96T001265	0		@AM24101	LIQUID		

Final page for worklist # 6801

C L Lewis 3/27/96
Analyst Signature **Date**

G. Owen 4/1/96
Analyst Signature **Date**
C Raymond 4-1-96

Data Entry Comments:

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

WHC-SD-WM-DP-178, REV. 1

LABCORE Completed Worklist Report for Worklist# 6801

Analyst: akl **Instrument:** AB13 **Book#** 104B43

Method: LA-953-103 Rev/Mod A-5

Worklist Comment: Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@AM24101	AM24101	LIQUID	3.07E-02	2.51E-2	81.760	% Recovery
1	STD		0	@AM24101	AM24101T	LIQUID	100.	9.16E+01	91.600	% Recovery
1	STD		0	@AM24101	AM24101E	LIQUID	1.0	1.68E+00	1.680	% Ct. Error
2	BLNK		0	@AM24101	AM24101	LIQUID	1	<1.14E-3		uCi/mL
2	BLNK		0	@AM24101	AM24101T	LIQUID	100.0	8.51E+01	85.100	% Recovery
2	BLNK		0	@AM24101	AM24101E	LIQUID	1.0	5.01E+00	5.010	% Ct. Error
3	SAMPLE	S96T001263	0	@AM24101	AM24101	LIQUID	N/A	3.72E-03	1.250e-003	uCi/mL
3	SAMPLE	S96T001263	0	@AM24101	AM24101E	LIQUID	N/A	2.41E+00	0.000	% Ct. Error
3	SAMPLE	S96T001263	0	@AM24101	AM24101T	LIQUID	N/A	9.04E+01	1.000e-007	% Recovery
4	DUP	S96T001263	0	@AM24101	AM24101	LIQUID	3.72E-3	3.94E-3	5.740	RPD
4	DUP	S96T001263	0	@AM24101	AM24101T	LIQUID	100.0	8.17E+01	81.700	% Recovery
4	DUP	S96T001263	0	@AM24101	AM24101E	LIQUID	1.0	2.33E+00	2.330	% Ct. Error
5	SAMPLE	S96T001264	0	@AM24101	AM24101	LIQUID	N/A	3.30E-03	1.400e-003	uCi/mL
5	SAMPLE	S96T001264	0	@AM24101	AM24101E	LIQUID	N/A	2.71E+00	0.000	% Ct. Error
5	SAMPLE	S96T001264	0	@AM24101	AM24101T	LIQUID	N/A	8.38E+01	1.000e-007	% Recovery
6	DUP	S96T001264	0	@AM24101	AM24101	LIQUID	3.30E-3	3.56E-3	7.580	RPD
6	DUP	S96T001264	0	@AM24101	AM24101T	LIQUID	100.0	9.07E+01	90.700	% Recovery
6	DUP	S96T001264	0	@AM24101	AM24101E	LIQUID	1.0	2.36E+00	2.360	% Ct. Error
7	SAMPLE	S96T001265	0	@AM24101	AM24101	LIQUID	N/A	3.55E-03	1.220e-003	uCi/mL
7	SAMPLE	S96T001265	0	@AM24101	AM24101E	LIQUID	N/A	2.62E+00	0.000	% Ct. Error
7	SAMPLE	S96T001265	0	@AM24101	AM24101T	LIQUID	N/A	9.00E+01	1.000e-007	% Recovery
8	DUP	S96T001265	0	@AM24101	AM24101	LIQUID	3.55E-3	3.38E-3	4.910	RPD
8	DUP	S96T001265	0	@AM24101	AM24101T	LIQUID	100.0	8.51E+01	85.100	% Recovery
8	DUP	S96T001265	0	@AM24101	AM24101E	LIQUID	1.0	2.43E+00	2.430	% Ct. Error

Final page for worklist# 6801

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

John Relyea 3 Apr 96
Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID

Type	Date Counted		MAR-31-96	Am 241 AEA Frac.	(C241)	0.538
STD	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.368
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
6801	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		8924
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.17
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		69.55
LIQUID	Detector Number		13	Am 243 cpm		47.59
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm		0
96002502	Standard Book No		104B43	AEA Count Time	(min)	480
Rerun	Standard Value in µCi/mL		0.03067	Am 241 µCi/L =		2.5110E+01
0				Cm 243/244 µCi/L =	<	2.5470E+00

Sample Prep
N/A
Sample Number
WL#6801
Instrument Code
WB27810
Prepared By
CJO
Chemist
JFR
Analyst
AKL
Date Complete
04/01/96
Analysis Date
03/29/96
Analysis Time
12:30 PM
Sample Point
AY-101

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 =	2.51E-02	DETECTION LEVELS in µCi/mL
Relative Counting Error =	1.7%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241 2.55E-03
Cm 243/244 µCi/mL	< 2.55E-03	
Relative Counting Error =	100.0%	Cm 243/244 2.55E-03
Am 243 Tracer Recovery =	91.6%	

Analyst:		AKL	Date:	04/01/96
Signature of Chemist:	John Relyea	JFR	Date:	2 Apr 96

STANDARD.WB1 REV 1.2 953103ML

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

							BLNK
Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)		0.034
BLNK	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.883
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)		0
6801	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts			3459
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)		0.17
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm			3.31
LIQUID	Detector Number		13	Am 243 cpm			86.57
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm			0
96002502				AEA Count Time	(min)		480
Rerun				Am 241 µCi/L =		<	1.1424E+00
0				Cm 243/244 µCi/L =		<	1.1424E+00
Sample Prep							
N/A							
Sample Number							
WL#6801							
Instrument Code							
WB27810							
Prepared By							
CJO							
Chemist							
JFR							
Analyst							
AKL							
Date Complete							
04/01/96							
Analysis Date							
03/29/96							
Analysis Time							
12:30 PM							
Sample Point							
AY-101							

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	=	< 1.14E-03
Relative Counting Error	=	5.0%

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

Cm 243/244 µCi/mL		< 1.14E-03
Relative Counting Error	=	100.0%
Am 243 Tracer Recovery	=	85.1%

DETECTION LEVELS in µCi/mL	
Am 241	1.14E-03
Cm 243/244	1.14E-03

Analyst:	AKL	Date:	04/01/96
Signature of Chemist: John Relyea	JFR	Date:	2 Apr 96

BLANK.WB1 REV 1.2 953103ML

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WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

							SAMPLE
Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)		0.164
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.758
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)		0
6801	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts			4278
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)		0.17
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm			16.77
LIQUID	Detector Number		13	Am 243 cpm			77.66
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm			0
96002502				AEA Count Time	(min)		480
Rerun				Am 241 µCi/L =			3.7161E+00
0				Cm 243/244 µCi/L =		<	1.2531E+00
Sample Prep							
N/A							
Sample Number							
S96T001263							
Instrument Code							
WB27810							
Prepared By							
CJO							
Chemist							
JFR							
Analyst							
AKL							
Date Complete							
04/01/96							
Analysis Date							
03/29/96							
Analysis Time							
12:30 PM							
Sample Point							
AY-101							

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 =	3.72E-03	
Relative Counting Error =	2.4%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		
Cm 243/244 µCi/mL	< 1.25E-03	
Relative Counting Error =	100.0%	
Am 243 Tracer Recovery =	90.4%	

DETECTION LEVELS in µCi/mL	
Am 241	1.25E-03
Cm 243/244	1.25E-03

Analyst:		AKL	Date:	04/01/96
Signature of Chemist:	John Rolgen	JFR	Date:	2 Apr 96

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						DUP
Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)	0.162
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.707
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
6801	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		4146
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.17
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		18.09
LIQUID	Detector Number		13	Am 243 cpm		79.01
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm		0
96002502				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		3.9355E+00
0				Cm 243/244 µCi/L =	<	1.4863E+00
Sample Prep						
N/A						
Sample Number						
S96T001263						
Instrument Code						
WB27810						
Prepared By						
CJO						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
04/01/96						
Analysis Date						
03/29/96						
Analysis Time						
12:30 PM						
Sample Point						
AY-101						

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 =	3.94E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error =	2.3%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241 1.49E-03
Cm 243/244 µCi/mL	< 1.49E-03	
Relative Counting Error =	100.0%	Cm 243/244 1.49E-03
Am 243 Tracer Recovery =	81.7%	

Analyst:	AKL	Date:	04/01/96
Signature of Chemist: John Relyea	JFR	Date:	2 Apr 96

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM5

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)	0.141
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.733
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
6801	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		4102
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.17
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		12.95
LIQUID	Detector Number		13	Am 243 cpm		67.25
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm		0
96002502				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		3.3039E+00
0				Cm 243/244 µCi/L =	<	1.3976E+00
Sample Prep						
N/A						
Sample Number						
S96T001264						
Instrument Code						
WB27810						
Prepared By						
CJO						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
04/01/96						
Analysis Date						
03/29/96						
Analysis Time						
12:30 PM						
Sample Point						
AY-101						

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	=	3.30E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	2.7%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/mL		< 1.40E-03	1.40E-03
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	83.8%	1.40E-03

Analyst:	AKL	Date:	04/01/96
Signature of Chemist:	JFR	Date:	2 Apr 96

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP6

WHC-SD-WM-DP-178, REV. 1

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

							DUP
Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)		0.159
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.768
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)		0
6801	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts			4238
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)		0.17
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm			17.35
LIQUID	Detector Number		13	Am 243 cpm			83.83
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm			0
96002502				AEA Count Time	(min)		480
Rerun				Am 241 µCi/L =			3.5559E+00
0				Cm 243/244 µCi/L =		<	1.2322E+00
Sample Prep							
N/A							
Sample Number							
S96T001264							
Instrument Code							
WB27810							
Prepared By							
CJO							
Chemist							
JFR							
Analyst							
AKL							
Date Complete							
04/01/96							
Analysis Date							
03/29/96							
Analysis Time							
12:30 PM							
Sample Point							
AY-101							

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 =	3.56E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error =	2.4%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241
Cm 243/244 µCi/mL	< 1.23E-03	1.23E-03
Relative Counting Error =	100.0%	Cm 243/244
Am 243 Tracer Recovery =	90.7%	1.23E-03

Analyst:	AKL	Date:	04/01/96
Signature of Chemist: John Relyea	JFR	Date:	2 Apr 96

SAMPLE.WB1 REV 1.2 953103ML

820

WORKBOOK PAGE: SAM7

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						SAMPLE
Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)	0.161
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.78
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
6801	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		4138
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.17
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		14.05
LIQUID	Detector Number		13	Am 243 cpm		68.24
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm		0
96002502				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		3.5452E+00
0				Cm 243/244 µCi/L =	<	1.2235E+00
Sample Prep						
N/A						
Sample Number						
S96T001265						
Instrument Code						
WB27810						
Prepared By						
CJO						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
04/01/96						
Analysis Date						
03/29/96						
Analysis Time						
12:30 PM						
Sample Point						
AY-101						

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 =	3.55E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error =	2.6%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241
Cm 243/244 µCi/mL	< 1.22E-03	1.22E-03
Relative Counting Error =	100.0%	Cm 243/244
Am 243 Tracer Recovery =	90.0%	1.22E-03

Analyst:	AKL	Date:	04/01/96
Signature of Chemist: John Reilyea	JFR	Date:	2 Apr 96

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP8

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						DUP
Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)	0.145
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.737
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
6801	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		4142
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.17
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		16.16
LIQUID	Detector Number		13	Am 243 cpm		82.29
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm		0
96002502				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		3.3792E+00
0				Cm 243/244 µCi/L =	<	1.3691E+00
Sample Prep						
N/A						
Sample Number						
S96T001265						
Instrument Code						
WB27810						
Prepared By						
CJO						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
04/01/96						
Analysis Date						
03/29/96						
Analysis Time						
12:30 PM						
Sample Point						
AY-101						

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 =	3.38E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error =	2.4%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241 1.37E-03
Cm 243/244 µCi/mL	< 1.37E-03	
Relative Counting Error =	100.0%	Cm 243/244 1.37E-03
Am 243 Tracer Recovery =	85.1%	

Analyst:	AKL	Date:	04/01/96
Signature of Chemist: John Relyea	JFR	Date:	2 Apr 96

SAMPLE.WB1 REV 1.2 953103ML

D. H. Milicia
4-1-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
WL6801-STD
File ID: 13a1306.CNF

Counted on: 3/31/96 @18:20
Detector: AEA13
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak	Peak height		Peak center		FWHM		Tau	
ID	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1700.2	1700.2	298.705	298.705	12.000	6.712	6.000	1.946
2	1165.8	1165.8	252.768	252.686	12.000	5.658	6.000	1.559
3	16.9	16.9	117.281	117.274	200.000	1.000	100.000	0.100
4?	2.5	2.5	99.631	99.000	8.000	0.839	4.000	0.076
5?	14.8	14.8	18.233	18.205	16.000	10.028	8.000	6.115

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	Th228	0.538	5.400	5.455	-.055	0.03	69.55	1.1	1223.0	0.551E-03
	Am241		5.479	5.455	0.024				923.7	0.416E-03
2	Am243	0.368	5.270	5.248	0.022	0.03	47.59	1.3	600.1	0.270E-03
3	Np237	0.010	4.640	4.639	0.001	0.00	1.30	7.8	271.5	0.122E-03
4		????		4.557			0.20	46.8		
5		????		4.193			0.48	14.3		
Totals:		0.917	<--valid peaks only-->				118.44			

DETECTOR CALIBRATION

Energy(MEV) = 4.111 + (0.0045)*Channel
Energy range (MeV): 4.111 TO 6.415
Efficiency = 0.0801 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	62007.0	100.000
Smoothed	62010.5	100.006
Composite fit	57181.5	92.218
Residuals	4825.5	7.782

Analyzed by: _____
DM

Spectrum 13a1306.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 11357.4


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Raw Data Dump for AEA Spectrum: 13a1306.CNF

1	0.	0.	8.	4.	8.	6.	7.	7.	7.	2.
11	13.	10.	10.	18.	17.	7.	17.	19.	20.	17.
21	5.	10.	12.	9.	7.	3.	8.	5.	6.	6.
31	3.	6.	7.	8.	10.	3.	7.	6.	7.	5.
41	9.	7.	5.	8.	7.	6.	2.	7.	10.	7.
51	7.	8.	8.	4.	12.	7.	11.	6.	10.	9.
61	6.	8.	2.	11.	8.	5.	9.	8.	9.	5.
71	10.	10.	10.	5.	11.	10.	9.	8.	5.	12.
81	14.	11.	7.	10.	10.	7.	15.	8.	8.	9.
91	6.	10.	11.	13.	6.	10.	9.	16.	12.	16.
101	11.	14.	7.	11.	10.	8.	9.	15.	14.	16.
111	9.	9.	19.	9.	14.	15.	17.	14.	17.	11.
121	12.	11.	14.	8.	18.	18.	21.	14.	22.	10.
131	19.	14.	26.	20.	7.	23.	26.	15.	19.	29.
141	15.	18.	19.	21.	24.	19.	18.	12.	26.	21.
151	23.	24.	17.	24.	21.	22.	26.	27.	20.	24.
161	22.	27.	23.	30.	35.	28.	30.	41.	28.	32.
171	30.	37.	32.	24.	38.	39.	47.	36.	28.	29.
181	44.	31.	36.	46.	44.	52.	37.	56.	54.	48.
191	48.	59.	47.	50.	51.	69.	51.	45.	63.	61.
201	55.	76.	71.	58.	81.	61.	75.	75.	82.	87.
211	71.	87.	91.	116.	105.	117.	113.	116.	131.	158.
221	149.	118.	166.	172.	179.	165.	176.	206.	216.	222.
231	260.	266.	270.	305.	333.	339.	410.	455.	411.	516.
241	603.	647.	640.	753.	825.	862.	922.	974.	998.	1091.
251	1182.	1304.	1357.	1275.	1198.	867.	572.	352.	266.	256.
261	248.	211.	215.	186.	221.	208.	189.	214.	257.	226.
271	227.	278.	264.	241.	290.	308.	322.	353.	353.	390.
281	427.	483.	494.	575.	616.	701.	805.	849.	940.	1073.
291	1146.	1222.	1235.	1355.	1486.	1624.	1697.	1846.	1834.	1830.
301	1626.	1342.	788.	563.	403.	310.	263.	220.	188.	158.
311	110.	90.	61.	56.	39.	35.	14.	20.	20.	15.
321	16.	14.	11.	14.	12.	13.	18.	6.	11.	5.
331	10.	3.	8.	4.	9.	4.	4.	5.	6.	9.
341	5.	4.	6.	8.	7.	3.	2.	5.	5.	2.
351	2.	4.	3.	2.	5.	5.	2.	4.	2.	2.
361	2.	2.	4.	8.	1.	2.	4.	6.	5.	5.
371	2.	3.	3.	2.	4.	1.	6.	5.	3.	0.
381	3.	5.	3.	3.	4.	1.	1.	0.	1.	6.
391	3.	2.	2.	4.	2.	4.	4.	1.	1.	4.
401	2.	5.	2.	4.	1.	0.	1.	3.	1.	3.
411	2.	2.	3.	0.	2.	1.	0.	2.	2.	4.
421	2.	1.	4.	2.	2.	6.	3.	3.	4.	4.
431	4.	1.	6.	5.	2.	2.	4.	8.	3.	2.
441	1.	1.	4.	1.	2.	2.	3.	4.	2.	3.
451	0.	0.	1.	1.	2.	4.	0.	2.	1.	3.
461	2.	2.	0.	4.	1.	4.	4.	4.	2.	1.
471	0.	2.	4.	0.	3.	2.	3.	1.	3.	0.
481	5.	0.	3.	4.	4.	3.	4.	4.	4.	5.
491	1.	1.	0.	3.	0.	2.	3.	2.	3.	1.
511	4.	0.								

AFJ 3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
WL6801-BLK
File ID: 6a6486.CNF

Counted on: 3/30/96 @ 1:56
Detector: AEA6
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	17.8	17.8	300.173	300.173	30.000	49.002	15.000	2.450
2	1459.0	1459.0	254.174	254.168	20.000	15.953	10.000	3.339
3	14.3	14.3	112.385	112.327	202.000	1.000	101.000	0.100
4?	3.4	3.4	87.867	87.055	8.000	0.149	4.000	0.032

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	Am241	0.034	5.479	5.450	0.029	0.22	3.31	4.9	15.4	0.692E-05
	Pu238		5.487	5.450	0.037				20.0	0.903E-05
2	Pu239	0.883	5.147	5.243	-.096	0.07	86.57	1.0	377.4	0.170E-03
	Am243		5.270	5.243	0.027				381.2	0.172E-03
3		0.011		4.604		0.00	1.10	9.3	4.8	0.216E-05
4		????		4.491			0.13	62.9		
		---					---			
Totals:		0.928	<--valid peaks only-->				90.98			

DETECTOR CALIBRATION

Energy(MEV) = 4.099 + (0.0045)*Channel
Energy range (MeV): 4.099 TO 6.403
Efficiency = 0.2294 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	47077.0	100.000
Smoothed	47076.2	99.998
Composite fit	43733.9	92.899
Residuals	3343.1	7.101

Analyzed by: _____
DM

Spectrum 6a6486.CNF

Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 11193.1


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Raw Data Dump for AEA Spectrum: 6a6486.CNF

1	0.	0.	6.	3.	5.	5.	3.	3.	3.	2.
11	5.	5.	5.	6.	7.	1.	5.	6.	2.	6.
21	4.	6.	7.	5.	2.	8.	9.	7.	3.	7.
31	10.	10.	10.	0.	6.	9.	5.	7.	7.	4.
41	4.	5.	8.	7.	11.	9.	9.	2.	4.	10.
51	9.	6.	9.	6.	6.	9.	10.	7.	8.	6.
61	11.	4.	7.	10.	6.	6.	16.	6.	8.	10.
71	7.	6.	8.	7.	6.	6.	12.	13.	10.	4.
81	8.	14.	4.	13.	6.	7.	12.	13.	6.	11.
91	9.	7.	3.	8.	8.	6.	11.	11.	11.	11.
101	7.	11.	10.	10.	10.	14.	10.	11.	17.	14.
111	10.	21.	17.	17.	6.	15.	15.	13.	12.	21.
121	6.	10.	16.	10.	17.	13.	11.	13.	17.	16.
131	20.	18.	18.	10.	17.	18.	22.	14.	20.	29.
141	18.	15.	15.	16.	26.	20.	17.	24.	24.	19.
151	19.	28.	16.	27.	13.	32.	32.	24.	36.	27.
161	33.	29.	30.	41.	27.	33.	37.	35.	31.	31.
171	40.	50.	46.	42.	30.	40.	43.	44.	46.	44.
181	44.	66.	59.	69.	56.	70.	60.	58.	72.	73.
191	69.	74.	66.	77.	74.	84.	81.	81.	105.	81.
201	113.	114.	111.	126.	118.	123.	140.	142.	148.	147.
211	150.	155.	161.	165.	190.	189.	187.	216.	218.	234.
221	250.	258.	267.	267.	310.	336.	346.	374.	377.	399.
231	424.	429.	465.	507.	543.	556.	631.	637.	732.	769.
241	859.	914.	941.	1023.	1040.	1139.	1198.	1253.	1330.	1438.
251	1383.	1476.	1543.	1544.	1490.	1483.	1401.	1267.	1178.	1032.
261	804.	715.	547.	474.	366.	287.	250.	222.	157.	176.
271	118.	111.	121.	102.	87.	71.	39.	43.	41.	38.
281	32.	25.	20.	23.	28.	13.	13.	13.	19.	16.
291	15.	15.	22.	15.	17.	11.	13.	7.	11.	14.
301	13.	11.	12.	11.	9.	10.	4.	10.	8.	8.
311	4.	7.	11.	11.	9.	9.	6.	7.	3.	9.
321	7.	4.	4.	4.	4.	8.	5.	10.	6.	6.
331	7.	6.	9.	10.	5.	6.	7.	8.	5.	11.
341	7.	4.	2.	7.	5.	8.	6.	8.	6.	2.
351	6.	9.	9.	5.	6.	6.	4.	9.	11.	6.
361	9.	5.	5.	3.	4.	4.	4.	5.	4.	3.
371	5.	8.	6.	8.	5.	4.	5.	4.	4.	7.
381	6.	8.	9.	3.	3.	6.	6.	2.	0.	5.
391	5.	4.	4.	4.	2.	6.	4.	4.	8.	9.
401	3.	6.	6.	7.	5.	5.	5.	5.	9.	4.
411	3.	2.	2.	6.	2.	3.	6.	5.	6.	4.
421	6.	2.	5.	2.	5.	6.	3.	6.	7.	8.
431	3.	4.	0.	1.	2.	4.	3.	2.	6.	2.
441	8.	1.	4.	3.	2.	3.	12.	6.	5.	4.
451	4.	8.	3.	5.	7.	4.	3.	2.	3.	2.
461	8.	5.	3.	6.	0.	7.	3.	3.	4.	6.
471	3.	4.	2.	5.	5.	5.	4.	5.	3.	2.
481	4.	5.	5.	7.	5.	2.	3.	5.	1.	4.
491	7.	4.	2.	2.	5.	7.	10.	8.	6.	3.
511	3.	0.								

3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T1263-SAM
File ID: 7a7101.CNF

Counted on: 3/30/96 @ 1:56
Detector: AEA7
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1?	13.4	13.4	368.025	368.025	30.000	48.326	15.000	20.709
2?	3.2	3.2	363.658	363.174	6.000	0.000	3.000	1.868
3	284.9	284.9	297.847	297.847	20.000	16.491	10.000	3.550
4	1603.7	1603.7	251.569	251.532	18.000	13.009	9.000	3.668
5	16.8	16.8	159.099	158.922	120.000	1.000	60.000	0.100
6?	2.2	2.2	147.879	146.671	8.000	0.809	4.000	1.055

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		????		5.801			0.94	9.2		
2		????		5.779			0.00	1000.		
3	Am241	0.164	5.479	5.478	0.001	0.08	16.77	2.2	111.8	0.504E-04
	Pu238		5.487	5.478	0.009				146.0	0.658E-04
4	Pu239	0.758	5.147	5.265	-.118	0.06	77.66	1.0	486.6	0.219E-03
	Am243		5.270	5.265	0.005				491.5	0.221E-03
5		0.013		4.839		0.00	1.33	7.9	8.4	0.377E-05
6		????		4.783			0.02	384.		
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Totals:		0.935	<--valid peaks only-->				95.77			

DETECTOR CALIBRATION

Energy(MEV) = 4.108 + (0.0046)*Channel
Energy range (MeV): 4.108 TO 6.464
Efficiency = 0.1596 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	49155.0	100.000
Smoothed	49161.9	100.014
Composite fit	46439.9	94.476
Residuals	2715.1	5.524

ANALYZED BY: _____
DM

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                    Spectrum 7a7101.CNF
1 Legend:  Raw = ....  Modeled Peaks = 1,2,.., etc     Display Max.:   12234.5

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Raw Data Dump for AEA Spectrum: 7a7101.CNF

1	0.	0.	7.	5.	14.	9.	6.	3.	9.	5.
11	7.	4.	5.	8.	4.	9.	6.	4.	4.	3.
21	5.	8.	9.	3.	4.	5.	15.	4.	7.	10.
31	8.	6.	5.	7.	8.	8.	9.	6.	5.	5.
41	3.	8.	7.	4.	6.	8.	8.	7.	5.	4.
51	15.	5.	8.	6.	7.	6.	6.	8.	6.	7.
61	10.	4.	4.	10.	11.	3.	4.	7.	7.	7.
71	5.	11.	6.	8.	5.	6.	2.	5.	8.	11.
81	3.	6.	7.	6.	12.	7.	10.	5.	7.	3.
91	11.	6.	10.	4.	3.	13.	4.	8.	6.	11.
101	3.	4.	5.	3.	8.	6.	11.	5.	6.	7.
111	2.	7.	4.	7.	8.	5.	9.	10.	8.	10.
121	9.	15.	9.	8.	8.	11.	11.	9.	15.	8.
131	3.	10.	7.	4.	10.	11.	13.	12.	10.	9.
141	10.	15.	10.	9.	17.	14.	18.	13.	18.	12.
151	14.	13.	15.	12.	12.	15.	17.	22.	20.	17.
161	21.	13.	12.	15.	13.	19.	12.	21.	15.	22.
171	22.	23.	19.	20.	24.	31.	20.	34.	24.	38.
181	26.	26.	33.	31.	31.	26.	34.	36.	36.	32.
191	44.	45.	43.	40.	42.	54.	59.	52.	61.	58.
201	52.	65.	51.	58.	73.	94.	83.	70.	90.	85.
211	93.	109.	106.	125.	129.	147.	134.	131.	152.	190.
221	204.	175.	213.	226.	247.	268.	315.	310.	353.	376.
231	372.	423.	462.	431.	557.	589.	642.	650.	782.	805.
241	875.	989.	1060.	1162.	1189.	1386.	1480.	1521.	1583.	1722.
251	1740.	1722.	1636.	1553.	1471.	1242.	1082.	889.	720.	528.
261	446.	362.	301.	254.	192.	230.	191.	177.	164.	143.
271	118.	113.	86.	99.	99.	100.	92.	101.	100.	117.
281	98.	121.	101.	124.	129.	173.	161.	198.	186.	197.
291	191.	237.	262.	237.	266.	304.	293.	316.	279.	281.
301	256.	222.	207.	187.	154.	136.	105.	82.	84.	71.
311	50.	48.	45.	35.	28.	27.	16.	18.	14.	10.
321	13.	12.	11.	14.	11.	12.	13.	4.	11.	10.
331	6.	6.	13.	8.	9.	10.	8.	13.	11.	4.
341	6.	17.	8.	8.	6.	7.	11.	11.	8.	12.
351	4.	12.	7.	6.	15.	13.	13.	9.	7.	6.
361	9.	14.	16.	18.	11.	9.	17.	5.	13.	14.
371	12.	8.	10.	6.	6.	8.	4.	7.	5.	7.
381	4.	5.	4.	5.	6.	9.	8.	5.	5.	8.
391	1.	4.	1.	2.	1.	7.	6.	4.	4.	5.
401	10.	4.	6.	7.	2.	7.	5.	4.	4.	2.
411	4.	6.	5.	4.	11.	4.	2.	4.	7.	4.
421	2.	5.	8.	4.	6.	6.	6.	9.	5.	8.
431	5.	6.	6.	1.	7.	12.	8.	9.	7.	7.
441	3.	2.	6.	6.	2.	4.	6.	9.	8.	4.
451	9.	3.	2.	4.	5.	4.	3.	5.	5.	7.
461	2.	5.	2.	3.	6.	8.	3.	5.	4.	5.
471	5.	4.	6.	3.	3.	1.	7.	5.	2.	4.
481	5.	6.	4.	3.	4.	4.	1.	3.	5.	2.
491	6.	5.	8.	6.	8.	7.	4.	3.	5.	5.
511	3.	0.								

AFQ 3-30-96

Westinghouse Hanford Co.

