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

Document number: SD-WM-DP-054

Section 3 **of** 7

Title: Grout Product Test for Tank 241AP102, 5day & 90day Runs (Ansi Section)

Date: 1-14-94 **Revision:** A000

Originator: A.P Hammitt, RA St. Denis T.L. Welsh
Co: WHC

Recipient:
Co:

References: EDT-140726

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5-DAY - ALPHA ANALYSES

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WESTINGHOUSE HANFORD COMPANY Batch 1373

222-S LABORATORY

WHC-SD-WM-DP-054 REV 0

ANALYTICAL BATCH 102 S Dixy

Lab Segment Serial No.	Customer ID:
G597, 598, 599, 600, 601, 602	A-0, A-1, A-2, A-3, A-4, A-5
Analysis: Am 241	Sample Prep: Direct Liquid

Instrument: WB57237	Procedure/ Rev: LA 503-156 D-0
Technologist: TA M Pollock L C Pollock	Date: 8-18-93
Starting Time: 0800	Temperature 24°C
Ending Time: 1400	Chemist: SA CATLOW

Comments: _____

	Description	Lab ID
1	LMCS	G595-5582
2	BLK	G596-5682
3	SAM	G597-5782
4	SAM	G598-5782
5	SAM	G599-5782
6	SAM	G600-5782
7	SAM	G601-5782
8	SAM	~~G602~~-5782
9	8-24-93	G602
10		

	Description	Lab ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	63B43 - 1ml			
SPIKE	58B43 - 100ml			
SPIKE	58B43 - 1050ml			
		288		

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-503-156

DATE START: August 18, 1993

PREPARED BY: L. L. Fritts 8-24-93

DATE COMPLETE: August 24, 1993

	UNITS:	uCi/mL							
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	AVERAGE	RPD%	%REC	DET LIM	% CT ER
STD 63B43	G595	Am-241	2.66E+1				99.2		14.7
BLANK	G596	Am-241	<6.37E-6				18.5		41.3
A-0	G597	Am-241	<6.37E-6				15.3	6.37E-6	58.4
A-1	G598	Am-241	<6.37E-6				18.0	6.37E-6	50.7
A-2	G599	Am-241	<6.37E-6				10.2	6.37E-6	45.8
A-3	G600	Am-241	<6.37E-6				7.5	6.37E-6	58.4
A-4	G601	Am-241	<6.37E-6				8.5	6.37E-6	58.5
A-5	G602	Am-241	<6.37E-6				11.6	6.37E-6	71.1

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

LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in uCi/L.

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

3,3 3565

Serial No	Sample Point	Date	Time Issued	Priority
G 595.-5582	102 5 DAY	7-22-93	14:26	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	D44B3	0

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

Remarks Calculations Results

EDP R201 AR001

"AEA" - 480MIN
ATTACH PRINTOUT

STD# 63843 RESULT 26.6

STD VAL 26.80 %REC 99.23%

.1ml Am 243 58134.3

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	DA Williams	Em Barnes		
	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr.
8-11-93	1400	

54 6800-20-9/0 831

WHC-SD-WM-DP-054 REV O

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G595-5582	1373	0		08/18/93

			STANDARD
Spike (Tracer) Book Number			58B43
Activity of Am243 Tracer in dpm/mL	(SPKA)		5655
Spike (Tracer) Volume in mL	(SPKV)		0.1
Volume of Sample in mL	(SS)		1
Dilution Factor	(DF)		101
Digest Dilution Factor	(DDF)		1
Am-241 Area Peak Height from AEA	(C241)		94
Am-243 Area Peak Height from AEA	(C243)		91
Total AT Count	(ATOT)		1291
AT Count Time in Minutes	(MIN CTd)		30
Background in CPM	(BKG)		5

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

µCi/mL = µCi/L / (1000mL/L)

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

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

Am-241 µCi/L	=	2.66E+01
Am-241 µCi/mL	=	2.66E-02
Relative counting error	=	14.7%
Am-243 Tracer Recovery	=	6.6%

Data Entry by: Date: 21-Aug-93

Approved by: Date: August 24, 1993

Form 3 Rev. 1.1

Page 1 of 1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 8-18-93 DH

1291-5
30

G595-5582

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

3.4 4770

Serial No	Sample Point	Date	Time Issued	Priority
G 596.-5682	102 5 DAY	7-22-93	14:28	26

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? 1ml	BLK

Remarks Calculations Results

REAGENT BLANK $< 6.37 \times 10^{-6}$ uCi/ml "AEA" - 480MIN

COUNT AS uCI/L ATTACH PRINTOUT

.050 ml Am 243- 58843

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

Date	Time Completed	Lab Unit Mgr
8-18-93	1404	

54 5800-061 (R-10-83)

WHC-SD-WM-DP-054 REV O

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

Serial No.			BLANK
G596-5682	Spike (Tracer) Book Number		58843
Batch ID	Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
1373	Spike (Tracer) Volume in mL	(SPKV)	0.05
Rerun No.	Volume of Sample in mL	(SS)	1
0	Dilution Factor	(DF)	1
Analyst	Digest Dilution Factor	(DDF)	1
	Am-241 Area Peak Height from AEA	(C241)	6
	Am-243 Area Peak Height from AEA	(C243)	234
Date	Total AT Count	(ATOT)	834
08/18/93	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	1

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

µCi/mL = µCi/L / (1000mL/L)

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

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

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

Am-241 µCi/L	=	< 6.37E-03
Am-241 µCi/mL	=	< 6.37E-06
Relative counting error	=	41.3%
Am-243 Tracer Recovery	=	18.5%

Data Entry by:		Date:	21-Aug-93
Approved by:		Date:	August 24, 1993

Form 3 Rev. 1.1 Page 1 of 1

#2 8-18-93 DM

$\frac{834}{30}$ -1

G596-5682

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

4.1 5687

Serial No	Sample Point	Date	Time Issued	Priority
G 597.-5782	102 5 DAY	7-22-93	14:30	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? 1 ml	A-0

Remarks, Calculations, Results

COUNT AS uCI/L $< 6.37 \times 10^{-6}$ uCi/ml AEA" - 480MIN

1 ml Con HNO_3

.050 ml Am 243-58843

ATTACH PRINTOUT

Analyst - 1	Analyst - 2	Analyst - 3	alyst - 4	Analyst 5
	Hrs	8-18-93 16:00 Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr.
8-18-93	1400	8/24

WHC-SD-WM-DP-054 REV O

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G597-5782	1373	0		08/18/93

			SAMPLE
Spike (Tracer) Book Number			58843
Activity of Am243 Tracer in dpm/mL	(SPKA)		5655
Spike (Tracer) Volume in mL	(SPKV)		0.05
Volume of Sample in mL	(SS)		1
Dilution Factor	(DF)		1
Digest Dilution Factor	(DDF)		1
Am-241 Area Peak Height from AEA	(C241)		3
Am-243 Area Peak Height from AEA	(C243)		122
Total AT Count	(ATOT)		816
AT Count Time in Minutes	(MIN CTd)		30
Background in CPM	(BKG)		5

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

µCi/mL = µCi/L / (1000mL/L)

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

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

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

Am-241 µCi/L	=	< 6.37E-03
Am-241 µCi/mL	=	< 6.37E-06
Relative counting error	=	58.4%
Am-243 Tracer Recovery	=	15.3%

Data Entry by:	Date: 24-Aug-93
Approved by:	Date: August 24, 1993

Form 3 Rev. 1.1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

~~#3 8-18-93 AJ~~ Det #3 out of service
~~#1~~ 8-16-93

~~30~~ 4 AJ
8-26-93

G597-5782

#1 8-18-93 AJ

816
30 -5

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

4.2 6605

Serial No	Sample Point	Date	Time Issued	Priority
G 598.-5782	102 5 DAY	7-22-93	14:31	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? 1 ml	A-1

Remarks Calculations Results

COUNT AS uCI/L <6.37 X 10^-6 uCi/ml · 480MIN

1 ml Con HNO_3

.050 ml Am243-5TB43

ATTACH PRINTOUT

Analyst - 1	Analyst - 2	3	Analyst - 4	Analyst - 5
	[signature] 8-18-93 1600 Hrs	[signature] Hrs	[signature] Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
8-18-93	1400	[signature] 8/24

54 6400-... (8/10 83)

WHC-SD-WM-DP-051 REV 0

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

			SAMPLE
Serial No.	Spike (Tracer) Book Number		58B43
G598-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.05
1373	Volume of Sample in mL	(SS)	1
Rerun No.	Dilution Factor	(DF)	1
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	4
	Am-243 Area Peak Height from AEA	(C243)	146
Date	Total AT Count	(ATOT)	813
08/18/93	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	1

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

µCi/mL = µCi/L / (1000mL/L)

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

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

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

Am-241 µCi/L	=	< 6.37E-03
Am-241 µCi/mL	=	< 6.37E-06
Relative counting error	=	50.7%
Am-243 Tracer Recovery	=	18.0%

Data Entry by: [signature]	Date: 24-Aug-93
Approved by: [signature]	Date: August 24, 1993

Form 3 Rev. 1.1 Page 1 of 1

#2 8-18-93 AJ

813/30 -1 G598-5782

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

4.3 7135

Serial No	Sample Point	Date	Time Issued	Priority
G 599.-5782	102 5 DAY	7-22-93	14:32	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? 1 ml	A-2

Remarks Calculations Results

COUNT AS uCI/L $< 6.37 \times 10^{-6}$ uCi/ml "AEA" - 480MIN

1ml Con HNO_3

.050 ml Am 243 - 58B43

ATTACH PRINTOUT

Lu Collett

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
	A Johnson	D. Wilson	Lu Barela	
	Hrs 8-18-93 1700	Hrs	Hrs	Hrs
Date 8-18-93	Time Completed 1700	Lab Supervisor A L Fitts		

54 5800 (R/10 93)

WHC-SD-WM-DP-054 REV 0

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G599-5782	1373	0		08/18/93

			SAMPLE
Spike (Tracer) Book Number			58B43
Activity of Am243 Tracer in dpm/mL	(SPKA)		5655
Spike (Tracer) Volume in mL	(SPKV)		0.05
Volume of Sample in mL	(SS)		1
Dilution Factor	(DF)		1
Digest Dilution Factor	(DDF)		1
Am-241 Area Peak Height from AEA	(C241)		5
Am-243 Area Peak Height from AEA	(C243)		107
Total AT Count	(ATOT)		604
AT Count Time in Minutes	(MIN CTd)		30
Background in CPM	(BKG)		5

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

µCi/mL = µCi/L / (1000mL/L)

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

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

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

Am-241 µCi/L	=	< 6.37E-03
Am-241 µCi/mL	=	< 6.37E-06
Relative counting error	=	45.8%
Am-243 Tracer Recovery	=	10.2%

Data Entry by: A L Fitts	Date: 24-Aug-93
Approved by: A L Fitts	Date: August 24, 1993

Form 3 Rev. 1.1

#1 8-18-93 JJ

604/30 - 5 G599-5782

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

4.4 8352

Serial No	Sample Point	Date	Time Issued	Priority
G 600.-5782	102 5 DAY	7-22-93	14:33	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? 1 ml	A-3

Remarks Calculations Results

COUNT AS uCI/L $< 6.37 \times 10^{-6}$ uCi/ml

1 ml Con HNO_3

.050 ml Am243 · 58B43

"AEA" - 480MIN

ATTACH PRINTOUT

Analyst - 1	Analyst - 2	3	Analyst - 4	Analyst - 5
		D. H. Milbrath		
	8-18-93 1700 Hrs	Hrs	Hrs	Hrs
Date	Time Completed	Lab Unit Mgr.		
8-18-93	1400			

WHC-SD-WM-DP-054 REV 0

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G600-5782	1373	0		08/18/93

			SAMPLE
Spike (Tracer) Book Number			58B43
Activity of Am243 Tracer in dpm/mL	(SPKA)		5655
Spike (Tracer) Volume in mL	(SPKV)		0.05
Volume of Sample in mL	(SS)		1
Dilution Factor	(DF)		1
Digest Dilution Factor	(DDF)		1
Am-241 Area Peak Height from AEA	(C241)		3
Am-243 Area Peak Height from AEA	(C243)		127
Total AT Count	(ATOT)		357
AT Count Time in Minutes	(MIN CTd)		30
Background in CPM	(BKG)		1

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

µCi/mL = µCi/L / (1000mL/L)

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

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

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

Am-241 µCi/L	=	< 6.37E-03
Am-241 µCi/mL	=	< 6.37E-06
Relative counting error	=	58.4%
Am-243 Tracer Recovery	=	7.5%

Data Entry by: [signature]	Date: 24-Aug-93
Approved by: [signature]	Date: August 24, 1993