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

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T1263-DUP
File ID: 8a8279.CNF

Counted on: 3/30/96 @ 1:57
Detector: AEA8
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1?	6.2	6.2	460.242	460.242	122.000	128.751	61.000	64.376
2	7.6	7.6	427.802	427.047	16.000	9.621	8.000	0.420
3	10.1	10.1	363.522	364.028	20.000	16.482	10.000	1.402
4	229.3	229.3	297.651	296.561	22.000	20.504	11.000	2.899
5	1285.9	1285.9	250.802	250.363	18.000	14.816	9.000	2.839
6	16.2	16.2	42.866	41.984	356.000	108.966	178.000	187.686

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		????		6.185			0.69	10.8		
2	Bi212	0.013	6.040	6.036	0.004	0.04	1.42	7.9	20.0	0.902E-05
	Po218		6.000	6.036	-.036				7.2	0.325E-05
3		????		5.752			1.11	11.2		
4	Am241	0.162	5.479	5.449	0.030	0.09	18.09	2.1	97.6	0.439E-04
	Pu238		5.487	5.449	0.038				127.4	0.574E-04
5	Pu239	0.707	5.147	5.241	-.094	0.07	79.01	1.0	400.7	0.180E-03
	Am243		5.270	5.241	0.029				404.7	0.182E-03
6	U 238	0.015	4.184	4.303	-.119	0.49	1.64	7.1	10.8	0.486E-05
	U 235		4.386	4.303	0.083				14.6	0.656E-05
		---					---			
Totals:		0.896	<--valid peaks only-->				100.16			

DETECTOR CALIBRATION
Energy(MEV) = 4.114 + (0.0045)*Channel
Energy range (MeV): 4.114 TO 6.418
Efficiency = 0.1972 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	53657.0	100.000
Smoothed	53644.9	99.977
Composite fit	48944.1	91.217

Residuals	4712.9	8.783

Analyzed by: _____
DM

Spectrum 8a8279.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 9650.8


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Raw Data Dump for AEA Spectrum: 8a8279.CNF

1	0.	0.	4.	3.	8.	5.	7.	3.	6.	6.
11	4.	6.	4.	12.	0.	4.	4.	4.	5.	6.
21	7.	11.	9.	9.	13.	13.	9.	14.	9.	14.
31	9.	11.	15.	8.	17.	15.	12.	15.	10.	11.
41	17.	24.	11.	15.	12.	16.	14.	6.	9.	9.
51	9.	17.	16.	14.	14.	12.	7.	14.	10.	15.
61	18.	12.	16.	19.	15.	17.	15.	19.	13.	19.
71	18.	11.	18.	23.	14.	19.	20.	22.	17.	23.
81	16.	15.	10.	18.	23.	15.	19.	14.	27.	27.
91	17.	14.	20.	23.	17.	18.	21.	16.	16.	29.
101	16.	19.	18.	27.	19.	25.	26.	29.	21.	28.
111	23.	29.	15.	22.	33.	32.	21.	25.	26.	23.
121	18.	34.	27.	28.	35.	23.	34.	25.	35.	31.
131	28.	19.	29.	40.	32.	38.	43.	47.	36.	34.
141	37.	37.	31.	40.	43.	48.	38.	51.	38.	43.
151	44.	47.	45.	54.	45.	41.	53.	50.	47.	49.
161	58.	58.	72.	55.	46.	65.	38.	70.	68.	78.
171	66.	72.	80.	75.	74.	67.	96.	73.	76.	70.
181	81.	109.	98.	96.	77.	88.	84.	93.	104.	121.
191	117.	102.	120.	136.	124.	127.	126.	134.	149.	153.
201	161.	178.	171.	157.	162.	171.	217.	201.	195.	242.
211	208.	201.	218.	245.	238.	251.	291.	278.	294.	309.
221	315.	310.	353.	364.	369.	402.	433.	428.	462.	462.
231	519.	553.	594.	628.	651.	708.	705.	782.	878.	864.
241	949.	1058.	1098.	1107.	1219.	1240.	1329.	1308.	1310.	1369.
251	1382.	1423.	1197.	1090.	1000.	932.	790.	676.	520.	456.
261	382.	361.	300.	227.	207.	178.	199.	155.	136.	137.
271	133.	130.	120.	123.	95.	114.	107.	114.	112.	134.
281	140.	119.	112.	127.	152.	178.	192.	190.	200.	175.
291	199.	217.	215.	227.	240.	237.	253.	229.	222.	207.
301	203.	198.	170.	144.	128.	114.	105.	78.	61.	57.
311	36.	51.	38.	22.	19.	10.	14.	16.	18.	22.
321	10.	10.	12.	10.	12.	13.	10.	8.	3.	8.
331	8.	5.	12.	10.	2.	9.	4.	5.	15.	7.
341	7.	7.	8.	17.	13.	8.	10.	9.	6.	15.
351	13.	8.	3.	9.	16.	11.	10.	16.	15.	11.
361	13.	10.	14.	14.	16.	14.	9.	6.	14.	11.
371	12.	7.	7.	9.	4.	5.	9.	9.	5.	5.
381	9.	3.	6.	5.	3.	3.	8.	6.	5.	12.
391	2.	4.	4.	8.	10.	4.	8.	10.	6.	2.
401	6.	5.	6.	10.	7.	5.	7.	4.	9.	6.
411	6.	7.	6.	5.	5.	2.	7.	4.	5.	6.
421	6.	8.	6.	14.	6.	7.	11.	12.	8.	6.
431	6.	5.	9.	4.	5.	7.	6.	5.	6.	5.
441	3.	4.	6.	11.	5.	8.	10.	2.	12.	4.
451	5.	3.	5.	4.	7.	7.	5.	3.	5.	4.
461	7.	6.	6.	6.	7.	1.	2.	4.	2.	6.
471	5.	5.	6.	4.	7.	1.	7.	6.	3.	2.
481	8.	3.	6.	12.	5.	4.	6.	4.	5.	7.
491	4.	7.	6.	3.	6.	3.	11.	4.	3.	6.
511	6.	0.								

3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

DATA REDUCTION REPORT WHC-SD-WM-DP-178, REV. 1

SAMPLE
S96T1264-SAM
File ID: 9a9363.CNF

Counted on: 3/30/96 @ 1:58
Detector: AEA9
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?	14.1	14.1	371.183	371.183	16.000	10.685	8.000	2.204
2	316.1	316.1	301.579	301.578	14.000	8.477	7.000	2.695
3	1758.5	1758.5	255.060	255.054	14.000	6.578	7.000	2.130
4	19.4	19.4	151.142	151.105	158.000	1.000	79.000	0.100
5?	5.4	5.4	107.991	107.483	14.000	55.897	7.000	16.229
6?	4.9	4.9	88.837	88.334	8.000	1.992	4.000	0.175

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		????		5.780			0.78	10.1		
2	Am241	0.141	5.479	5.466	0.013	0.04	12.95	2.5	62.3	0.281E-04
	Pu238		5.487	5.466	0.021				81.3	0.366E-04
3	Am243	0.733	5.270	5.257	0.013	0.03	67.25	1.1	307.1	0.138E-03
4	Np237	0.017	4.769	4.789	-.020	0.00	1.54	7.2	8.0	0.360E-05
5		????		4.593			0.42	29.1		
6		????		4.507			0.40	20.2		
Totals:		0.890	<--valid peaks only-->				81.73			

DETECTOR CALIBRATION

Energy(MEV) = 4.109 + (0.0045)*Channel
Energy range (MeV): 4.109 TO 6.413
Efficiency = 0.2212 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	44072.0	100.000
Smoothed	44073.1	100.003
Composite fit	40007.7	90.778
Residuals	4064.3	9.222

ANALYZED BY: _____
DM

Spectrum 9a9363.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 11847.7


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Raw Data Dump for AEA Spectrum: 9a9363.CNF

1	0.	0.	2.	3.	3.	3.	6.	4.	4.	6.
11	8.	6.	3.	5.	5.	7.	4.	5.	2.	4.
21	6.	5.	2.	4.	5.	4.	8.	3.	7.	8.
31	5.	3.	3.	4.	7.	12.	4.	6.	7.	4.
41	4.	4.	6.	7.	6.	6.	4.	6.	2.	7.
51	4.	7.	4.	8.	6.	3.	4.	9.	5.	9.
61	5.	5.	5.	8.	5.	10.	12.	7.	5.	8.
71	7.	8.	5.	8.	11.	7.	7.	5.	7.	9.
81	6.	8.	5.	4.	11.	8.	10.	10.	14.	11.
91	9.	6.	7.	10.	8.	10.	4.	9.	9.	14.
101	9.	6.	11.	7.	10.	9.	11.	15.	10.	9.
111	11.	7.	13.	6.	9.	9.	10.	12.	13.	17.
121	12.	14.	18.	12.	3.	10.	13.	14.	19.	14.
131	13.	11.	12.	22.	9.	15.	16.	16.	13.	22.
141	15.	7.	13.	22.	17.	17.	22.	12.	19.	18.
151	23.	18.	20.	17.	13.	17.	21.	23.	20.	17.
161	12.	23.	18.	15.	22.	21.	23.	21.	33.	24.
171	23.	25.	20.	29.	25.	25.	27.	31.	32.	35.
181	26.	36.	34.	46.	41.	45.	48.	34.	48.	45.
191	53.	50.	48.	50.	43.	47.	58.	57.	65.	53.
201	57.	61.	79.	68.	65.	78.	72.	88.	96.	96.
211	98.	97.	112.	108.	109.	124.	120.	136.	142.	146.
221	146.	165.	171.	183.	185.	200.	181.	191.	223.	242.
231	259.	273.	320.	358.	373.	337.	425.	462.	514.	533.
241	553.	590.	702.	748.	832.	929.	1029.	1065.	1115.	1312.
251	1343.	1527.	1736.	1921.	1987.	1930.	1730.	1426.	978.	723.
261	492.	361.	291.	229.	225.	175.	171.	148.	141.	120.
271	114.	115.	81.	90.	79.	61.	63.	47.	52.	73.
281	63.	87.	69.	81.	103.	97.	110.	90.	130.	113.
291	132.	143.	179.	203.	209.	196.	242.	220.	300.	332.
301	347.	364.	332.	271.	234.	159.	124.	114.	87.	83.
311	69.	62.	47.	43.	25.	20.	18.	11.	9.	8.
321	3.	9.	7.	3.	12.	8.	8.	5.	6.	2.
331	3.	7.	4.	4.	3.	4.	5.	4.	5.	4.
341	5.	9.	2.	2.	5.	8.	5.	2.	5.	3.
351	4.	8.	4.	3.	3.	10.	5.	8.	5.	8.
361	6.	10.	5.	9.	9.	8.	12.	15.	14.	10.
371	18.	15.	12.	12.	8.	8.	7.	5.	2.	4.
381	5.	2.	2.	6.	5.	1.	2.	1.	2.	4.
391	0.	1.	3.	2.	2.	3.	7.	1.	1.	1.
401	2.	3.	3.	1.	1.	1.	2.	3.	2.	3.
411	0.	2.	1.	1.	0.	1.	2.	3.	4.	2.
421	3.	1.	0.	5.	1.	5.	2.	4.	5.	3.
431	6.	2.	5.	3.	1.	0.	3.	1.	2.	0.
441	4.	3.	1.	2.	4.	1.	2.	3.	1.	4.
451	0.	0.	0.	2.	2.	6.	1.	3.	4.	0.
461	4.	0.	2.	4.	2.	1.	1.	2.	4.	1.
471	4.	1.	3.	5.	2.	2.	2.	3.	2.	2.
481	1.	1.	3.	1.	3.	2.	2.	5.	3.	1.
491	4.	2.	0.	1.	4.	2.	0.	1.	3.	1.
511	1.	0.								

3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01 WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T1264-DUP
File ID: 10a2527.CNF

Counted on: 3/30/96 @ 1:58
Detector: AEA10
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	12.0	12.0	367.421	367.421	24.000	28.801	12.000	3.220
2	349.3	349.3	301.495	301.490	16.000	9.838	8.000	2.345
3	1903.8	1903.8	254.309	254.287	14.000	9.036	7.000	2.578
4?	12.2	12.2	147.103	147.039	136.000	1.000	68.000	0.100
5?	3.8	3.8	127.296	127.032	6.000	0.559	3.000	0.429

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Cm243	0.011	5.779	5.764	0.015	0.13	1.17	8.3	7.7	0.345E-05
	Pu236		5.755	5.764	-.009				5.7	0.257E-05
2	Am241	0.159	5.479	5.467	0.012	0.04	17.35	2.2	88.0	0.397E-04
	Pu238		5.487	5.467	0.020				114.9	0.518E-04
3	Am243	0.768	5.270	5.255	0.015	0.04	83.83	1.0	404.0	0.182E-03
4		????		4.772			0.97	9.2		
5		????		4.682			0.05	137.		
Totals:		0.938	<--valid peaks only-->				102.34			

DETECTOR CALIBRATION

Energy(MEV) = 4.110 + (0.0045)*Channel
Energy range (MeV): 4.110 TO 6.414
Efficiency = 0.2096 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	52382.0	100.000
Smoothed	52384.6	100.005
Composite fit	49618.9	94.725
Residuals	2763.1	5.275

Analyzed by: _____
DM

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                    Spectrum 10a2527.CNF
1 Legend:  Raw = ....  Modeled Peaks = 1,2,.., etc     Display Max.:   14195.5

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Raw Data Dump for AEA Spectrum: 10a2527.CNF

1	0.	0.	5.	6.	2.	2.	2.	5.	4.	5.
11	5.	4.	4.	3.	3.	5.	6.	6.	4.	1.
21	3.	5.	7.	6.	4.	5.	1.	7.	4.	8.
31	1.	10.	1.	1.	4.	4.	6.	2.	2.	4.
41	9.	7.	3.	3.	1.	4.	3.	4.	8.	2.
51	8.	7.	4.	6.	2.	5.	2.	6.	6.	3.
61	4.	4.	5.	1.	3.	3.	6.	4.	7.	7.
71	3.	8.	7.	4.	6.	4.	1.	2.	11.	6.
81	1.	7.	1.	7.	3.	6.	9.	4.	7.	6.
91	4.	4.	6.	9.	6.	7.	3.	8.	5.	7.
101	7.	6.	8.	5.	7.	5.	9.	3.	9.	4.
111	10.	9.	7.	5.	7.	8.	5.	6.	7.	6.
121	11.	3.	8.	9.	7.	10.	15.	11.	11.	7.
131	4.	7.	8.	10.	13.	5.	9.	17.	10.	7.
141	12.	15.	4.	13.	8.	12.	15.	16.	9.	8.
151	10.	11.	10.	16.	13.	14.	12.	15.	11.	8.
161	21.	23.	14.	12.	15.	14.	16.	15.	18.	23.
171	20.	12.	20.	16.	18.	18.	20.	22.	19.	30.
181	17.	37.	26.	34.	28.	30.	18.	33.	49.	35.
191	29.	39.	39.	41.	42.	34.	49.	40.	59.	52.
201	58.	51.	53.	52.	63.	81.	88.	99.	91.	80.
211	76.	87.	97.	88.	120.	97.	126.	134.	142.	153.
221	160.	170.	190.	206.	188.	242.	208.	249.	325.	280.
231	360.	369.	387.	464.	472.	505.	533.	609.	639.	769.
241	794.	851.	934.	1024.	1171.	1204.	1335.	1505.	1538.	1668.
251	1986.	1875.	2052.	1994.	2062.	1934.	1826.	1502.	1195.	856.
261	577.	460.	345.	306.	249.	263.	219.	227.	209.	172.
271	151.	140.	123.	103.	82.	71.	68.	83.	86.	89.
281	89.	110.	115.	103.	159.	141.	127.	162.	173.	169.
291	211.	222.	210.	248.	280.	301.	319.	339.	319.	343.
301	391.	378.	334.	348.	288.	195.	138.	138.	118.	79.
311	80.	68.	57.	61.	27.	22.	22.	22.	14.	12.
321	6.	12.	8.	8.	8.	7.	6.	6.	3.	4.
331	6.	11.	6.	9.	8.	4.	9.	6.	5.	3.
341	7.	6.	6.	4.	10.	5.	11.	3.	6.	3.
351	9.	4.	8.	7.	11.	6.	6.	8.	7.	10.
361	8.	8.	13.	14.	8.	12.	14.	13.	9.	14.
371	6.	14.	8.	11.	8.	8.	8.	4.	3.	4.
381	3.	1.	4.	5.	5.	0.	2.	1.	0.	4.
391	4.	4.	8.	1.	4.	5.	4.	5.	6.	1.
401	4.	4.	4.	1.	4.	5.	3.	2.	5.	3.
411	5.	3.	2.	2.	3.	1.	0.	3.	1.	1.
421	2.	3.	4.	6.	1.	3.	6.	6.	2.	4.
431	6.	3.	3.	6.	3.	0.	6.	3.	2.	4.
441	4.	7.	4.	10.	4.	4.	4.	0.	1.	2.
451	1.	5.	4.	1.	2.	3.	5.	6.	3.	4.
461	1.	3.	1.	4.	0.	5.	6.	2.	3.	2.
471	2.	3.	2.	3.	2.	3.	2.	0.	1.	2.
481	3.	0.	7.	1.	3.	1.	1.	2.	3.	3.
491	3.	3.	4.	0.	4.	5.	3.	1.	1.	3.
511	4.	0.								

AHJ 3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01 WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T1265-SAM
File ID: 11a3922.CNF

Counted on: 3/30/96 @ 1:59
Detector: AEA11
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?	11.1	11.1	367.914	367.914	22.000	6.030	11.000	0.791
2	275.4	275.4	299.509	299.505	14.000	9.824	7.000	2.238
3	1525.9	1525.9	252.497	252.472	14.000	8.505	7.000	2.303
4	13.7	13.7	179.616	179.101	36.000	68.731	18.000	26.666
5?	2.6	2.6	172.359	172.359	6.000	0.000	3.000	2.448

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		????		5.761			0.78	10.1		
2	Am241	0.161	5.479	5.453	0.026	0.04	14.05	2.4	335.1	0.151E-03
	Pu238		5.487	5.453	0.034				437.4	0.197E-03
3	Am243	0.780	5.270	5.241	0.029	0.04	68.24	1.1	1545.5	0.696E-03
4	Np237	0.013	4.769	4.911	-.142	0.31	1.14	22.7	29.5	0.133E-04
	Pu242		4.891	4.911	-.020				25.7	0.116E-04
5		????		4.881			0.00	1000.		
Totals:		0.954	<--valid peaks only-->				83.43			

DETECTOR CALIBRATION

Energy(MEV) = 4.105 + (0.0045)*Channel
Energy range (MeV): 4.105 TO 6.409
Efficiency = 0.0446 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	42005.0	100.000
Smoothed	42008.4	100.008
Composite fit	40432.1	96.255
Residuals	1572.9	3.745

Analyzed by: _____
DM

Spectrum 11a3922.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 11528.9


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4
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43
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2.......................3
32.....
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1
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Raw Data Dump for AEA Spectrum: 11a3922.CNF

1	0.	0.	3.	6.	4.	4.	5.	1.	4.	3.
11	3.	2.	3.	6.	2.	3.	1.	3.	1.	2.
21	3.	3.	4.	4.	4.	3.	2.	4.	3.	4.
31	1.	2.	3.	2.	3.	2.	1.	2.	6.	3.
41	3.	5.	3.	2.	1.	0.	1.	1.	5.	2.
51	3.	5.	8.	2.	7.	3.	5.	3.	0.	3.
61	3.	4.	1.	5.	6.	4.	4.	6.	2.	2.
71	3.	4.	3.	3.	3.	6.	1.	1.	6.	2.
81	3.	5.	6.	2.	3.	3.	2.	3.	5.	1.
91	3.	3.	8.	4.	2.	4.	2.	4.	3.	6.
101	6.	3.	6.	8.	5.	6.	2.	4.	3.	6.
111	3.	5.	4.	5.	4.	5.	2.	6.	11.	3.
121	4.	8.	7.	5.	9.	9.	3.	3.	5.	9.
131	12.	6.	3.	8.	7.	12.	8.	11.	2.	10.
141	2.	9.	8.	5.	10.	8.	7.	9.	10.	10.
151	8.	13.	9.	17.	17.	15.	9.	10.	11.	11.
161	5.	16.	11.	14.	12.	9.	11.	7.	16.	17.
171	13.	20.	19.	12.	16.	11.	12.	18.	27.	27.
181	15.	15.	19.	19.	16.	24.	29.	28.	28.	34.
191	27.	26.	36.	35.	33.	28.	28.	36.	57.	49.
201	39.	43.	56.	49.	40.	61.	56.	62.	76.	77.
211	82.	89.	80.	98.	115.	108.	102.	118.	121.	149.
221	135.	153.	171.	169.	183.	235.	261.	223.	288.	288.
231	334.	380.	403.	427.	449.	471.	506.	557.	681.	753.
241	809.	815.	920.	1005.	1075.	1277.	1350.	1405.	1399.	1548.
251	1578.	1621.	1606.	1644.	1485.	1201.	926.	725.	514.	350.
261	241.	223.	187.	198.	169.	151.	143.	129.	114.	93.
271	76.	85.	64.	72.	55.	79.	70.	81.	54.	100.
281	90.	96.	81.	126.	108.	116.	153.	137.	176.	198.
291	197.	195.	206.	236.	268.	267.	234.	305.	289.	289.
301	294.	255.	238.	172.	126.	93.	99.	64.	50.	54.
311	41.	29.	19.	25.	14.	20.	13.	5.	11.	8.
321	6.	4.	6.	5.	4.	8.	4.	4.	4.	4.
331	0.	7.	6.	6.	3.	8.	4.	2.	4.	2.
341	5.	5.	6.	1.	6.	5.	0.	4.	8.	9.
351	5.	8.	5.	5.	6.	5.	6.	7.	10.	12.
361	12.	11.	14.	11.	6.	9.	5.	13.	13.	8.
371	6.	5.	4.	1.	1.	3.	3.	1.	3.	5.
381	2.	0.	2.	1.	3.	2.	2.	4.	5.	2.
391	3.	1.	1.	4.	1.	3.	4.	4.	0.	2.
401	2.	0.	3.	4.	1.	4.	2.	1.	2.	3.
411	1.	4.	8.	1.	0.	1.	3.	1.	5.	5.
421	3.	3.	1.	2.	5.	8.	1.	4.	6.	4.
431	3.	4.	1.	3.	0.	3.	1.	3.	0.	2.
441	3.	2.	1.	2.	2.	3.	2.	0.	2.	0.
451	2.	3.	6.	2.	0.	1.	2.	1.	1.	2.
461	4.	1.	2.	5.	4.	2.	4.	1.	2.	2.
471	3.	1.	2.	1.	3.	2.	3.	1.	2.	6.
481	1.	1.	2.	4.	2.	3.	4.	1.	0.	8.
491	0.	0.	2.	5.	1.	3.	1.	3.	3.	4.
511	4.	0.								

AJ 3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T1265-DUP
File ID: 12a1268.CNF

Counted on: 3/30/96 @ 1:59
Detector: AEA12
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	298.1	298.1	300.184	300.184	18.000	12.389	9.000	2.760
2	1694.7	1694.7	253.728	253.697	14.000	9.334	7.000	2.270
3	29.6	29.6	144.985	144.908	162.000	1.000	81.000	0.100
4?	5.2	5.2	127.359	126.847	6.000	0.419	3.000	0.164
5?	5.4	5.4	108.198	107.705	6.000	0.808	3.000	1.652
6?	4.5	4.5	98.805	98.324	10.000	0.629	5.000	1.389

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Peak Centroid Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.145	5.479	5.465	0.014	0.06	16.16	2.2	117.0	0.527E-04
	Pu238		5.487	5.465	0.022				152.8	0.688E-04
2	Am243	0.737	5.270	5.256	0.014	0.04	82.29	1.0	565.8	0.255E-03
3	Np237	0.021	4.769	4.767	0.002	0.00	2.34	5.9	18.3	0.826E-05
4		????		4.685			0.12	96.8		
5		????		4.599			0.05	168.		
6		????		4.557			0.04	195.		
Totals:		0.902	<--valid peaks only-->				100.79			

DETECTOR CALIBRATION

Energy(MEV) = 4.115 + (0.0045)*Channel
Energy range (MeV): 4.115 TO 6.419
Efficiency = 0.1469 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	53613.0	100.000
Smoothed	53618.3	100.010
Composite fit	48482.5	90.430
Residuals	5130.5	9.570

ANALYZED BY: _____
DM

Spectrum 12a1268.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 12743.2


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Raw Data Dump for AEA Spectrum: 12a1268.CNF

1	0.	0.	4.	4.	10.	6.	5.	3.	10.	8.
11	7.	2.	5.	6.	7.	9.	6.	9.	5.	5.
21	6.	8.	9.	6.	11.	6.	4.	11.	9.	7.
31	6.	4.	9.	9.	4.	5.	6.	6.	5.	9.
41	8.	3.	7.	2.	6.	6.	14.	10.	8.	8.
51	10.	7.	6.	7.	7.	7.	5.	4.	7.	7.
61	7.	5.	9.	13.	9.	8.	6.	9.	4.	8.
71	7.	8.	8.	16.	6.	10.	9.	11.	8.	9.
81	12.	6.	16.	15.	9.	12.	9.	11.	10.	11.
91	12.	6.	9.	12.	14.	5.	10.	16.	10.	14.
101	11.	8.	8.	12.	11.	17.	13.	23.	18.	14.
111	12.	10.	16.	19.	18.	16.	16.	16.	20.	17.
121	23.	23.	17.	14.	15.	23.	30.	28.	18.	17.
131	20.	27.	19.	18.	24.	21.	23.	21.	18.	19.
141	24.	24.	34.	30.	37.	31.	30.	23.	23.	29.
151	27.	30.	24.	33.	33.	36.	26.	41.	43.	31.
161	47.	41.	49.	36.	40.	49.	35.	51.	33.	36.
171	38.	52.	54.	43.	56.	45.	50.	55.	58.	44.
181	65.	64.	80.	81.	68.	71.	64.	79.	76.	84.
191	81.	87.	72.	93.	105.	74.	86.	123.	105.	112.
201	110.	120.	107.	116.	141.	129.	127.	140.	165.	144.
211	150.	171.	170.	196.	172.	193.	200.	212.	237.	237.
221	223.	250.	275.	301.	276.	271.	300.	358.	342.	420.
231	439.	441.	464.	501.	519.	588.	679.	643.	695.	770.
241	807.	902.	952.	1051.	1117.	1164.	1309.	1395.	1430.	1555.
251	1728.	1767.	1727.	1853.	1780.	1646.	1459.	1194.	896.	618.
261	519.	369.	337.	275.	269.	246.	203.	203.	177.	163.
271	133.	113.	105.	80.	82.	83.	71.	111.	90.	96.
281	105.	100.	106.	107.	125.	133.	147.	161.	155.	167.
291	209.	195.	219.	239.	232.	267.	280.	288.	299.	335.
301	313.	277.	277.	231.	222.	197.	108.	110.	70.	90.
311	64.	52.	32.	42.	24.	25.	13.	13.	7.	6.
321	14.	6.	5.	8.	8.	10.	4.	4.	6.	7.
331	4.	5.	0.	10.	5.	10.	4.	6.	7.	7.
341	2.	5.	7.	4.	2.	3.	4.	5.	6.	7.
351	4.	4.	8.	11.	4.	8.	7.	9.	7.	10.
361	12.	8.	11.	7.	12.	10.	19.	8.	11.	15.
371	13.	8.	9.	5.	9.	7.	5.	5.	3.	4.
381	7.	4.	1.	3.	2.	5.	4.	2.	4.	4.
391	3.	5.	6.	2.	6.	4.	1.	8.	8.	2.
401	6.	2.	1.	3.	3.	2.	0.	4.	3.	6.
411	4.	3.	2.	5.	1.	3.	1.	0.	5.	0.
421	5.	5.	6.	2.	3.	4.	1.	2.	2.	3.
431	4.	0.	3.	2.	6.	4.	6.	5.	3.	2.
441	5.	3.	5.	1.	4.	0.	6.	1.	5.	2.
451	2.	3.	2.	3.	3.	3.	2.	3.	2.	2.
461	3.	4.	5.	1.	3.	1.	1.	3.	5.	2.
471	2.	2.	4.	5.	2.	2.	2.	4.	7.	2.
481	3.	2.	4.	2.	3.	3.	2.	1.	5.	1.
491	3.	1.	4.	1.	3.	2.	2.	3.	1.	6.
511	2.	0.								

Rec

LABCORE Data Entry Template for Worklist# 6803

Analyst: AKL **Instrument:** AM01 13 **Book#** 104B43

Method: LA-953-103 Rev/Mod A5

Worklist Comment: AY-101, Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AM24101	LIQUID		
2	BLNK				@AM24101	LIQUID		
3	SAMPLE	S96T001359	0		@AM24101	LIQUID	96000257	AY-101 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
4	DUP	S96T001359	0		@AM24101	LIQUID		
5	SAMPLE	S96T001360	0		@AM24101	LIQUID	96000257	AY-101 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
6	DUP	S96T001360	0		@AM24101	LIQUID		

Final page for worklist # 6803

A Lewis 3/29/96
Analyst Signature **Date**

C.J. Owen 4/1/96
Analyst Signature **Date**

Sue Hogan 4/2/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 6803

Analyst: akl **Instrument:** AB13 **Book#** 104B43

Method: LA-953-103 Rev/Mod 4 5

Worklist Comment: AY-101, Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@AM24101	AM24101	LIQUID	3.07E-02	3.15E-2	102.610	% Recovery
1	STD		0	@AM24101	AM24101T	LIQUID	100.	8.58E+01	85.800	% Recovery
1	STD		0	@AM24101	AM24101E	LIQUID	1.0	1.45E+00	1.450	% Ct. Error
2	BLNK		0	@AM24101	AM24101	LIQUID	1	<1.09E-3		uCi/mL
2	BLNK		0	@AM24101	AM24101T	LIQUID	100.0	8.76E+01	87.600	% Recovery
2	BLNK		0	@AM24101	AM24101E	LIQUID	1.0	1.00E+02	100.000	% Ct. Error
3	SAMPLE	S96T001359	0	@AM24101	AM24101	LIQUID	N/A	3.29E-03	1.750e-003	uCi/mL
3	SAMPLE	S96T001359	0	@AM24101	AM24101E	LIQUID	N/A	3.15E+00	0.000	% Ct. Error
3	SAMPLE	S96T001359	0	@AM24101	AM24101T	LIQUID	N/A	6.90E+01	1.000e-007	% Recovery
4	DUP	S96T001359	0	@AM24101	AM24101	LIQUID	3.29E-3	3.31E-3	0.610	RPD
4	DUP	S96T001359	0	@AM24101	AM24101T	LIQUID	100.0	9.09E+01	90.900	% Recovery
4	DUP	S96T001359	0	@AM24101	AM24101E	LIQUID	1.0	2.90E+00	2.900	% Ct. Error
5	SAMPLE	S96T001360	0	@AM24101	AM24101	LIQUID	N/A	3.13E-03	1.220e-003	uCi/mL
5	SAMPLE	S96T001360	0	@AM24101	AM24101E	LIQUID	N/A	3.02E+00	0.000	% Ct. Error
5	SAMPLE	S96T001360	0	@AM24101	AM24101T	LIQUID	N/A	9.19E+01	1.000e-007	% Recovery
6	DUP	S96T001360	0	@AM24101	AM24101	LIQUID	3.13E-3	3.09E-3	1.290	RPD
6	DUP	S96T001360	0	@AM24101	AM24101T	LIQUID	100.0	9.65E+01	96.500	% Recovery
6	DUP	S96T001360	0	@AM24101	AM24101E	LIQUID	1.0	2.81E+00	2.810	% Ct. Error

Final page for worklist# 6803

Analyst Signature Date

Analyst Signature Date

John Relyea 3 Apr 96
Reviewer Signature Date

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

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID

						STD
Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)	0.602
STD	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.328
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
6803	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		9376
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.17
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		97.7
LIQUID	Detector Number		13	Am 243 cpm		62.05
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm		0
96002503	Standard Book No		104B43	AEA Count Time	(min)	480
Rerun	Standard Value in µCi/mL		0.03067	Am 241 µCi/L =		3.1523E+01
0				Cm 243/244 µCi/L =	<	3.0515E+00

Sample Prep
N/A
Sample Number
WL#6803
Instrument Code
WB27810
Prepared By
CJO
Chemist
JFR
Analyst
AKL
Date Complete
04/01/96
Analysis Date
03/29/96
Analysis Time
12:45 PM
Sample Point
AY-101

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	=	3.15E-02
Relative Counting Error	=	1.5%
NOTE: Cm-243/244 Result is a LESS THAN Value.		
Cm 243/244 µCi/mL		< 3.05E-03
Relative Counting Error	=	100.0%
Am 243 Tracer Recovery	=	85.8%

DETECTION LEVELS in µCi/mL
Am 241
3.05E-03
Cm 243/244
3.05E-03

Analyst:	AKL	Date:	04/01/96
Signature of Chemist: Helen Relyea	JFR	Date:	3 Apr 96

STANDARD.WB1 REV 1.2(953103ML

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

							BLNK
Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)		0
BLNK	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.902
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)		0
6803	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts			3486
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)		0.17
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm			0
LIQUID	Detector Number		13	Am 243 cpm			57.66
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm			0
96002503				AEA Count Time	(min)		480
Rerun				Am 241 µCi/L =		<	1.0863E+00
0				Cm 243/244 µCi/L =		<	1.0863E+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))
WL#6803	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))
Instrument Code	
WB27810	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
CJO	
Chemist	NOTE: Am-241 Result is a LESS THAN Value.
JFR	Am 241 µCi/mL = < 1.09E-03
Analyst	Relative Counting Error = 100.0%
AKL	
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.
04/01/96	Cm 243/244 µCi/mL < 1.09E-03
Analysis Date	Relative Counting Error = 100.0%
03/29/96	Am 243 Tracer Recovery = 87.6%
Analysis Time	
12:45 PM	
Sample Point	
AY-101	

DETECTION LEVELS in µCi/mL	
Am 241	1.09E-03
Cm 243/244	1.09E-03

Analyst:		AKL	Date:	04/01/96
Signature of Chemist:	John Relyea	JFR	Date:	3 Apr 96

BLANK.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

							SAMPLE
Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)		0.136
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.71
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)		0
6803	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts			3488
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)		0.17
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm			9.62
LIQUID	Detector Number		13	Am 243 cpm			50.15
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm			0
96002503				AEA Count Time	(min)		480
Rerun				Am 241 µCi/L =			3.2899E+00
0				Cm 243/244 µCi/L =		<	1.7522E+00
Sample Prep							
N/A							

Sample Number: S96T001359

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: WB27810

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: CJO

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

Chemist: JFR

Analyst: AKL

Am 241 µCi/mL =	3.29E-03	
Relative Counting Error =	3.1%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		
Cm 243/244 µCi/mL	< 1.75E-03	
Relative Counting Error =	100.0%	
Am 243 Tracer Recovery =	69.0%	

DETECTION LEVELS in µCi/mL	
Am 241	1.75E-03
Cm 243/244	1.75E-03

Date Complete: 04/01/96

Analysis Date: 03/29/96

Analysis Time: 12:45 PM

Sample Point: AY-101

Analyst:	AKL	Date:	04/01/96
Signature of Chemist: John Relyea	JFR	Date:	3 Apr 96

SAMPLE.WB1 REV 1.2 953103MLS

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

							DUP
Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)		0.162
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.841
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)		0
6803	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts			3876
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)		0.17
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm			11.33
LIQUID	Detector Number		13	Am 243 cpm			58.86
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm			0
96002503				AEA Count Time	(min)		480
Rerun				Am 241 µCi/L =			3.3085E+00
0				Cm 243/244 µCi/L =		<	1.1237E+00
Sample Prep							
N/A							
Sample Number							
S96T001359							
Instrument Code							
WB27810							
Prepared By							
CJO							
Chemist							
JFR							
Analyst							
AKL							
Date Complete							
04/01/96							
Analysis Date							
03/29/96							
Analysis Time							
12:45 PM							
Sample Point							
AY-101							

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 =	3.31E-03	
Relative Counting Error =	2.9%	
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 =	90.9%	

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

Analyst:	AKL	Date:	04/01/96
Signature of Chemist: John Relyea	JFR	Date: 3 Apr 96	

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM5

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						SAMPLE
Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)	0.14
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.769
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
6803	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		4284
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.17
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		10.38
LIQUID	Detector Number		13	Am 243 cpm		56.83
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm		0
96002503				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		3.1269E+00
0				Cm 243/244 µCi/L =	<	1.2158E+00
Sample Prep						
N/A						
Sample Number						
S96T001360						
Instrument Code						
WB27810						
Prepared By						
CJO						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
04/01/96						
Analysis Date						
03/29/96						
Analysis Time						
12:45 PM						
Sample Point						
AY-101						

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	=	3.13E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	3.0%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/mL		< 1.22E-03	1.22E-03
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	91.9%	1.22E-03

Analyst:	AKL	Date:	04/01/96
Signature of Chemist: John Relyea	JFR	Date:	3 Apr 96

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP6

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						DUP
Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)	0.154
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.855
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
6803	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		4050
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.17
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		11.96
LIQUID	Detector Number		13	Am 243 cpm		66.42
Batch Number	Detector Efficiency	(DetEff)	0.3163	Cm 243/244 cpm		0
96002503				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		3.0936E+00
0				Cm 243/244 µCi/L =	<	1.0404E+00
Sample Prep						
N/A						
Sample Number						
S96T001360						
Instrument Code						
WB27810						
Prepared By						
CJO						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
04/01/96						
Analysis Date						
03/29/96						
Analysis Time						
12:45 PM						
Sample Point						
AY-101						

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 =	3.09E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error =	2.8%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241 1.04E-03
Cm 243/244 µCi/mL	< 1.04E-03	
Relative Counting Error =	100.0%	Cm 243/244 1.04E-03
Am 243 Tracer Recovery =	96.5%	

Analyst:	AKL	Date:	04/01/96
Signature of Chemist: John Relyea	JFR	Date:	3 Apr 96

SAMPLE.WB1 REV 1.2 953103ML

ALJ 3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV 1

DATA REDUCTION REPORT

SAMPLE
WL6803-STD
File ID: 19a1990.CNF

Counted on: 3/30/96 @ 7:49
Detector: AEA19
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	3278.8	3278.8	300.371	300.371	10.000	5.171	5.000	2.436
2	2158.5	2158.5	254.924	254.909	12.000	4.363	6.000	2.019

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	0.602	5.487	5.468	0.019	0.02	97.70	0.9	1397.4	0.629E-03
	Am241		5.479	5.468	0.011				1070.4	0.482E-03
2	Am243	0.382	5.270	5.258	0.012	0.02	62.05	1.1	645.5	0.291E-03
Totals:		0.984	<--valid peaks only-->				159.74			

DETECTOR CALIBRATION

Energy(MEV) = 4.086 + (0.0046)*Channel
Energy range (MeV): 4.086 TO 6.441
Efficiency = 0.0971 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	77921.0	100.000
Smoothed	77921.3	100.000
Composite fit	76681.8	98.410
Residuals	1239.2	1.590

Analyzed by: ALJ

Spectrum 19a1990.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 22827.7


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Raw Data Dump for AEA Spectrum: 19a1990.CNF

1	0.	0.	1.	1.	0.	0.	2.	1.	0.	0.
11	1.	0.	0.	2.	0.	1.	1.	2.	0.	2.
21	0.	1.	1.	1.	0.	0.	1.	0.	2.	0.
31	1.	3.	0.	2.	1.	0.	1.	2.	1.	1.
41	0.	1.	1.	2.	1.	0.	1.	0.	0.	0.
51	3.	1.	2.	1.	2.	2.	1.	2.	2.	1.
61	3.	0.	2.	0.	1.	1.	2.	0.	2.	1.
71	0.	1.	2.	2.	2.	4.	0.	3.	0.	1.
81	1.	1.	0.	1.	1.	1.	3.	2.	1.	3.
91	1.	0.	0.	1.	1.	2.	1.	2.	0.	0.
101	1.	2.	1.	0.	1.	2.	2.	0.	3.	2.
111	2.	1.	1.	3.	1.	0.	0.	0.	2.	2.
121	4.	2.	2.	3.	1.	1.	1.	4.	2.	1.
131	1.	1.	1.	1.	1.	1.	2.	6.	3.	0.
141	2.	1.	3.	4.	3.	1.	4.	1.	0.	0.
151	1.	2.	0.	0.	0.	2.	4.	0.	3.	1.
161	1.	4.	5.	4.	2.	1.	2.	2.	2.	3.
171	1.	1.	5.	3.	3.	3.	3.	2.	3.	2.
181	0.	1.	5.	3.	6.	2.	2.	4.	5.	2.
191	1.	4.	3.	1.	6.	5.	2.	8.	3.	3.
201	4.	6.	4.	6.	5.	5.	6.	5.	6.	4.
211	11.	6.	11.	7.	13.	5.	15.	18.	20.	8.
221	17.	20.	21.	23.	32.	47.	38.	41.	49.	71.
231	70.	96.	117.	144.	177.	194.	227.	248.	283.	356.
241	420.	490.	549.	672.	815.	946.	1027.	1194.	1286.	1535.
251	1735.	2025.	2177.	2325.	2409.	2444.	2149.	1557.	769.	360.
261	226.	169.	142.	128.	119.	113.	117.	118.	87.	100.
271	92.	97.	97.	84.	93.	104.	172.	134.	197.	256.
281	299.	331.	376.	423.	487.	577.	692.	807.	929.	1107.
291	1368.	1499.	1670.	1855.	2213.	2371.	2756.	3162.	3427.	3723.
301	3722.	3487.	2794.	1742.	977.	631.	465.	411.	345.	281.
311	238.	168.	109.	82.	55.	26.	6.	0.	0.	0.
321	0.	0.	0.	1.	0.	0.	1.	1.	0.	0.
331	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
341	0.	0.	0.	0.	1.	1.	0.	2.	2.	0.
351	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
361	1.	1.	1.	1.	1.	0.	0.	2.	1.	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.	1.	0.
431	0.	1.	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.	1.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	1.	0.	0.	0.	1.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

3-30-96

Westinghouse Hanford Co.

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

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
WL6803-BLK
File ID: 20a2019.CNF

Counted on: 3/30/96 @ 7:50
Detector: AEA20
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	1373.0	1373.0	255.192	255.192	12.000	4.935	6.000	1.256
2	16.0	16.0	143.035	142.946	156.000	1.000	78.000	0.100

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	0.902	5.270	5.256	0.014	0.02	57.66	1.2	3049.3	0.137E-02
2		0.020		4.740		0.00	1.27	8.0	66.4	0.299E-04
Totals:		0.921	<--valid peaks only-->				58.93			

DETECTOR CALIBRATION
Energy(MEV) = 4.082 + (0.0046)*Channel
Energy range (MeV): 4.082 TO 6.438
Efficiency = 0.0191 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	30697.0	100.000
Smoothed	30699.3	100.008
Composite fit	28285.5	92.144
Residuals	2411.5	7.856

Analyzed by: _____
ALJ

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                    Spectrum 20a2019.CNF
1 Legend:  Raw = ....  Modeled Peaks = 1,2,.., etc     Display Max.:    9688.6

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Raw Data Dump for AEA Spectrum: 20a2019.CNF

1	0.	0.	0.	1.	3.	2.	0.	4.	1.	2.
11	1.	4.	1.	1.	2.	2.	4.	0.	3.	1.
21	3.	1.	3.	2.	1.	1.	2.	2.	4.	1.
31	2.	0.	0.	1.	2.	4.	1.	1.	3.	2.
41	3.	1.	2.	1.	2.	3.	3.	3.	3.	0.
51	1.	2.	2.	5.	3.	1.	2.	3.	7.	3.
61	5.	3.	9.	3.	1.	1.	7.	2.	3.	2.
71	3.	2.	6.	6.	2.	5.	8.	4.	6.	4.
81	4.	4.	3.	3.	6.	4.	7.	5.	9.	8.
91	5.	5.	2.	5.	5.	6.	8.	0.	5.	4.
101	7.	8.	5.	2.	8.	6.	3.	6.	4.	4.
111	8.	6.	7.	9.	6.	8.	8.	10.	10.	10.
121	8.	10.	8.	8.	10.	10.	6.	9.	13.	4.
131	15.	13.	14.	10.	4.	15.	15.	8.	13.	15.
141	18.	15.	19.	19.	13.	15.	15.	11.	13.	13.
151	17.	12.	17.	17.	23.	19.	22.	28.	13.	18.
161	12.	22.	27.	20.	21.	26.	24.	29.	25.	19.
171	20.	22.	33.	28.	28.	35.	26.	26.	27.	38.
181	30.	40.	37.	34.	36.	40.	40.	40.	35.	42.
191	38.	32.	40.	46.	51.	47.	46.	56.	59.	58.
201	64.	53.	72.	79.	70.	70.	71.	62.	83.	86.
211	81.	116.	84.	121.	130.	135.	115.	123.	145.	130.
221	130.	139.	143.	158.	151.	186.	183.	209.	233.	244.
231	281.	271.	289.	289.	347.	375.	390.	431.	426.	505.
241	531.	564.	624.	700.	795.	848.	956.	1017.	1084.	1135.
251	1163.	1221.	1292.	1444.	1501.	1450.	1478.	1224.	709.	364.
261	161.	110.	104.	94.	82.	74.	64.	54.	55.	47.
271	28.	21.	14.	5.	7.	1.	0.	1.	1.	1.
281	0.	1.	0.	0.	1.	3.	0.	3.	2.	3.
291	5.	2.	3.	0.	4.	0.	1.	4.	3.	2.
301	2.	2.	4.	1.	1.	1.	0.	1.	0.	0.
311	1.	0.	0.	0.	0.	1.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
341	0.	0.	0.	1.	2.	1.	0.	1.	1.	1.
351	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
361	0.	0.	0.	0.	0.	0.	1.	0.	0.	2.
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.	1.
431	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	1.	0.	1.	1.	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.								

3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

DATA REDUCTION REPORT WHC-SD-WM-DP-178, REV. 1

SAMPLE
S96T001359-SAM
File ID: 21a2124.CNF

Counted on: 3/30/96 @ 7:50
Detector: AEA21
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	215.1	215.1	300.696	300.696	16.000	8.310	8.000	2.230
2	1208.6	1208.6	254.950	254.935	14.000	7.749	7.000	2.313
3	20.5	20.5	126.048	126.041	196.000	1.000	98.000	0.100
4?	7.6	7.6	99.793	99.301	10.000	1.813	5.000	1.501
5?	6.5	6.5	90.281	89.533	8.000	1.420	4.000	0.106
6?	3.2	3.2	75.608	73.387	14.000	2.650	7.000	7.191
7?	4.7	4.7	61.869	61.642	6.000	0.711	3.000	0.460

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Peak Centroid Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.136	5.479	5.462	0.017	0.04	9.62	2.9	559.5	0.252E-03
	Pu238		5.487	5.462	0.025				730.4	0.329E-03
2	Am243	0.710	5.270	5.252	0.018	0.04	50.15	1.3	2767.9	0.125E-02
3	Np237	0.023	4.640	4.659	-.019	0.00	1.60	7.1	1460.4	0.658E-03
4		????		4.536			0.13	69.2		
5		????		4.491			0.59	17.3		
6		????		4.417			0.05	169.		
7		????		4.363			0.08	94.1		
Totals:		0.869	<--valid peaks only-->				61.37			

DETECTOR CALIBRATION

Energy(MEV) = 4.079 + (0.0046)*Channel
Energy range (MeV): 4.079 TO 6.434
Efficiency = 0.0183 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	33894.0	100.000
Smoothed	33897.2	100.009
Composite fit	29869.3	88.125
Residuals	4024.7	11.875

ANALYZED BY: ALJ

Spectrum 21a2124.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 8476.4


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Raw Data Dump for AEA Spectrum: 21a2124.CNF

1	0.	0.	11.	4.	4.	6.	8.	8.	7.	6.
11	10.	7.	9.	7.	10.	8.	10.	8.	10.	7.
21	6.	2.	9.	6.	9.	9.	9.	11.	7.	3.
31	8.	8.	9.	12.	11.	6.	11.	10.	8.	12.
41	4.	10.	3.	4.	11.	9.	9.	10.	11.	9.
51	5.	5.	6.	5.	7.	9.	6.	13.	7.	9.
61	9.	17.	14.	5.	9.	7.	11.	7.	4.	16.
71	11.	16.	11.	13.	13.	13.	14.	14.	7.	9.
81	8.	14.	17.	10.	12.	17.	11.	11.	14.	18.
91	17.	14.	13.	7.	11.	15.	11.	17.	18.	16.
101	17.	13.	17.	11.	8.	15.	16.	6.	15.	17.
111	12.	21.	11.	17.	9.	11.	19.	20.	20.	18.
121	25.	11.	16.	16.	15.	24.	22.	13.	18.	13.
131	21.	16.	17.	25.	11.	25.	20.	22.	24.	29.
141	17.	15.	27.	17.	20.	15.	21.	22.	27.	18.
151	20.	24.	29.	28.	25.	26.	26.	25.	29.	21.
161	36.	35.	32.	32.	34.	27.	43.	21.	36.	25.
171	39.	31.	37.	39.	39.	25.	24.	48.	50.	38.
181	49.	41.	40.	53.	48.	44.	31.	46.	55.	48.
191	53.	46.	56.	50.	57.	49.	64.	47.	45.	50.
201	64.	78.	53.	78.	72.	85.	59.	78.	66.	58.
211	79.	97.	109.	104.	102.	115.	131.	127.	127.	129.
221	130.	140.	145.	152.	138.	194.	159.	196.	185.	160.
231	214.	225.	255.	238.	272.	304.	314.	379.	354.	402.
241	421.	493.	456.	551.	625.	632.	756.	807.	957.	924.
251	1028.	1062.	1229.	1353.	1339.	1285.	1176.	1031.	841.	610.
261	482.	321.	220.	152.	112.	104.	97.	81.	67.	79.
271	60.	44.	47.	48.	45.	38.	49.	47.	64.	72.
281	51.	45.	57.	62.	78.	63.	79.	89.	124.	112.
291	130.	106.	137.	139.	176.	181.	193.	178.	204.	254.
301	232.	224.	195.	168.	138.	106.	75.	60.	48.	27.
311	25.	23.	16.	11.	6.	8.	2.	1.	3.	0.
321	1.	0.	0.	0.	0.	0.	0.	0.	0.	2.
331	1.	1.	0.	1.	0.	1.	2.	0.	1.	1.
341	1.	1.	0.	1.	2.	0.	4.	2.	2.	2.
351	2.	3.	2.	3.	1.	2.	1.	5.	3.	7.
361	2.	4.	8.	11.	3.	6.	7.	11.	10.	8.
371	2.	4.	3.	1.	0.	1.	0.	1.	1.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
421	0.	0.	2.	1.	0.	1.	0.	0.	1.	1.
431	1.	0.	1.	0.	1.	3.	0.	0.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
481	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co. 3-30-96

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

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T001359-DUP
File ID: 22a2258.CNF

Counted on: 3/30/96 @ 7:51
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	240.5	240.5	298.065	298.065	12.000	6.518	6.000	1.497
2	1352.7	1352.7	251.734	251.700	12.000	6.014	6.000	1.526

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	0.162	5.487	5.480	0.007	0.03	11.33	2.7	157.8	0.711E-04
	Am241		5.479	5.480	-.001				120.9	0.544E-04
2	Am243	0.841	5.270	5.267	0.003	0.03	58.86	1.2	596.3	0.269E-03
		---					---			
Totals:		1.003	<--valid peaks only-->				70.19			

DETECTOR CALIBRATION
Energy(MEV) = 4.109 + (0.0046)*Channel
Energy range (MeV): 4.109 TO 6.465
Efficiency = 0.0997 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	33584.0	100.000
Smoothed	33585.5	100.004
Composite fit	33694.0	100.328
Residuals	-110.0	-0.328

Analyzed by: _____
ALJ

Spectrum 22a2258.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 9947.5


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Raw Data Dump for AEA Spectrum: 22a2258.CNF

1	0.	0.	0.	1.	1.	0.	0.	0.	0.	1.
11	0.	0.	0.	3.	1.	2.	3.	2.	2.	1.
21	1.	0.	1.	0.	0.	0.	0.	0.	2.	2.
31	1.	2.	0.	1.	0.	2.	0.	0.	0.	0.
41	1.	1.	0.	1.	2.	2.	0.	0.	0.	3.
51	1.	0.	1.	1.	0.	1.	0.	1.	2.	0.
61	0.	0.	2.	3.	1.	0.	1.	0.	0.	1.
71	0.	0.	1.	0.	0.	1.	1.	1.	1.	1.
81	1.	1.	1.	0.	2.	3.	0.	0.	1.	1.
91	0.	0.	0.	1.	3.	0.	3.	0.	1.	0.
101	1.	0.	1.	2.	0.	1.	2.	2.	1.	1.
111	1.	2.	4.	0.	2.	0.	1.	0.	0.	1.
121	0.	2.	4.	4.	2.	1.	1.	2.	3.	1.
131	1.	3.	2.	1.	1.	2.	2.	2.	2.	4.
141	3.	1.	1.	3.	1.	3.	2.	3.	2.	2.
151	2.	4.	4.	3.	3.	2.	2.	4.	4.	2.
161	2.	5.	4.	4.	8.	8.	6.	5.	7.	3.
171	2.	10.	6.	8.	4.	5.	3.	6.	8.	12.
181	11.	5.	9.	7.	8.	10.	7.	7.	11.	17.
191	8.	14.	13.	17.	18.	21.	18.	23.	20.	23.
201	24.	27.	20.	33.	31.	33.	28.	59.	48.	61.
211	57.	47.	57.	53.	54.	69.	68.	96.	97.	108.
221	128.	139.	144.	193.	182.	167.	232.	238.	261.	261.
231	307.	345.	368.	428.	443.	502.	500.	550.	674.	685.
241	716.	812.	969.	946.	1058.	1212.	1285.	1241.	1376.	1399.
251	1389.	1445.	1395.	1400.	1202.	823.	379.	208.	134.	109.
261	101.	87.	96.	74.	65.	71.	69.	54.	47.	39.
271	52.	35.	45.	37.	39.	54.	54.	52.	74.	64.
281	92.	86.	96.	111.	111.	135.	133.	167.	171.	187.
291	200.	231.	188.	224.	246.	239.	264.	238.	239.	273.
301	224.	134.	81.	70.	30.	38.	24.	22.	14.	10.
311	10.	8.	5.	2.	3.	0.	0.	0.	0.	0.
321	0.	0.	0.	1.	1.	1.	0.	1.	0.	1.
331	0.	0.	1.	0.	2.	0.	0.	1.	1.	2.
341	1.	2.	1.	1.	3.	5.	2.	5.	1.	4.
351	4.	3.	2.	4.	5.	1.	5.	6.	3.	6.
361	6.	8.	6.	9.	7.	7.	7.	3.	6.	6.
371	4.	1.	1.	0.	0.	0.	1.	1.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
411	1.	1.	0.	1.	0.	0.	0.	1.	0.	0.
421	0.	0.	1.	0.	4.	1.	2.	2.	1.	0.
431	3.	0.	0.	1.	0.	1.	1.	1.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.
471	0.	0.	0.	1.	1.	1.	1.	0.	0.	2.
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.								

3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T001360-SAM
File ID: 23a2353.CNF

Counted on: 3/30/96 @ 7:52
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	247.0	247.0	297.160	297.160	14.000	6.249	7.000	1.694
2	1361.2	1361.2	251.484	251.471	12.000	5.372	6.000	1.409

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	0.140	5.487	5.466	0.021	0.03	10.38	2.8	800.6	0.361E-03
	Am241		5.479	5.466	0.013				613.3	0.276E-03
2	Am243	0.769	5.270	5.256	0.014	0.02	56.83	1.2	3189.4	0.144E-02
Totals:		0.910	<--valid peaks only-->				67.21			

DETECTOR CALIBRATION

Energy(MEV) = 4.099 + (0.0046)*Channel
Energy range (MeV): 4.099 TO 6.455
Efficiency = 0.0180 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	35466.0	100.000
Smoothed	35465.6	99.999
Composite fit	32266.9	90.980
Residuals	3199.1	9.020

Analyzed by: ALJ

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                    Spectrum 23a2353.CNF
1 Legend:  Raw = ....  Modeled Peaks = 1,2,.., etc     Display Max.:    9530.7

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Raw Data Dump for AEA Spectrum: 23a2353.CNF

1	0.	0.	3.	0.	0.	1.	2.	2.	1.	1.
11	1.	4.	2.	2.	2.	0.	4.	0.	2.	2.
21	2.	2.	2.	0.	3.	3.	2.	3.	0.	0.
31	2.	2.	5.	3.	3.	1.	2.	4.	3.	0.
41	1.	2.	0.	3.	0.	1.	2.	0.	3.	2.
51	4.	2.	3.	4.	2.	5.	2.	0.	3.	2.
61	0.	3.	3.	5.	7.	2.	4.	4.	2.	3.
71	6.	1.	0.	3.	1.	4.	4.	1.	6.	4.
81	6.	2.	3.	4.	6.	2.	7.	4.	5.	8.
91	4.	5.	5.	15.	7.	6.	2.	4.	8.	3.
101	8.	4.	4.	6.	7.	7.	8.	4.	4.	4.
111	6.	12.	13.	10.	9.	5.	6.	11.	9.	9.
121	9.	10.	8.	10.	6.	14.	8.	10.	3.	14.
131	6.	9.	12.	8.	10.	9.	16.	10.	11.	9.
141	5.	16.	10.	8.	18.	8.	19.	19.	14.	17.
151	18.	13.	19.	12.	13.	17.	18.	19.	19.	15.
161	15.	21.	19.	22.	18.	23.	12.	24.	27.	31.
171	28.	16.	20.	40.	31.	30.	25.	32.	26.	24.
181	36.	41.	49.	28.	39.	50.	37.	53.	46.	54.
191	41.	51.	64.	44.	62.	52.	52.	58.	60.	77.
201	72.	74.	92.	92.	75.	78.	77.	93.	88.	101.
211	97.	122.	105.	128.	117.	129.	144.	156.	158.	165.
221	170.	186.	215.	189.	207.	233.	267.	275.	300.	308.
231	326.	344.	351.	365.	457.	421.	515.	528.	675.	700.
241	755.	835.	882.	924.	1000.	1085.	1098.	1209.	1311.	1432.
251	1434.	1494.	1436.	1315.	969.	555.	294.	163.	111.	97.
261	101.	108.	83.	66.	99.	71.	68.	58.	58.	58.
271	42.	45.	45.	43.	51.	38.	55.	64.	75.	60.
281	97.	100.	96.	101.	107.	110.	115.	158.	169.	165.
291	182.	191.	207.	219.	246.	249.	269.	280.	240.	214.
301	156.	99.	58.	39.	31.	27.	33.	17.	12.	8.
311	6.	6.	5.	2.	1.	0.	0.	1.	1.	0.
321	0.	0.	1.	0.	1.	0.	2.	0.	1.	0.
331	1.	0.	2.	0.	0.	1.	3.	4.	1.	1.
341	1.	1.	1.	1.	3.	3.	3.	3.	2.	2.
351	3.	2.	5.	2.	4.	3.	9.	1.	6.	8.
361	9.	6.	7.	10.	2.	5.	6.	6.	11.	1.
371	2.	2.	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.	1.	0.	2.	0.	1.	1.	0.
421	0.	2.	0.	0.	2.	2.	2.	0.	2.	2.
431	1.	0.	1.	1.	1.	1.	2.	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	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

ALJ 3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01 WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T001360-DUP
File ID: 24a2458.CNF

Counted on: 3/30/96 @ 7:52
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	275.1	275.1	300.209	300.209	14.000	6.432	7.000	1.664
2	1486.0	1486.0	254.483	254.461	12.000	6.092	6.000	1.489

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	0.154	5.487	5.472	0.015	0.03	11.96	2.6	843.5	0.380E-03
	Am241		5.479	5.472	0.007				646.1	0.291E-03
2	Am243	0.855	5.270	5.261	0.009	0.03	66.42	1.1	3405.4	0.153E-02
Totals:		1.009	<--valid peaks only-->				78.38			

DETECTOR CALIBRATION

Energy(MEV) = 4.091 + (0.0046)*Channel
Energy range (MeV): 4.091 TO 6.446
Efficiency = 0.0197 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	37275.0	100.000
Smoothed	37275.2	100.001
Composite fit	37626.3	100.942
Residuals	-351.3	-0.942

Analyzed by: _____
ALJ

Spectrum 24a2458.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 11107.5


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Raw Data Dump for AEA Spectrum: 24a2458.CNF

1	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
11	1.	0.	0.	0.	0.	0.	0.	0.	0.	2.
21	0.	0.	0.	0.	1.	1.	1.	2.	1.	0.
31	1.	2.	1.	1.	0.	2.	1.	0.	0.	1.
41	0.	1.	0.	2.	0.	1.	1.	1.	3.	4.
51	2.	0.	1.	0.	2.	1.	1.	1.	2.	0.
61	1.	3.	2.	2.	1.	3.	2.	0.	1.	2.
71	1.	3.	2.	0.	1.	2.	1.	0.	0.	0.
81	2.	1.	2.	1.	0.	1.	2.	2.	0.	1.
91	1.	2.	0.	4.	0.	2.	1.	0.	0.	1.
101	0.	0.	1.	4.	0.	2.	1.	4.	1.	1.
111	1.	3.	0.	1.	2.	2.	2.	2.	4.	1.
121	0.	4.	3.	1.	3.	6.	1.	1.	6.	2.
131	3.	1.	1.	2.	1.	2.	2.	5.	3.	1.
141	3.	6.	4.	5.	6.	2.	1.	2.	2.	1.
151	0.	2.	4.	3.	3.	6.	2.	4.	2.	3.
161	6.	4.	5.	2.	4.	4.	2.	7.	5.	7.
171	3.	5.	7.	6.	4.	5.	3.	13.	11.	11.
181	7.	9.	11.	6.	12.	20.	12.	14.	7.	7.
191	18.	17.	21.	14.	10.	20.	20.	20.	20.	34.
201	25.	29.	35.	26.	31.	30.	41.	30.	28.	48.
211	44.	46.	54.	61.	66.	66.	66.	84.	85.	94.
221	107.	118.	148.	139.	156.	177.	184.	207.	221.	254.
231	257.	304.	334.	347.	413.	417.	431.	537.	545.	653.
241	683.	763.	831.	841.	934.	1038.	1156.	1262.	1270.	1323.
251	1407.	1477.	1543.	1562.	1575.	1545.	1495.	1211.	783.	370.
261	191.	159.	111.	108.	102.	96.	98.	77.	72.	66.
271	56.	64.	47.	49.	48.	53.	51.	51.	60.	56.
281	77.	64.	87.	95.	88.	97.	109.	117.	135.	154.
291	197.	185.	198.	270.	238.	247.	253.	258.	248.	315.
301	286.	278.	235.	184.	111.	77.	50.	37.	31.	15.
311	22.	20.	16.	9.	4.	3.	2.	1.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
331	0.	1.	0.	2.	0.	0.	0.	1.	2.	1.
341	1.	1.	0.	4.	2.	3.	3.	4.	1.	0.
351	6.	5.	1.	5.	4.	2.	5.	7.	9.	4.
361	4.	5.	9.	11.	9.	7.	6.	7.	6.	4.
371	5.	2.	8.	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.	1.	0.	0.	0.	0.	0.	0.	0.	0.
411	1.	0.	0.	0.	0.	1.	1.	1.	0.	1.
421	3.	3.	3.	0.	0.	2.	1.	1.	1.	1.
431	1.	1.	2.	1.	1.	1.	2.	1.	2.	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.	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.								