Form 3 Rev. 1.1

#1 8-18-93

357/30 -1

G600-5282

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

89 1176

Serial No	Sample Point	Date	Time Issued	Priority
G 601.-5782	102 5 DAY	7-22-93	14:33	23

Determination	Method-Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? 1 ml	A-4

Remarks Calculations Results

COUNT AS uCI/L $< 6.37 \times 10^{-6}$ uCi/ml

1 ml Con HNO3

.050 ml Am 243- 58B43

"AEA" - ALBUMIN

ATTACH PRINTOUT

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Hrs 8-18-93 1800	Hrs 8.19.93	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
8-18-93	1400	

WHC-SD-WM-DP-054 REV 0

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G601-5782	1373	0		08/18/93

		SAMPLE
Spike (Tracer) Book Number		58B43
Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
Spike (Tracer) Volume in mL	(SPKV)	0.05
Volume of Sample in mL	(SS)	1
Dilution Factor	(DF)	1
Digest Dilution Factor	(DDF)	1
Am-241 Area Peak Height from AEA	(C241)	3
Am-243 Area Peak Height from AEA	(C243)	114
Total AT Count	(ATOT)	521
AT Count Time in Minutes	(MIN CTd)	30
Background in CPM	(BKG)	5

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

µCi/mL = µCi/L / (1000mL/L)

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

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

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

Am-241 µCi/L	=	< 6.37E-03
Am-241 µCi/mL	=	< 6.37E-06
Relative counting error	=	58.5%
Am-243 Tracer Recovery	=	8.5%

Data Entry by: [signature] Date: 24-Aug-93

Approved by: [signature] Date: August 24, 1993

Form 3 Rev. 1.1

#1 8-18-93 AJ

521/30 - 5 G601-5282

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

*D 2072

Serial No	Sample Point	Date	Time Issued	Priority
G 602.-5782	102 5 DAY	7-22-93	14:34	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? 1 ml	A-5

Remarks, Calculations, Results

COUNT AS uCi/L $< 6.37 \times 10^{-6}$ uCi/ml

1 ml Con HNO_3

.050 ml Am243-58B43

"AEA" - 480MIN

ATTACH PRINTOUT

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
Hrs	Hrs 8-18-93 18:01	Hrs 820.93	Hrs	Hrs
Date 8-18-93	Time Completed 1400	Lab Unit Mgr		

WHC-SD-WM-DP-054 REV 0

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G602-5782	1373	0	81805	08/18/93

			SAMPLE
Spike (Tracer) Book Number			58B43
Activity of Am243 Tracer in dpm/mL	(SPKA)		5655
Spike (Tracer) Volume in mL	(SPKV)		0.05
Volume of Sample in mL	(SS)		1
Dilution Factor	(DF)		1
Digest Dilution Factor	(DDF)		1
Am-241 Area Peak Height from AEA	(C241)		2
Am-243 Area Peak Height from AEA	(C243)		164
Total AT Count	(ATOT)		529
AT Count Time in Minutes	(MIN CTd)		30
Background in CPM	(BKG)		1

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

µCi/mL = µCi/L / (1000mL/L)

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

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

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

Am-241 µCi/L	=	< 6.37E-03
Am-241 µCi/mL	=	< 6.37E-06
Relative counting error	=	71.1%
Am-243 Tracer Recovery	=	11.6%

Data Entry by: [signature] Date: 24-Aug-93

Approved by: [signature] Date: August 24, 1993

Form 3 Rev. 1.1

#2 8-18-93 AB

529/30 - 1 G602-5782

Eric Burden
8-19-93

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. 1.10

DATA REDUCTION REPORT

SAMPLE
G-595-5582
File ID: SD3565.SPC

Counted on: 8/19/93 @10: 0
Detector/Geometry number: 3/ 1
Count time: 30000. 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	156.6	159.1	311.992	311.992	32.000	35.223	16.000	6.384
2	140.1	155.2	264.296	264.296	32.000	24.561	16.000	2.921

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
	Pu238	0.4661	5.499	5.517	-0.018	0.17	5.94	40.98	0.185E-04
	Am241		5.480	5.517	-0.037				0.141E-04
2	Am243	0.5339	5.234	5.289	-0.055	0.12	6.81	307.22	0.138E-03

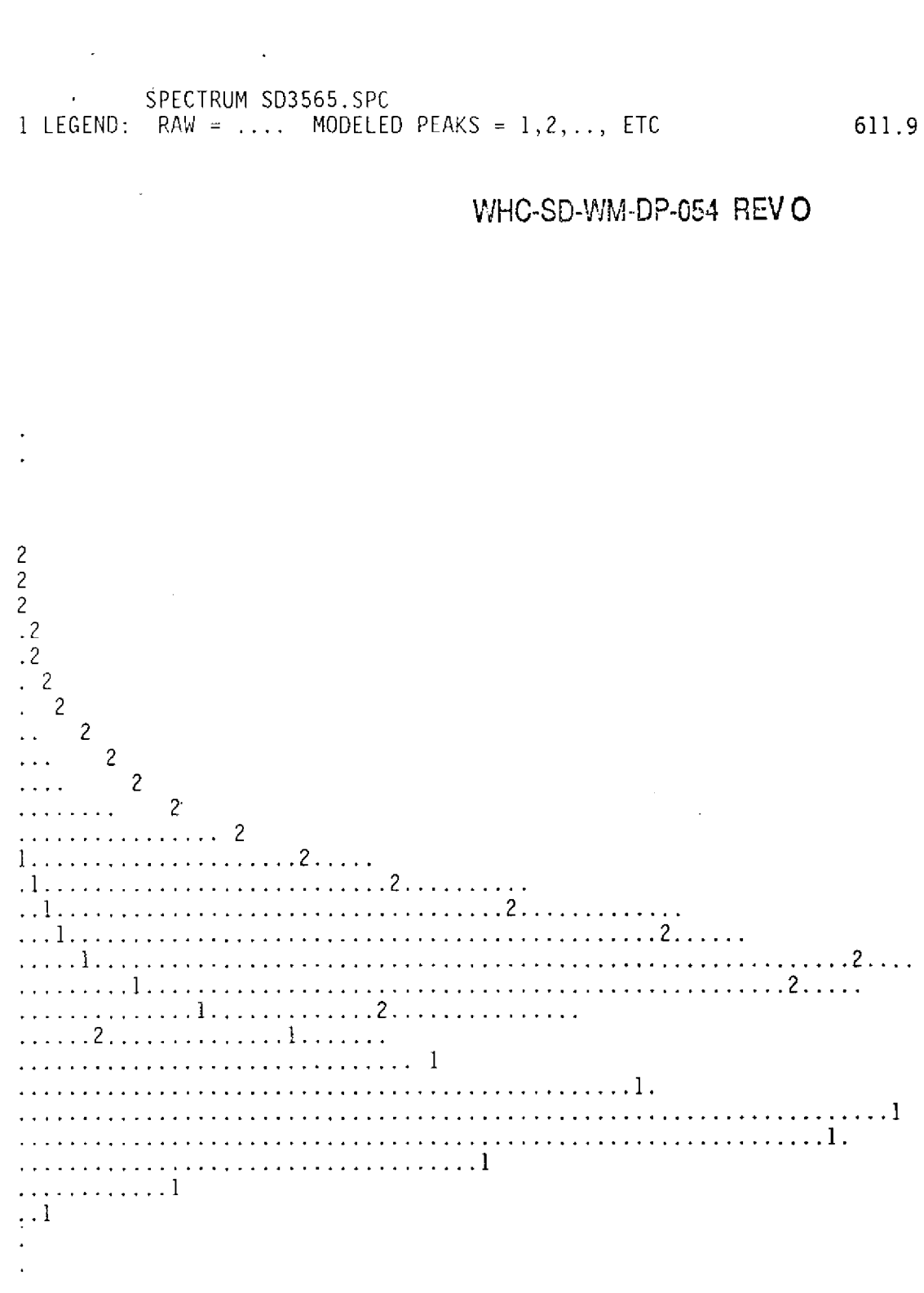
DETECTOR CALIBRATION

Energy(MEV) = 4.020 + (0.0048)*Channel
Energy range (MeV): 4.020 TO 6.477
Efficiency = 0.2014 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	6323.0	100.000
Smoothed	6322.2	99.987
Composite fit	6374.5	100.815
Residuals	-52.5	-0.830

Analyzed by: _____


SPECTRUM SD3565.SPC
1 LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC
611.9

Raw Data Dump for AEA Spectrum: SP:SD3565.SPC

1	0.	0.	0.	0.	0.	0.	1.	1.	1.	0.
11	0.	0.	0.	1.	1.	0.	0.	1.	0.	0.
21	1.	0.	0.	1.	0.	0.	1.	0.	0.	0.
31	1.	0.	1.	0.	0.	0.	1.	2.	1.	0.
41	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
51	0.	2.	0.	1.	0.	0.	0.	0.	1.	0.
61	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
71	1.	2.	1.	1.	1.	0.	0.	1.	1.	1.
81	1.	1.	0.	1.	1.	1.	0.	1.	1.	1.
91	2.	2.	1.	0.	3.	2.	0.	1.	1.	3.
101	2.	2.	0.	1.	1.	0.	1.	0.	1.	1.
111	2.	0.	0.	1.	0.	2.	1.	0.	0.	4.
121	0.	1.	0.	1.	0.	1.	0.	3.	0.	0.
131	0.	2.	2.	3.	1.	0.	3.	0.	1.	2.
141	1.	0.	0.	0.	0.	0.	5.	1.	1.	0.
151	5.	1.	0.	2.	2.	0.	3.	1.	0.	0.
161	2.	1.	1.	2.	3.	2.	0.	2.	3.	3.
171	3.	1.	1.	2.	3.	6.	1.	0.	2.	1.
181	2.	2.	2.	2.	4.	1.	7.	2.	6.	0.
191	2.	6.	4.	3.	2.	4.	7.	1.	3.	8.
201	7.	7.	6.	2.	6.	3.	6.	8.	2.	10.
21	11.	12.	16.	12.	8.	17.	18.	15.	19.	16.
2	27.	23.	20.	29.	27.	36.	24.	41.	33.	29.
231	40.	46.	48.	37.	41.	35.	54.	47.	67.	49.
241	59.	66.	67.	59.	60.	50.	63.	67.	62.	52.
251	67.	55.	60.	65.	62.	80.	85.	(91.)	82.	72.
261	74.	80.	85.	77.	84.	74.	84.	73.	67.	72.
271	63.	57.	53.	49.	40.	49.	32.	39.	25.	42.
281	31.	28.	35.	27.	37.	21.	25.	27.	28.	39.
291	29.	29.	42.	39.	30.	45.	50.	63.	55.	58.
301	63.	65.	78.	57.	87.	79.	74.	89.	75.	78.
311	(94.)	82.	67.	73.	82.	67.	79.	62.	62.	49.
321	57.	39.	34.	31.	33.	22.	26.	13.	16.	12.
331	7.	11.	9.	4.	7.	5.	6.	2.	5.	0.
341	0.	1.	0.	1.	1.	2.	1.	1.	2.	0.
351	2.	2.	0.	2.	2.	2.	2.	0.	1.	2.
361	1.	0.	2.	1.	1.	1.	2.	1.	1.	0.
371	0.	0.	0.	1.	0.	0.	0.	1.	0.	0.
381	0.	1.	0.	0.	1.	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.	1.	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.	2.	0.	0.	0.	0.	0.	0.	0.	1.
441	1.	0.	0.	1.	0.	0.	0.	0.	1.	1.
451	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.
47	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
4	2.	1.	0.	0.	0.	1.	0.	0.	0.	2.
491	0.	0.	1.	0.	1.	1.	1.	0.	0.	2.
511	0.	0.								

Em Bowles
8-19-93

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. 1.10

DATA REDUCTION REPORT

SAMPLE
G-596-5682
File ID: SD4770.SPC

Counted on: 8/19/93 @10: 0
Detector/Geometry number: 4/ 1
Count time: 30000. 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	5.5	4.5	299.384	299.384	16.000	10.080	8.000	0.000
2	378.4	378.0	252.849	252.849	20.000	11.768	10.000	6.100
3	0.0	0.1	139.543	139.543	0.000	0.200	0.000	0.200

PEAK RESULTS

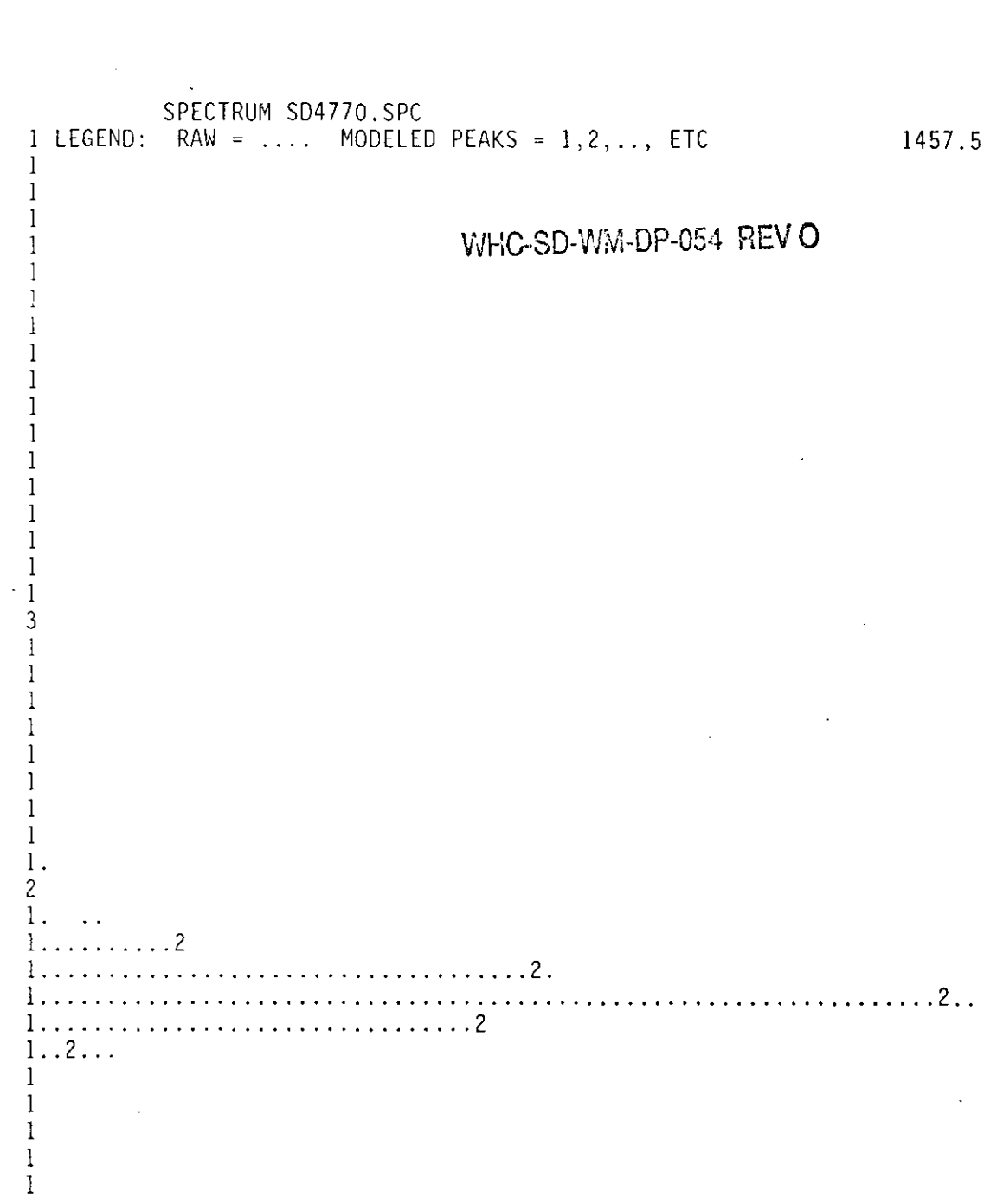
Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Am241	0.1658	5.480	5.474	0.006	0.05	1.36	11.25	0.507E-05
2	Am243	0.8341	5.234	5.260	-0.026	0.05	6.83	483.74	0.218E-03
3		0.0001		4.739		0.00	0.00	0.00	0.174E-08

DETECTOR CALIBRATION
Energy(MEV) = 4.097 + (0.0046)*Channel
Energy range (MeV): 4.097 TO 6.452
Efficiency = 0.1283 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	4024.0	100.000
Smoothed	4024.0	100.000
Composite fit	4092.3	101.696
Residuals	-68.3	-1.696

Analyzed by: _____


SPECTRUM SD4770.SPC
LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC
1457.5

Raw Data Dump for AEA Spectrum: SP:SD4770.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	1.	0.	1.	0.	0.	2.	1.	0.	0.	1.
41	0.	0.	0.	1.	1.	1.	1.	1.	0.	1.
51	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
71	0.	0.	0.	2.	1.	1.	0.	0.	0.	1.
81	1.	0.	3.	0.	0.	1.	0.	0.	2.	2.
91	0.	1.	1.	0.	2.	2.	1.	1.	0.	0.
101	0.	1.	0.	3.	0.	0.	0.	0.	1.	1.
111	1.	0.	2.	0.	5.	0.	1.	4.	0.	1.
121	2.	0.	1.	1.	1.	0.	0.	3.	2.	3.
131	0.	0.	5.	1.	2.	1.	3.	2.	1.	4.
141	2.	3.	0.	1.	2.	1.	1.	1.	0.	3.
151	0.	2.	3.	0.	0.	3.	2.	0.	3.	4.
161	1.	3.	2.	0.	1.	1.	1.	2.	3.	4.
171	2.	1.	0.	3.	3.	1.	2.	3.	5.	4.
181	1.	1.	1.	4.	4.	2.	1.	6.	5.	0.
191	2.	6.	6.	5.	3.	3.	3.	2.	1.	1.
201	7.	3.	1.	3.	8.	7.	6.	4.	7.	4.
211	6.	4.	8.	11.	5.	9.	10.	15.	14.	16.
221	10.	15.	11.	17.	14.	17.	21.	15.	19.	23.
231	8.	19.	21.	20.	15.	28.	41.	41.	40.	67.
241	71.	95.	95.	100.	121.	145.	178.	192.	208.	234.
251	217.	214.	207.	212.	186.	154.	120.	89.	61.	46.
261	25.	24.	24.	21.	12.	10.	13.	10.	6.	4.
271	3.	1.	2.	0.	1.	1.	2.	1.	0.	0.
281	0.	0.	2.	1.	2.	3.	3.	3.	2.	3.
291	0.	1.	3.	1.	2.	2.	1.	3.	6.	4.
301	2.	2.	1.	0.	0.	0.	1.	0.	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	1.	0.	0.	0.	0.	0.	0.	0.	1.	1.
341	1.	0.	1.	1.	1.	0.	0.	3.	1.	0.
351	1.	1.	2.	3.	1.	0.	2.	0.	0.	5.
361	3.	2.	1.	2.	0.	0.	1.	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.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	1.	0.	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.								

Eric Bowles
8-19-93

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
G-597-5782
File ID: SD5687.SPC

Counted on: 8/19/93 @10: 0
Detector/Geometry number: 5/ 1
Count time: 30000. 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	4.4	2.8	353.045	353.045	20.000	32.897	10.000	2.552
2	199.1	195.6	256.892	256.892	28.000	20.128	14.000	3.177
3	5.3	3.7	155.899	155.899	28.000	370.747	14.000	22.307

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
	Ra224	0.0234	5.680	5.708	-0.028	0.15	0.18	0.84	0.376E-06
2	Am243	0.9214	5.234	5.265	-0.031	0.09	6.91	281.02	0.127E-03
3	Np237	0.0552	4.640	4.801	-0.161	1.71	0.41	30.86	0.139E-04
	Np237		4.781	4.801	-0.020				0.959E-06

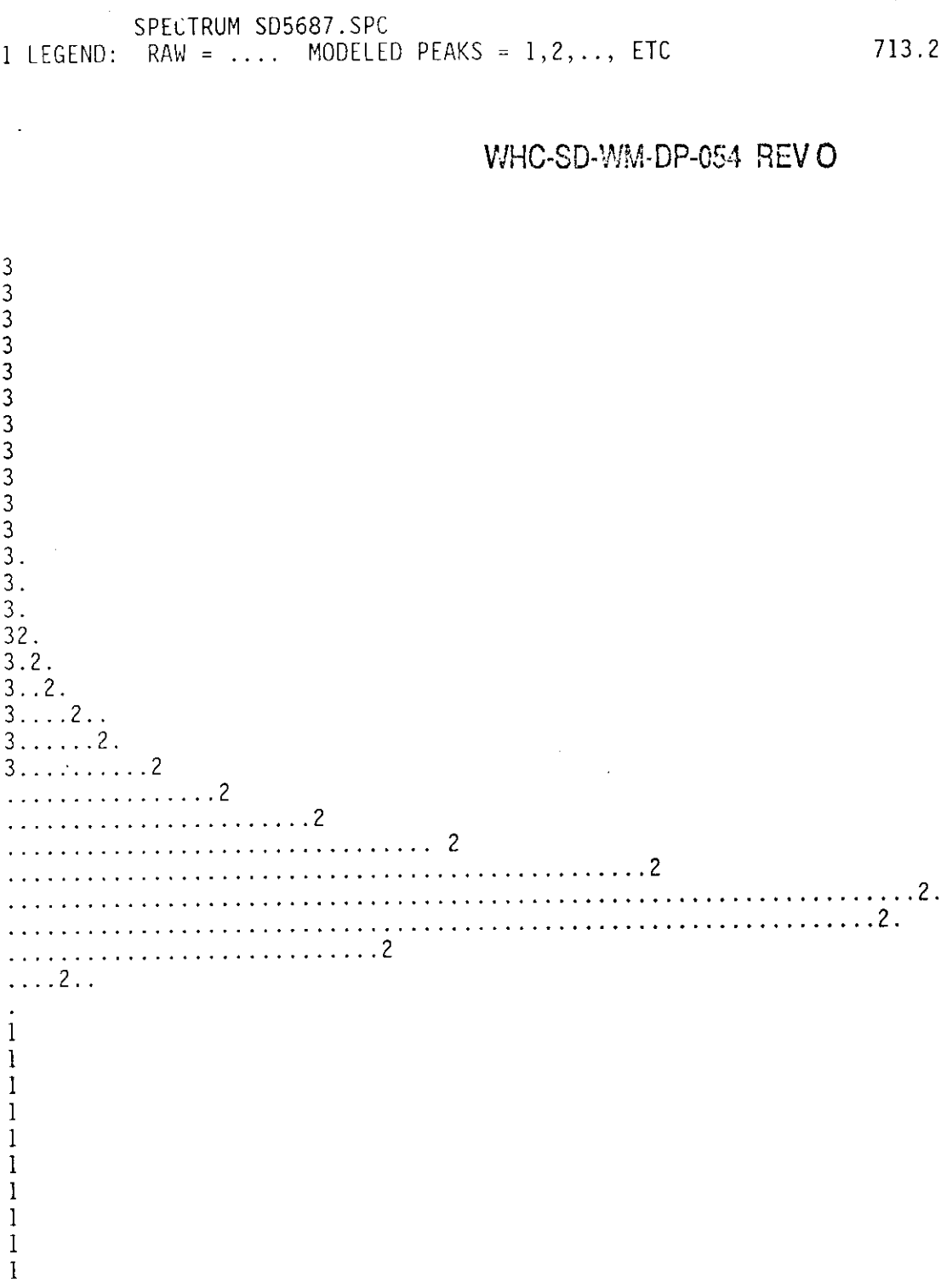
DETECTOR CALIBRATION

Energy(MEV) = 4.084 + (0.0046)*Channel
Energy range (MeV): 4.084 TO 6.439
Efficiency = 0.2235 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	3796.0	100.000
Smoothed	3796.0	100.000
Composite fit	3749.2	98.766
Residuals	46.8	1.234

Analyzed by: _____


SPECTRUM SD5687.SPC
1 LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC
713.2