03/28/96 15:34
A-0004-1

LABCORE Data Entry Template for Worklist# 7091

Analyst: AKL **Instrument:** AM01 14 **Book#** 104B43

Method: LA-953-103 Rev/Mod A5

Worklist Comment: AY-101 GRAB. Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AM24101	LIQUID		
2	BLNK				@AM24101	LIQUID		
3	SAMPLE	S96T001361	0		@AM24101	LIQUID	96000257	AY-101 GRAB
		Analytes Requested: AM24101 , AM24101E, AM24101T						
4	DUP	S96T001361	0		@AM24101	LIQUID		

Final page for worklist # 7091

3/29/96
Analyst Signature **Date**

Sue Hagan 4/1/96
Analyst Signature **Date**

4/2/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7091

Analyst: akl **Instrument:** ~~AB14~~ 4MCI #14 **Book#** 104B43

Method: LA-953-103 Rev/Mod A-5

Worklist Comment: AY-101 GRAB. Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@AM24101	AM24101	LIQUID	3.07E-02	2.42E-2	78.830	% Recovery
1	STD		0	@AM24101	AM24101T	LIQUID	100.	8.77E+01	87.700	% Recovery
1	STD		0	@AM24101	AM24101E	LIQUID	1.0	1.72E+00	1.720	% Ct. Error
2	BLNK		0	@AM24101	AM24101	LIQUID	1	<1.73E-3		uCi/mL
2	BLNK		0	@AM24101	AM24101T	LIQUID	100.0	6.38E+01	63.800	% Recovery
2	BLNK		0	@AM24101	AM24101E	LIQUID	1.0	1.00E+02	100.000	% Ct. Error
3	SAMPLE	S96T001361	0	@AM24101	AM24101	LIQUID	N/A	3.35E-03	1.520e-003	uCi/mL
3	SAMPLE	S96T001361	0	@AM24101	AM24101E	LIQUID	N/A	2.52E+00	2.520	% Ct. Error
3	SAMPLE	S96T001361	0	@AM24101	AM24101T	LIQUID	N/A	7.71E+01	77.100	% Recovery
4	DUP	S96T001361	0	@AM24101	AM24101	LIQUID	3.35E-3	3.48e-3	3.810	RPD
4	DUP	S96T001361	0	@AM24101	AM24101T	LIQUID	100.0	7.77E+01	77.700	% Recovery
4	DUP	S96T001361	0	@AM24101	AM24101E	LIQUID	1.0	2.4E+00	2.400	% Ct. Error

Final page for worklist# 7091

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

John Relyea 2 Apr 96
Reviewer Signature **Date**

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

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						DUP
Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)	0.151
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.746
Work List	Sample D.F.	(DF)	1.01	Cm 243/244 AEA Frac.	(Cm)	0
7091	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		3443
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.27
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		17.41
LIQUID	Detector Number		14	Am 243 cpm		85.97
Batch Number	Detector Efficiency	(DetEff)	0.2910	Cm 243/244 cpm		0
96002814				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		6.9531E+00
0				Cm 243/244 µCi/L =	<	5.9224E+00
Sample Prep						
N/A						
Sample Number						
S96T001361						
Instrument Code						
WB27807						
Prepared By						
SEH						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
04/01/96						
Analysis Date						
03/29/96						
Analysis Time						
03:30 PM						
Sample Point						
AY-101 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	=	6.95E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	2.4%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/mL		< 5.92E-03	5.92E-03
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	38.9%	5.92E-03

Analyst:	AKL	Date:	04/01/96
Signature of Chemist:	JFR	Date:	

SAMPLE.WB1 REV 1.2 953103ML

SPKV = 0.050
Not 0.100
JFR 7-16-96

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID

						STD
Type	Date Counted		MAR-31-96	Am 241 AEA Frac.	(C241)	0.505
STD	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.358
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
7091	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		8086
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.27
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		65.34
LIQUID	Detector Number		14	Am 243 cpm		46.29
Batch Number	Detector Efficiency	(DetEff)	0.2910	Cm 243/244 cpm		0
96002814	Standard Book No		104B43	AEA Count Time	(min)	480
Rerun	Standard Value in µCi/mL		0.03067	Am 241 µCi/L =		2.4228E+01
0				Cm 243/244 µCi/L =	<	2.7338E+00
Sample Prep						
N/A						
Sample Number						
WL#7091						
Instrument Code						
WB27807						
Prepared By						
SEH						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
04/01/96						
Analysis Date						
03/29/96						
Analysis Time						
03:30 PM						
Sample Point						
AY-101 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	=	2.42E-02
Relative Counting Error	=	1.7%
NOTE: Cm-243/244 Result is a LESS THAN Value.		
Cm 243/244 µCi/mL		< 2.73E-03
Relative Counting Error	=	100.0%
Am 243 Tracer Recovery	=	87.7%

DETECTION LEVELS in µCi/mL
Am 241
2.73E-03
Cm 243/244
2.73E-03

Analyst:		AKL	Date:	04/01/96
Signature of Chemist:	John Rehyea	JFR	Date:	2 Apr 96

STANDARD.WB1 REV 1.2 953103ML

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

							BLNK
Type	Date Counted		MAR-30-96	Am 241 AEA Frac.	(C241)		0
BLNK	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.777
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)		0
7091	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts			2715
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)		0.27
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm			0
LIQUID	Detector Number		14	Am 243 cpm			72.01
Batch Number	Detector Efficiency	(DetEff)	0.2910	Cm 243/244 cpm			0
96002814				AEA Count Time	(min)		480
Rerun				Am 241 µCi/L =		<	1.7319E+00
0				Cm 243/244 µCi/L =		<	1.7319E+00
Sample Prep							
N/A							
Sample Number							
WL#7091							
Instrument Code							
WB27807							
Prepared By							
SEH							
Chemist							
JFR							
Analyst							
AKL							
Date Complete							
04/01/96							
Analysis Date							
03/29/96							
Analysis Time							
03:30 PM							
Sample Point							
AY-101 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 =	< 1.73E-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	< 1.73E-03	1.73E-03
Relative Counting Error =	100.0%	Cm 243/244
Am 243 Tracer Recovery =	63.8%	1.73E-03

Analyst:	AKL	Date:	04/01/96
Signature of Chemist: John Rehyea	JFR	Date:	24 Apr 96

BLANK.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						SAMPLE
Type	Date Counted		MAR-31-96	Am 241 AEA Frac.	(C241)	0.143
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.734
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
7091	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		3470
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.27
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		15.04
LIQUID	Detector Number		14	Am 243 cpm		76.91
Batch Number	Detector Efficiency	(DetEff)	0.2910	Cm 243/244 cpm		0
96002814				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		3.3462E+00
0				Cm 243/244 µCi/L =	<	1.5175E+00
Sample Prep						
N/A						
Sample Number						
S96T001361						
Instrument Code						
WB27807						
Prepared By						
SEH						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
04/01/96						
Analysis Date						
03/29/96						
Analysis Time						
03:30 PM						
Sample Point						
AY-101 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	=	3.35E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	2.5%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/mL		< 1.52E-03	1.52E-03
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	77.1%	1.52E-03

Analyst:	AKL	Date:	04/01/96
Signature of Chemist: John Relyea	JFR	Date:	2 Apr 96

SAMPLE.WB1 REV 1.2 953103ML

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						DUP
Type	Date Counted		03/30/96	Am 241 AEA Frac.	(C241)	0.151
DUP	ENTER COMPLETE TYPE	<<<<<<	1.000	Am 243 AEA Frac.	(C243)	0.746
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
7091	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		3443
Test Code	Digest D.F.	(DDF)	1	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.27
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		17.41
LIQUID	APC Detector Number		14	Am 243 cpm		85.97
Sample #	Detector Effeciency	(DetEff)	0.2910	Cm 243/244 cpm		0
S96T001361				AEA Count Time	(min)	480
Instrument Code				Am 241 µCi/L =		3.4765E+00
WB27807				Cm 243/244 µCi/L =	<	1.4806E+00
Analyst						
SEH						
Date						
04/01/96						
Time						
03:30 PM						

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

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

Print

Am 241	µCi/mL	=	3.48E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error		=	2.4%	
NOTE: Cm-243/244 Result is a LESS THAN Value.				Am 241 1.48E-03
Cm 243/244	µCi/mL	=	< 1.48E-03	
Relative Counting Error		=	100.0%	Cm 243/244 1.48E-03
Am 243 Tracer Recovery		=	77.7%	

Data Entry by: Date: 04/02/96

Approved by: John Relyea Date: 2 Apr 96

Form 953103WB Rev. 0.3

D. H. Miller
4-1-96

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
WL7091-STD
File ID: 14a1410.CNF

Counted on: 3/31/96 @18:21
Detector: AEA14
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1541.9	1541.9	300.932	300.932	12.000	6.217	6.000	1.660
2	1062.7	1062.7	254.593	254.510	14.000	6.346	7.000	1.632
3	54.6	54.6	164.747	164.553	116.000	1.000	58.000	0.100
4	10.6	10.6	108.837	108.383	62.000	132.828	31.000	50.926
5	12.3	12.3	66.778	66.325	16.000	17.410	8.000	0.990
6?	12.6	12.6	18.736	18.599	10.000	4.656	5.000	2.159

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	Am241	0.505	5.479	5.457	0.022	0.03	65.34	1.1	4894.8	0.220E-02
2	Am243	0.358	5.270	5.249	0.021	0.03	46.29	1.4	3292.5	0.148E-02
3		0.034		4.844	0.00		4.35	4.3	306.2	0.138E-03
4		????		4.591			1.22	17.5		
5		????		4.402			1.29	9.9		
6		????		4.187			0.34	23.1		
		---					---			
Totals:		0.896	<--valid peaks only-->				115.97			

DETECTOR CALIBRATION
Energy(MEV) = 4.103 + (0.0045)*Channel
Energy range (MeV): 4.103 TO 6.407
Efficiency = 0.0142 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	62117.0	100.000
Smoothed	62128.3	100.018
Composite fit	57037.0	91.822
Residuals	5080.0	8.178

Analyzed by: _____
DM

Spectrum 14a1410.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 11028.1


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Raw Data Dump for AEA Spectrum: 14a1410.CNF

1	0.	0.	13.	12.	13.	10.	11.	20.	9.	9.
11	9.	7.	19.	19.	11.	15.	22.	14.	25.	21.
21	16.	11.	12.	8.	13.	10.	12.	11.	11.	6.
31	7.	6.	7.	9.	11.	12.	8.	13.	10.	10.
41	14.	19.	7.	13.	11.	13.	12.	13.	11.	6.
51	19.	11.	8.	16.	13.	18.	11.	8.	12.	10.
61	18.	18.	18.	19.	13.	16.	19.	23.	12.	14.
71	10.	10.	16.	14.	9.	11.	16.	14.	15.	19.
81	10.	15.	23.	10.	14.	18.	18.	20.	13.	25.
91	9.	16.	24.	15.	17.	23.	15.	16.	18.	16.
101	19.	17.	21.	24.	21.	13.	18.	27.	24.	20.
111	21.	17.	22.	22.	23.	28.	19.	21.	27.	22.
121	27.	27.	32.	21.	27.	34.	23.	29.	28.	30.
131	20.	35.	29.	34.	34.	34.	40.	26.	26.	31.
141	33.	32.	34.	27.	32.	42.	23.	33.	27.	46.
151	49.	27.	40.	46.	35.	37.	31.	36.	51.	41.
161	39.	34.	70.	57.	49.	46.	47.	68.	46.	55.
171	75.	44.	50.	53.	39.	57.	56.	58.	54.	68.
181	56.	71.	54.	67.	77.	74.	65.	71.	62.	67.
191	86.	74.	94.	78.	84.	75.	89.	70.	93.	96.
201	88.	91.	80.	90.	107.	108.	94.	97.	99.	139.
211	133.	125.	123.	147.	147.	142.	117.	144.	166.	150.
221	142.	181.	189.	170.	211.	182.	222.	223.	190.	223.
231	241.	237.	306.	306.	299.	331.	374.	394.	400.	408.
241	447.	478.	502.	580.	641.	697.	776.	754.	820.	844.
251	929.	994.	1131.	1272.	1232.	1176.	1057.	749.	542.	381.
261	278.	272.	259.	230.	255.	261.	267.	252.	244.	280.
271	247.	258.	284.	303.	280.	297.	333.	336.	365.	367.
281	377.	420.	452.	493.	492.	534.	587.	642.	703.	824.
291	895.	918.	950.	1029.	1145.	1142.	1249.	1343.	1513.	1653.
301	1703.	1700.	1516.	1157.	771.	488.	345.	279.	281.	213.
311	183.	139.	109.	90.	68.	50.	36.	24.	16.	22.
321	22.	17.	8.	14.	12.	11.	8.	14.	7.	8.
331	9.	5.	4.	14.	8.	3.	2.	8.	9.	9.
341	5.	7.	1.	3.	5.	9.	4.	6.	8.	2.
351	1.	4.	2.	6.	5.	7.	5.	4.	2.	4.
361	5.	4.	5.	3.	3.	2.	3.	3.	6.	2.
371	3.	5.	2.	1.	0.	5.	5.	0.	3.	1.
381	1.	3.	5.	0.	5.	4.	1.	2.	2.	3.
391	1.	2.	0.	1.	3.	0.	2.	4.	2.	0.
401	2.	1.	0.	2.	2.	2.	4.	0.	7.	1.
411	1.	1.	1.	2.	2.	1.	2.	1.	2.	3.
421	1.	1.	1.	2.	1.	2.	4.	4.	4.	3.
431	2.	0.	0.	1.	1.	3.	3.	8.	1.	1.
441	0.	2.	3.	2.	5.	1.	2.	1.	3.	2.
451	0.	2.	1.	0.	4.	1.	1.	0.	1.	4.
461	5.	3.	2.	0.	1.	8.	2.	2.	3.	1.
471	4.	3.	6.	1.	4.	4.	2.	5.	2.	2.
481	2.	3.	0.	1.	3.	3.	2.	2.	3.	3.
491	1.	3.	4.	3.	0.	3.	3.	2.	0.	3.
511	5.	0.								

D. Hamilton 3-30-96

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
WL7091-BLK
File ID: 10a2528.CNF

Counted on: 3/30/96 @13:31
Detector: AEA10
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	1435.0	1435.0	254.910	254.910	14.000	8.179	7.000	1.810
2	36.2	36.2	116.690	116.656	244.000	1.000	122.000	0.100
3?	12.8	12.8	93.629	93.169	14.000	8.398	7.000	2.847
4?	11.0	11.0	75.992	72.962	14.000	9.113	7.000	7.196
5?	11.7	11.7	62.645	62.645	18.000	2.435	9.000	9.225
6?	13.0	13.0	57.847	53.357	18.000	8.526	9.000	9.318
7	14.1	14.1	33.387	32.853	30.000	23.686	15.000	1.469

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	0.777	5.270	5.257	0.01	30.04	72.01	1.1	347.0	0.156E-03
2	Np237	0.030	4.640	4.635	0.00	50.00	2.80	5.4	222.6	0.100E-03
3		????		4.530			0.51	29.0		
4		????		4.439			0.34	35.7		
5		????		4.392			0.18	51.5		
6		????		4.351			0.38	27.9		
7	U 238	0.011	4.184	4.258	-.07	40.11	1.05	12.0	6.5	0.293E-05
Totals:		0.818	<--valid peaks only-->				75.85			

DETECTOR CALIBRATION
Energy(MEV) = 4.110 + (0.0045)*Channel
Energy range (MeV): 4.110 TO 6.414
Efficiency = 0.2096 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	44515.0	100.000
Smoothed	44529.0	100.031
Composite fit	37096.1	83.334
Residuals	7418.9	16.666

ANALYZED BY: _____
ALJ

Spectrum 10a2528.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 10185.3

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Raw Data Dump for AEA Spectrum: 10a2528.CNF

1	0.	0.	8.	9.	20.	11.	18.	12.	16.	6.
11	17.	14.	17.	18.	10.	13.	15.	14.	17.	11.
21	16.	16.	10.	16.	16.	13.	15.	14.	21.	6.
31	18.	24.	16.	14.	22.	15.	18.	13.	17.	15.
41	17.	11.	19.	17.	19.	18.	18.	18.	17.	14.
51	26.	16.	17.	19.	20.	17.	22.	19.	24.	14.
61	20.	23.	23.	21.	19.	18.	17.	25.	20.	21.
71	21.	25.	29.	19.	30.	20.	26.	28.	19.	13.
81	18.	25.	27.	17.	21.	25.	28.	29.	21.	23.
91	20.	38.	38.	34.	30.	27.	33.	27.	28.	25.
101	30.	27.	36.	26.	29.	27.	23.	46.	25.	37.
111	38.	42.	36.	30.	35.	28.	43.	38.	26.	37.
121	37.	24.	38.	28.	29.	30.	35.	29.	37.	27.
131	43.	39.	39.	36.	36.	39.	43.	47.	42.	35.
141	46.	42.	44.	47.	52.	38.	51.	36.	50.	49.
151	72.	51.	47.	47.	56.	48.	52.	59.	50.	60.
161	55.	58.	50.	70.	61.	74.	63.	72.	68.	71.
171	63.	83.	68.	75.	78.	73.	88.	69.	73.	70.
181	76.	87.	100.	95.	97.	80.	84.	109.	86.	96.
191	116.	112.	118.	119.	122.	134.	129.	132.	130.	126.
201	142.	145.	145.	136.	152.	143.	144.	168.	181.	190.
211	180.	187.	196.	199.	206.	192.	217.	214.	199.	250.
221	255.	277.	284.	304.	286.	318.	284.	349.	321.	382.
231	382.	443.	415.	400.	465.	513.	539.	544.	576.	655.
241	683.	706.	773.	779.	816.	899.	918.	1066.	1072.	1165.
251	1275.	1291.	1431.	1540.	1589.	1473.	1396.	1258.	923.	712.
261	510.	321.	256.	206.	201.	175.	157.	160.	118.	107.
271	82.	78.	66.	45.	31.	31.	23.	17.	19.	11.
281	13.	10.	17.	12.	6.	10.	8.	6.	8.	7.
291	10.	9.	6.	5.	5.	7.	7.	13.	9.	7.
301	7.	11.	7.	8.	6.	7.	8.	7.	7.	7.
311	6.	3.	4.	7.	3.	5.	3.	6.	3.	3.
321	3.	3.	2.	4.	3.	4.	10.	7.	3.	9.
331	2.	2.	2.	5.	3.	2.	3.	2.	2.	5.
341	4.	3.	4.	3.	4.	2.	1.	3.	3.	2.
351	2.	3.	2.	3.	1.	0.	2.	3.	3.	3.
361	3.	3.	3.	1.	2.	1.	3.	1.	3.	4.
371	2.	1.	2.	7.	0.	1.	1.	1.	1.	1.
381	1.	2.	2.	5.	1.	2.	1.	5.	0.	3.
391	0.	1.	0.	1.	7.	0.	1.	1.	3.	0.
401	3.	5.	1.	4.	2.	2.	2.	0.	4.	2.
411	1.	1.	2.	5.	1.	3.	2.	3.	0.	4.
421	3.	4.	2.	2.	1.	3.	3.	2.	2.	4.
431	3.	4.	0.	0.	1.	1.	0.	4.	2.	1.
441	5.	3.	0.	2.	0.	2.	0.	2.	2.	3.
451	3.	1.	1.	2.	3.	3.	3.	1.	2.	0.
461	3.	3.	2.	3.	2.	2.	1.	5.	5.	0.
471	1.	1.	4.	1.	2.	4.	4.	2.	2.	2.
481	3.	7.	1.	1.	3.	3.	8.	2.	4.	4.
491	3.	3.	0.	2.	4.	2.	4.	1.	2.	3.
511	4.	0.								

D. H. Milicia
3-30-96

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
S96T001361-SAM
File ID: 11a3923.CNF

Counted on: 3/30/96 @13:32
Detector: AEA11
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	277.0	277.0	299.123	299.123	18.000	11.003	9.000	2.346
2	1501.8	1501.8	252.716	252.685	14.000	8.969	7.000	1.974
3	14.5	14.5	89.342	89.336	258.000	1.000	129.000	0.100
4?	2.1	2.1	80.985	80.985	4.000	0.000	2.000	1.632
5?	7.6	7.6	32.321	31.775	14.000	21.016	7.000	3.272

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	Am241	0.143	5.479	5.451	0.028	0.05	15.04	2.3	358.7	0.162E-03
	Pu238		5.487	5.451	0.036				468.3	0.211E-03
2	Am243	0.734	5.270	5.242	0.028	0.04	76.91	1.0	1741.9	0.785E-03
3		0.010		4.507		0.00	1.07	8.7	23.9	0.108E-04
4		????		4.470			0.00	1000.		
5		????		4.248			0.45	18.0		
Totals:		0.887	<--valid peaks only-->				93.01			

DETECTOR CALIBRATION
Energy(MEV) = 4.105 + (0.0045)*Channel
Energy range (MeV): 4.105 TO 6.409
Efficiency = 0.0446 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	50328.0	100.000
Smoothed	50325.9	99.996
Composite fit	44876.2	89.167
Residuals	5451.8	10.833

Analyzed by: _____
ALJ

Spectrum 11a3923.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 11419.6

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Raw Data Dump for AEA Spectrum: 11a3923.CNF

1	0.	0.	8.	3.	4.	8.	9.	13.	6.	6.
11	5.	1.	7.	9.	6.	10.	5.	7.	6.	10.
21	5.	4.	11.	10.	11.	6.	1.	7.	11.	13.
31	10.	12.	11.	10.	9.	11.	11.	3.	7.	6.
41	4.	7.	5.	13.	11.	3.	10.	9.	7.	9.
51	10.	10.	10.	10.	11.	11.	7.	6.	6.	7.
61	14.	8.	14.	11.	12.	12.	5.	11.	14.	8.
71	12.	9.	9.	15.	11.	9.	10.	11.	10.	12.
81	12.	10.	11.	14.	3.	11.	11.	10.	17.	20.
91	11.	6.	11.	12.	11.	12.	16.	20.	10.	15.
101	12.	19.	11.	17.	21.	18.	14.	17.	18.	21.
111	15.	17.	22.	16.	17.	18.	19.	24.	18.	21.
121	16.	23.	16.	23.	14.	24.	17.	23.	23.	21.
131	24.	24.	24.	14.	22.	29.	20.	21.	31.	28.
141	26.	35.	22.	22.	30.	32.	26.	30.	24.	25.
151	36.	34.	43.	31.	42.	32.	38.	25.	41.	36.
161	36.	41.	48.	49.	57.	54.	44.	47.	55.	44.
171	49.	49.	54.	49.	50.	60.	48.	60.	61.	61.
181	62.	58.	70.	76.	82.	76.	84.	77.	85.	94.
191	82.	87.	88.	87.	103.	132.	88.	104.	106.	119.
201	106.	141.	109.	151.	147.	142.	148.	173.	166.	179.
211	183.	172.	194.	203.	210.	213.	212.	244.	249.	245.
221	265.	268.	288.	301.	333.	347.	352.	353.	392.	423.
231	440.	480.	514.	555.	591.	645.	620.	733.	723.	799.
241	810.	895.	874.	1007.	1029.	1161.	1169.	1302.	1389.	1497.
251	1593.	1594.	1604.	1610.	1467.	1291.	1102.	770.	546.	385.
261	325.	262.	239.	238.	209.	168.	170.	167.	163.	134.
271	95.	109.	106.	88.	75.	81.	113.	86.	104.	94.
281	132.	117.	125.	108.	119.	123.	117.	146.	146.	169.
291	179.	200.	214.	229.	225.	245.	293.	290.	304.	283.
301	290.	240.	199.	163.	153.	104.	101.	76.	53.	47.
311	40.	25.	30.	32.	18.	12.	23.	7.	12.	6.
321	13.	9.	5.	9.	7.	5.	4.	7.	10.	6.
331	3.	0.	5.	2.	5.	2.	6.	1.	2.	6.
341	5.	9.	8.	7.	7.	4.	5.	6.	5.	4.
351	4.	3.	4.	5.	5.	6.	7.	12.	10.	8.
361	6.	7.	8.	4.	14.	10.	8.	12.	8.	14.
371	5.	7.	13.	6.	2.	3.	0.	1.	3.	0.
381	3.	3.	2.	3.	4.	6.	8.	3.	1.	3.
391	1.	3.	5.	1.	2.	1.	2.	3.	2.	0.
401	6.	4.	3.	1.	2.	1.	3.	5.	0.	1.
411	1.	5.	4.	2.	2.	3.	2.	4.	4.	4.
421	4.	3.	3.	1.	2.	1.	5.	7.	2.	3.
431	7.	2.	2.	3.	2.	9.	4.	1.	4.	4.
441	0.	2.	0.	0.	0.	1.	1.	2.	3.	3.
451	3.	2.	4.	0.	7.	0.	0.	2.	0.	2.
461	0.	2.	1.	3.	2.	1.	2.	5.	2.	2.
471	2.	2.	2.	2.	1.	2.	1.	2.	2.	3.
481	2.	1.	5.	2.	3.	6.	3.	2.	3.	3.
491	2.	2.	2.	1.	0.	3.	1.	2.	3.	2.
511	3.	0.								

D. H. Milicia
3-30-96

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
S96T001361-DUP
File ID: 12a1269.CNF

Counted on: 3/30/96 @13:32
Detector: AEA12
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1?	10.7	10.7	368.442	368.442	20.000	19.250	10.000	10.385
2?	7.6	7.6	356.679	355.580	10.000	2.103	5.000	0.249
3	274.4	274.4	299.629	299.619	18.000	13.266	9.000	2.331
4	1512.2	1512.2	253.067	253.029	16.000	9.901	8.000	1.904
5	21.8	21.8	124.485	124.315	174.000	1.000	87.000	0.100
6?	1.7	1.7	113.146	112.018	8.000	0.873	4.000	4.001
7?	8.3	8.3	82.053	81.681	10.000	5.532	5.000	0.566
8?	4.5	4.5	47.374	47.092	8.000	1.098	4.000	0.115

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		????		5.773			0.49	12.8		
2		????		5.715			0.54	13.9		
3	Am241	0.151	5.479	5.463	0.016	0.06	17.41	2.2	126.1	0.568E-04
	Pu238		5.487	5.463	0.024				164.7	0.742E-04
4	Am243	0.746	5.270	5.253	0.017	0.04	85.97	1.0	591.1	0.266E-03
5	Np237	0.015	4.640	4.674	-.034	0.00	1.70	7.1	192.9	0.869E-04
6		????		4.619			0.02	678.		
7		????		4.482			0.65	16.2		
8		????		4.327			0.26	28.3		
Totals:		0.912	<--valid peaks only-->				105.08			

DETECTOR CALIBRATION
Energy(MEV) = 4.115 + (0.0045)*Channel
Energy range (MeV): 4.115 TO 6.419
Efficiency = 0.1469 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	55333.0	100.000
Smoothed	55338.3	100.009

Composite fit	51377.4	92.851
Residuals	3955.6	7.149

Analyzed by: ALJ

Spectrum 12a1269.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 11667.1

WHC-SD-WM-DP-178, REV. 1

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Raw Data Dump for AEA Spectrum: 12a1269.CNF

1	0.	0.	7.	6.	8.	7.	8.	9.	4.	9.
11	6.	6.	6.	13.	7.	6.	12.	7.	4.	5.
21	5.	6.	7.	10.	13.	12.	9.	4.	11.	6.
31	7.	10.	6.	7.	8.	5.	8.	8.	9.	9.
41	6.	6.	8.	9.	9.	6.	13.	12.	10.	6.
51	6.	4.	11.	5.	5.	9.	9.	12.	8.	8.
61	9.	8.	10.	12.	8.	11.	13.	14.	12.	11.
71	6.	6.	15.	11.	15.	14.	11.	17.	11.	8.
81	14.	23.	11.	13.	12.	12.	7.	11.	9.	9.
91	15.	14.	16.	8.	13.	15.	17.	6.	12.	10.
101	16.	11.	6.	12.	16.	15.	13.	12.	17.	20.
111	16.	21.	17.	22.	18.	15.	13.	13.	10.	17.
121	22.	25.	21.	28.	23.	24.	18.	20.	23.	22.
131	24.	19.	21.	25.	28.	34.	29.	31.	43.	45.
141	26.	35.	36.	26.	41.	31.	37.	43.	37.	37.
151	35.	32.	36.	45.	45.	37.	42.	44.	37.	48.
161	43.	61.	47.	52.	44.	50.	51.	42.	47.	70.
171	40.	64.	70.	55.	69.	43.	64.	61.	64.	81.
181	73.	82.	98.	88.	77.	93.	81.	87.	102.	86.
191	111.	112.	107.	116.	111.	142.	105.	125.	140.	139.
201	149.	165.	154.	153.	158.	170.	176.	197.	190.	188.
211	229.	216.	223.	216.	254.	232.	280.	265.	321.	289.
221	319.	332.	333.	366.	384.	390.	475.	472.	449.	488.
231	513.	561.	554.	601.	632.	643.	748.	707.	811.	840.
241	839.	945.	1027.	1100.	1168.	1208.	1286.	1314.	1431.	1459.
251	1543.	1610.	1607.	1668.	1524.	1381.	1207.	944.	694.	542.
261	445.	308.	298.	259.	246.	211.	211.	179.	154.	150.
271	153.	118.	131.	117.	89.	91.	105.	103.	115.	105.
281	112.	119.	120.	137.	157.	142.	159.	180.	169.	204.
291	193.	205.	214.	236.	242.	291.	261.	272.	264.	320.
301	251.	269.	233.	238.	173.	133.	113.	100.	87.	63.
311	55.	51.	38.	34.	29.	19.	17.	14.	13.	8.
321	13.	4.	7.	1.	8.	7.	5.	7.	11.	4.
331	6.	4.	3.	6.	4.	6.	4.	5.	7.	1.
341	6.	9.	7.	2.	9.	3.	7.	9.	7.	7.
351	7.	9.	2.	13.	8.	16.	11.	11.	9.	10.
361	5.	6.	11.	6.	8.	10.	11.	8.	13.	14.
371	4.	7.	10.	7.	6.	3.	6.	5.	4.	4.
381	1.	1.	2.	4.	4.	2.	1.	2.	3.	2.
391	4.	1.	4.	2.	1.	6.	4.	5.	1.	1.
401	1.	1.	0.	6.	4.	2.	4.	2.	0.	1.
411	2.	2.	5.	2.	5.	2.	3.	5.	1.	5.
421	3.	2.	6.	2.	2.	5.	2.	3.	4.	10.
431	7.	1.	3.	5.	1.	3.	5.	3.	3.	0.
441	7.	2.	6.	3.	3.	0.	2.	4.	1.	4.
451	3.	1.	4.	2.	3.	2.	3.	2.	6.	4.
461	1.	1.	2.	1.	4.	5.	3.	0.	3.	2.
471	3.	3.	3.	3.	0.	2.	2.	1.	2.	2.
481	3.	3.	1.	2.	3.	2.	2.	4.	4.	2.
491	1.	5.	2.	2.	4.	1.	1.	4.	1.	0.
511	4.	0.								