Raw Data Dump for AEA Spectrum: SP:SD5687.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	1.	2.	0.
21	2.	0.	1.	0.	0.	0.	0.	0.	2.	2.
31	0.	0.	0.	0.	0.	1.	1.	0.	1.	0.
41	0.	1.	0.	1.	0.	0.	0.	0.	1.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	1.	2.	2.	1.	1.	3.
71	0.	1.	1.	0.	0.	0.	1.	1.	2.	0.
81	2.	1.	3.	1.	0.	1.	4.	1.	0.	2.
91	0.	0.	0.	1.	0.	0.	2.	2.	0.	1.
101	1.	2.	0.	2.	0.	1.	1.	1.	0.	1.
111	0.	2.	1.	1.	2.	0.	1.	0.	1.	1.
121	0.	5.	1.	3.	3.	0.	2.	2.	4.	2.
131	1.	2.	0.	2.	4.	3.	0.	4.	0.	3.
141	1.	6.	3.	2.	4.	3.	0.	2.	2.	4.
151	4.	7.	2.	6.	3.	6.	2.	2.	5.	3.
161	4.	4.	1.	3.	6.	3.	2.	1.	3.	4.
171	9.	4.	5.	3.	5.	6.	9.	2.	7.	5.
181	5.	7.	7.	10.	3.	8.	9.	5.	5.	13.
191	6.	9.	11.	10.	18.	12.	8.	11.	8.	6.
201	13.	14.	15.	7.	9.	14.	16.	12.	17.	17.
21	13.	17.	20.	19.	14.	12.	21.	25.	23.	23.
2[illegible]	30.	20.	28.	28.	29.	30.	30.	41.	31.	37.
231	40.	36.	35.	36.	46.	41.	39.	44.	44.	60.
241	61.	54.	74.	73.	68.	62.	70.	88.	86.	87.
251	87.	85.	103.	103.	122.	111.	104.	105.	91.	80.
261	93.	66.	69.	39.	31.	35.	23.	26.	22.	11.
271	20.	9.	10.	8.	4.	2.	4.	4.	6.	3.
281	0.	3.	2.	1.	0.	1.	0.	1.	0.	4.
291	2.	2.	2.	2.	2.	1.	1.	2.	3.	1.
301	0.	2.	1.	1.	2.	3.	1.	1.	0.	1.
311	0.	1.	0.	2.	0.	0.	0.	0.	1.	0.
321	0.	0.	1.	0.	3.	0.	0.	0.	2.	0.
331	0.	1.	1.	1.	0.	0.	1.	2.	0.	0.
341	1.	1.	1.	0.	0.	1.	3.	2.	1.	3.
351	4.	1.	5.	1.	1.	2.	1.	2.	0.	0.
361	0.	1.	0.	0.	1.	1.	0.	0.	2.	0.
371	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	2.	0.	1.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	1.	1.	0.	0.	0.	1.	0.	0.
461	0.	1.	0.	1.	0.	1.	0.	0.	1.	0.
47[illegible]	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
4[illegible]	2.	0.	1.	1.	2.	0.	0.	2.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Gm Barclay
8-19-93

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. 1.10

DATA REDUCTION REPORT

SAMPLE
G-598-5782
File ID: SD6605.SPC

Counted on: 8/19/93 @10: 0
Detector/Geometry number: 6/ 1
Count time: 30000. 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	5.1	3.4	346.730	346.730	20.000	37.588	10.000	2.298
2	245.8	240.7	253.310	253.310	32.000	33.799	16.000	3.970
3	4.7	3.4	131.939	131.939	60.000	2.000	30.000	0.200
4	2.8	2.1	89.505	89.505	24.000	54.931	12.000	2.573

PEAK RESULTS

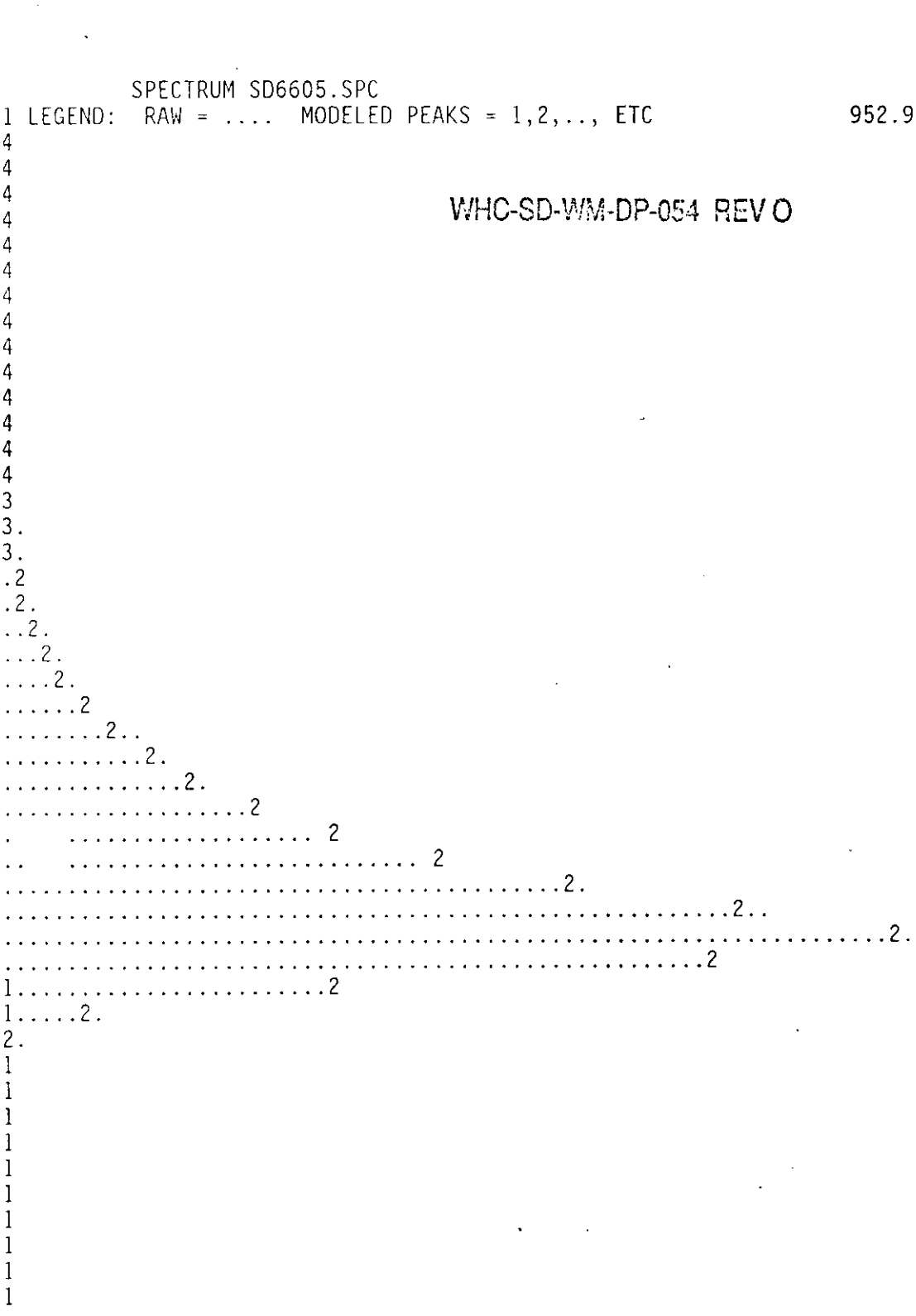
Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Ra224	0.0219	5.680	5.719	-0.039	0.18	0.26	1.38	0.621E-06
	Pu236		5.756	5.719	0.037				0.595E-06
2	Am243	0.9547	5.234	5.280	-0.046	0.16	11.27	512.65	0.231E-03
3		0.0110		4.709		0.01	0.13	0.65	0.294E-06
4	U 235	0.0123	4.396	4.510	-0.114	0.26	0.15	1.28	0.575E-06

DETECTOR CALIBRATION
Energy(MEV) = 4.089 + (0.0047)*Channel
Energy range (MeV): 4.089 TO 6.496
Efficiency = 0.1998 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	6037.0	100.000
Smoothed	6036.7	99.995
Composite fit	5900.7	97.742
Residuals	136.0	2.252

Analyzed by: _____


SPECTRUM SD6605.SPC
1 LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC
952.9

Raw Data Dump for AEA Spectrum: SP:SD6605.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.
21	1.	0.	2.	1.	1.	1.	2.	1.	3.	2.
31	0.	0.	1.	1.	0.	1.	1.	1.	0.	0.
41	0.	1.	0.	3.	1.	2.	1.	1.	0.	1.
51	1.	1.	2.	0.	0.	1.	3.	4.	0.	0.
61	2.	2.	0.	1.	1.	1.	0.	2.	3.	4.
71	2.	0.	2.	1.	2.	1.	1.	1.	3.	0.
81	2.	2.	2.	3.	1.	5.	4.	2.	0.	5.
91	3.	1.	2.	4.	1.	1.	1.	3.	2.	6.
101	0.	2.	1.	5.	4.	1.	2.	2.	3.	4.
111	3.	2.	1.	4.	5.	2.	1.	5.	2.	4.
121	6.	3.	2.	7.	2.	6.	6.	2.	5.	6.
131	5.	3.	5.	6.	2.	5.	5.	3.	3.	3.
141	2.	2.	5.	10.	11.	6.	5.	6.	3.	9.
151	13.	8.	7.	8.	5.	5.	7.	10.	9.	5.
161	9.	10.	14.	7.	10.	9.	15.	10.	13.	7.
171	12.	13.	17.	11.	11.	9.	15.	12.	14.	13.
181	12.	12.	17.	16.	15.	19.	17.	27.	26.	26.
191	23.	14.	20.	21.	29.	20.	17.	22.	29.	25.
201	29.	26.	32.	37.	40.	17.	30.	32.	19.	38.
211	43.	38.	45.	34.	32.	40.	47.	36.	47.	34.
221	40.	38.	44.	54.	56.	46.	58.	49.	63.	55.
231	73.	75.	79.	79.	74.	91.	81.	76.	84.	100.
241	87.	103.	96.	118.	119.	107.	106.	111.	117.	120.
251	132.	125.	146.	131.	123.	109.	99.	90.	94.	105.
261	86.	60.	72.	59.	58.	44.	35.	31.	27.	23.
271	14.	25.	16.	14.	9.	3.	3.	7.	5.	6.
281	5.	3.	3.	2.	4.	2.	1.	6.	4.	1.
291	3.	0.	2.	2.	4.	4.	1.	3.	0.	1.
301	1.	1.	1.	1.	1.	1.	2.	2.	1.	2.
311	1.	0.	0.	0.	3.	1.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	2.	1.	0.	0.	1.
331	0.	1.	1.	3.	1.	1.	2.	1.	2.	1.
341	3.	2.	3.	3.	2.	1.	5.	3.	3.	1.
351	0.	2.	1.	0.	2.	0.	1.	3.	0.	0.
361	0.	2.	0.	1.	0.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
421	1.	1.	0.	0.	0.	0.	0.	0.	0.	1.
431	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
441	1.	0.	0.	0.	0.	0.	1.	0.	0.	1.
451	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
461	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
471	1.	0.	2.	0.	2.	1.	0.	5.	3.	1.
481	0.	1.	0.	1.	1.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Em Barnes
8-19-93

WHC-SD-WM-DP-054 REV O

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
G-599-5782
File ID: SD7135.SPC

Counted on: 8/19/93 @10: 0
Detector/Geometry number: 7/ 1
Count time: 30000. Sec

PEAK ANALYSIS

Peak	Peak height		Peak center		FWHM		Tau	
ID	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	178.1	168.9	260.384	260.384	24.000	14.549	12.000	4.521

PEAK RESULTS

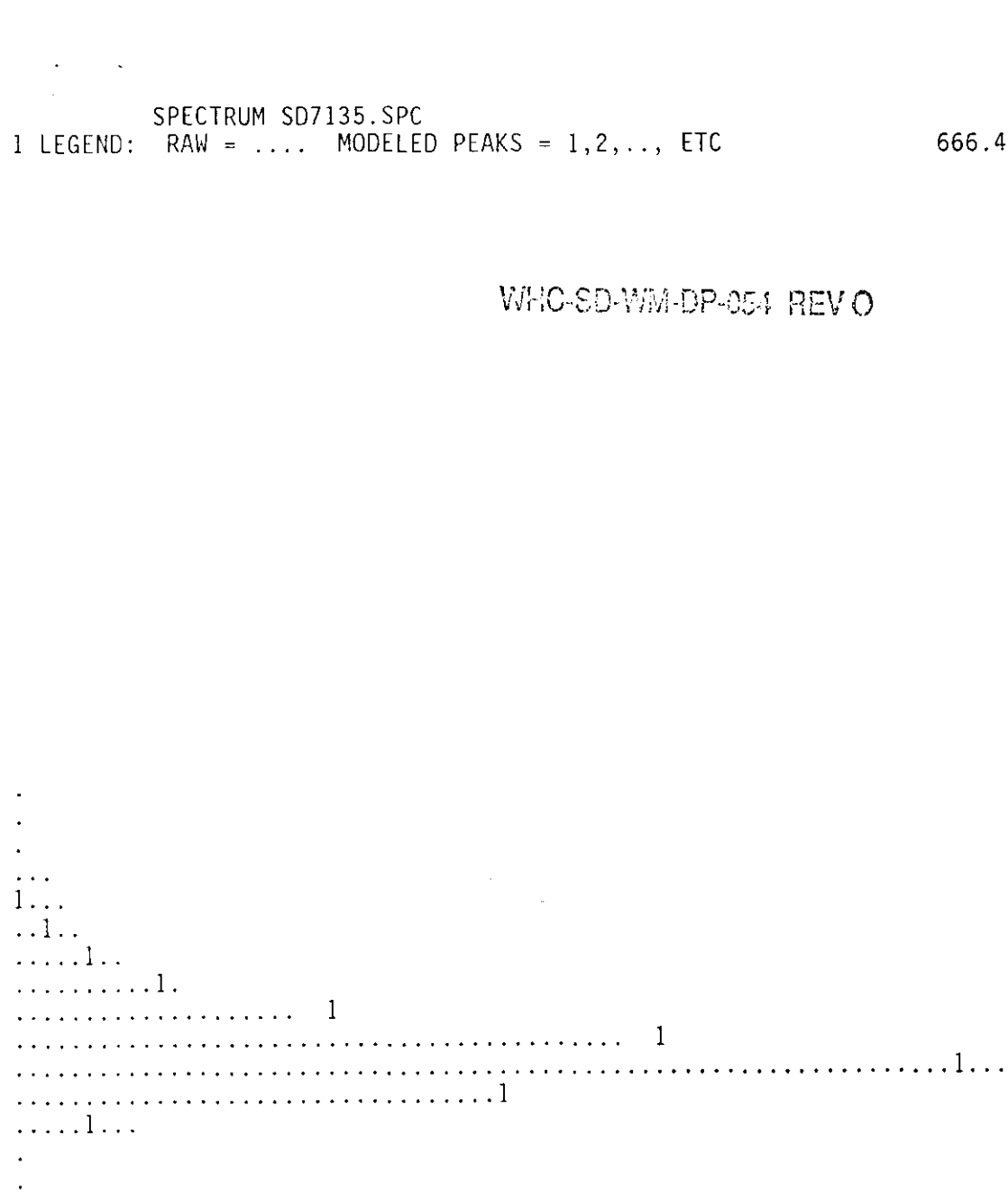
Peak		AEA	Peak Centroid				Count		Activity
ID	Isotope	Fract.	Exp.	Obs.	Diff.	FWHM	Rate c/m	d/m	uCi/ea
1		1.0000		5.275		0.07	3.89	19.39	0.874E-05

DETECTOR CALIBRATION
Energy(MEV) = 4.077 + (0.0046)*Channel
Energy range (MeV): 4.077 TO 6.433
Efficiency = 0.2004 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	2198.0	100.000
Smoothed	2198.0	100.000
Composite fit	1943.3	88.411
Residuals	254.7	11.588

Analyzed by: _____


SPECTRUM SD7135.SPC
1 LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC
666.4

Raw Data Dump for AEA Spectrum: SP:SD7135.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
31	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	1.	1.	0.	1.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	1.	1.	0.	1.
91	0.	1.	0.	2.	0.	0.	0.	0.	0.	0.
101	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
111	0.	1.	1.	0.	0.	2.	0.	3.	0.	1.
121	2.	0.	0.	1.	1.	1.	0.	0.	0.	1.
131	0.	0.	1.	0.	0.	0.	2.	0.	3.	0.
141	0.	3.	1.	1.	1.	2.	0.	1.	0.	1.
151	0.	0.	0.	0.	0.	0.	1.	0.	2.	0.
161	0.	1.	0.	1.	2.	0.	0.	0.	2.	0.
171	2.	0.	1.	2.	0.	2.	0.	1.	3.	0.
181	2.	2.	3.	0.	2.	0.	0.	0.	1.	3.
191	4.	1.	2.	5.	1.	1.	2.	3.	2.	5.
201	5.	1.	2.	3.	6.	5.	5.	8.	5.	6.
21	5.	3.	3.	8.	8.	8.	3.	12.	8.	7.
22	2.	9.	5.	12.	10.	8.	6.	9.	17.	10.
231	18.	14.	18.	11.	14.	16.	19.	11.	26.	16.
241	18.	24.	29.	22.	22.	30.	29.	42.	40.	44.
251	38.	52.	67.	64.	87.	98.	88.	103.	107.	101.
261	102.	88.	65.	64.	49.	47.	33.	32.	13.	8.
271	16.	13.	5.	10.	14.	5.	3.	3.	3.	2.
281	0.	0.	0.	1.	0.	0.	1.	2.	1.	0.
291	1.	1.	0.	5.	2.	1.	0.	0.	2.	1.
301	0.	0.	1.	2.	0.	2.	0.	1.	1.	0.
311	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
351	2.	1.	0.	0.	1.	1.	0.	0.	1.	1.
361	2.	0.	0.	1.	2.	1.	0.	2.	1.	0.
371	1.	0.	0.	1.	0.	0.	0.	0.	0.	1.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
47	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
48	0.	0.	0.	2.	0.	1.	0.	0.	0.	0.
491	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Em Barela
8-19-93

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
G-600-5782
File ID: SD8352.SPC

Counted on: 8/19/93 @10: 0
Detector/Geometry number: 8/ 1
Count time: 30000. 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	193.8	187.3	257.412	257.412	20.000	13.341	10.000	4.363

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Am243	1.0000	5.234	5.266	-0.032	0.06	4.11	207.69	0.936E-04

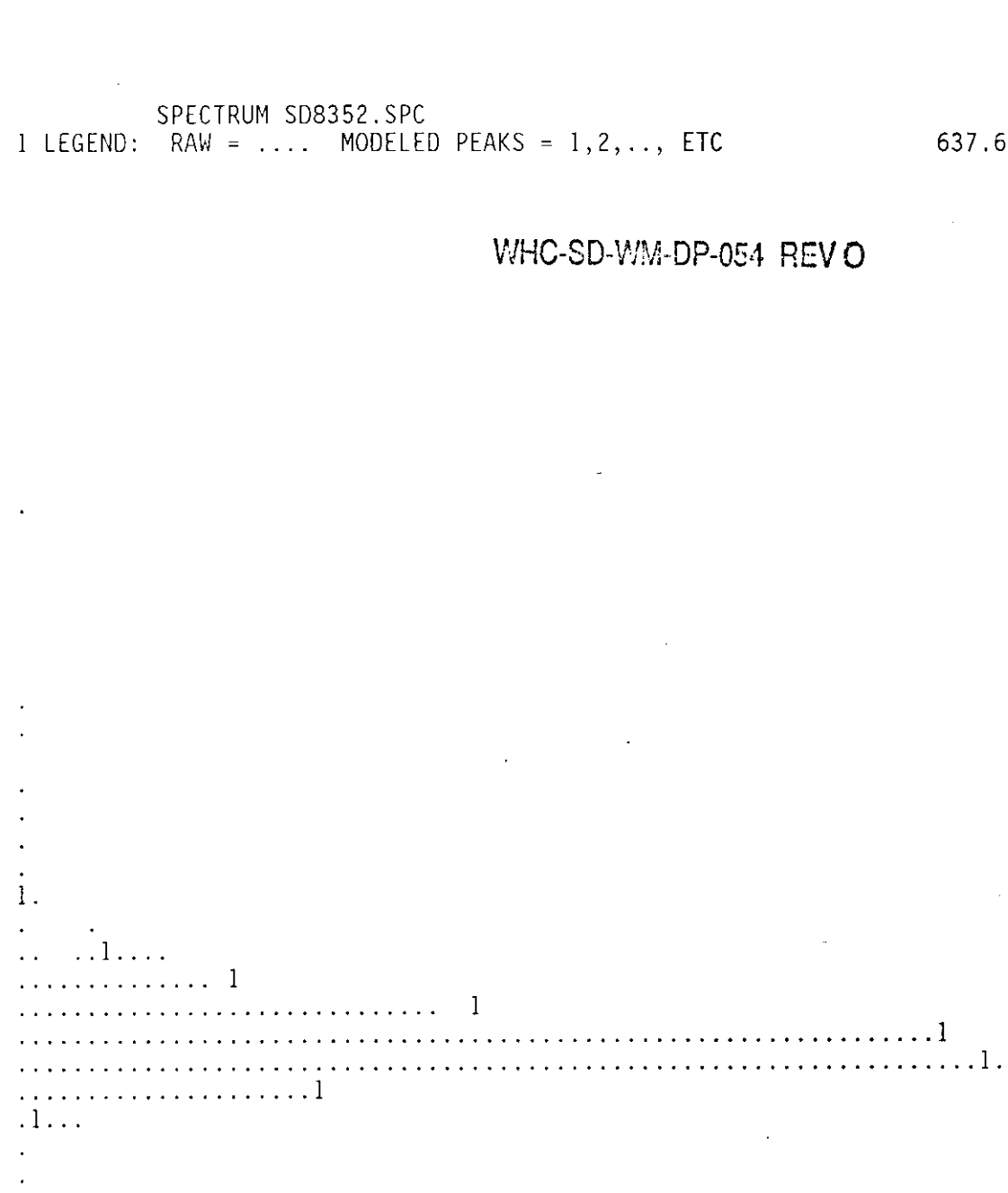
DETECTOR CALIBRATION

Energy(MEV) = 4.056 + (0.0047)*Channel
Energy range (MeV): 4.056 TO 6.462
Efficiency = 0.1801 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	2376.0	100.000
Smoothed	2376.0	100.000
Composite fit	2057.3	86.587
Residuals	318.7	13.413

Analyzed by: _____


SPECTRUM SD8352.SPC
1 LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC
637.6

Raw Data Dump for AEA Spectrum: SP:SD8352.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
21	2.	1.	1.	0.	0.	1.	0.	1.	0.	0.
31	0.	0.	0.	4.	0.	0.	3.	3.	1.	0.
41	0.	0.	1.	2.	1.	0.	0.	2.	2.	1.
51	1.	2.	2.	0.	1.	0.	0.	1.	2.	0.
61	1.	1.	0.	2.	2.	2.	1.	0.	3.	0.
71	0.	0.	0.	1.	0.	1.	1.	0.	1.	0.
81	1.	0.	1.	0.	3.	0.	0.	1.	0.	1.
91	0.	0.	3.	1.	2.	0.	2.	4.	2.	0.
101	1.	1.	0.	1.	1.	1.	0.	2.	2.	0.
111	0.	2.	0.	0.	2.	1.	2.	1.	1.	0.
121	2.	1.	1.	2.	0.	1.	0.	2.	1.	1.
131	0.	1.	1.	0.	1.	0.	0.	3.	1.	2.
141	0.	0.	0.	0.	0.	1.	3.	2.	0.	2.
151	0.	3.	1.	3.	2.	0.	3.	0.	0.	1.
161	1.	2.	2.	1.	2.	0.	3.	0.	2.	0.
171	0.	3.	0.	0.	3.	0.	2.	3.	1.	2.
181	2.	2.	0.	1.	0.	1.	1.	4.	0.	1.
191	2.	3.	0.	1.	2.	0.	1.	1.	0.	2.
201	1.	3.	4.	1.	2.	2.	1.	2.	1.	7.
211	1.	3.	3.	7.	3.	3.	2.	10.	7.	9.
221	9.	11.	13.	15.	10.	9.	18.	12.	8.	20.
231	27.	13.	9.	19.	18.	18.	15.	11.	16.	26.
241	32.	28.	34.	37.	43.	48.	56.	57.	54.	65.
251	82.	81.	101.	108.	102.	105.	127.	102.	102.	74.
261	74.	49.	45.	30.	33.	17.	8.	10.	10.	6.
271	6.	7.	8.	6.	3.	2.	2.	3.	2.	1.
281	1.	2.	3.	3.	0.	1.	1.	1.	3.	0.
291	1.	1.	2.	2.	3.	2.	0.	2.	1.	1.
301	0.	0.	1.	2.	0.	2.	0.	1.	1.	1.
311	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	1.	1.	0.	0.	2.	0.	0.	1.	0.	0.
351	0.	0.	0.	0.	2.	2.	0.	0.	1.	0.
361	0.	2.	2.	0.	0.	0.	0.	0.	0.	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.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	1.	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	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	1.	0.	1.	1.	0.	0.	1.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Em Bauer
8-20-93

Westinghouse Hanford Co.