LABCORE Data Entry Template for Worklist# 7171

Analyst: AKL **Instrument:** AM01 14 **Book#** 104543

Method: LA-953-103 Rev/Mod A6 WHC-SD-WM-DP-178, REV. 1

Worklist Comment: Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AM24101	LIQUID		
2	BLNK				@AM24101	LIQUID		
3	SAMPLE	S96T001521	0		@AM24101	LIQUID	96000257	AY-101 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
4	DUP	S96T001521	0		@AM24101	LIQUID		
5	SAMPLE	S96T001522	0		@AM24101	LIQUID	96000257	AY-101 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
6	DUP	S96T001522	0		@AM24101	LIQUID		

Final page for worklist # 7171

G Lewis 4/3/96
Analyst Signature **Date**

J. Quinn 4/8/96
Analyst Signature **Date**

Lee Hogan 4/8/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7171

Analyst: akl **Instrument:** AB17 #14 **Book#** 104 B 213

Method: LA-953-103 Rev/Mod A-5

Worklist Comment: Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@AM24101	AM24101	LIQUID	3.07E-02	2.62E-2	85.340	% Recovery
1	STD		0	@AM24101	AM24101T	LIQUID	100.	7.62E+01	76.200	% Recovery
1	STD		0	@AM24101	AM24101E	LIQUID	1.0	1.17E+00	1.170	% Ct. Error
2	BLNK		0	@AM24101	AM24101	LIQUID	1	<2.91E-3		uCi/mL
2	BLNK		0	@AM24101	AM24101T	LIQUID	100.0	7.30E+01	73.000	% Recovery
2	BLNK		0	@AM24101	AM24101E	LIQUID	1.0	1.00E+02	100.000	% Ct. Error
3	SAMPLE	S96T001521	0	@AM24101	AM24101	LIQUID	N/A	1.02E-02	4.230e-003	uCi/mL
3	SAMPLE	S96T001521	0	@AM24101	AM24101E	LIQUID	N/A	1.69E+00	0.000	% Ct. Error
3	SAMPLE	S96T001521	0	@AM24101	AM24101T	LIQUID	N/A	6.77E+01	1.000e-007	% Recovery
4	DUP	S96T001521	0	@AM24101	AM24101	LIQUID	1.02E-2	9.29E-3	9.340	RPD
4	DUP	S96T001521	0	@AM24101	AM24101T	LIQUID	100.0	6.72E+01	67.200	% Recovery
4	DUP	S96T001521	0	@AM24101	AM24101E	LIQUID	1.0	1.72E+00	1.720	% Ct. Error
5	SAMPLE	S96T001522	0	@AM24101	AM24101	LIQUID	N/A	9.91E-03	4.530e-003	uCi/mL
5	SAMPLE	S96T001522	0	@AM24101	AM24101E	LIQUID	N/A	1.79E+00	0.000	% Ct. Error
5	SAMPLE	S96T001522	0	@AM24101	AM24101T	LIQUID	N/A	6.47E+01	1.000e-007	% Recovery
6	DUP	S96T001522	0	@AM24101	AM24101	LIQUID	9.91E-3	8.03E-3	20.960	RPD
6	DUP	S96T001522	0	@AM24101	AM24101T	LIQUID	100.0	7.12E+01	71.200	% Recovery
6	DUP	S96T001522	0	@AM24101	AM24101E	LIQUID	1.0	1.76E+00	1.760	% Ct. Error

Final page for worklist# 7171

Analyst Signature Date

Analyst Signature Date

John Relyea 9 Apr 96

Reviewer Signature Date

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

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID

						STD
Type	Date Counted		APR-03-96	Am 241 AEA Frac.	(C241)	0.374
STD	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.49
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
7171	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		10257
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.3
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		102.26
LIQUID	Detector Number		14	Am 243 cpm		134.05
Batch Number	Detector Efficiency	(DetEff)	0.2910	Cm 243/244 cpm		0
96002892	Standard Book No		104B43	AEA Count Time	(min)	480
Rerun	Standard Value in µCi/mL		0.03067	Am 241 µCi/L =		2.6219E+01
0				Cm 243/244 µCi/L =	<	4.6011E+00
Sample Prep						
N/A						
Sample Number						
WL7171						
Instrument Code						
WB27807						
Prepared By						
CJO						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
04/08/96						
Analysis Date						
04/03/96						
Analysis Time						
02:15 PM						
Sample Point						
AY-101 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	=	2.62E-02	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	1.2%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/mL		< 4.60E-03	4.60E-03
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	76.2%	4.60E-03

Analyst:	AKL	Date:	04/08/96
Signature of Chemist: John Relyea	JFR	Date:	9 Apr 96

STANDARD.WB1 REV 1.2 953103ML

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						BLANK
Type	Date Counted		APR-03-96	Am 241 AEA Frac.	(C241)	0
BLANK	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.808
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
7171	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		5967
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.3
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		0
LIQUID	Detector Number		14	Am 243 cpm		138.22
Batch Number	Detector Efficiency	(DetEff)	0.2910	Cm 243/244 cpm		0
96002892				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	2.9105E+00
0				Cm 243/244 µCi/L =	<	2.9105E+00
Sample Prep						
N/A						
Sample Number						
WL7171						
Instrument Code						
WB27807						
Prepared By						
JFR						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
04/08/96						
Analysis Date						
04/03/96						
Analysis Time						
02:15 PM						
Sample Point						
AY-101 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	=	< 2.91E-03
Relative Counting Error	=	100.0%

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

Cm 243/244 µCi/mL		< 2.91E-03
Relative Counting Error	=	100.0%
Am 243 Tracer Recovery	=	73.0%

DETECTION LEVELS in µCi/mL	
Am 241	2.91E-03
Cm 243/244	2.91E-03

Analyst:	AKL	Date:	04/08/96
Signature of Chemist:	JFR	Date:	9 Apr 96

BLANK.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

							SAMPLE
Type	Date Counted		APR-03-96	Am 241 AEA Frac.	(C241)		0.179
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.6
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)		0
7171	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			7444
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)		0.3
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm			36.53
LIQUID	Detector Number		14	Am 243 cpm			122.31
Batch Number	Detector Efficiency	(DetEff)	0.2910	Cm 243/244 cpm			0
96002892				AEA Count Time	(min)		480
Rerun				Am 241 µCi/L =			1.0248E+01
0				Cm 243/244 µCi/L =		<	4.2297E+00
Sample Prep							
N/A							
Sample Number							
S96T001521							
Instrument Code							
WB27807							
Prepared By							
CJO							
Chemist							
JFR							
Analyst							
AKL							
Date Complete							
04/08/96							
Analysis Date							
04/03/96							
Analysis Time							
02:15 PM							
Sample Point							
AY-101 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 =	1.02E-02	
Relative Counting Error =	1.7%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		
Cm 243/244 µCi/mL	< 4.23E-03	
Relative Counting Error =	100.0%	
Am 243 Tracer Recovery =	67.7%	

DETECTION LEVELS in µCi/mL
Am 241
4.23E-03
Cm 243/244
4.23E-03

Analyst:		AKL	Date:	04/08/96
Signature of Chemist:	John Relyea	JFR	Date:	9 Apr 96

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						DUP
Type	Date Counted		APR-03-96	Am 241 AEA Frac.	(C241)	0.162
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.599
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
7171	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		7402
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.3
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		34.54
LIQUID	Detector Number		14	Am 243 cpm		127.63
Batch Number	Detector Efficiency	(DetEff)	0.2910	Cm 243/244 cpm		0
96002892				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		9.2902E+00
0				Cm 243/244 µCi/L =	<	4.2679E+00
Sample Prep						
N/A						
Sample Number						
S96T001521						
Instrument Code						
WB27807						
Prepared By						
CJO						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
04/08/96						
Analysis Date						
04/03/96						
Analysis Time						
02:15 PM						
Sample Point						
AY-101 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	=	9.29E-03	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	1.7%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/mL		< 4.27E-03	4.27E-03
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	67.2%	4.27E-03

Analyst:	AKL	Date:	04/08/96
Signature of Chemist: Justin Relyea	JFR	Date:	9 Apr 96

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM5

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						SAMPLE
Type	Date Counted		APR-03-96	Am 241 AEA Frac.	(C241)	0.169
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.586
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
7171	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		7290
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.3
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		32.03
LIQUID	Detector Number		14	Am 243 cpm		110.9
Batch Number	Detector Efficiency	(DetEff)	0.2910	Cm 243/244 cpm		0
96002892				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		9.9067E+00
0				Cm 243/244 µCi/L =	<	4.5280E+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))
S96T001522	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))
Instrument Code	
WB27807	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
CJO	
Chemist	
JFR	
Analyst	
AKL	
Date Complete	
04/08/96	
Analysis Date	
04/03/96	
Analysis Time	
02:15 PM	
Sample Point	
AY-101 GRAB	

Am 241 µCi/mL =	9.91E-03	DETECTION LEVELS In µCi/mL	
Relative Counting Error =	1.8%		
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241	
Cm 243/244 µCi/mL	< 4.53E-03	4.53E-03	
Relative Counting Error =	100.0%	Cm 243/244	
Am 243 Tracer Recovery =	64.7%	4.53E-03	

Analyst:	AKL	Date:	04/08/96
Signature of Chemist: John Relyea	JFR	Date:	9 Apr 96

SAMPLE.WB1 REV 1.2 953103ML

900

WORKBOOK PAGE: DUP6

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						DUP
Type	Date Counted		APR-03-96	Am 241 AEA Frac.	(C241)	0.151
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.646
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
7171	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		7271
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		118B43	Background in cpm	(Bkg)	0.3
Matrix	Am-243 Tracer Value	(dpm/mL)	7550.4	Am 241 cpm		31.79
LIQUID	Detector Number		14	Am 243 cpm		136.3
Batch Number	Detector Efficiency	(DetEff)	0.2910	Cm 243/244 cpm		0
96002892				AEA Count Time	(min)	480
Batch				Am 241 µCi/L =		8.0294E+00
0				Cm 243/244 µCi/L =	<	3.7357E+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))
S96T001522	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))
Instrument Code	
WB27807	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
CJO	
Chemist	
JFR	
Analyst	
AKL	
Date Complete	
04/08/96	
Analysis Date	
04/03/96	
Analysis Time	
02:15 PM	
Sample Point	
AY-101 GRAB	

Am 241 µCi/mL =	8.03E-03	
Relative Counting Error =	1.8%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		
Cm 243/244 µCi/mL	< 3.74E-03	
Relative Counting Error =	100.0%	
Am 243 Tracer Recovery =	71.2%	

DETECTION LEVELS in µCi/mL	
Am 241	3.74E-03
Cm 243/244	3.74E-03

Analyst:		AKL	Date:	04/08/96
Signature of Chemist:	John Relyea	JFR	Date:	9 Apr 96

SAMPLE.WB1 REV 1.2 953103ML

Raymond 4/3/96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
WL7171-STD
File ID: 7a7109.CNF

Counted on: 4/ 3/96 @23: 9
Detector: AEA7
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1?	16.2	16.2	487.624	487.624	64.000	1.000	32.000	0.100
2?	3.5	3.5	479.389	478.846	16.000	1.000	8.000	0.100
3?	2.5	2.5	467.477	466.822	8.000	0.567	4.000	0.028
4?	8.0	8.0	441.422	440.371	26.000	10.761	13.000	13.513
5?	10.7	10.7	431.306	431.306	20.000	1.085	10.000	9.935
6?	11.7	11.7	422.585	422.240	34.000	3.288	17.000	4.735
7?	16.5	16.5	389.581	389.468	66.000	81.242	33.000	39.156
8?	16.3	16.3	362.253	362.253	26.000	6.088	13.000	13.619
9?	17.9	17.9	351.460	349.898	24.000	4.518	12.000	11.958
10?	22.9	22.9	344.854	344.854	20.000	0.003	10.000	10.349
11	1885.6	1885.6	298.191	298.191	20.000	14.949	10.000	3.600
12	2544.1	2544.1	252.077	251.967	18.000	12.569	9.000	2.961
13	76.4	76.4	128.965	128.900	196.000	1.000	98.000	0.100
14	27.5	27.5	73.806	73.074	80.000	165.747	40.000	63.421
15?	9.4	9.4	66.825	66.031	8.000	0.001	4.000	0.000
16?	16.5	16.5	13.752	13.038	44.000	9.187	22.000	22.746

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		????		6.349			1.30	7.8		
2		????		6.308			0.28	38.2		
3		????		6.253			0.39	27.0		
4		????		6.132			0.26	39.7		
5		????		6.090			0.11	75.2		
6		????		6.048			0.22	40.2		
7		????		5.897			1.48	9.9		
8		????		5.772			0.40	21.8		
9		????		5.715			0.38	22.0		
10		????		5.692			0.02	202.		
11	Am241	0.374	5.479	5.477	0.00	20.07	102.26	0.9	905.0	0.408E-03
	Pu238		5.487	5.477	0.01	0			1181.6	0.532E-03
12	Am243	0.490	5.270	5.265	0.00	50.06	134.05	0.8	1126.5	0.507E-03
13		0.022		4.699		0.00	5.98	3.7	49.7	0.224E-04

14	U 235	0.013	4.386	4.442	-.0560.76	3.51	7.9	51.3	0.231E-04
15		????		4.410		0.62	24.8		
16		????		4.166		0.48	18.7		
Totals:		0.899	<--valid peaks only-->			245.80			

WHC-SD-WM-DP-178, REV 1

DETECTOR CALIBRATION

Energy(MEV) = 4.106 + (0.0046)*Channel

Energy range (MeV): 4.106 TO 6.461

Efficiency = 0.1202 CPM/DPM

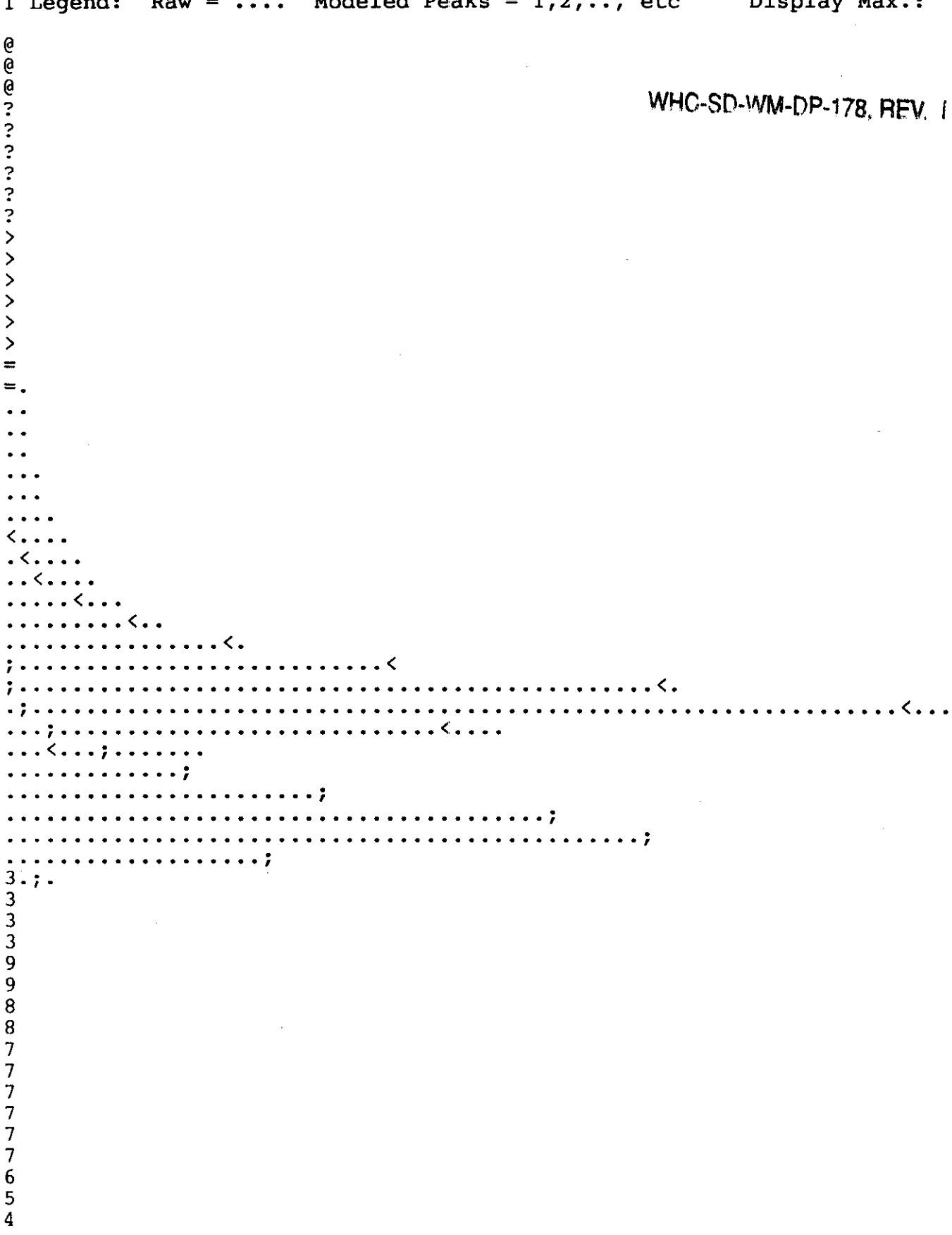
TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	131234.0	100.000
Smoothed	131235.5	100.001
Composite fit	120853.3	92.090
Residuals	10380.7	7.910

Analyzed by: _____
ALJ

Spectrum 7a7109.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 19896.8



Raw Data Dump for AEA Spectrum: 7a7109.CNF

1	0.	0.	11.	20.	13.	16.	16.	21.	18.	22.
11	14.	12.	9.	22.	19.	11.	11.	16.	11.	12.
21	15.	41.	26.	41.	29.	30.	42.	42.	30.	38.
31	27.	30.	27.	33.	27.	33.	21.	30.	41.	29.
41	30.	45.	28.	21.	45.	38.	39.	33.	31.	50.
51	36.	30.	25.	40.	46.	38.	43.	46.	48.	42.
61	29.	44.	41.	37.	31.	45.	43.	42.	38.	32.
71	41.	37.	36.	56.	37.	36.	40.	37.	30.	35.
81	45.	52.	47.	50.	47.	55.	47.	40.	43.	59.
91	46.	42.	43.	33.	52.	51.	59.	43.	61.	54.
101	54.	52.	51.	60.	48.	48.	41.	62.	41.	60.
111	58.	67.	57.	62.	59.	58.	66.	61.	58.	65.
121	66.	70.	68.	73.	66.	71.	74.	79.	90.	68.
131	78.	68.	78.	65.	62.	79.	59.	74.	74.	100.
141	84.	69.	92.	91.	84.	71.	86.	91.	87.	88.
151	85.	102.	92.	108.	102.	90.	91.	113.	115.	120.
161	96.	111.	111.	97.	117.	127.	92.	121.	141.	100.
171	116.	117.	145.	131.	161.	174.	129.	142.	154.	164.
181	152.	141.	152.	172.	162.	165.	155.	195.	189.	214.
191	213.	189.	203.	200.	224.	229.	217.	223.	198.	250.
201	224.	257.	243.	272.	294.	272.	288.	286.	283.	344.
211	316.	353.	356.	353.	336.	385.	418.	385.	427.	462.
221	446.	491.	501.	520.	563.	594.	636.	669.	672.	719.
231	747.	781.	813.	910.	913.	1017.	1074.	1165.	1305.	1353.
241	1470.	1538.	1661.	1779.	1985.	2032.	2246.	2393.	2517.	2656.
251	2843.	2817.	2758.	2622.	2387.	2132.	1845.	1592.	1359.	1079.
261	923.	773.	693.	613.	554.	536.	514.	483.	467.	476.
271	430.	424.	487.	485.	467.	493.	528.	573.	589.	634.
281	632.	712.	742.	831.	939.	964.	1056.	1140.	1226.	1295.
291	1404.	1544.	1590.	1676.	1838.	1911.	1955.	2030.	1941.	1907.
301	1666.	1642.	1491.	1219.	1011.	856.	725.	545.	490.	406.
311	283.	252.	196.	168.	126.	81.	83.	61.	49.	37.
321	36.	36.	42.	46.	29.	35.	30.	24.	23.	24.
331	27.	29.	22.	21.	14.	28.	23.	22.	16.	19.
341	14.	12.	16.	23.	19.	23.	14.	20.	13.	17.
351	28.	16.	20.	21.	12.	11.	23.	15.	14.	14.
361	13.	19.	18.	16.	12.	14.	19.	9.	15.	12.
371	14.	19.	16.	20.	13.	15.	8.	13.	18.	22.
381	10.	21.	18.	24.	15.	14.	13.	19.	15.	20.
391	19.	14.	14.	20.	13.	8.	12.	17.	9.	11.
401	15.	8.	24.	15.	13.	9.	15.	22.	13.	11.
411	10.	19.	15.	16.	16.	10.	16.	13.	14.	12.
421	12.	21.	12.	18.	13.	10.	17.	9.	10.	17.
431	13.	16.	13.	13.	12.	13.	9.	16.	12.	10.
441	11.	19.	11.	10.	12.	9.	10.	15.	11.	17.
451	11.	19.	12.	9.	9.	14.	13.	10.	5.	11.
461	11.	16.	13.	13.	9.	14.	16.	16.	14.	9.
471	16.	9.	15.	13.	17.	7.	16.	16.	20.	13.
481	22.	12.	7.	15.	12.	10.	17.	13.	14.	13.
491	10.	15.	7.	13.	14.	12.	14.	16.	11.	11.
511	14.	0.								

CRaymond 4/3/96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
WL7171-BLK
File ID: 8a8286.CNF

Counted on: 4/ 3/96 @23: 9
Detector: AEA8
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?	11.1	11.1	483.069	483.069	54.000	1.000	27.000	0.100
2	10.9	10.9	377.081	377.028	62.000	444.163	31.000	130.865
3?	0.0	0.1	368.252	368.252	4.000	0.100	2.000	0.100
4?	3.8	3.8	349.029	348.787	6.000	0.453	3.000	0.211
5?	15.5	15.5	315.563	315.309	26.000	5.895	13.000	13.696
6?	18.4	18.4	306.098	306.098	18.000	1.611	9.000	8.960
7?	23.4	23.4	301.285	301.285	26.000	0.832	13.000	13.110
8?	30.8	30.8	295.040	295.040	28.000	0.951	14.000	23.863
9	2715.4	2715.4	253.642	253.642	18.000	12.987	9.000	3.310
10	52.9	52.9	114.885	114.867	210.000	1.000	105.000	0.100
11?	14.1	14.1	92.428	91.572	12.000	5.281	6.000	0.372
12?	16.3	16.3	66.787	66.048	38.000	7.904	19.000	19.452
13?	14.6	14.6	56.099	54.693	12.000	2.215	6.000	0.229
14?	11.4	11.4	33.868	29.367	20.000	10.027	10.000	10.448
15?	2.3	2.3	30.935	30.000	10.000	0.000	5.000	40.918

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		????		6.286			0.89	9.5		
2	Cm243	0.013	5.779	5.809	-.030	2.00	2.29	7.0	19.2	0.865E-05
	Cm244		5.795	5.809	-.014				14.0	0.631E-05
3		????		5.769			0.00	*****		
4		????		5.682			0.07	103.		
5		????		5.531			0.37	19.7		
6		????		5.490			0.23	28.3		
7		????		5.468			0.21	29.8		
8		????		5.440			0.30	21.1		
9	Pu239	0.808	5.147	5.253	-.106	0.06	138.22	0.8	847.5	0.382E-03
	Am243		5.270	5.253	0.017				856.0	0.386E-03
10	Np237	0.024	4.640	4.629	0.011	0.00	4.08	4.4	417.0	0.188E-03
11		????		4.524			1.41	13.2		
12		????		4.409			0.46	34.0		
13		????		4.358			0.94	15.3		

14	????	4.244	0.36	33.7
15	????	4.247	0.00	1859.
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Totals:	0.846 <--valid peaks only-->		144.59	

WHC-SD-WM-DP-178, REV. 1

DETECTOR CALIBRATION

Energy(MEV) = 4.112 + (0.0045)*Channel

Energy range (MeV): 4.112 TO 6.416

Efficiency = 0.1631 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	82075.0	100.000
Smoothed	82069.5	99.993
Composite fit	71930.3	87.640
Residuals	10144.7	12.360

Analyzed by: _____
ALJ

Spectrum 8a8286.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 20483.7

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Raw Data Dump for AEA Spectrum: 8a8286.CNF

1	0.	0.	8.	10.	4.	11.	13.	7.	9.	7.
11	12.	8.	5.	11.	6.	6.	9.	16.	9.	5.
21	10.	26.	23.	21.	20.	23.	18.	22.	32.	36.
31	25.	30.	24.	30.	31.	28.	21.	27.	29.	21.
41	28.	35.	22.	25.	21.	25.	34.	23.	27.	27.
51	29.	20.	28.	42.	30.	37.	36.	35.	28.	24.
61	29.	37.	28.	24.	43.	40.	36.	33.	39.	33.
71	30.	33.	38.	45.	24.	30.	26.	46.	32.	23.
81	27.	41.	36.	33.	48.	25.	37.	44.	35.	40.
91	45.	39.	50.	45.	30.	40.	49.	34.	39.	32.
101	34.	39.	38.	38.	42.	41.	44.	50.	44.	42.
111	46.	35.	55.	48.	57.	39.	55.	44.	41.	43.
121	55.	52.	57.	55.	54.	55.	52.	59.	66.	60.
131	60.	69.	51.	72.	64.	59.	54.	69.	69.	54.
141	67.	70.	58.	59.	76.	66.	74.	61.	80.	66.
151	82.	66.	79.	78.	65.	90.	77.	82.	92.	72.
161	77.	83.	97.	91.	84.	89.	83.	89.	88.	109.
171	128.	92.	107.	101.	126.	99.	126.	106.	104.	132.
181	123.	143.	126.	130.	145.	160.	126.	132.	138.	166.
191	132.	160.	166.	179.	211.	164.	177.	183.	176.	214.
201	187.	213.	243.	196.	236.	245.	225.	248.	237.	263.
211	290.	281.	273.	286.	289.	326.	350.	371.	343.	393.
221	399.	434.	422.	448.	493.	500.	512.	540.	565.	617.
231	640.	667.	684.	788.	754.	824.	846.	995.	1036.	1181.
241	1332.	1297.	1513.	1642.	1913.	1870.	2064.	2314.	2464.	2553.
251	2725.	2799.	2812.	2881.	2800.	2598.	2363.	2094.	1684.	1463.
261	1157.	888.	743.	618.	473.	410.	348.	271.	256.	194.
271	194.	172.	128.	115.	63.	67.	47.	57.	50.	42.
281	42.	30.	29.	30.	27.	28.	16.	29.	30.	30.
291	24.	21.	13.	12.	25.	17.	24.	12.	16.	15.
301	26.	21.	17.	18.	16.	11.	21.	18.	17.	14.
311	11.	10.	8.	10.	18.	14.	13.	12.	11.	8.
321	9.	12.	13.	4.	8.	12.	7.	11.	6.	14.
331	14.	7.	9.	7.	11.	16.	7.	11.	5.	8.
341	9.	9.	11.	8.	11.	11.	8.	10.	16.	16.
351	8.	9.	4.	5.	14.	5.	4.	7.	9.	10.
361	9.	10.	8.	4.	4.	7.	13.	14.	12.	6.
371	12.	7.	6.	10.	13.	9.	14.	12.	10.	11.
381	8.	2.	5.	8.	12.	10.	11.	11.	9.	4.
391	7.	9.	9.	10.	7.	7.	11.	15.	14.	5.
401	6.	5.	13.	8.	12.	7.	2.	4.	4.	5.
411	12.	12.	8.	3.	6.	9.	10.	7.	6.	13.
421	7.	7.	5.	9.	7.	13.	10.	6.	6.	11.
431	8.	11.	11.	6.	4.	9.	5.	8.	13.	9.
441	8.	10.	6.	8.	7.	6.	7.	13.	8.	4.
451	11.	9.	10.	11.	12.	5.	6.	9.	10.	7.
461	3.	11.	9.	7.	6.	15.	2.	7.	8.	5.
471	8.	11.	8.	10.	7.	8.	12.	6.	7.	7.
481	9.	16.	8.	14.	11.	8.	5.	7.	11.	7.
491	7.	5.	8.	8.	5.	8.	3.	7.	6.	11.
511	9.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T001521-SAM
File ID: 9a9372.CNF

Counted on: 4/ 3/96 @23:12
Detector: AEA9
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?	19.6	19.6	370.324	370.324	10.000	5.075	5.000	1.006
2	560.1	560.1	301.060	301.058	16.000	10.479	8.000	1.668
3	2344.6	2344.6	254.473	254.429	14.000	8.120	7.000	1.690
4	76.2	76.2	112.886	112.840	224.000	1.000	112.000	0.100
5	24.3	24.3	89.906	88.938	30.000	1.000	15.000	0.100
6?	14.7	14.7	66.473	65.294	12.000	5.048	6.000	0.420
7?	15.8	15.8	44.067	40.397	24.000	7.260	12.000	12.292
8?	18.4	18.4	42.957	42.957	6.000	0.000	3.000	2.765
9	60.4	60.4	26.564	26.391	10.000	3.615	5.000	0.873

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		????		5.782			0.98	9.0		
2	Am241	0.179	5.479	5.470	0.009	0.05	36.53	1.5	1579.7	0.712E-03
	Pu238		5.487	5.470	0.017				2062.4	0.929E-03
3	Am243	0.600	5.270	5.260	0.010	0.04	122.31	0.8	5022.2	0.226E-02
4	Np237	0.029	4.640	4.623	0.017	0.00	5.86	3.7	3973.4	0.179E-02
5		????		4.516			1.79	11.3		
6		????		4.409			1.18	15.9		
7		????		4.297			0.42	34.9		
8		????		4.309			0.00	1000.		
9		0.010		4.234		0.02	2.12	7.8	86.1	0.388E-04
Totals:		0.818	<--valid peaks only-->				166.82			

3642.1

DETECTOR CALIBRATION

Energy(MEV) = 4.115 + (0.0045)*Channel
Energy range (MeV): 4.115 TO 6.419
Efficiency = 0.0246 CPM/DPM

TOTAL COUNT DATA:

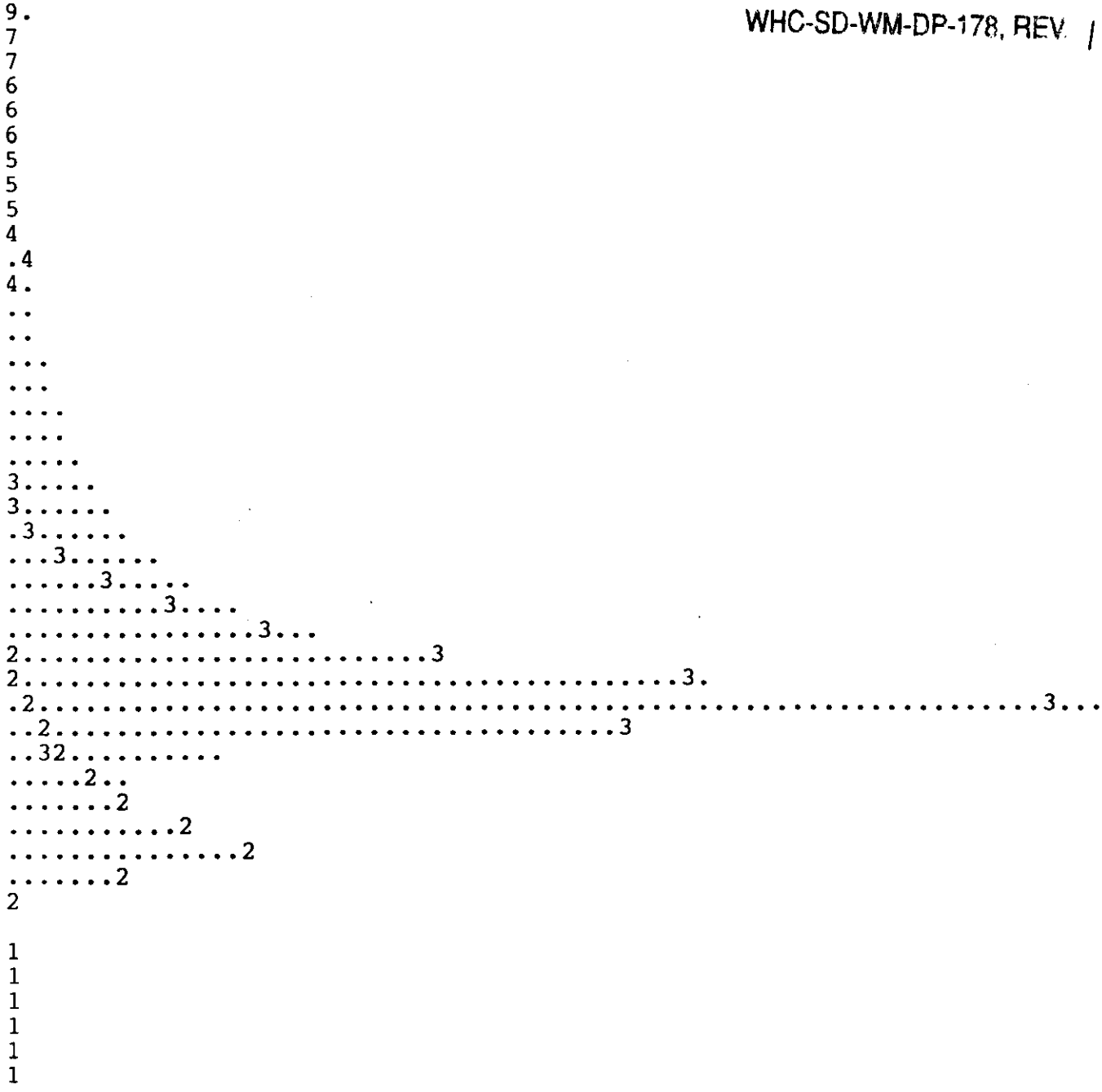
Item	Total	% Recovery

Raw spectrum	97872.0	100.000
Smoothed	97893.3	100.022
Composite fit	82192.4	83.979
Residuals	15679.6	16.021