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

WHC-SD-WM-DP-054 REV 0 DATA REDUCTION REPORT

SAMPLE
G601-5782 AM/102
File ID: 9a1176.CNF

Counted on: 8/20/93 @ 8:53
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	93.3	93.3	255.444	255.444	12.000	4.687	6.000	1.712

PEAK RESULTS
Peak Error Limit: 15%

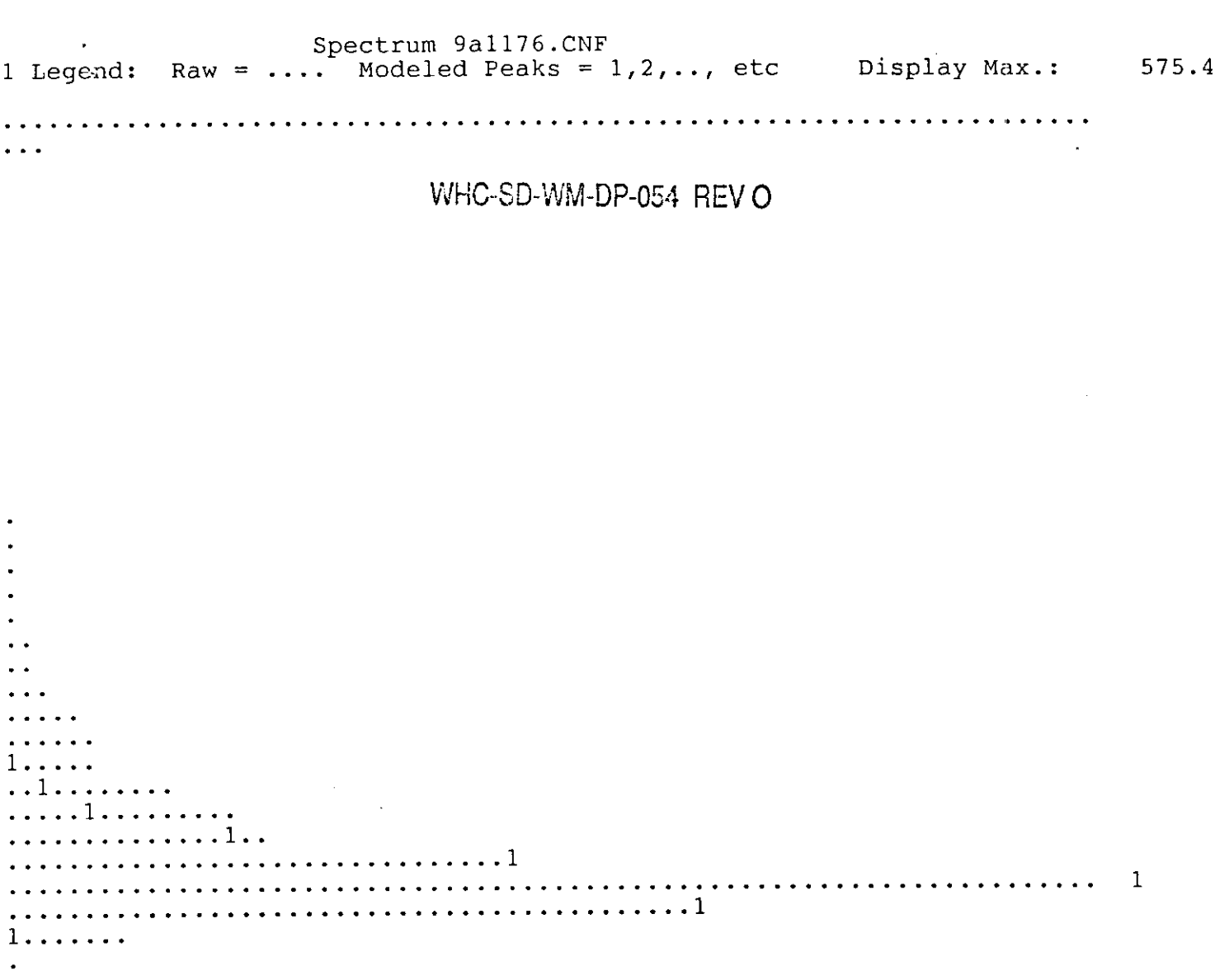
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.724	5.276	5.296	-.0200	2.02	3.10	5.1	24.2	0.109E-04
Totals:		0.724	<--valid peaks only-->				3.10			

DETECTOR CALIBRATION
Energy(MEV) = 4.095 + (0.0047)*Channel
Energy range (MeV): 4.095 TO 6.502
Efficiency = 0.1290 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	2052.0	100.000
Smoothed	2164.5	105.483
Composite fit	1485.9	72.412
Residuals	566.1	27.588

Analyzed by: VR


Spectrum 9a1176.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 575.4

Raw Data Dump for AEA Spectrum: 9a1176.CNF

1	28304.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	0.	0.	1.	0.	1.	1.	0.	0.	0.	0.
21	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	1.	0.	0.	1.	0.	0.	1.	0.	1.
	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
	1.	1.	0.	1.	0.	0.	0.	0.	0.	0.
61	1.	0.	1.	0.	1.	0.	0.	0.	0.	1.
71	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
81	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
91	2.	0.	0.	2.	1.	1.	1.	0.	0.	3.
101	0.	0.	0.	1.	1.	1.	1.	0.	0.	1.
111	1.	0.	1.	1.	1.	0.	0.	1.	1.	3.
121	0.	2.	2.	1.	0.	1.	0.	0.	0.	4.
131	3.	3.	0.	1.	0.	1.	2.	2.	1.	2.
141	1.	3.	1.	0.	0.	2.	2.	2.	1.	3.
151	1.	1.	2.	1.	1.	0.	2.	0.	3.	1.
161	1.	1.	2.	1.	2.	2.	3.	3.	1.	1.
171	1.	3.	1.	4.	5.	0.	3.	2.	3.	3.
181	2.	5.	4.	3.	3.	4.	3.	2.	2.	8.
191	4.	6.	6.	7.	3.	4.	9.	3.	8.	7.
201	3.	9.	7.	11.	5.	2.	7.	6.	9.	5.
211	5.	6.	7.	6.	8.	7.	16.	9.	14.	10.
221	11.	12.	15.	11.	14.	15.	17.	15.	20.	17.
231	18.	19.	17.	17.	22.	17.	14.	19.	18.	19.
241	26.	38.	30.	32.	23.	48.	39.	45.	53.	58.
251	60.	65.	75.	110.	114.	100.	99.	85.	49.	27.
261	16.	13.	6.	8.	4.	7.	11.	15.	7.	3.
271	5.	0.	3.	0.	1.	1.	0.	0.	0.	0.
281	0.	1.	1.	1.	1.	0.	1.	1.	1.	0.
291	1.	2.	0.	1.	0.	0.	1.	0.	1.	2.
301	0.	1.	0.	3.	1.	0.	0.	1.	0.	0.
3	0.	1.	1.	2.	0.	0.	1.	1.	0.	2.
3	1.	0.	2.	1.	0.	0.	0.	1.	1.	1.
331	0.	1.	0.	2.	0.	1.	0.	1.	1.	0.
341	0.	0.	0.	3.	1.	1.	0.	1.	2.	1.
351	0.	0.	0.	0.	1.	2.	0.	0.	3.	1.
361	0.	0.	2.	1.	0.	0.	0.	0.	1.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	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.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Jm Barnes
8-20-93

Westinghouse Hanford Co.

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

WHC-SD-WM-DP-054 REV O

DATA REDUCTION REPORT

SAMPLE
G602-5782 AM/102
File ID: 10a2072.CNF

Counted on: 8/20/93 @ 8:44
Detector: AEA10
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	147.3	147.3	252.825	252.825	12.000	6.029	6.000	2.104
2	43.3	43.3	226.187	225.510	14.000	4.929	7.000	2.071

PEAK RESULTS
Peak Error Limit: 15%

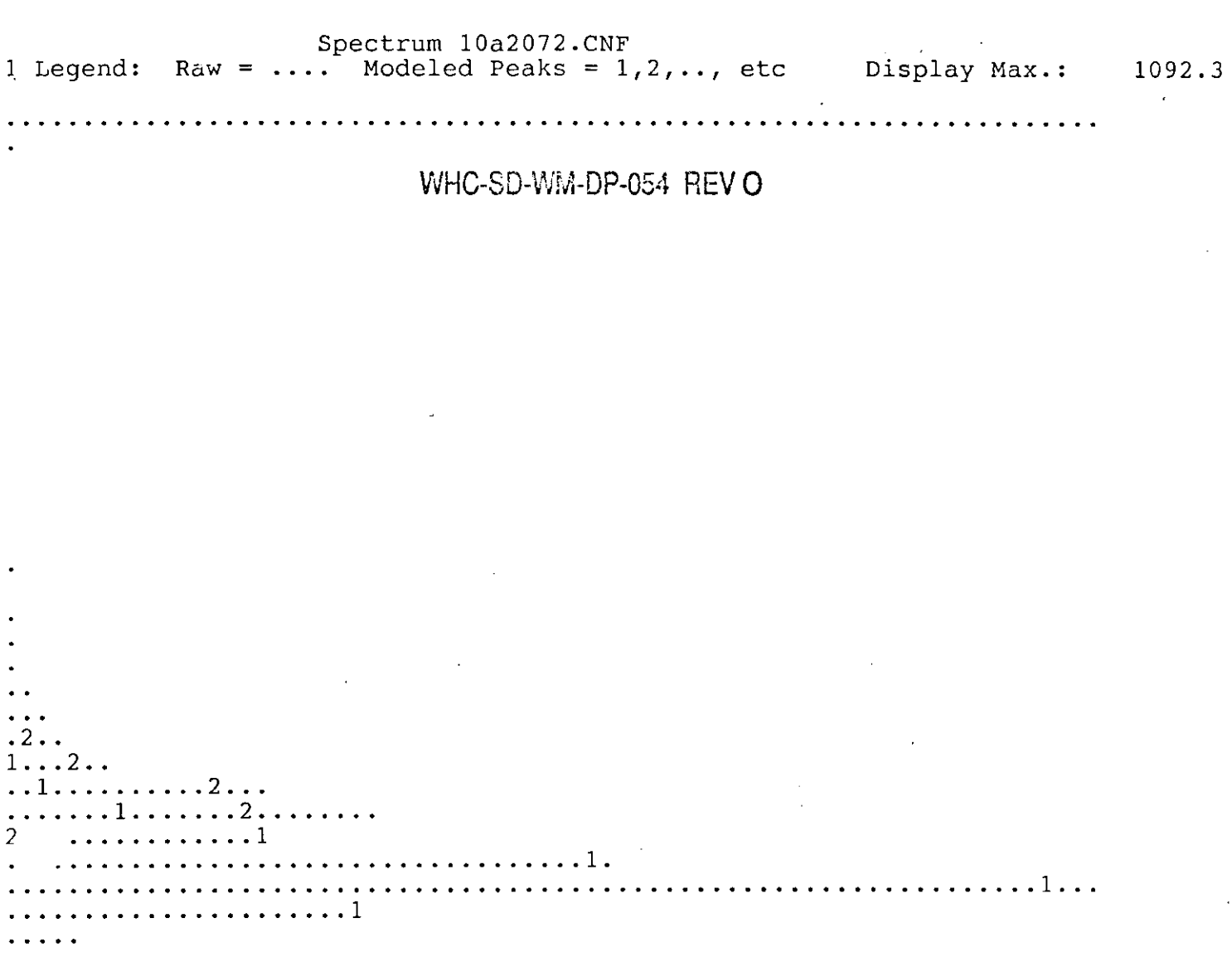
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.712	5.276	5.283	-.007	0.03	5.30	3.9	41.5	0.187E-04
2	Pu239	0.181	5.143	5.155	-.012	0.02	1.35	10.1	10.4	0.471E-05
	Pu240		5.144	5.155	-.011				10.4	0.471E-05
Totals:		0.893	<--valid peaks only-->				6.65			

DETECTOR CALIBRATION
Energy(MEV) = 4.095 + (0.0047)*Channel
Energy range (MeV): 4.095 TO 6.502
Efficiency = 0.1290 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	3573.0	100.000
Smoothed	3685.5	103.149
Composite fit	3190.6	89.297
Residuals	382.4	10.703

Analyzed by: _____
VR


Spectrum 10a2072.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 1092.3

Raw Data Dump for AEA Spectrum: 10a2072.CNF

1	28804.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
31	0.	0.	0.	0.	0.	0.	1.	1.	1.	0.
41	0.	0.	1.	0.	0.	0.	0.	0.	1.	2.
51	0.	1.	0.	0.	0.	0.	0.	2.	1.	0.
61	1.	0.	0.	0.	0.	1.	0.	0.	1.	2.
71	2.	0.	0.	1.	0.	1.	0.	1.	0.	0.
81	0.	0.	0.	1.	0.	2.	1.	0.	0.	0.
91	3.	0.	0.	1.	0.	0.	0.	1.	2.	0.
101	0.	0.	1.	3.	0.	0.	0.	1.	1.	1.
111	1.	1.	1.	1.	1.	1.	1.	1.	0.	4.
121	2.	2.	2.	0.	2.	0.	0.	1.	1.	2.
131	1.	1.	1.	1.	0.	1.	2.	3.	1.	1.
141	3.	0.	0.	0.	4.	1.	2.	2.	3.	2.
151	5.	2.	3.	0.	2.	0.	0.	2.	2.	2.
161	2.	1.	3.	2.	3.	3.	0.	3.	3.	4.
171	1.	1.	1.	2.	5.	5.	2.	2.	4.	2.
181	2.	6.	3.	4.	4.	5.	5.	4.	6.	5.
191	2.	4.	9.	6.	7.	7.	7.	2.	6.	6.
201	7.	8.	4.	15.	11.	15.	6.	7.	10.	14.
211	12.	17.	15.	17.	15.	13.	25.	19.	28.	33.
221	44.	46.	50.	56.	65.	59.	57.	56.	49.	43.
231	33.	31.	30.	24.	27.	31.	32.	32.	38.	42.
241	61.	56.	67.	67.	83.	87.	123.	123.	132.	164.
251	145.	160.	152.	157.	156.	119.	67.	41.	21.	17.
261	17.	18.	10.	16.	15.	17.	10.	3.	8.	3.
271	4.	0.	0.	1.	1.	2.	1.	0.	0.	4.
281	2.	1.	1.	1.	1.	1.	2.	0.	0.	1.
291	0.	2.	0.	1.	1.	0.	2.	2.	1.	1.
301	0.	1.	1.	0.	1.	1.	0.	0.	0.	0.
311	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
321	0.	1.	0.	0.	0.	0.	0.	1.	0.	0.
331	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.
351	2.	0.	1.	0.	1.	0.	0.	0.	2.	2.
361	1.	1.	0.	1.	0.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
481	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