Analyzed by: ALJ

Spectrum 9a9372.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 17677.7



WHC-SD-WM-DP-178, REV. 1

Raw Data Dump for AEA Spectrum: 9a9372.CNF

1	0.	0.	30.	30.	22.	32.	25.	23.	49.	33.
11	47.	28.	46.	37.	61.	46.	46.	40.	43.	57.
21	62.	59.	66.	68.	81.	86.	84.	91.	71.	41.
31	39.	32.	30.	27.	40.	30.	27.	35.	36.	35.
41	41.	36.	33.	46.	32.	36.	38.	38.	33.	31.
51	43.	37.	36.	37.	40.	33.	46.	36.	53.	35.
61	34.	47.	43.	42.	46.	59.	48.	39.	47.	57.
71	31.	41.	47.	50.	45.	46.	41.	52.	62.	58.
81	58.	58.	54.	48.	55.	52.	53.	55.	61.	67.
91	60.	53.	58.	51.	40.	55.	46.	64.	52.	65.
101	55.	64.	72.	66.	68.	79.	66.	76.	74.	67.
111	70.	74.	76.	82.	60.	81.	63.	77.	71.	79.
121	67.	90.	65.	83.	101.	77.	81.	78.	92.	94.
131	94.	91.	90.	98.	75.	100.	93.	96.	103.	96.
141	102.	111.	81.	118.	110.	117.	112.	118.	104.	121.
151	116.	129.	114.	126.	137.	141.	126.	145.	113.	145.
161	160.	127.	147.	152.	143.	154.	151.	171.	158.	171.
171	149.	155.	180.	184.	159.	179.	186.	183.	181.	231.
181	213.	223.	210.	173.	243.	217.	225.	207.	235.	214.
191	233.	260.	255.	249.	272.	240.	271.	293.	268.	289.
201	331.	303.	301.	301.	343.	363.	351.	363.	400.	402.
211	403.	411.	389.	434.	374.	404.	479.	442.	456.	498.
221	516.	502.	529.	574.	572.	550.	625.	603.	689.	707.
231	742.	808.	768.	830.	859.	865.	944.	957.	1047.	1167.
241	1132.	1202.	1340.	1473.	1549.	1667.	1713.	1869.	1948.	2158.
251	2187.	2380.	2360.	2593.	2631.	2526.	2229.	1803.	1404.	1024.
261	709.	611.	486.	419.	439.	473.	446.	378.	401.	321.
271	362.	341.	278.	265.	259.	253.	233.	278.	259.	244.
281	249.	286.	293.	281.	281.	268.	311.	307.	306.	287.
291	322.	379.	388.	405.	395.	500.	518.	537.	541.	585.
301	607.	584.	571.	471.	406.	303.	265.	190.	192.	141.
311	124.	114.	89.	61.	48.	41.	23.	16.	9.	10.
321	8.	9.	8.	10.	6.	7.	5.	8.	2.	6.
331	8.	9.	5.	11.	5.	7.	3.	4.	7.	5.
341	6.	7.	7.	6.	4.	2.	3.	7.	6.	12.
351	10.	6.	9.	9.	11.	13.	8.	8.	13.	13.
361	13.	9.	15.	9.	13.	13.	19.	16.	16.	17.
371	27.	22.	9.	3.	6.	7.	8.	3.	3.	2.
381	3.	1.	0.	1.	2.	0.	1.	0.	1.	0.
391	3.	3.	0.	1.	2.	3.	1.	0.	1.	1.
401	3.	3.	1.	5.	3.	2.	2.	1.	3.	3.
411	1.	1.	0.	0.	2.	1.	1.	3.	1.	3.
421	4.	2.	2.	5.	3.	4.	2.	2.	1.	7.
431	5.	6.	3.	2.	8.	4.	7.	7.	10.	3.
441	9.	5.	2.	1.	1.	2.	0.	1.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
461	0.	0.	0.	1.	0.	0.	1.	4.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

URaymond 4/3/96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T001521-DUP
File ID: 10a2537.CNF

Counted on: 4/ 3/96 @23:13
Detector: AEA10
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1?	20.3	20.3	372.288	372.288	12.000	6.717	6.000	1.340
2	635.9	635.9	302.860	302.859	16.000	8.982	8.000	1.805
3	2784.8	2784.8	256.200	256.179	14.000	6.891	7.000	1.675
4	117.3	117.3	146.902	146.836	160.000	1.000	80.000	0.100
5	28.4	28.4	121.625	121.625	26.000	0.890	13.000	0.023
6?	15.2	15.2	84.444	83.331	10.000	1.381	5.000	5.085
7?	14.9	14.9	77.693	77.017	8.000	0.916	4.000	0.095
8?	16.7	16.7	45.669	45.316	10.000	1.647	5.000	0.421
9?	56.9	56.9	26.628	26.435	10.000	3.676	5.000	1.383

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		????		5.786			1.06	8.7		
2	Am241	0.162	5.479	5.473	0.006	0.04	34.54	1.5	313.8	0.141E-03
	Pu238		5.487	5.473	0.014				409.7	0.185E-03
3	Am243	0.599	5.270	5.263	0.007	0.03	127.63	0.8	1100.9	0.496E-03
4	Np237	0.044	4.769	4.771	-.002	0.00	9.28	3.0	91.1	0.410E-04
5	Np237	0.023	4.640	4.658	-.018	0.00	4.92	5.8	699.8	0.315E-03
6		????		4.485			0.18	113.		
7		????		4.457			1.03	20.0		
8		????		4.314			0.58	27.0		
9		????		4.229			1.66	10.1		
		---					---			
Totals:		0.828	<--valid peaks only-->				176.37			

DETECTOR CALIBRATION

Energy(MEV) = 4.110 + (0.0045)*Channel
Energy range (MeV): 4.110 TO 6.414
Efficiency = 0.1171 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery

Raw spectrum	102282.0	100.000
Smoothed	102307.6	100.025
Composite fit	86824.6	84.887
Residuals	15457.4	15.113

Analyzed by: _____
ALJ

Spectrum 10a2537.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 18140.7

WHC-SD-WM-DP-178, REV. 1

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Raw Data Dump for AEA Spectrum: 10a2537.CNF

1	0.	0.	22.	25.	29.	26.	32.	25.	39.	52.
11	43.	44.	53.	31.	57.	46.	39.	44.	36.	47.
21	59.	59.	80.	86.	88.	83.	88.	101.	77.	50.
31	35.	37.	45.	30.	41.	43.	26.	40.	24.	41.
41	35.	34.	31.	48.	39.	44.	49.	31.	37.	39.
51	36.	32.	30.	46.	34.	34.	35.	41.	37.	44.
61	42.	47.	41.	37.	48.	42.	44.	49.	38.	41.
71	56.	42.	43.	49.	43.	48.	61.	56.	57.	45.
81	40.	53.	45.	57.	51.	58.	40.	48.	51.	55.
91	58.	46.	64.	68.	59.	51.	69.	52.	55.	55.
101	61.	67.	58.	74.	41.	77.	68.	76.	62.	74.
111	83.	67.	64.	69.	74.	94.	67.	69.	73.	69.
121	80.	84.	72.	73.	69.	75.	80.	71.	68.	69.
131	86.	91.	86.	82.	94.	80.	82.	111.	102.	102.
141	92.	92.	118.	88.	107.	121.	109.	112.	110.	90.
151	108.	116.	114.	123.	117.	119.	134.	131.	124.	123.
161	138.	131.	125.	153.	112.	148.	162.	161.	132.	149.
171	160.	174.	149.	177.	169.	150.	182.	171.	164.	184.
181	187.	195.	209.	206.	228.	226.	213.	259.	247.	257.
191	224.	260.	257.	277.	287.	237.	255.	276.	281.	298.
201	282.	290.	297.	331.	320.	311.	333.	318.	376.	350.
211	398.	376.	392.	396.	407.	428.	418.	454.	467.	471.
221	473.	542.	533.	519.	551.	588.	599.	584.	636.	664.
231	726.	726.	740.	763.	785.	884.	891.	901.	1024.	1046.
241	1114.	1203.	1216.	1247.	1442.	1452.	1664.	1624.	1888.	1885.
251	2052.	2274.	2457.	2744.	2919.	3152.	3184.	2863.	2317.	1642.
261	1249.	837.	628.	510.	563.	508.	495.	472.	465.	382.
271	432.	419.	341.	301.	264.	212.	265.	250.	253.	226.
281	262.	255.	281.	296.	229.	265.	265.	278.	295.	286.
291	289.	330.	360.	369.	403.	410.	443.	527.	521.	593.
301	623.	717.	676.	706.	624.	463.	409.	282.	244.	203.
311	189.	139.	117.	96.	66.	66.	32.	35.	22.	19.
321	6.	5.	4.	14.	4.	8.	7.	4.	10.	7.
331	2.	7.	6.	6.	7.	7.	8.	2.	10.	5.
341	7.	7.	4.	6.	10.	7.	4.	5.	3.	8.
351	3.	8.	7.	6.	9.	7.	4.	16.	9.	11.
361	13.	19.	18.	13.	15.	23.	14.	10.	13.	22.
371	22.	17.	23.	26.	11.	12.	8.	11.	2.	6.
381	3.	3.	1.	0.	0.	1.	1.	1.	1.	2.
391	1.	1.	0.	0.	2.	1.	2.	1.	3.	2.
401	0.	4.	2.	3.	4.	0.	2.	1.	3.	2.
411	2.	1.	2.	3.	1.	0.	1.	2.	1.	5.
421	2.	4.	1.	2.	2.	2.	5.	3.	3.	4.
431	7.	5.	4.	5.	3.	4.	2.	1.	4.	9.
441	6.	7.	6.	4.	2.	2.	0.	1.	1.	0.
451	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
461	0.	0.	0.	1.	1.	0.	4.	0.	2.	4.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T001522-SAM
File ID: 11a3931.CNF

Counted on: 4/ 3/96 @23:14
Detector: AEA11
Geometry number: 1
Count time: 28808. 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?	18.0	18.0	369.740	369.740	12.000	5.640	6.000	1.004
2	567.9	567.9	300.357	300.356	14.000	8.375	7.000	1.564
3	2375.3	2375.3	253.590	253.563	12.000	6.871	6.000	1.621
4	65.7	65.7	105.293	105.274	242.000	1.000	121.000	0.100
5?	13.2	13.2	84.907	82.887	12.000	5.440	6.000	1.072
6	19.7	19.7	49.712	48.858	66.000	62.800	33.000	34.153
7?	54.9	54.9	37.167	37.167	10.000	0.000	5.000	4.608
8	54.9	54.9	26.466	26.127	10.000	4.624	5.000	0.870

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		????		5.776			1.00	9.0		
2	Am241	0.169	5.479	5.464	0.015	0.04	32.03	1.6	158.8	0.715E-04
	Pu238		5.487	5.464	0.023				207.3	0.934E-04
3	Am243	0.586	5.270	5.254	0.016	0.03	110.90	0.9	522.0	0.235E-03
4		0.026		4.586		0.00	5.00	4.0	23.3	0.105E-04
5		????		4.485			0.67	28.1		
6		????		4.332			1.55	13.8		
7		????		4.280			0.00	1000.		
8		0.011		4.230		0.02	2.18	7.3	10.1	0.457E-05
		---					---			
Totals:		0.793	<--valid peaks only-->				150.11			

DETECTOR CALIBRATION

Energy(MEV) = 4.113 + (0.0045)*Channel
Energy range (MeV): 4.113 TO 6.417
Efficiency = 0.2146 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	90862.0	100.000
Smoothed	90889.2	100.030

Composite fit	73616.2	81.020
Residuals	17245.8	18.980

Analyzed by: ALJ

Spectrum 11a3931.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 17494.1


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Raw Data Dump for AEA Spectrum: 11a3931.CNF

1	0.	0.	23.	21.	30.	25.	22.	19.	37.	36.
11	44.	34.	48.	41.	48.	36.	51.	29.	42.	48.
21	54.	64.	55.	85.	60.	66.	74.	89.	55.	33.
31	33.	34.	34.	27.	20.	29.	38.	26.	33.	29.
41	35.	25.	26.	21.	31.	36.	25.	33.	43.	33.
51	32.	26.	40.	45.	41.	22.	34.	33.	32.	39.
61	33.	44.	42.	43.	51.	43.	41.	38.	40.	47.
71	41.	32.	38.	34.	40.	36.	38.	47.	46.	44.
81	43.	46.	51.	61.	36.	59.	50.	41.	49.	44.
91	47.	46.	51.	51.	43.	62.	48.	71.	54.	53.
101	57.	56.	61.	54.	73.	68.	52.	60.	59.	58.
111	63.	70.	56.	67.	69.	68.	68.	63.	78.	69.
121	57.	61.	80.	73.	67.	94.	73.	89.	82.	78.
131	78.	77.	84.	96.	84.	91.	102.	85.	96.	75.
141	97.	91.	104.	85.	79.	91.	102.	85.	105.	110.
151	136.	100.	93.	95.	126.	130.	106.	111.	140.	115.
161	129.	130.	131.	140.	148.	137.	150.	149.	169.	169.
171	158.	163.	159.	169.	148.	178.	191.	189.	152.	185.
181	200.	182.	192.	199.	217.	176.	198.	215.	209.	213.
191	235.	215.	236.	246.	242.	231.	263.	238.	289.	280.
201	285.	288.	276.	308.	316.	300.	339.	317.	331.	353.
211	328.	376.	365.	399.	409.	417.	443.	402.	444.	509.
221	477.	509.	529.	533.	520.	570.	610.	632.	711.	661.
231	760.	731.	739.	833.	832.	807.	938.	936.	1000.	1073.
241	1126.	1219.	1304.	1370.	1469.	1548.	1641.	1748.	1888.	2049.
251	2266.	2438.	2708.	2643.	2669.	2155.	1735.	1259.	893.	658.
261	476.	436.	393.	374.	379.	386.	389.	348.	369.	351.
271	303.	272.	257.	236.	250.	233.	229.	252.	264.	227.
281	237.	260.	282.	253.	249.	226.	231.	259.	283.	289.
291	347.	356.	364.	410.	445.	486.	467.	521.	618.	612.
301	627.	594.	510.	353.	301.	223.	196.	148.	135.	106.
311	72.	69.	54.	53.	24.	17.	16.	10.	6.	9.
321	10.	11.	8.	8.	9.	2.	9.	5.	10.	10.
331	9.	5.	5.	2.	4.	4.	6.	8.	6.	8.
341	9.	11.	5.	2.	7.	6.	6.	5.	4.	10.
351	6.	8.	10.	9.	8.	13.	14.	12.	9.	13.
361	14.	11.	17.	6.	13.	12.	14.	17.	19.	25.
371	14.	16.	14.	14.	5.	3.	2.	0.	1.	1.
381	1.	0.	0.	1.	1.	1.	0.	2.	1.	3.
391	0.	2.	1.	0.	1.	3.	1.	2.	0.	4.
401	2.	1.	0.	2.	1.	2.	0.	0.	2.	2.
411	1.	1.	1.	5.	3.	3.	2.	2.	0.	1.
421	2.	0.	3.	3.	3.	4.	3.	2.	3.	4.
431	4.	3.	1.	5.	4.	2.	3.	2.	5.	7.
441	1.	2.	0.	2.	0.	0.	0.	0.	0.	0.
451	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	1.	0.	0.	3.	3.	3.	1.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	2.	0.	0.	1.	0.	0.	0.	0.
491	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.
511	0.	0.								

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178 REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T001522-DUP
File ID: 12a1277.CNF

Counted on: 4/ 3/96 @23:15
Detector: AEA12
Geometry number: 1
Count time: 28809. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1?	15.9	15.9	373.126	373.126	20.000	8.580	10.000	10.257
2?	13.2	13.2	361.407	360.622	14.000	4.532	7.000	0.744
3	479.2	479.2	301.825	301.820	18.000	12.754	9.000	2.072
4?	264.3	264.3	282.784	282.784	12.000	0.006	6.000	4.358
5	1974.7	1974.7	255.690	255.626	14.000	9.869	7.000	1.434
6	59.8	59.8	81.312	81.206	300.000	1.000	150.000	0.100
7?	21.0	21.0	50.026	46.924	26.000	32.773	13.000	15.882
8	64.5	64.5	26.564	26.249	14.000	6.227	7.000	1.240

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		????		5.791			0.47	13.1		
2		????		5.735			0.75	11.9		
3	Am241	0.151	5.479	5.470	0.009	0.06	31.79	1.6	142.1	0.640E-04
	Pu238		5.487	5.470	0.017			141.82	185.6	0.836E-04
4		????		5.385			0.19	159.		
5	Am243	0.646	5.270	5.262	0.008	0.04	136.30	0.8	578.7	0.261E-03
6		0.020		4.478		0.00	4.30	4.4	18.1	0.814E-05
7		????		4.323			1.22	17.0		
8	U 238	0.013	4.184	4.230	-.046	0.03	2.64	6.8	14.4	0.649E-05
Totals:		0.829	<--valid peaks only-->				175.03			

DETECTOR CALIBRATION

Energy(MEV) = 4.112 + (0.0045)*Channel
Energy range (MeV): 4.112 TO 6.416
Efficiency = 0.2379 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	101353.0	100.000
Smoothed	101381.1	100.028

Composite fit	85300.5	84.162
Residuals	16052.5	15.838

Analyzed by: ALJ

Spectrum 12a1277.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 14689.2


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Raw Data Dump for AEA Spectrum: 12a1277.CNF

1	0.	0.	29.	24.	30.	27.	23.	27.	48.	35.
11	46.	40.	55.	56.	59.	40.	47.	46.	46.	46.
21	75.	69.	88.	78.	74.	94.	77.	95.	76.	53.
31	42.	45.	49.	42.	40.	40.	41.	27.	34.	26.
41	32.	41.	39.	54.	39.	36.	54.	41.	44.	45.
51	48.	43.	38.	45.	33.	51.	46.	55.	39.	43.
61	43.	41.	44.	48.	52.	57.	50.	45.	32.	46.
71	46.	51.	42.	53.	62.	53.	57.	61.	55.	70.
81	51.	72.	58.	52.	61.	64.	52.	64.	50.	61.
91	56.	68.	69.	67.	67.	67.	69.	71.	74.	75.
101	63.	67.	58.	67.	92.	80.	70.	81.	78.	84.
111	93.	77.	76.	81.	76.	80.	104.	84.	100.	88.
121	89.	94.	101.	102.	109.	91.	94.	100.	106.	120.
131	106.	98.	101.	133.	107.	99.	101.	111.	123.	103.
141	107.	125.	128.	125.	129.	112.	133.	125.	121.	136.
151	138.	139.	128.	150.	148.	152.	146.	192.	158.	171.
161	160.	164.	169.	161.	167.	173.	177.	172.	167.	175.
171	190.	201.	196.	220.	204.	213.	229.	228.	239.	256.
181	237.	237.	235.	245.	257.	271.	276.	280.	291.	288.
191	290.	308.	328.	300.	349.	300.	342.	344.	354.	359.
201	355.	380.	384.	410.	392.	401.	428.	464.	454.	457.
211	506.	436.	492.	540.	524.	533.	558.	570.	587.	617.
221	604.	650.	677.	659.	678.	707.	731.	731.	792.	798.
231	825.	861.	885.	927.	905.	980.	1004.	1073.	1057.	1151.
241	1216.	1217.	1266.	1313.	1321.	1431.	1506.	1586.	1667.	1743.
251	1823.	1849.	1990.	2046.	2029.	2186.	2142.	1965.	1695.	1331.
261	1037.	789.	579.	511.	537.	477.	447.	403.	466.	439.
271	414.	374.	309.	290.	305.	258.	270.	292.	256.	248.
281	314.	296.	346.	278.	311.	269.	275.	286.	262.	315.
291	310.	327.	300.	382.	347.	397.	404.	431.	485.	490.
301	502.	506.	500.	476.	403.	388.	332.	254.	202.	165.
311	140.	114.	102.	81.	72.	45.	31.	30.	17.	16.
321	13.	12.	8.	6.	9.	4.	13.	10.	7.	6.
331	10.	0.	3.	5.	6.	7.	4.	7.	11.	5.
341	9.	3.	10.	4.	6.	6.	10.	5.	11.	6.
351	6.	5.	2.	7.	10.	6.	8.	9.	17.	18.
361	16.	18.	13.	14.	12.	9.	10.	12.	23.	17.
371	8.	16.	17.	15.	17.	12.	6.	4.	4.	3.
381	2.	2.	2.	1.	2.	2.	0.	1.	1.	0.
391	1.	2.	2.	2.	1.	1.	0.	1.	2.	0.
401	1.	0.	2.	1.	3.	3.	1.	1.	1.	3.
411	2.	2.	1.	3.	3.	2.	1.	1.	1.	2.
421	1.	1.	1.	3.	3.	1.	2.	2.	3.	2.
431	4.	3.	5.	3.	3.	7.	6.	0.	3.	3.
441	4.	6.	3.	3.	3.	2.	1.	0.	1.	0.
451	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	1.	0.	0.	0.	0.	3.	2.	1.	5.
471	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
481	1.	0.	0.	1.	0.	1.	0.	0.	0.	0.
491	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
511	1.	0.								

LABCORE Data Entry Template for Worklist# 8216

Analyst: AKL **Instrument:** AM01 _____ **Book#** ~~124B43~~ 124B413 AKL 5/3/96

Method: LA-953-103 Rev/Mod _____

Worklist Comment: AY-101. Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AM24101	LIQUID		
2	BLNK				@AM24101	LIQUID		
3	SAMPLE	S96T001208	0		@AM24101	LIQUID	96000210	AY-101 GRAB
		Analytes Requested: AM24101 , AM24101E, AM24101T						
4	DUP	S96T001208	0		@AM24101	LIQUID		

Final page for worklist # 8216

C. Lewis 5/3/96
Analyst Signature **Date**

Sue E. Hogan 5/7/96
Analyst Signature **Date**
C. J. Quinn 5/7/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 8216

Analyst: ~~cjo~~ AKL 5/13/96 **Instrument:** PU01 # 18 **Book#** 124B43

Method: LA-953-103 Rev/Mod A-5

Worklist Comment: AY-101. Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@AM24101	AM24101	LIQUID	3.83E-02	3.86E-2	100.783	% Recovery
1	STD		0	@AM24101	AM24101T	LIQUID	100.	9.85E+01	98.500	% Recovery
1	STD		0	@AM24101	AM24101E	LIQUID	1.0	3.35E+00	3.350	% Ct. Error
2	BLNK		0	@AM24101	AM24101	LIQUID	1	<2.32E-6		uCi/mL
2	BLNK		0	@AM24101	AM24101T	LIQUID	100.0	1.01E+02	101.000	% Recovery
2	BLNK		0	@AM24101	AM24101E	LIQUID	1.0	1.00E+02	100.000	% Ct. Error
3	SAMPLE	S96T001208	0	@AM24101	AM24101	LIQUID	N/A <	2.53E-06	0.000	uCi/mL
3	SAMPLE	S96T001208	0	@AM24101	AM24101E	LIQUID	N/A	1.00E+02	0.000	% Ct. Error
3	SAMPLE	S96T001208	0	@AM24101	AM24101T	LIQUID	N/A	9.47E+01	0.000	% Recovery
4	DUP	S96T001208	0	@AM24101	AM24101	LIQUID	<2.53E-6	<2.80E-6		RPD
4	DUP	S96T001208	0	@AM24101	AM24101T	LIQUID	100.0	8.86E+01	88.600	% Recovery
4	DUP	S96T001208	0	@AM24101	AM24101E	LIQUID	1.0	1.00E+02	100.000	% Ct. Error

Final page for worklist# 8216

Analyst Signature Date

Analyst Signature Date

John Relyea 9 May 96
Reviewer Signature Date

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

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID

Type	Date Counted		MAY-04-96	Am 241 AEA Frac.	(C241)	0.444
STD	Sample Volume in mL	(SS)	0.100	Am 243 AEA Frac.	(C243)	0.538
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
8216	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		1518
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		125B43	Background in cpm	(Bkg)	0.1
Matrix	Am-243 Tracer Value	(dpm/mL)	1027	Am 241 cpm		13.05
LIQUID	Detector Number		18	Am 243 cpm		15.78
Batch Number	Detector Efficiency	(DetEff)	0.2686	Cm 243/244 cpm		0
96004089	Standard Book No		124B43	AEA Count Time	(min)	480
Rerun	Standard Value in µCi/mL		0.03825	Am 241 µCi/L =		3.8560E+01
0				Cm 243/244 µCi/L =	<	4.4089E+00

Sample Prep
N/A
Sample Number
WL8216
Instrument Code
WB27809
Prepared By
SEH
Chemist
JFR
Analyst
AKL
Date Complete
05/07/96
Analysis Date
05/03/96
Analysis Time
02:30 PM
Sample Point
AY-101 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	=	3.86E-02	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	3.3%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/mL		< 4.41E-03	4.41E-03
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	98.5%	4.41E-03

Analyst:	AKL	Date:	05/07/96
Signature of Chemist: John Relyea	JFR	Date:	9 May 96

STANDARD.WB1 REV 1.2 953103ML

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						BLNK
Type	Date Counted		MAY-04-96	Am 241 AEA Frac.	(C241)	0
BLNK	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.996
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
8216	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		844
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		125B43	Background in cpm	(Bkg)	0.1
Matrix	Am-243 Tracer Value	(dpm/mL)	1027	Am 241 cpm		0
LIQUID	Detector Number		18	Am 243 cpm		17.47
Batch Number	Detector Efficiency	(DetEff)	0.2686	Cm 243/244 cpm		0
96004089				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	2.3224E-03
0				Cm 243/244 µCi/L =	<	2.3224E-03
Sample Prep						
N/A						
Sample Number						
WL8216						
Instrument Code						
WB27809						
Prepared By						
SEH						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
05/07/96						
Analysis Date						
05/03/96						
Analysis Time						
02:30 PM						
Sample Point						
AY-101 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	=	< 2.32E-06
Relative Counting Error	=	100.0%

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

Cm 243/244 µCi/mL		< 2.32E-06
Relative Counting Error	=	100.0%
Am 243 Tracer Recovery	=	101.2%

DETECTION LEVELS in µCi/mL	
Am 241	2.32E-06
Cm 243/244	2.32E-06

Analyst:		AKL	Date:	05/07/96
Signature of Chemist:	John Relyea	JFR	Date:	9 May 96

BLANK.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						SAMPLE
Type	Date Counted		MAY-04-96	Am 241 AEA Frac.	(C241)	0
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.965
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
8216	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		815
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		125B43	Background in cpm	(Bkg)	0.1
Matrix	Am-243 Tracer Value	(dpm/mL)	1027	Am 241 cpm		0
LIQUID	Detector Number		18	Am 243 cpm		18.8
Batch Number	Detector Efficiency	(DetEff)	0.2686	Cm 243/244 cpm		0
96004089				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	2.5315E-03
0				Cm 243/244 µCi/L =	<	2.5315E-03
Sample Prep						
N/A						
Sample Number						
S96T001208						
Instrument Code						
WB27809						
Prepared By						
SEH						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
05/07/96						
Analysis Date						
05/03/96						
Analysis Time						
02:30 PM						
Sample Point						
AY-101 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 =	< 2.53E-06	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	< 2.53E-06	2.53E-06
Relative Counting Error =	100.0%	Cm 243/244
Am 243 Tracer Recovery =	94.7%	2.53E-06

Analyst:		AKL	Date:	05/07/96
Signature of Chemist:	John Relyea	JFR	Date:	9 May 96

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (A-5) LIQUID / SOLID

						DUP
Type	Date Counted		MAY-04-96	Am 241 AEA Frac.	(C241)	0
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.933
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
8216	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		789
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		125B43	Background in cpm	(Bkg)	0.1
Matrix	Am-243 Tracer Value	(dpm/mL)	1027	Am 241 cpm		0
LIQUID	Detector Number		18	Am 243 cpm		17.03
Batch Number	Detector Efficiency	(DetEff)	0.2686	Cm 243/244 cpm		0
96004089				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	2.7977E-03
0				Cm 243/244 µCi/L =	<	2.7977E-03
Sample Prep						
N/A						
Sample Number						
S96T001208						
Instrument Code						
WB27809						
Prepared By						
SEH						
Chemist						
JFR						
Analyst						
AKL						
Date Complete						
05/07/96						
Analysis Date						
05/03/96						
Analysis Time						
02:30 PM						
Sample Point						
AY-101 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 =	< 2.80E-06	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	< 2.80E-06	2.80E-06
Relative Counting Error =	100.0%	Cm 243/244
Am 243 Tracer Recovery =	88.6%	2.80E-06

Analyst:	AKL	Date:	05/07/96
Signature of Chemist: John Relyea	JFR	Date:	9 May 96

SAMPLE.WB1 REV 1.2 953103ML

D. H. Mibeia 5-4-96

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. 2.02 WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
WL8216-STD
File ID: 25a2597.CNF

Counted on: 5/ 4/96 @ 3:54
Detector: AEA25
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	386.2	386.2	299.519	299.519	12.000	5.806	6.000	2.245
2	487.8	487.8	253.773	253.758	12.000	4.661	6.000	1.776

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	0.444	5.487	5.479	0.008	0.03	13.05	2.5	112.5	0.507E-04
	Am241		5.479	5.479	0.000				86.2	0.388E-04
2	Am243	0.538	5.270	5.268	0.002	0.02	15.78	2.3	99.0	0.446E-04
		---					---			
Totals:		0.982	<--valid peaks only-->				28.83			

DETECTOR CALIBRATION
Energy(MEV) = 4.101 + (0.0046)*Channel
Energy range (MeV): 4.101 TO 6.456
Efficiency = 0.1611 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	14097.0	100.000
Smoothed	14097.8	100.006
Composite fit	13841.1	98.185
Residuals	255.9	1.815

Analyzed by: _____
EMB

Spectrum 25a2597.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 3425.0

WHC-SD-WM-DP-178, REV. /

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Raw Data Dump for AEA Spectrum: 25a2597.CNF

1	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.
11	1.	1.	0.	0.	0.	1.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	2.	0.	1.	0.
31	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
41	2.	2.	0.	0.	0.	0.	1.	1.	1.	1.
51	1.	0.	0.	2.	1.	0.	0.	0.	1.	0.
61	1.	0.	1.	0.	1.	0.	1.	0.	0.	2.
71	2.	1.	1.	1.	0.	1.	1.	0.	0.	0.
81	0.	2.	1.	1.	1.	0.	2.	0.	0.	1.
91	2.	0.	1.	1.	2.	1.	0.	0.	0.	1.
101	1.	1.	0.	0.	1.	2.	2.	2.	2.	1.
111	2.	1.	0.	1.	1.	0.	0.	1.	1.	1.
121	1.	1.	1.	2.	1.	2.	2.	1.	2.	1.
131	2.	2.	1.	0.	1.	0.	3.	1.	1.	1.
141	1.	2.	1.	2.	2.	2.	0.	1.	2.	1.
151	2.	0.	1.	1.	0.	0.	2.	0.	2.	1.
161	0.	1.	3.	0.	2.	0.	3.	2.	2.	1.
171	3.	0.	1.	1.	0.	2.	4.	1.	2.	0.
181	1.	1.	1.	3.	0.	0.	2.	1.	1.	2.
191	2.	1.	2.	1.	1.	3.	3.	1.	1.	2.
201	3.	2.	3.	5.	2.	4.	2.	4.	4.	6.
211	4.	2.	8.	8.	7.	3.	7.	7.	9.	6.
221	10.	7.	15.	18.	18.	18.	20.	32.	18.	42.
231	31.	39.	48.	50.	68.	69.	83.	102.	102.	137.
241	150.	181.	233.	231.	248.	310.	310.	357.	308.	378.
251	429.	490.	560.	549.	535.	479.	319.	210.	101.	42.
261	39.	39.	34.	27.	31.	39.	31.	28.	32.	20.
271	25.	22.	19.	24.	23.	26.	34.	32.	37.	62.
281	43.	52.	62.	68.	83.	108.	127.	129.	180.	194.
291	210.	251.	282.	270.	280.	346.	336.	396.	428.	426.
301	429.	339.	231.	141.	113.	70.	62.	33.	41.	31.
311	26.	11.	16.	4.	2.	1.	2.	0.	0.	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.	2.	1.	2.	2.	0.	1.
351	1.	1.	0.	0.	1.	0.	0.	2.	0.	2.
361	1.	1.	1.	1.	0.	0.	0.	1.	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.	1.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
471	0.	0.	0.	2.	0.	0.	0.	0.	0.	1.
481	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
511	0.	0.								