WESTINGHOUSE HANFORD COMPANY Batch 1361

WHC-SD-WM-DP-054 REV 0

222-S LABORATORY

ANALYTICAL BATCH 102-5 Day

Lab Segment Serial No.	Customer ID:
G-606, G607, G608, G609, G610	A-6, A-7, B-0, B-1, B-2
Analysis: Am 241	Sample Prep: DIRECT

Instrument: WB 57237	Procedure/ Rev: LA-503-156- 0-0
Technologist: KR MONTEITH	Date: 8-15-93
Starting Time: 8-15-93 21:30	Temperature 24° C
Ending Time: 8-16-93 03:30	Chemist: S.A. CULLOW

Comments: _____

	Description	Lab ID
1	STANDARD	G604-5582
2	BLANK	G605-5682
3	SAMPLE	G606-5782
4	SAMPLE	G607-~~5877~~ 5782 8-16-93
5	SAMPLE	G608-5782
6	SAMPLE	G609-5782
7	SAMPLE	G610-5782
8		
9		
10		

	Description	Lab ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMICS	63843 .100mL			
SPIKE	58843 .050mL			

330

A-6000-881 (03/92)

OA

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-503-156

DATE START: August 16, 1993

PREPARED BY: L. L. Fritts 8-24-93

DATE COMPLETE: August 24, 1993

	UNITS:	uCi/mL							
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	AVERAGE	RPD%	%REC	DET LIM	% CT ER
STD 63B43	G604	Am-241	2.93E+1				109.3		20.0
BLANK	G605	Am-241	<6.37E-6				263.5		50.8
A-6	G606	Am-241	<6.37E-6				149.3	6.37E-6	27.2
A-7	G607	Am-241	<6.37E-6				4.9	6.37E-6	58.3
B-0	G608	Am-241	<6.37E-6				10.3	6.37E-6	45.4
B-1	G609	Am-241	<6.37E-6				37.3	6.37E-6	35.5
B-2	G610	Am-241	<6.37E-6				8.0	6.37E-6	58.5

NARRATIVE: ☐ NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH

LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in uCi/L.

Tracer Recovery is high on G605 and G606 and low on G607, however all values are less than the detection limit and no reruns are warranted.

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

#11 3067

Serial No	Sample Point	Date	Time Issued	Priority
G 604.-5582	102 5 DAY	7-22-93	14:33	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	D44E3	0

Sample Size .100mL-10mL-1mL .050mL Spike 58843 — Customer ID: STD

? [illegible]

Remarks Calculation Results

EDP R201 AR001

STD# 63843 RESULT 29.3

STD VAL 26.57 %REC 107.3%

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
	[signature]	[signature]	[signature]	
	Hrs 8-16-93 0645	Hrs	Hrs 8.20.93	Hrs

Date 8-16-93 — Time Completed 03:30 — Laboratory Manager [signature]

WHC-SD-WM-DP-054 REV 0

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

Serial No.		STANDARD
G604-5582	Spike (Tracer) Book Number	58843
Batch ID	Activity of Am243 Tracer in dpm/mL (SPKA)	5655
1361	Spike (Tracer) Volume in mL (SPKV)	0.050
Rerun No.	Volume of Sample in mL (SS)	1
0	Dilution Factor (DF)	101
Analyst	Digest Dilution Factor (DDF)	1
	Am-241 Area Peak Height from AEA (C241)	82
	Am-243 Area Peak Height from AEA (C243)	36
Date	Total AT Count (ATOT)	393
08/16/93	AT Count Time in Minutes (MIN CTd)	30
	Background in CPM (BKG)	6

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

µCi/mL = µCi/L / (1000mL/L)

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

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

Am-241 µCi/L	=	2.93E+01
Am-241 µCi/mL	=	2.93E-02
Relative counting error	=	20.0%
Am-243 Tracer Recovery	=	1.5%

Data Entry by: [signature] Date: 20-Aug-93

Approved by: [signature] Date: August 24, 1993

Form 3 Rev. 1.1

It 3 8-16-93 AJ

393/30 - 6

G604-5582

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

#3 3564

Serial No	Sample Point	Date	Time Issued	Priority
G 605.-5682	102 5 DAY	7-22-93	14:33	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? /mL .050mL Spike 58843	BLK

Remarks, Calculations, Results

REAGENT BLANK $< 6.37 \times 10^{-6}$ uCi/ml

COUNT AS uCI/L

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
Hrs	Hrs 8-16-93 0715	Hrs 8.19.93	Hrs	Hrs
Date 8-16-93	Time Completed 03:30	Lab Unit Mgr.		

WHC-SD-WM-DP-054 REV 0

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G605-5682	1361	0		08/16/93

			BLANK
Spike (Tracer) Book Number			58843
Activity of Am243 Tracer in dpm/mL	(SPKA)		5655
Spike (Tracer) Volume in mL	(SPKV)		0.050
Volume of Sample in mL	(SS)		1
Dilution Factor	(DF)		1
Digest Dilution Factor	(DDF)		1
Am-241 Area Peak Height from AEA	(C241)		4
Am-243 Area Peak Height from AEA	(C243)		126
Total AT Count	(ATOT)		11709
AT Count Time in Minutes	(MIN CTd)		30
Background in CPM	(BKG)		6

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

µCi/mL = µCi/L / (1000mL/L)

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

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

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

Am-241 µCi/L	=	< 6.37E-03
Am-241 µCi/mL	=	< 6.37E-06
Relative counting error	=	50.8%
Am-243 Tracer Recovery	=	263.5%

Data Entry by: Date: 20-Aug-93

Approved by: Date: August 24, 1993

#1 8-16-93 AJ

11,709-6
30

G605-5682

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

#8 2168

Serial No	Sample Point	Date	Time Issued	Priority
G 606.-5782	102 5 DAY	7-22-93	14:34	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? 1ml .050mL SPIKE 58843	A-6

Remarks Calculations Results

COUNT AS uCI/L

6.37E-6

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Hrs 8-16-93 0715	Hrs 8.1993	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
8-16-93	03:30	

WHC-SD-WM-DP-051 REV 0

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G606-5782	1361	0		08/16/93

		SAMPLE
Spike (Tracer) Book Number		58B43
Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
Spike (Tracer) Volume in mL	(SPKV)	0.050
Volume of Sample in mL	(SS)	1
Dilution Factor	(DF)	1
Digest Dilution Factor	(DDF)	1
Am-241 Area Peak Height from AEA	(C241)	14
Am-243 Area Peak Height from AEA	(C243)	430
Total AT Count	(ATOT)	6598
AT Count Time in Minutes	(MIN CTd)	30
Background in CPM	(BKG)	2

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

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

Am-241 µCi/L	=	< 6.37E-03
Am-241 µCi/mL	=	< 6.37E-06
Relative counting error	=	27.2%
Am-243 Tracer Recovery	=	149.3%

Data Entry by:	Date: 20-Aug-93
Approved by:	Date: August 24,1993

2 8-16-93 AJ

6598/30 - 2 G606-5782

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

#9 1124

Serial No	Sample Point	Date	Time Issued	Priority
G 607.-5782	102 5 DAY	7-22-93	14:35	23

Determination	Method-Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? /mL .050mL SPIKE 58B43	A-7

Remarks Calculations Results

COUNT AS uCI/L $< 6.37 \times 10^{-6}$ µCi/ml

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	[signature]	[signature]	[signature]	
	Hrs 8-16-93 0215	Hrs	Hrs 8.20.93	Hrs

Date	Time Completed	Lab Unit Mgr
8-16-93	03:30	[signature] 8/24

WHC-SD-WM-DP-051 REVO

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G607-5782	1361	0		08/16/93

		SAMPLE
Spike (Tracer) Book Number		58B43
Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
Spike (Tracer) Volume in mL	(SPKV)	0.050
Volume of Sample in mL	(SS)	1
Dilution Factor	(DF)	1
Digest Dilution Factor	(DDF)	1
Am-241 Area Peak Height from AEA	(C241)	3
Am-243 Area Peak Height from AEA	(C243)	156
Total AT Count	(ATOT)	393
AT Count Time in Minutes	(MIN CTd)	30
Background in CPM	(BKG)	6

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

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

Am-241 µCi/L	=	< 6.37E-03
Am-241 µCi/mL	=	< 6.37E-06
Relative counting error	=	58.3%
Am-243 Tracer Recovery	=	4.9%

Data Entry by: [signature] Date: 20-Aug-93

Approved by: [signature] Date: August 24, 1993

Form 3 Rev. 1.1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#3 8-16-93

393 - 6
30

G607-5782

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

#11 3069

Serial No	Sample Point	Date	Time Issued	Priority
G 608.-5782	102 5 DAY	7-22-93	14:35	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? /mL .050 mL SPIKE 58843	B-0

Remarks, Calculations, Results

COUNT AS uCI/L $<6.37 \times 10^{-6}$ uCi/ml

Analyst - 1	Analyst - 2	3	Analyst - 4	Analyst 5
	Hrs	Hrs	Hrs	Hrs
		8.20.93		
Date	Time Completed	Lab Tech		
8-16-93	~~0230~~ 0350			

8.24.93

WHC-SD-WM-DP-054 REV 0

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G608-5782	1361	0		08/16/93

		SAMPLE
Spike (Tracer) Book Number		58843
Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
Spike (Tracer) Volume in mL	(SPKV)	0.05
Volume of Sample in mL	(SS)	1
Dilution Factor	(DF)	1
Digest Dilution Factor	(DDF)	1
Am-241 Area Peak Height from AEA	(C241)	5
Am-243 Area Peak Height from AEA	(C243)	157
Total AT Count	(ATOT)	631
AT Count Time in Minutes	(MIN CTd)	30
Background in CPM	(BKG)	6

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

µCi/mL = µCi/L / (1000mL/L)

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

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

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

Am-241 µCi/L	=	< 6.37E-03
Am-241 µCi/mL	=	< 6.37E-06
Relative counting error	=	45.4%
Am-243 Tracer Recovery	=	10.3%

Data Entry by:	Date: 24-Aug-93
Approved by:	Date: August 24, 1993

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AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 8-16-93 JLO

G608-5782

631/30 - 6

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

&18 4069

Serial No	Sample Point	Date	Time Issued	Priority
G 609.-5782	102 5 DAY	7-22-93	14:35	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? /mL .050 mL SPIKE 58843	B-1

Remarks Calculations Results

COUNT AS uCI/L $< 6.37 \times 10^{-6}$ uCi/ml

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	C.J. Crowe Hrs	Raymond Hrs 8.20.93	D.H. Wilcox Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
8-16-93	3:30	A.F. Fitts

WHC-SD-WM-DP-051 REV 0

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G609-5782	1361	0		08/16/93

		SAMPLE
Spike (Tracer) Book Number		58843
Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
Spike (Tracer) Volume in mL	(SPKV)	0.05
Volume of Sample in mL	(SS)	1
Dilution Factor	(DF)	1
Digest Dilution Factor	(DDF)	1
Am-241 Area Peak Height from AEA	(C241)	8
Am-243 Area Peak Height from AEA	(C243)	943
Total AT Count	(ATOT)	1655
AT Count Time in Minutes	(MIN CTd)	30
Background in CPM	(BKG)	2

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

µCi/mL = µCi/L / (1000mL/L)

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

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

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

Am-241 µCi/L	=	< 6.37E-03
Am-241 µCi/mL	=	< 6.37E-06
Relative counting error	=	35.5%
Am-243 Tracer Recovery	=	37.3%

Data Entry by: A.F. Fitts	Date: 24-Aug-93
Approved by: A.F. Fitts	Date: August 24, 1993