D. H. Milliken 5-4-96

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. 2.02 WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
WL8216-BLK
File ID: 26a2698.CNF

Counted on: 5/ 4/96 @ 3:55
Detector: AEA26
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	493.6	493.6	258.110	258.110	12.000	5.088	6.000	1.712

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	0.996	5.270	5.265	0.005	0.02	17.47	2.1	824.7	0.371E-03
Totals:		0.996	<--valid peaks only-->				17.47			

DETECTOR CALIBRATION
Energy(MEV) = 4.077 + (0.0046)*Channel
Energy range (MeV): 4.077 TO 6.433
Efficiency = 0.0214 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	8421.0	100.000
Smoothed	8421.0	100.000
Composite fit	8387.1	99.597
Residuals	33.9	0.403

Analyzed by: _____
EMB

Spectrum 26a2698.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 3022.8


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Raw Data Dump for AEA Spectrum: 26a2698.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	1.	1.	0.	0.	0.	1.	0.	0.	1.	1.
21	1.	0.	0.	0.	0.	0.	0.	0.	2.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
51	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
61	1.	1.	0.	0.	1.	0.	0.	0.	2.	0.
71	0.	2.	0.	0.	1.	0.	1.	0.	1.	1.
81	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
91	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.
101	1.	0.	0.	0.	1.	2.	0.	1.	0.	1.
111	0.	0.	1.	0.	0.	0.	1.	1.	1.	0.
121	1.	0.	1.	0.	0.	0.	3.	0.	2.	0.
131	1.	1.	0.	0.	0.	0.	1.	1.	1.	1.
141	0.	0.	0.	0.	1.	0.	0.	4.	2.	0.
151	0.	0.	2.	1.	1.	0.	0.	2.	1.	1.
161	1.	1.	0.	0.	0.	2.	1.	2.	1.	3.
171	0.	2.	0.	1.	0.	1.	0.	1.	1.	0.
181	2.	3.	0.	1.	0.	0.	0.	0.	3.	1.
191	0.	2.	2.	1.	1.	0.	3.	3.	3.	1.
201	1.	2.	3.	2.	0.	1.	2.	5.	4.	2.
211	3.	4.	3.	1.	6.	5.	4.	3.	3.	5.
221	7.	9.	11.	13.	10.	13.	13.	24.	13.	22.
231	23.	36.	39.	40.	45.	53.	56.	67.	101.	79.
241	106.	119.	135.	153.	163.	185.	217.	242.	302.	287.
251	347.	340.	385.	374.	426.	491.	521.	553.	537.	484.
261	442.	264.	142.	63.	32.	34.	25.	32.	30.	16.
271	26.	19.	16.	7.	6.	7.	4.	2.	0.	0.
281	2.	1.	0.	0.	0.	0.	0.	1.	0.	0.
291	0.	0.	1.	0.	3.	1.	0.	1.	2.	2.
301	1.	1.	4.	0.	2.	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	1.	0.	0.	0.	0.	2.	0.	0.	0.	1.
341	1.	0.	0.	0.	0.	0.	1.	0.	0.	2.
351	0.	0.	0.	0.	3.	1.	2.	0.	1.	0.
361	0.	0.	0.	1.	0.	1.	1.	0.	0.	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.	0.	0.	0.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

D.H. Milner 5-4-96

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. 2.02

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T1208-SAM
File ID: 27a2786.CNF

Counted on: 5/ 4/96 @ 3:55
Detector: AEA27
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	572.9	572.9	252.141	252.141	12.000	4.655	6.000	1.729

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	0.965	5.270	5.260	0.0100	0.02	18.80	2.1	678.2	0.305E-03
Totals:		0.965	<--valid peaks only-->				18.80			

DETECTOR CALIBRATION
Energy(MEV) = 4.100 + (0.0046)*Channel
Energy range (MeV): 4.100 TO 6.456
Efficiency = 0.0280 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	9352.0	100.000
Smoothed	9353.5	100.016
Composite fit	9024.1	96.494
Residuals	327.9	3.506

Analyzed by: _____
EMB

Spectrum 27a2786.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 3961.6


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Raw Data Dump for AEA Spectrum: 27a2786.CNF

1	0.	0.	0.	1.	1.	0.	0.	1.	0.	0.
11	0.	0.	0.	0.	0.	2.	0.	0.	0.	1.
21	0.	0.	0.	0.	1.	1.	2.	0.	1.	1.
31	0.	0.	1.	1.	0.	0.	1.	0.	1.	1.
41	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.
51	0.	0.	0.	1.	1.	0.	2.	1.	2.	0.
61	0.	0.	1.	1.	0.	0.	1.	0.	0.	1.
71	0.	1.	0.	0.	1.	1.	0.	1.	1.	0.
81	0.	0.	1.	0.	0.	1.	0.	0.	1.	1.
91	1.	0.	0.	0.	0.	0.	2.	0.	0.	0.
101	2.	0.	0.	1.	0.	0.	0.	0.	1.	0.
111	2.	0.	1.	4.	2.	0.	0.	2.	0.	0.
121	0.	0.	1.	0.	1.	0.	2.	1.	1.	1.
131	0.	2.	2.	0.	1.	0.	0.	0.	1.	1.
141	1.	1.	0.	2.	1.	2.	1.	4.	0.	1.
151	1.	0.	2.	1.	0.	1.	0.	1.	2.	1.
161	0.	0.	2.	1.	3.	3.	0.	0.	0.	1.
171	1.	1.	2.	5.	2.	1.	2.	3.	1.	3.
181	1.	3.	2.	2.	1.	3.	3.	3.	1.	2.
191	3.	2.	5.	1.	0.	3.	2.	2.	2.	1.
201	5.	4.	5.	9.	4.	4.	6.	4.	5.	3.
211	12.	9.	8.	5.	8.	11.	21.	15.	9.	17.
221	27.	21.	17.	14.	28.	33.	40.	44.	61.	54.
231	59.	73.	84.	105.	92.	110.	123.	172.	180.	199.
241	241.	239.	268.	305.	334.	404.	438.	405.	497.	538.
251	627.	630.	657.	599.	427.	271.	133.	72.	49.	37.
261	36.	28.	41.	34.	29.	26.	12.	13.	7.	10.
271	6.	2.	0.	0.	1.	0.	0.	1.	0.	1.
281	1.	0.	0.	1.	1.	0.	1.	4.	2.	0.
291	1.	0.	2.	0.	4.	2.	2.	3.	0.	0.
301	3.	1.	1.	2.	0.	1.	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.	1.	3.
341	2.	1.	4.	3.	0.	0.	2.	0.	0.	0.
351	0.	0.	1.	1.	0.	2.	0.	2.	1.	1.
361	0.	2.	0.	0.	0.	1.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
391	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	1.	0.	1.	1.	0.	0.	1.	1.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

D. H. Milicia 5-4-96

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. 2.02

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T1208-DUP
File ID: 28a2889.CNF

Counted on: 5/ 4/96 @ 3:56
Detector: AEA28
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	590.6	590.6	253.242	253.242	12.000	4.305	6.000	1.967

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	0.933	5.270	5.270	0.000	0.02	17.03	2.2	87.9	0.396E-04
Totals:		0.933	<--valid peaks only-->				17.03			

DETECTOR CALIBRATION
Energy(MEV) = 4.105 + (0.0046)*Channel
Energy range (MeV): 4.105 TO 6.460
Efficiency = 0.1956 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	8760.0	100.000
Smoothed	8760.3	100.003
Composite fit	8174.8	93.320
Residuals	585.2	6.680

Analyzed by: _____
EMB

Spectrum 28a2889.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 4119.8


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Raw Data Dump for AEA Spectrum: 28a2889.CNF

1	0.	0.	0.	0.	1.	1.	1.	0.	0.	0.
11	1.	1.	0.	1.	0.	1.	0.	0.	0.	0.
21	1.	0.	0.	1.	0.	1.	0.	0.	0.	0.
31	1.	0.	2.	0.	1.	0.	0.	0.	0.	1.
41	0.	2.	0.	0.	2.	2.	1.	0.	0.	1.
51	2.	1.	0.	0.	0.	0.	0.	2.	2.	1.
61	2.	0.	0.	0.	0.	2.	0.	2.	1.	0.
71	1.	0.	1.	1.	2.	1.	0.	0.	1.	2.
81	0.	0.	0.	0.	0.	1.	0.	0.	2.	0.
91	2.	1.	0.	1.	0.	1.	0.	0.	1.	0.
101	1.	0.	0.	2.	1.	0.	4.	0.	0.	0.
111	1.	0.	3.	0.	1.	0.	1.	1.	0.	2.
121	0.	1.	1.	1.	0.	3.	2.	1.	1.	0.
131	0.	3.	1.	0.	1.	2.	0.	2.	2.	3.
141	2.	0.	0.	0.	0.	1.	2.	0.	2.	2.
151	0.	1.	1.	2.	2.	2.	4.	2.	4.	3.
161	0.	2.	2.	1.	1.	0.	0.	4.	0.	3.
171	2.	4.	4.	1.	3.	1.	2.	0.	6.	3.
181	2.	2.	2.	1.	1.	2.	3.	3.	1.	5.
191	2.	0.	3.	5.	6.	7.	6.	7.	2.	0.
201	4.	3.	0.	4.	1.	5.	7.	8.	6.	5.
211	8.	9.	7.	10.	8.	5.	10.	8.	6.	12.
221	19.	9.	12.	10.	20.	20.	21.	32.	30.	43.
231	39.	53.	43.	54.	59.	71.	102.	117.	117.	136.
241	147.	158.	196.	215.	278.	343.	302.	330.	466.	530.
251	566.	617.	665.	689.	609.	473.	269.	110.	64.	38.
261	42.	31.	32.	36.	27.	32.	26.	20.	18.	7.
271	6.	1.	2.	1.	1.	0.	0.	0.	0.	0.
281	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
291	0.	0.	1.	1.	0.	2.	4.	1.	1.	3.
301	3.	4.	0.	0.	0.	0.	0.	0.	0.	0.
311	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
321	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
341	0.	0.	0.	0.	1.	1.	0.	1.	1.	0.
351	0.	1.	0.	0.	0.	0.	2.	1.	3.	3.
361	1.	2.	1.	2.	1.	0.	0.	1.	1.	1.
371	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
471	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.
481	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

LABCORE Data Entry Template for Worklist# 6773

Analyst: Jmd **Instrument:** PU01 #16 **Book#** 104843

Method: LA-943-128 Rev/Mod A-1

Worklist Comment: AY-101, Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@PU23901	LIQUID		
2	BLNK				@PU23901	LIQUID		
3	SAMPLE	S96T001263	0		@PU23901	LIQUID	96000210	AY-101 GRAB
	Analytes Requested: PU23901 , PU23901E, PU23901T							
4	DUP	S96T001263	0		@PU23901	LIQUID		
5	SAMPLE	S96T001264	0		@PU23901	LIQUID	96000210	AY-101 GRAB
	Analytes Requested: PU23901 , PU23901E, PU23901T							
6	DUP	S96T001264	0		@PU23901	LIQUID		
7	SAMPLE	S96T001265	0		@PU23901	LIQUID	96000210	AY-101 GRAB
	Analytes Requested: PU23901 , PU23901E, PU23901T							
8	DUP	S96T001265	0		@PU23901	LIQUID		

Final page for worklist # 6773

3-28-96
Analyst Signature **Date**

3/30/96
Analyst Signature **Date**

4/2/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 6773

Analyst: jmv **Instrument:** AB16 **Book#** 104B43

Method: LA-943-128 Rev/Mod A-1

Worklist Comment: AY-101, Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@PU23901 PU23901	LIQUID	1.28E-01	1.10E-1	85.940	% Recovery
1	STD			0	@PU23901 PU23901E	LIQUID	1.00	2.09E+00	2.090	% Ct. Error
1	STD			0	@PU23901 PU23901T	LIQUID	100	1.00E+02	100.000	% Recovery
2	BLNK			0	@PU23901 PU23901	LIQUID	1	<2.75E-4		uCi/mL
2	BLNK			0	@PU23901 PU23901T	LIQUID	100	1.13E+02	113.000	% Recovery
2	BLNK			0	@PU23901 PU23901E	LIQUID	1.00	1.00E+02	100.000	% Ct. Error
3	SAMPLE	S96T001263		0	@PU23901 PU23901	LIQUID	N/A	2.67E-02	1.360e-003	uCi/mL
3	SAMPLE	S96T001263		0	@PU23901 PU23901T	LIQUID	N/A	1.03E+02	1.000e-007	% Recovery
3	SAMPLE	S96T001263		0	@PU23901 PU23901E	LIQUID	N/A	1.73E+00	0.000	% Ct. Error
4	DUP	S96T001263		0	@PU23901 PU23901	LIQUID	2.67E-2	2.69E-2	0.750	RPD
4	DUP	S96T001263		0	@PU23901 PU23901T	LIQUID	100	1.03E+02	103.000	% Recovery
4	DUP	S96T001263		0	@PU23901 PU23901E	LIQUID	1.00	1.65E+00	1.650	% Ct. Error
5	SAMPLE	S96T001264		0	@PU23901 PU23901	LIQUID	N/A	2.87E-02	1.390e-003	uCi/mL
5	SAMPLE	S96T001264		0	@PU23901 PU23901T	LIQUID	N/A	1.07E+02	1.000e-007	% Recovery
5	SAMPLE	S96T001264		0	@PU23901 PU23901E	LIQUID	N/A	1.69E+00	0.000	% Ct. Error
6	DUP	S96T001264		0	@PU23901 PU23901	LIQUID	2.87E-2	2.87E-2	0.000	RPD
6	DUP	S96T001264		0	@PU23901 PU23901T	LIQUID	100	9.74E+01	97.400	% Recovery
6	DUP	S96T001264		0	@PU23901 PU23901E	LIQUID	1.00	1.69E+00	1.690	% Ct. Error
7	SAMPLE	S96T001265		0	@PU23901 PU23901	LIQUID	N/A	2.73E-02	1.460e-003	uCi/mL
7	SAMPLE	S96T001265		0	@PU23901 PU23901T	LIQUID	N/A	9.49E+01	1.000e-007	% Recovery
7	SAMPLE	S96T001265		0	@PU23901 PU23901E	LIQUID	N/A	1.74E+00	0.000	% Ct. Error
8	DUP	S96T001265		0	@PU23901 PU23901	LIQUID	2.73E-2	2.68E-2	1.850	RPD
8	DUP	S96T001265		0	@PU23901 PU23901T	LIQUID	100	1.01E+02	101.000	% Recovery
8	DUP	S96T001265		0	@PU23901 PU23901E	LIQUID	1.00	1.63E+00	1.630	% Ct. Error

Final page for worklist# 6773

Analyst Signature Date

Analyst Signature Date

John Relyea 3 Apr 96
Reviewer Signature Date

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

WORKBOOK PAGE: STD1

Pu 238 and 239/240 : LA-943-128 (A-1) LIQUID

Type	DATE COUNTED		MAR-29-96	PU 236 AEA FRAC	(C236)		0.457
STD	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC	(C238)		0.000
Matrix	SAMPLE DILUTION FACTOR	DF	101.000	PU 239 AEA FRAC	(C239)		0.492
6773	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			4022
Tracer Code	DIGEST DILUTION FACTOR	DDF	1.000	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm	(Bkg)		0.060
Detector	DETECTOR NUMBER		16	PU 236 cpm			35.350
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm			0.000
Tracer Preparation	TRACER PREPARATION DATE		12/27/95	PU 239 cpm			38.020
96002484	TRACER PREPARATION VALUE (dpm/mL)		2390.000	AEA COUNT TIME			480
Aliquot	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2246.485	Pu 239/240 µCi/L			1.1003E+02
0	PU-238 TRACER VALUE	(dpm/mL)	0.000				
Aliquot Prep	STANDARD BOOK NO		104B43				
N/A	STANDARD VALUE in µCi/mL		0.128				
Spike Prep							
104B43							

Decay Time = Date Counted - Tracer Preparation Date

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

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

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

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

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

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

Notebook Code				
WB27806				
Prepared By				
LC				
Chemist				
LF				
Analyst				
JMV				
Date Complete				
03/30/96	Pu 239/240 µCi/mL		1.10E-01	DETECTION LEVELS in µCi/mL
Analysis Date	Relative Counting Error	=	2.1%	
03/28/96				Pu 239/240
Analysis Time				6.71E-03
12:00 PM				
Sample Point				
AY-101	Pu 236 Tracer Recovery	=	100.3%	

Analyst:	JMV	Date:	30-Mar-96
Signature of Chemist: John Relyea	LF	Date:	1 Apr 96

STANDARD.WB1 REV 1.0 943128ML

WORKBOOK PAGE: BLANK2

Pu 238 and 239/240 : LA-943-128 (A-1) LIQUID / SOLID

Type	DATE COUNTED		MAR-29-96	PU 236 AEA FRAC	(C236)	1.116
BLNK	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC	(C238)	0.000
Work List	SAMPLE DILUTION FACTOR	DF	101.000	PU 239 AEA FRAC	(C239)	0.000
6773	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		1860
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cp	(Bkg)	0.060
Matrix	DETECTOR NUMBER		16	PU 236 cpm		40.670
LIQUID	EFFICIENCY FACTOR	EFF	0.2717	PU 238 cpm		0.000
Batch Number	TRACER PREPARATION DATE		12/27/95	PU 239 cpm		0.000
96002484	TRACER PREPARATION VALUE (dpm/mL)		2390.00	AEA COUNT TIME		480
Spike	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2246.48	Pu 239/240 µCi/L =	<	2.747E-01
0	PU-238 TRACER VALUE	(dpm/m	0.00			

Sample Prep	
N/A	
Sample #	Decay Time = Date Counted - Tracer Preparation Date
BLNK	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95}]
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg)*C236*100/(Pu-236 Decay Corr'd Value * SPKV*EFF)
WB27806	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
LC	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
LF	
Analyst	
JMV	
Date Complete	
03/30/96	
Analysis Date	
03/28/96	
Analysis Time	
12:00 PM	
Sample Point	
AY-101	

Pu 239/240 µCi/mL		< 2.75E-04		DETECTION LEVELS in µCi/mL
Relative Counting Error	=	100.0%		
NOTE: Pu 238 Result is a LESS THAN Value.				Pu 239/240
Pu 238 µCimL		< 2.75E-04		2.75E-04
Relative Counting Error	=	100.0%		Pu 238
Pu 236 Tracer Recovery	=	113.3%		2.75E-04

Analyst:	JMV	Date:	30-Mar-96
Signature of Chemist: John Relyea	LF	Date:	1 Apr 96

BLANK.WB1 REV 1.0 943128ML

WORKBOOK PAGE: SAM3

Pu 238 and 239/240 : LA-943-128 (A-1) LIQUID / SOLID

							SAMPLE
	DATE COUNTED		MAR-29-96	PU 236 AEA FRAC	(C236)		0.225
SAMPLE	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC	(C238)		0.143
	SAMPLE DILUTION FACTOR	DF	101.000	PU 239 AEA FRAC	(C239)		0.588
6773	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			8351
	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm	(Bkg)		0.060
	DETECTOR NUMBER		16	PU 236 cpm			36.870
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm			23.420
	TRACER PREPARATION DATE		12/27/95	PU 239 cpm			96.410
96002484	TRACER PREPARATION VALUE (dpm/mL)		2390.000	AEA COUNT TIME			480
	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2246.485	Pu 239/240 µCi/L			2.6710E+01
0	PU-238 TRACER VALUE	(dpm/mL)	0.000				

N/A

S96T001263

WB27806

LC

LF

JMV

Decay Time = Date Counted - Tracer Preparation Date

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

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

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

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

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

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

03/30/96

03/28/96

12:00 PM

AY-101

Pu 239/240 µCi/mL		2.67E-02	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	1.7%	
			Pu 239/240
Pu 238 µCimL		6.50E-03	1.36E-03
Relative Counting Error	=	2.4%	Pu 238
Pu 236 Tracer Recovery	=	102.6%	1.36E-03

Analyst:	JMV	Date:	30-Mar-96
Signature of Chemist: John Relyea	LF	Date:	1 Apr 96

SAMPLE.WB1 REV 1.0 943128ML

WORKBOOK PAGE: DUP4

Pu 238 and 239/240 : LA-943-128 (A-1) LIQUID / SOLID

							DUP
	DATE COUNTED		MAR-29-96	PU 236 AEA FRAC		(C236)	0.227
DUP	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC		(C238)	0.141
	SAMPLE DILUTION FACTOR	DF	101.000	PU 239 AEA FRAC		(C239)	0.597
6773	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			8283
	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm		(Bkg)	0.060
	DETECTOR NUMBER		16	PU 236 cpm			40.820
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm			25.260
	TRACER PREPARATION DATE		12/27/95	PU 239 cpm			107.310
96002484	TRACER PREPARATION VALUE (dpm/mL)		2390.000	AEA COUNT TIME			480
	PU-236 DECAY CORR'D VALUE (dpm/mL)		2246.485	Pu 239/240 µCi/L			2.6879E+01
0	PU-238 TRACER VALUE (dpm/mL)		0.000				

N/A

S96T001263

WB27806

LC

LF

JMV

03/30/96

03/28/96

12:00 PM

AY-101

Decay Time = Date Counted - Tracer Preparation Date

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

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

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

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

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

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

Pu 239/240 µCi/mL		2.69E-02	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	1.6%	
			Pu 239/240
Pu 238 µCimL		6.35E-03	1.35E-03
Relative Counting Error	=	2.3%	Pu 238
Pu 236 Tracer Recovery	=	102.7%	1.35E-03

Analyst:	JMV	Date:	30-Mar-96
Signature of Chemist: John Relyea	LF	Date:	1 Apr 96

SAMPLE.WB1 REV 1.0 943128ML

WORKBOOK PAGE: SAM5

Pu 238 and 239/240 : LA-943-128 (A-1) LIQUID / SOLID

							SAMPLE
	DATE COUNTED		MAR-29-96	PU 236 AEA FRAC		(C236)	0.220
SAMPLE	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC		(C238)	0.143
	SAMPLE DILUTION FACTOR	DF	101.000	PU 239 AEA FRAC		(C239)	0.617
6773	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			8916
	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm		(Bkg)	0.060
	DETECTOR NUMBER		16	PU 236 cpm			38.010
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm			24.740
	TRACER PREPARATION DATE		12/27/95	PU 239 cpm			106.760
96002484	TRACER PREPARATION VALUE (dpm/mL)		2390.000	AEA COUNT TIME			480
	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2246.485	Pu 239/240 µCi/L			2.8664E+01
0	PU-238 TRACER VALUE	(dpm/mL)	0.000				

N/A

S96T001264

WB27806

LC

LF

JMV

03/30/96

03/28/96

12:00 PM

AY-101

Decay Time = Date Counted - Tracer Preparation Date

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

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

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

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

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

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

Pu 239/240 µCi/mL		2.87E-02	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	1.7%	
			Pu 239/240
Pu 238 µCimL		6.64E-03	1.39E-03
Relative Counting Error	=	2.3%	Pu 238
Pu 236 Tracer Recovery	=	107.1%	1.39E-03

Analyst:	JMV	Date:	30-Mar-96
Signature of Chemist: John Relyea	LF	Date:	

SAMPLE.WB1 REV 1.0 943128ML

WORKBOOK PAGE: DUP6

Pu 238 and 239/240 : LA-943-128 (A-1) LIQUID / SOLID

							DUP
	DATE COUNTED		MAR-29-96	PU 236 AEA FRAC		(C236)	0.214
DUP	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC		(C238)	0.144
	SAMPLE DILUTION FACTOR	DF	101.000	PU 239 AEA FRAC		(C239)	0.600
6773	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			8339
	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm		(Bkg)	0.060
	DETECTOR NUMBER		16	PU 236 cpm			38.040
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm			25.610
	TRACER PREPARATION DATE		12/27/95	PU 239 cpm			106.540
96002484	TRACER PREPARATION VALUE (dpm/mL)		2390.000	AEA COUNT TIME			480
	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2246.485	Pu 239/240 µCi/L			2.8656E+01
0	PU-238 TRACER VALUE	(dpm/mL)	0.000				

N/A

Decay Time = Date Counted - Tracer Preparation Date

S96T001264

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

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

WB27806

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

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

LC

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

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

LF

JMV

03/30/96

03/28/96

12:00 PM

AY-101

Pu 239/240 µCi/mL		2.87E-02	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	1.7%	
			Pu 239/240
Pu 238 µCimL		6.88E-03	1.47E-03
Relative Counting Error	=	2.3%	Pu 238
Pu 236 Tracer Recovery	=	97.4%	1.47E-03

Analyst:	JMV	Date:	30-Mar-96
Signature of Chemist: John Rebyca	LF	Date:	1 Apr 96

SAMPLE.WB1 REV 1.0 943128ML

WORKBOOK PAGE: SAM7

Pu 238 and 239/240 : LA-943-128 (A-1) LIQUID / SOLID

							SAMPLE
[illegible]	DATE COUNTED		MAR-29-96	PU 236 AEA FRAC	(C236)		0.221
SAMPLE	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC	(C238)		0.140
[illegible]	SAMPLE DILUTION FACTOR	DF	101.000	PU 239 AEA FRAC	(C239)		0.590
6773	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			7865
[illegible]	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm	(Bkg)		0.060
[illegible]	DETECTOR NUMBER		16	PU 236 cpm			36.230
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm			22.910
[illegible]	TRACER PREPARATION DATE		12/27/95	PU 239 cpm			96.650
96002484	TRACER PREPARATION VALUE (dpm/mL)		2390.000	AEA COUNT TIME			480
[illegible]	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2246.485	Pu 239/240 µCi/L			2.7285E+01
0	PU-238 TRACER VALUE	(dpm/mL)	0.000				

[illegible]
N/A
[illegible]
S96T001265
[illegible]
WB27806
[illegible]
LC
[illegible]
LF
[illegible]
JMV
[illegible]
03/30/96
[illegible]
03/28/96
[illegible]
12:00 PM
[illegible]
AY-101

Decay Time = Date Counted - Tracer Preparation Date
Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]
Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)
Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

Pu 239/240 µCi/mL		2.73E-02	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	1.7%	
			Pu 239/240
Pu 238 µCimL		6.47E-03	1.46E-03
Relative Counting Error	=	2.4%	Pu 238
Pu 236 Tracer Recovery	=	94.9%	1.46E-03

Analyst:	JMV	Date:	30-Mar-96
Signature of Chemist: John Relyea	LF	Date:	

SAMPLE.WB1 REV 1.0 943128ME

WORKBOOK PAGE: DUP8

Pu 238 and 239/240 : LA-943-128 (A-1) LIQUID / SOLID

							DUP
[illegible]	DATE COUNTED		MAR-29-96	PU 236 AEA FRAC		(C236)	0.228
DUP	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC		(C238)	0.141
[illegible]	SAMPLE DILUTION FACTOR	DF	101.000	PU 239 AEA FRAC		(C239)	0.597
6773	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			8120
[illegible]	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm		(Bkg)	0.060
[illegible]	DETECTOR NUMBER		16	PU 236 cpm			41.800
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm			25.920
[illegible]	TRACER PREPARATION DATE		12/27/95	PU 239 cpm			109.720
96002484	TRACER PREPARATION VALUE (dpm/mL)		2390.000	AEA COUNT TIME			480
[illegible]	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2246.485	Pu 239/240 µCi/L			2.6762E+01
0	PU-238 TRACER VALUE	(dpm/mL)	0.000				
[illegible]							
N/A							
[illegible]	Decay Time = Date Counted - Tracer Preparation Date						
S96T001265	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)}]						
[illegible]	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)						
WB27806	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]						
[illegible]	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)						
LC	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]						
[illegible]	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100						
LF							
[illegible]							
JMV							
[illegible]							
03/30/96	Pu 239/240 µCi/mL		2.68E-02				DETECTION LEVELS in µCi/mL
[illegible]	Relative Counting Error	=	1.6%				
03/28/96							
[illegible]							Pu 239/240
12:00 PM	Pu 238 µCimL		6.32E-03				1.34E-03
[illegible]	Relative Counting Error	=	2.2%				Pu 238
AY-101	Pu 236 Tracer Recovery	=	101.1%				1.34E-03

Analyst:	JMV	Date:	30-Mar-96
Signature of Chemist: John Relyea	LF	Date:	1 Apr 96

SAMPLE.WB1 REV 1.0 943128ML

3-30-96

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
WL6773-STD
File ID: 17a1759.CNF

Counted on: 3/29/96 @22:44
Detector: AEA17
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	588.2	588.2	361.501	361.501	10.000	3.334	5.000	0.498
2?	62.4	62.4	353.431	352.270	8.000	0.607	4.000	5.354
3	862.7	862.7	229.301	229.299	10.000	3.518	5.000	0.782
4	21.6	21.6	143.028	142.773	126.000	1.000	63.000	0.100
5?	0.0	0.1	130.518	130.518	0.000	0.100	0.000	0.100

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	0.457	5.755	5.750	0.005	0.02	35.35	1.5	4508.8	0.203E-02
2		????		5.707			0.48	94.3		
3	Pu239	0.492	5.147	5.141	0.006	0.02	38.02	1.5	4752.3	0.214E-02
	Pu240		5.144	5.141	0.003				4752.3	0.214E-02
4		0.022		4.743		0.00	1.71	7.3	213.7	0.963E-04
5		????		4.687			0.00	*****		
Totals:		0.971	<--valid peaks only-->				75.08			

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

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	37116.0	100.000
Smoothed	37115.6	99.999
Composite fit	36273.1	97.729
Residuals	842.9	2.271

Analyzed by: _____
DM

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                    Spectrum 17a1759.CNF
1 Legend:  Raw = ....  Modeled Peaks = 1,2,.., etc     Display Max.:    6025.3

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Raw Data Dump for AEA Spectrum: 17a1759.CNF

1	0.	0.	1.	0.	0.	1.	0.	2.	3.	1.
11	4.	0.	2.	3.	3.	1.	1.	1.	4.	3.
21	0.	5.	5.	4.	4.	2.	1.	3.	3.	2.
31	0.	2.	1.	2.	2.	3.	2.	1.	2.	5.
41	0.	3.	4.	3.	3.	2.	2.	2.	2.	1.
51	3.	3.	0.	5.	5.	0.	3.	2.	3.	2.
61	3.	6.	4.	0.	5.	6.	6.	7.	4.	7.
71	6.	3.	6.	7.	3.	6.	3.	3.	2.	6.
81	2.	3.	4.	5.	9.	5.	4.	2.	9.	7.
91	7.	2.	6.	4.	7.	6.	8.	3.	8.	9.
101	2.	7.	4.	4.	13.	10.	14.	4.	5.	10.
111	13.	6.	11.	5.	14.	8.	3.	12.	8.	14.
121	12.	7.	11.	7.	13.	10.	8.	7.	17.	22.
131	19.	15.	12.	9.	6.	17.	12.	21.	10.	24.
141	28.	29.	28.	30.	24.	18.	18.	26.	27.	27.
151	34.	28.	33.	30.	25.	21.	26.	30.	27.	49.
161	36.	39.	49.	49.	57.	40.	55.	43.	54.	62.
171	67.	68.	58.	59.	56.	80.	71.	73.	70.	72.
181	65.	76.	90.	94.	100.	85.	105.	102.	130.	115.
191	127.	116.	136.	149.	137.	154.	170.	158.	173.	194.
201	189.	212.	212.	241.	246.	254.	271.	261.	277.	282.
211	321.	334.	366.	326.	405.	430.	465.	486.	513.	530.
221	566.	563.	518.	633.	630.	697.	811.	817.	979.	1000.
231	956.	659.	345.	140.	53.	17.	6.	7.	10.	4.
241	3.	5.	8.	7.	11.	6.	6.	9.	14.	5.
251	10.	12.	6.	16.	11.	12.	16.	14.	8.	11.
261	12.	12.	15.	11.	11.	14.	15.	18.	10.	19.
271	16.	17.	18.	30.	14.	24.	23.	28.	22.	34.
281	14.	19.	31.	36.	29.	26.	31.	30.	33.	26.
291	31.	31.	34.	36.	35.	44.	36.	44.	44.	48.
301	43.	43.	65.	55.	67.	46.	53.	45.	59.	59.
311	44.	52.	55.	56.	78.	74.	66.	72.	70.	87.
321	83.	97.	98.	98.	114.	125.	124.	128.	112.	151.
331	140.	166.	150.	148.	190.	171.	204.	190.	210.	254.
341	223.	252.	267.	301.	303.	298.	337.	377.	383.	395.
351	440.	515.	548.	518.	454.	409.	417.	443.	514.	520.
361	628.	678.	662.	502.	271.	93.	14.	1.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
401	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	1.	1.	0.	0.	0.	1.	1.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
461	1.	0.	0.	1.	0.	2.	0.	0.	0.	0.
471	0.	0.	0.	1.	0.	2.	1.	0.	3.	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.								

3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01 WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
WL6773-BLK
File ID: 18a1838.CNF

Counted on: 3/29/96 @22:45
Detector: AEA18
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	587.5	587.5	362.280	362.280	10.000	3.272	5.000	0.413
2?	0.0	0.1	248.340	248.340	0.000	0.100	0.000	0.100

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	1.116	5.755	5.752	0.003	0.02	40.67	1.4	3192.3	0.144E-02
2		????		5.228			0.00	8445.		
Totals:		1.116	<--valid peaks only-->				40.67			

DETECTOR CALIBRATION

Energy(MEV) = 4.086 + (0.0046)*Channel
Energy range (MeV): 4.086 TO 6.441
Efficiency = 0.0130 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	17489.0	100.000
Smoothed	17489.2	100.001
Composite fit	19526.5	111.650
Residuals	-2037.5	-11.650

Analyzed by: _____
DM

Spectrum 18a1838.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 3928.6


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Raw Data Dump for AEA Spectrum: 18a1838.CNF

1	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
11	0.	1.	2.	0.	0.	0.	0.	1.	0.	0.
21	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
31	0.	0.	0.	0.	1.	1.	0.	0.	2.	0.
41	0.	0.	0.	0.	0.	1.	1.	0.	1.	0.
51	2.	0.	1.	1.	0.	0.	1.	0.	0.	0.
61	2.	0.	0.	0.	2.	1.	1.	0.	0.	0.
71	2.	1.	0.	1.	0.	3.	0.	1.	0.	0.
81	2.	0.	1.	0.	0.	0.	1.	1.	1.	0.
91	2.	0.	0.	0.	0.	0.	0.	1.	0.	0.
101	1.	0.	0.	0.	0.	0.	2.	3.	0.	1.
111	1.	0.	0.	1.	0.	1.	2.	2.	0.	1.
121	0.	0.	1.	2.	1.	0.	0.	1.	2.	0.
131	0.	2.	0.	0.	2.	1.	2.	1.	0.	0.
141	2.	1.	0.	0.	1.	1.	0.	2.	3.	1.
151	3.	0.	5.	2.	1.	1.	4.	2.	2.	5.
161	2.	1.	1.	2.	2.	2.	3.	3.	2.	2.
171	4.	4.	4.	0.	1.	2.	4.	1.	0.	1.
181	0.	1.	0.	3.	4.	5.	3.	2.	4.	1.
191	0.	1.	2.	2.	3.	2.	2.	6.	3.	2.
201	1.	5.	8.	4.	3.	4.	4.	3.	6.	3.
211	3.	1.	5.	4.	3.	5.	7.	5.	1.	6.
221	7.	5.	4.	5.	8.	2.	2.	8.	4.	5.
231	2.	5.	3.	9.	8.	4.	11.	6.	7.	5.
241	6.	11.	7.	11.	12.	5.	11.	13.	9.	11.
251	8.	7.	9.	13.	13.	5.	5.	11.	13.	15.
261	11.	11.	8.	10.	12.	17.	13.	10.	18.	18.
271	20.	12.	15.	15.	19.	22.	32.	21.	20.	22.
281	27.	27.	29.	24.	25.	29.	28.	31.	40.	31.
291	22.	36.	30.	32.	39.	37.	39.	35.	48.	34.
301	44.	52.	50.	51.	64.	62.	50.	58.	62.	53.
311	61.	67.	74.	80.	62.	68.	88.	105.	93.	98.
321	109.	90.	126.	108.	136.	112.	134.	119.	143.	136.
331	150.	171.	163.	186.	189.	188.	197.	213.	231.	229.
341	256.	259.	271.	331.	334.	305.	363.	356.	368.	447.
351	449.	488.	559.	540.	535.	459.	455.	439.	529.	509.
361	518.	625.	677.	651.	470.	192.	51.	8.	2.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
451	1.	0.	0.	0.	1.	1.	1.	0.	0.	0.
461	1.	0.	1.	0.	0.	0.	1.	0.	1.	0.
471	0.	1.	2.	0.	2.	4.	2.	0.	0.	0.
481	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

AHJ 3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV 1

DATA REDUCTION REPORT

SAMPLE
S96T1263-SAM
File ID: 19a1989.CNF

Counted on: 3/29/96 @22:46
Detector: AEA19
Geometry number: 1
Count time: 28808. 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	1213.1	1213.1	361.806	361.806	10.000	2.513	5.000	0.878
2	745.2	745.2	304.043	304.036	10.000	2.689	5.000	0.908
3	3414.0	3414.0	230.198	230.198	12.000	3.504	6.000	1.521

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	0.225	5.755	5.750	0.005	0.01	36.87	1.5	387.4	0.175E-03
2	Pu238	0.143	5.487	5.484	0.003	0.01	23.42	1.9	335.0	0.151E-03
	Am241		5.479	5.484	-.005				256.6	0.116E-03
3	Pu239	0.588	5.147	5.145	0.002	0.02	96.41	0.9	992.9	0.447E-03
	Pu240		5.144	5.145	-.001				992.9	0.447E-03
Totals:		0.955	<--valid peaks only-->				156.70			

DETECTOR CALIBRATION

Energy(MEV) = 4.086 + (0.0046)*Channel
Energy range (MeV): 4.086 TO 6.441
Efficiency = 0.0971 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	78746.0	100.000
Smoothed	78748.6	100.003
Composite fit	75237.3	95.544
Residuals	3508.7	4.456

Analyzed by: _____
DM

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 22103.5


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Raw Data Dump for AEA Spectrum: 19a1989.CNF

1	0.	0.	1.	2.	3.	2.	2.	5.	3.	1.
11	1.	2.	1.	1.	3.	0.	4.	2.	4.	4.
21	3.	2.	0.	3.	3.	4.	2.	3.	4.	1.
31	4.	3.	3.	2.	8.	0.	3.	1.	1.	5.
41	3.	2.	3.	2.	2.	2.	1.	0.	3.	2.
51	0.	7.	0.	2.	2.	0.	4.	0.	8.	4.
61	3.	2.	1.	2.	3.	6.	4.	5.	1.	2.
71	2.	8.	3.	1.	5.	5.	3.	3.	4.	2.
81	2.	7.	2.	7.	5.	5.	4.	1.	3.	5.
91	6.	6.	4.	10.	4.	3.	11.	8.	8.	7.
101	4.	4.	5.	9.	4.	12.	7.	6.	4.	4.
111	8.	5.	5.	9.	13.	7.	8.	12.	11.	10.
121	11.	7.	9.	10.	7.	9.	10.	10.	10.	14.
131	10.	11.	8.	14.	13.	16.	14.	18.	19.	24.
141	17.	19.	13.	30.	12.	33.	27.	19.	26.	26.
151	31.	29.	28.	29.	19.	26.	26.	22.	18.	25.
161	22.	24.	30.	39.	25.	29.	36.	35.	25.	29.
171	34.	27.	37.	43.	42.	36.	37.	43.	44.	52.
181	64.	43.	55.	68.	57.	60.	71.	86.	91.	61.
191	110.	99.	99.	92.	117.	112.	119.	133.	145.	166.
201	193.	227.	182.	217.	278.	244.	305.	323.	359.	360.
211	440.	478.	526.	628.	696.	768.	843.	1039.	1191.	1253.
221	1418.	1415.	1610.	1700.	1922.	2178.	2489.	3040.	3697.	4081.
231	4072.	3421.	2288.	1276.	676.	264.	57.	13.	10.	11.
241	11.	6.	7.	14.	11.	8.	9.	13.	15.	11.
251	7.	8.	8.	13.	18.	13.	19.	19.	27.	19.
261	20.	20.	22.	22.	31.	29.	25.	30.	28.	39.
271	35.	36.	40.	45.	51.	57.	55.	59.	68.	52.
281	83.	87.	80.	123.	109.	144.	132.	191.	213.	201.
291	238.	276.	332.	396.	452.	500.	506.	431.	412.	443.
301	531.	635.	807.	873.	942.	757.	342.	103.	29.	12.
311	16.	27.	18.	16.	17.	13.	24.	25.	29.	29.
321	29.	40.	29.	35.	29.	41.	49.	43.	45.	43.
331	53.	55.	79.	72.	83.	83.	78.	92.	118.	152.
341	128.	153.	160.	225.	231.	273.	274.	363.	419.	520.
351	680.	795.	778.	706.	612.	580.	635.	700.	802.	1042.
361	1337.	1517.	1477.	1021.	407.	100.	12.	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.	1.	0.	0.	0.	2.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	1.	0.	0.	1.	0.	0.	0.	0.	0.	1.
441	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	1.	0.	0.	0.	1.	0.	3.
471	0.	1.	5.	3.	0.	1.	1.	2.	2.	1.
481	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

AH 3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T1263-DUP
File ID: 20a2018.CNF

Counted on: 3/29/96 @22:46
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	1327.9	1327.9	362.984	362.984	10.000	2.565	5.000	0.885
2	844.5	844.5	304.830	304.822	10.000	2.623	5.000	0.948
3	3821.7	3821.7	230.578	230.578	10.000	3.513	5.000	1.543
4	25.0	25.0	149.358	149.292	132.000	1.000	66.000	0.100

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	0.227	5.755	5.752	0.003	0.01	40.82	1.4	2180.8	0.982E-03
2	Pu238	0.141	5.487	5.485	0.002	0.01	25.26	1.8	1836.8	0.827E-03
	Am241		5.479	5.485	-.006				1406.9	0.634E-03
3	Pu239	0.597	5.147	5.143	0.004	0.02	107.31	0.9	5618.2	0.253E-02
	Pu240		5.144	5.143	0.001				5618.2	0.253E-02
4	Np237	0.011	4.769	4.769	0.000	0.00	1.98	6.4	119.3	0.537E-04
Totals:		0.976	<--valid peaks only-->				175.37			

DETECTOR CALIBRATION

Energy(MEV) = 4.082 + (0.0046)*Channel
Energy range (MeV): 4.082 TO 6.438
Efficiency = 0.0191 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	86262.0	100.000
Smoothed	86263.6	100.002
Composite fit	84189.3	97.597
Residuals	2072.7	2.403

Analyzed by: _____
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Raw Data Dump for AEA Spectrum: 20a2018.CNF

1	0.	0.	2.	1.	2.	2.	1.	1.	2.	1.
11	1.	1.	0.	1.	1.	3.	2.	0.	0.	0.
21	1.	1.	1.	7.	2.	2.	3.	5.	3.	1.
31	2.	0.	0.	1.	1.	5.	1.	1.	1.	3.
41	0.	4.	2.	2.	3.	3.	3.	4.	3.	1.
51	3.	3.	4.	1.	3.	1.	4.	3.	0.	4.
61	2.	3.	3.	3.	1.	7.	2.	3.	2.	5.
71	3.	4.	2.	3.	5.	4.	4.	6.	4.	0.
81	4.	5.	2.	5.	5.	8.	2.	5.	5.	3.
91	3.	5.	6.	8.	7.	5.	0.	9.	9.	4.
101	2.	6.	4.	5.	7.	7.	9.	4.	4.	5.
111	10.	7.	5.	5.	6.	9.	7.	9.	12.	11.
121	8.	14.	7.	7.	15.	7.	6.	9.	12.	7.
131	12.	7.	8.	11.	15.	15.	9.	11.	11.	20.
141	16.	14.	22.	20.	20.	28.	26.	25.	27.	27.
151	25.	20.	28.	22.	12.	23.	17.	28.	25.	37.
161	15.	12.	26.	27.	23.	27.	29.	16.	30.	22.
171	22.	31.	30.	45.	28.	36.	27.	41.	37.	53.
181	42.	53.	57.	49.	70.	53.	72.	79.	64.	86.
191	74.	67.	104.	84.	103.	107.	116.	154.	172.	141.
201	171.	166.	181.	217.	254.	259.	268.	298.	349.	396.
211	429.	492.	568.	616.	650.	715.	890.	1152.	1233.	1382.
221	1565.	1554.	1688.	1962.	2168.	2302.	2798.	3115.	3829.	4366.
231	4612.	4228.	3105.	1775.	962.	451.	123.	23.	4.	5.
241	11.	5.	7.	14.	12.	5.	9.	11.	5.	8.
251	8.	12.	13.	17.	6.	10.	18.	9.	22.	18.
261	20.	19.	24.	15.	25.	22.	34.	26.	31.	29.
271	40.	34.	38.	37.	52.	44.	58.	62.	58.	85.
281	77.	77.	73.	110.	107.	135.	105.	177.	223.	184.
291	229.	257.	299.	406.	421.	518.	558.	488.	451.	466.
301	527.	614.	768.	875.	1038.	1044.	735.	342.	84.	16.
311	10.	16.	10.	16.	10.	17.	14.	15.	14.	22.
321	19.	27.	26.	25.	32.	34.	39.	30.	33.	41.
331	61.	64.	65.	61.	89.	82.	85.	117.	118.	111.
341	131.	129.	153.	216.	220.	267.	315.	311.	362.	442.
351	561.	714.	779.	855.	820.	697.	653.	714.	804.	947.
361	1111.	1354.	1623.	1672.	1196.	593.	153.	23.	1.	1.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
431	0.	0.	1.	1.	1.	0.	1.	0.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	2.	0.	0.	0.	0.	1.
461	0.	0.	0.	0.	2.	1.	1.	1.	0.	1.
471	2.	1.	2.	1.	2.	1.	2.	0.	1.	0.
481	2.	3.	1.	0.	1.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

3-30-96 AHP

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T1264-SAM
File ID: 21a2123.CNF

Counted on: 3/29/96 @22:47
Detector: AEA21
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	933.3	933.3	361.280	361.280	12.000	6.047	6.000	1.706
2	648.9	648.9	303.748	303.715	12.000	5.343	6.000	1.615
3	2991.3	2991.3	230.025	230.024	14.000	6.740	7.000	2.515
4	24.5	24.5	151.884	151.699	92.000	474.050	46.000	131.670

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Ra224	0.220	5.686	5.741	-.055	0.03	38.01	1.5	2209.9	0.995E-03
	Pu236		5.755	5.741	0.014				2119.7	0.955E-03
2	Pu238	0.143	5.487	5.476	0.011	0.02	24.74	1.8	1877.6	0.846E-03
	Am241		5.479	5.476	0.003				1438.1	0.648E-03
3	Pu239	0.617	5.147	5.137	0.010	0.03	106.76	0.9	5834.0	0.263E-02
	Pu240		5.144	5.137	0.007				5834.0	0.263E-02
4	Np237	0.031	4.640	4.777	-.137	2.18	5.29	18.1	4822.0	0.217E-02
	Np237		4.769	4.777	-.008				332.5	0.150E-03
Totals:		1.011	<--valid peaks only-->				174.81			

DETECTOR CALIBRATION
Energy(MEV) = 4.079 + (0.0046)*Channel
Energy range (MeV): 4.079 TO 6.434
Efficiency = 0.0183 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	83030.0	100.000
Smoothed	83033.8	100.005
Composite fit	83920.3	101.072
Residuals	-890.3	-1.072

Analyzed by: _____
DM

Spectrum 21a2123.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 21297.6


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Raw Data Dump for AEA Spectrum: 21a2123.CNF

1	0.	0.	0.	0.	5.	1.	2.	3.	2.	0.
11	2.	0.	3.	2.	2.	1.	2.	2.	1.	1.
21	0.	2.	4.	3.	1.	2.	3.	1.	3.	2.
31	1.	2.	0.	1.	1.	6.	3.	2.	1.	1.
41	2.	3.	1.	1.	2.	1.	1.	4.	3.	0.
51	1.	1.	2.	6.	2.	4.	2.	1.	2.	2.
61	6.	3.	1.	4.	5.	2.	1.	6.	3.	1.
71	2.	3.	7.	2.	5.	1.	2.	3.	4.	3.
81	3.	3.	4.	5.	8.	4.	8.	3.	5.	6.
91	5.	5.	4.	5.	3.	4.	6.	4.	4.	10.
101	5.	9.	6.	7.	5.	5.	7.	7.	8.	6.
111	8.	14.	7.	7.	9.	10.	9.	5.	9.	3.
121	11.	8.	5.	6.	13.	13.	14.	9.	18.	11.
131	6.	11.	14.	11.	7.	17.	11.	15.	16.	11.
141	10.	19.	20.	25.	21.	22.	26.	21.	22.	26.
151	25.	28.	27.	26.	13.	32.	26.	21.	17.	28.
161	23.	22.	28.	26.	21.	20.	27.	38.	36.	34.
171	27.	34.	27.	39.	32.	37.	42.	52.	52.	50.
181	32.	54.	64.	63.	71.	69.	70.	91.	77.	101.
191	104.	90.	97.	94.	109.	128.	119.	134.	175.	158.
201	162.	224.	203.	258.	280.	285.	325.	336.	391.	396.
211	485.	483.	628.	644.	764.	874.	940.	1082.	1203.	1368.
221	1569.	1654.	1792.	2013.	2172.	2403.	2775.	3074.	3261.	3360.
231	3111.	2968.	2500.	2068.	1458.	989.	625.	384.	182.	92.
241	50.	17.	20.	11.	6.	13.	12.	9.	10.	9.
251	13.	11.	6.	17.	20.	11.	20.	15.	18.	19.
261	14.	15.	24.	28.	27.	22.	21.	29.	32.	43.
271	34.	49.	33.	47.	46.	56.	53.	58.	64.	68.
281	82.	96.	114.	115.	134.	160.	166.	164.	216.	243.
291	287.	321.	352.	365.	439.	447.	485.	466.	500.	555.
301	565.	672.	689.	738.	730.	591.	499.	336.	241.	147.
311	70.	43.	23.	27.	18.	23.	24.	24.	33.	24.
321	24.	25.	27.	37.	34.	33.	41.	42.	55.	44.
331	54.	54.	62.	87.	72.	106.	105.	113.	127.	151.
341	161.	191.	199.	223.	256.	295.	358.	400.	423.	518.
351	622.	614.	682.	667.	718.	689.	803.	817.	849.	972.
361	1013.	1053.	952.	775.	647.	422.	301.	192.	79.	36.
371	22.	5.	3.	2.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	2.	1.	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.	1.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
461	1.	0.	1.	0.	0.	1.	3.	0.	2.	1.
471	4.	1.	3.	3.	0.	1.	0.	3.	1.	1.
481	3.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

3-30-96

Westinghouse Hanford Co.

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

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T1264-DUP
File ID: 22a2257.CNF

Counted on: 3/29/96 @22:48
Detector: AEA22
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	1262.6	1262.6	360.884	360.884	10.000	2.489	5.000	0.879
2	823.9	823.9	302.403	302.397	8.000	2.748	4.000	0.949
3	3873.5	3873.5	227.826	227.825	10.000	3.503	5.000	1.596
4	25.7	25.7	146.572	146.557	150.000	1.000	75.000	0.100

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	0.214	5.755	5.769	-.014	0.01	38.04	1.5	389.3	0.175E-03
	Cm243		5.779	5.769	0.010				522.7	0.235E-03
2	Pu238	0.144	5.487	5.500	-.013	0.01	25.61	1.8	356.7	0.161E-03
	Am241		5.479	5.500	-.021				273.2	0.123E-03
3	Pu239	0.600	5.147	5.157	-.010	0.02	106.54	0.9	1068.6	0.481E-03
	Pu240		5.144	5.157	-.013				1068.6	0.481E-03
4	Np237	0.011	4.769	4.783	-.014	0.00	2.03	6.3	23.5	0.106E-04
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Totals:		0.970	<--valid peaks only-->				172.22			

DETECTOR CALIBRATION
Energy(MEV) = 4.109 + (0.0046)*Channel
Energy range (MeV): 4.109 TO 6.465
Efficiency = 0.0997 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	85179.0	100.000
Smoothed	85179.3	100.000
Composite fit	82665.6	97.049
Residuals	2513.4	2.951

Analyzed by: _____
DM

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                    Spectrum 22a2257.CNF
1 Legend:  Raw = ....  Modeled Peaks = 1,2,.., etc     Display Max.:   24966.5

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Raw Data Dump for AEA Spectrum: 22a2257.CNF

1	0.	0.	0.	0.	2.	3.	1.	0.	4.	3.
11	3.	3.	2.	2.	5.	4.	3.	3.	6.	1.
21	2.	3.	2.	2.	4.	5.	1.	4.	4.	2.
31	2.	2.	6.	1.	0.	7.	0.	4.	1.	1.
41	1.	2.	0.	4.	1.	0.	1.	1.	3.	4.
51	2.	4.	0.	4.	3.	1.	0.	1.	2.	6.
61	4.	3.	8.	5.	4.	2.	1.	2.	2.	3.
71	2.	1.	1.	9.	5.	3.	6.	2.	1.	3.
81	4.	7.	2.	3.	3.	3.	2.	2.	4.	3.
91	7.	3.	4.	8.	3.	3.	4.	9.	1.	6.
101	7.	7.	3.	9.	3.	7.	7.	8.	6.	8.
111	10.	12.	14.	9.	5.	12.	13.	7.	8.	10.
121	16.	10.	5.	16.	15.	10.	9.	8.	15.	11.
131	17.	12.	10.	16.	13.	14.	15.	18.	21.	18.
141	29.	11.	19.	23.	20.	33.	27.	30.	17.	16.
151	17.	29.	27.	21.	24.	26.	30.	18.	20.	30.
161	21.	34.	30.	25.	32.	29.	40.	35.	29.	31.
171	48.	52.	24.	38.	38.	41.	34.	44.	61.	57.
181	66.	64.	67.	60.	63.	74.	69.	77.	89.	106.
191	94.	93.	92.	124.	135.	147.	174.	174.	180.	180.
201	237.	240.	236.	251.	352.	324.	364.	441.	465.	541.
211	599.	654.	763.	887.	1047.	1186.	1355.	1408.	1577.	1638.
221	1696.	1983.	2217.	2457.	3169.	3677.	4330.	4688.	4480.	3335.
231	2103.	1237.	565.	211.	46.	13.	7.	11.	10.	8.
241	10.	5.	9.	10.	9.	6.	7.	10.	14.	12.
251	14.	10.	11.	15.	20.	14.	10.	23.	29.	18.
261	18.	26.	21.	27.	27.	31.	37.	37.	29.	42.
271	45.	46.	47.	48.	39.	54.	65.	75.	85.	76.
281	108.	97.	114.	134.	165.	158.	185.	222.	234.	266.
291	356.	417.	495.	530.	483.	528.	453.	468.	504.	644.
301	798.	1005.	1019.	953.	534.	213.	60.	17.	14.	15.
311	17.	21.	18.	14.	17.	24.	31.	21.	26.	25.
321	35.	21.	37.	40.	43.	49.	44.	65.	47.	51.
331	54.	56.	63.	76.	104.	102.	84.	136.	139.	155.
341	155.	200.	218.	262.	256.	314.	359.	431.	544.	688.
351	736.	801.	752.	626.	580.	623.	707.	899.	1029.	1327.
361	1618.	1529.	1053.	512.	118.	9.	1.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	1.	0.	0.	2.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	1.	0.	1.	1.	1.	1.	1.	0.	2.	3.
471	0.	2.	1.	3.	1.	2.	1.	3.	1.	0.
481	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

AHJ 3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV. 1

DATA REDUCTION REPORT

SAMPLE
S96T1265-SAM
File ID: 23a2352.CNF

Counted on: 3/29/96 @22:48
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	1174.3	1174.3	360.020	360.020	10.000	2.497	5.000	0.852
2	740.5	740.5	301.726	301.718	10.000	2.639	5.000	0.909
3	3309.2	3309.2	227.331	227.330	10.000	3.638	5.000	1.511
4	31.5	31.5	148.136	148.079	124.000	1.000	62.000	0.100
5?	1.9	1.9	105.460	105.004	4.000	0.346	2.000	2.674

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Peak Centroid Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.221	5.755	5.755	0.0000	0.01	36.23	1.5	2054.1	0.925E-03
2	Pu238	0.140	5.487	5.487	0.0000	0.01	22.91	1.9	1767.6	0.796E-03
	Am241		5.479	5.487	-.008				1353.9	0.610E-03
3	Pu239	0.590	5.147	5.145	0.0020	0.02	96.65	0.9	5369.2	0.242E-02
	Pu240		5.144	5.145	-.001				5369.2	0.242E-02
4	Np237	0.015	4.769	4.781	-.0120	0.00	2.50	5.7	159.5	0.718E-04
5		????		4.582			0.01	732.		
Totals:		0.966	<--valid peaks only-->				158.29			

DETECTOR CALIBRATION

Energy(MEV) = 4.099 + (0.0046)*Channel
Energy range (MeV): 4.099 TO 6.455
Efficiency = 0.0180 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	78673.0	100.000
Smoothed	78676.0	100.004
Composite fit	75987.7	96.587
Residuals	2685.3	3.413

Analyzed by: _____
DM

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                    Spectrum 23a2352.CNF
1 Legend:  Raw = ....  Modeled Peaks = 1,2,.., etc     Display Max.:   21135.5

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Raw Data Dump for AEA Spectrum: 23a2352.CNF

1	0.	0.	2.	3.	3.	2.	4.	2.	5.	6.
11	2.	3.	2.	2.	1.	4.	2.	1.	1.	2.
21	1.	3.	1.	4.	6.	3.	4.	4.	1.	1.
31	4.	2.	4.	4.	5.	1.	7.	4.	3.	2.
41	4.	5.	7.	6.	1.	5.	3.	6.	5.	4.
51	4.	4.	0.	5.	4.	4.	4.	5.	4.	4.
61	5.	3.	4.	6.	9.	3.	7.	7.	2.	8.
71	3.	4.	9.	2.	3.	2.	7.	9.	11.	4.
81	5.	8.	10.	6.	6.	5.	5.	3.	4.	4.
91	9.	11.	3.	4.	11.	5.	7.	13.	6.	12.
101	9.	7.	8.	14.	7.	18.	8.	11.	6.	7.
111	6.	18.	8.	13.	14.	11.	6.	4.	20.	15.
121	19.	11.	15.	13.	17.	12.	11.	13.	10.	15.
131	15.	19.	10.	17.	18.	12.	17.	13.	22.	19.
141	15.	19.	26.	27.	22.	31.	40.	34.	35.	29.
151	30.	25.	25.	21.	30.	20.	32.	19.	35.	28.
161	20.	27.	36.	31.	28.	33.	31.	33.	30.	41.
171	47.	46.	46.	37.	43.	59.	57.	65.	69.	59.
181	62.	61.	61.	85.	78.	82.	82.	91.	97.	99.
191	104.	117.	120.	128.	139.	162.	175.	190.	187.	216.
201	253.	253.	290.	316.	306.	350.	398.	442.	468.	545.
211	569.	717.	760.	911.	1010.	1240.	1316.	1393.	1476.	1550.
221	1670.	1913.	2138.	2487.	2948.	3460.	3866.	4049.	3403.	2464.
231	1432.	737.	311.	86.	15.	5.	10.	10.	13.	8.
241	17.	16.	10.	17.	16.	9.	9.	16.	12.	15.
251	21.	12.	24.	17.	18.	11.	21.	23.	17.	25.
261	18.	16.	32.	26.	29.	25.	29.	41.	41.	43.
271	51.	46.	54.	47.	54.	64.	62.	77.	73.	95.
281	102.	135.	134.	142.	159.	169.	176.	231.	250.	320.
291	342.	402.	497.	477.	445.	377.	418.	422.	525.	604.
301	844.	946.	890.	582.	225.	95.	30.	28.	19.	25.
311	18.	17.	26.	33.	26.	36.	27.	24.	24.	38.
321	30.	28.	33.	35.	51.	42.	38.	56.	67.	70.
331	70.	80.	76.	88.	98.	116.	131.	144.	173.	182.
341	169.	202.	228.	275.	285.	332.	401.	524.	590.	715.
351	802.	700.	603.	549.	602.	636.	781.	945.	1249.	1452.
361	1478.	1080.	505.	132.	25.	0.	0.	0.	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.	1.
421	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
441	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	1.	2.	1.	0.	0.	2.	0.	1.	2.
471	1.	1.	0.	0.	1.	0.	1.	1.	1.	0.
481	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

AHJ 3-30-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S

Rev. 2.01

WHC-SD-WM-DP-178, REV 1

DATA REDUCTION REPORT

SAMPLE
S96T1265-DUP
File ID: 24a2457.CNF

Counted on: 3/29/96 @22:49
Detector: AEA24
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak	Peak height		Peak center		FWHM		Tau	
ID	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1485.2	1485.2	362.958	362.958	10.000	2.513	5.000	0.985
2	915.0	915.0	304.807	304.802	10.000	2.672	5.000	1.055
3	4150.6	4150.6	230.620	230.620	10.000	3.616	5.000	1.802
4	24.4	24.4	165.186	165.098	74.000	1.000	37.000	0.100
5?	4.7	4.7	152.380	150.488	10.000	1.693	5.000	9.933

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	0.228	5.755	5.760	-.0050	0.01	41.80	1.4	2164.9	0.975E-03
	Cm243		5.779	5.760	0.019				2906.4	0.131E-02
2	Pu238	0.141	5.487	5.493	-.0060	0.01	25.92	1.8	1827.7	0.823E-03
	Am241		5.479	5.493	-.014				1399.9	0.631E-03
3	Pu239	0.597	5.147	5.152	-.0050	0.02	109.72	0.9	5569.6	0.251E-02
	Pu240		5.144	5.152	-.008				5569.6	0.251E-02
4		0.011		4.850		0.00	1.94	6.5	98.5	0.444E-04
5		????		4.783			0.06	187.		
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Totals:		0.976	<--valid peaks only-->				179.38			

DETECTOR CALIBRATION

Energy(MEV) = 4.091 + (0.0046)*Channel
Energy range (MeV): 4.091 TO 6.446
Efficiency = 0.0197 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	88192.0	100.000
Smoothed	88194.5	100.003
Composite fit	86138.6	97.672
Residuals	2053.4	2.328

ANALYZED BY:_____
DM

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                    Spectrum 24a2457.CNF
1 Legend:  Raw = ....  Modeled Peaks = 1,2,.., etc     Display Max.:   26139.8

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