Form 3 Rev. 1.1 Page 1 of 1

#2 8-16-93 80

G609-5782

1655/30 - 2

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

#4 4773

Serial No	Sample Point	Date	Time Issued	Priority
G 610.-5782	102 5 DAY	7-22-93	14:36	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? /mL .050mL SPIKE 58B43	B-2

Remarks Calculations Results

COUNT AS uCI/L <6.37x10^-6 uCi/ml

Analyst - 1	Analyst - 2		Analyst - 4	Analyst 5
	C.J. Ojima (Hrs)	Raymond (Hrs) 8.20.93	D. Hutchins (Hrs)	(Hrs)

Date	Time Completed	Lab Unit Mgr	
8-16-93	03:30	[signature]	[signature] 8/24

54 6800-051 (4-10-83)

WHC-SD-WM-DP-054 REV 0

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

			SAMPLE
Serial No.	Spike (Tracer) Book Number		58B43
G610-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.05
1361	Volume of Sample in mL	(SS)	1
Rerun No.	Dilution Factor	(DF)	1
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	3
	Am-243 Area Peak Height from AEA	(C243)	114
Date	Total AT Count	(ATOT)	528
08/16/93	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	6

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

μCi/mL = μCi/L / (1000mL/L)

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

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

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

Am-241 μCi/L	=	< 6.37E-03
Am-241 μCi/mL	=	< 6.37E-06
Relative counting error	=	58.5%
Am-243 Tracer Recovery	=	8.0%

Data Entry by: [signature]	Date: 24-Aug-93
Approved by: [signature]	Date: August 24, 1993

Form 3 Rev. 1.1 Page 1 of 1

#3 8-16-93 GJO

G610-5282

528/30 - 6

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-054 REV O

DATA REDUCTION REPORT

SAMPLE
G604-5582
File ID: 11a3067.CNF

Counted on: 8/19/93 @18: 5
Detector: AEA11
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	61.9	61.9	302.396	302.396	12.000	4.998	6.000	3.562
2	26.2	26.2	256.320	256.319	10.000	4.858	5.000	2.655

PEAK RESULTS
Peak Error Limit: 15%

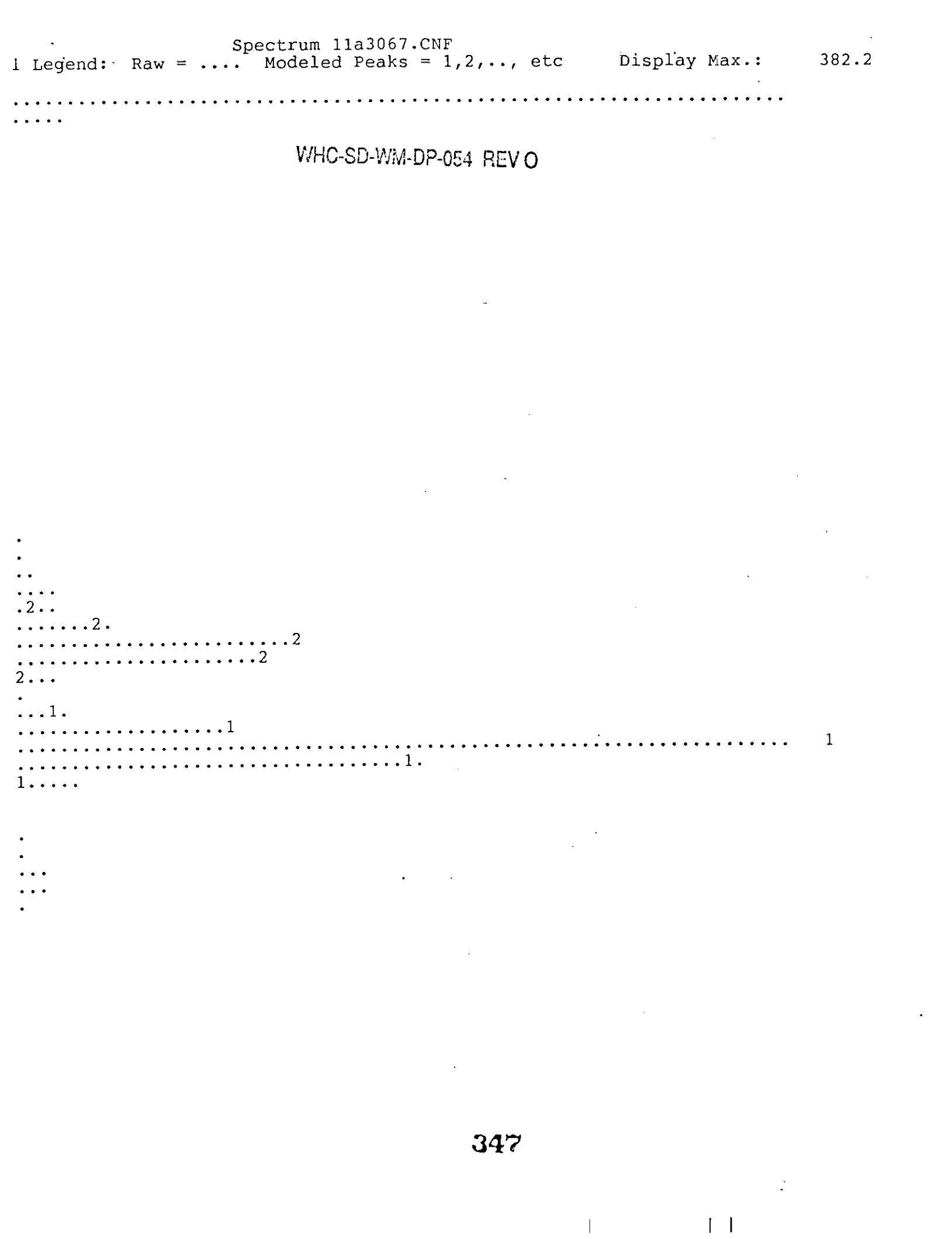
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
	Pu238	0.576	5.499	5.489	0.010	0.02	1.56	7.2	17.7	0.797E-05
	Am241		5.480	5.489	-.009				13.6	0.611E-05
2	Am243	0.265	5.234	5.277	-.043	0.02	0.72	10.6	5.9	0.267E-05
Totals:		0.842	<--valid peaks only-->				2.28			

DETECTOR CALIBRATION
Energy(MEV) = 4.097 + (0.0046)*Channel
Energy range (MeV): 4.097 TO 6.453
Efficiency = 0.1224 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	1299.0	100.000
Smoothed	1411.5	108.661
Composite fit	1093.4	84.171
Residuals	205.6	15.829

Analyzed by: EMB


Spectrum 11a3067.CNF
Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 382.2

Raw Data Dump for AEA Spectrum: 11a3067.CNF

1	28802.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
[illegible]	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
101	0.	1.	0.	0.	0.	0.	0.	1.	0.	0.
111	0.	1.	1.	0.	0.	1.	0.	0.	1.	1.
121	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
131	0.	0.	0.	0.	1.	1.	0.	0.	1.	0.
141	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
151	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
161	1.	0.	1.	2.	1.	0.	0.	1.	0.	0.
171	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
181	0.	0.	4.	0.	0.	0.	0.	0.	0.	1.
191	0.	1.	1.	0.	0.	0.	1.	1.	0.	0.
201	0.	0.	2.	1.	0.	2.	0.	2.	0.	0.
211	1.	1.	2.	0.	2.	1.	0.	3.	3.	2.
221	4.	3.	0.	1.	3.	4.	4.	5.	1.	1.
231	3.	3.	6.	4.	2.	3.	3.	3.	3.	2.
241	6.	3.	6.	3.	10.	9.	9.	7.	13.	9.
251	9.	17.	20.	22.	36.	28.	30.	29.	19.	15.
261	9.	4.	4.	4.	2.	1.	2.	2.	5.	4.
271	1.	1.	0.	1.	2.	0.	1.	2.	0.	1.
281	1.	1.	1.	4.	3.	9.	6.	5.	9.	13.
291	13.	17.	17.	12.	25.	12.	26.	45.	41.	50.
301	69.	82.	68.	58.	52.	34.	17.	17.	7.	12.
3	13.	10.	3.	6.	5.	4.	1.	1.	0.	0.
3	0.	0.	1.	0.	1.	0.	0.	1.	0.	0.
331	2.	0.	0.	1.	1.	0.	3.	2.	1.	2.
341	1.	0.	0.	1.	0.	2.	2.	2.	0.	0.
351	0.	3.	5.	0.	4.	2.	4.	3.	2.	0.
361	4.	2.	1.	1.	5.	1.	1.	4.	1.	2.
371	0.	1.	0.	2.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

D. H. Nichols
8-19-93

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
G605-5682 102/AM
File ID: SD3564.SPC

Counted on: 8/19/93 @ 1: 0
Detector/Geometry number: 3/ 1
Count time: 30000. 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	213.4	211.6	256.847	256.847	28.000	22.052	14.000	9.190

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Am243	1.0000	5.234	5.253	-0.019	0.11	5.12	230.91	0.104E-03

DETECTOR CALIBRATION

Energy(MEV) = 4.020 + (0.0048)*Channel
Energy range (MeV): 4.020 TO 6.477
Efficiency = 0.2014 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	2747.0	100.000
Smoothed	2747.0	99.998
Composite fit	2557.8	93.114
Residuals	189.1	6.884

Analyzed by: _____
VR


SPECTRUM SD3564.SPC
1 LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC
754.6

Raw Data Dump for AEA Spectrum: SP:SD3564.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
11	1.	0.	0.	1.	0.	1.	1.	0.	0.	0.
21	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
31	1.	0.	0.	0.	0.	0.	1.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
61	0.	2.	0.	0.	0.	1.	0.	0.	0.	0.
71	0.	1.	0.	0.	0.	2.	1.	1.	0.	1.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
91	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
101	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
111	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.
121	1.	0.	0.	1.	0.	0.	1.	2.	1.	2.
131	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
141	2.	2.	0.	1.	1.	1.	1.	0.	1.	1.
151	0.	1.	1.	0.	1.	0.	2.	1.	0.	0.
161	0.	1.	0.	2.	0.	0.	1.	1.	0.	0.
171	0.	0.	1.	0.	0.	0.	1.	0.	0.	1.
181	0.	0.	1.	1.	0.	0.	0.	1.	1.	1.
191	0.	0.	1.	1.	0.	1.	0.	1.	1.	0.
201	1.	1.	1.	1.	0.	0.	1.	0.	0.	0.
211	1.	3.	2.	0.	2.	2.	1.	4.	2.	1.
221	3.	3.	2.	1.	3.	5.	6.	8.	6.	5.
231	9.	12.	11.	14.	25.	26.	19.	27.	32.	28.
241	44.	41.	44.	53.	65.	76.	88.	85.	104.	74.
251	99.	114.	104.	109.	118.	126.	115.	113.	96.	88.
261	76.	89.	63.	49.	44.	43.	27.	29.	21.	16.
271	10.	12.	10.	5.	7.	7.	8.	5.	4.	3.
281	3.	6.	2.	2.	6.	1.	0.	0.	4.	2.
291	1.	3.	3.	4.	0.	3.	3.	1.	3.	2.
301	0.	1.	1.	1.	3.	0.	2.	0.	1.	0.
311	0.	1.	0.	0.	0.	1.	0.	0.	0.	1.
321	0.	0.	0.	1.	0.	2.	0.	1.	1.	1.
331	2.	0.	1.	0.	0.	0.	0.	2.	0.	2.
341	1.	0.	0.	1.	1.	3.	1.	1.	0.	0.
351	0.	1.	1.	1.	1.	2.	0.	2.	0.	0.
361	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
371	1.	1.	0.	0.	1.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
421	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
451	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
461	1.	1.	0.	0.	0.	0.	0.	2.	0.	0.
471	1.	0.	0.	3.	2.	1.	0.	2.	0.	4.
481	2.	3.	0.	0.	1.	1.	2.	1.	0.	2.
491	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

D.A. Nelson
8.19.93

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. 1.10

DATA REDUCTION REPORT

SAMPLE
G606-5782 102/AM
File ID: SD2168.SPC

Counted on: 8/19/93 @ 1: 0
Detector/Geometry number: 2/ 1
Count time: 30000. 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	5.4	5.0	359.337	359.337	28.000	34.353	14.000	4.626
2	21.5	16.2	302.020	302.020	64.000	112.176	32.000	28.219
3	774.0	781.2	256.818	256.818	28.000	20.405	14.000	6.338

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
	Ra224	0.0103	5.680	5.736	-0.056	0.16	0.22	1.15	0.519E-06
	Pu236		5.756	5.736	0.020				0.498E-06
2	Am241	0.0402	5.480	5.472	0.008	0.52	0.84	4.50	0.203E-05
	Pu238		5.499	5.472	0.027				0.265E-05
3	Am243	0.9496	5.234	5.264	-0.030	0.09	19.95	909.90	0.410E-03

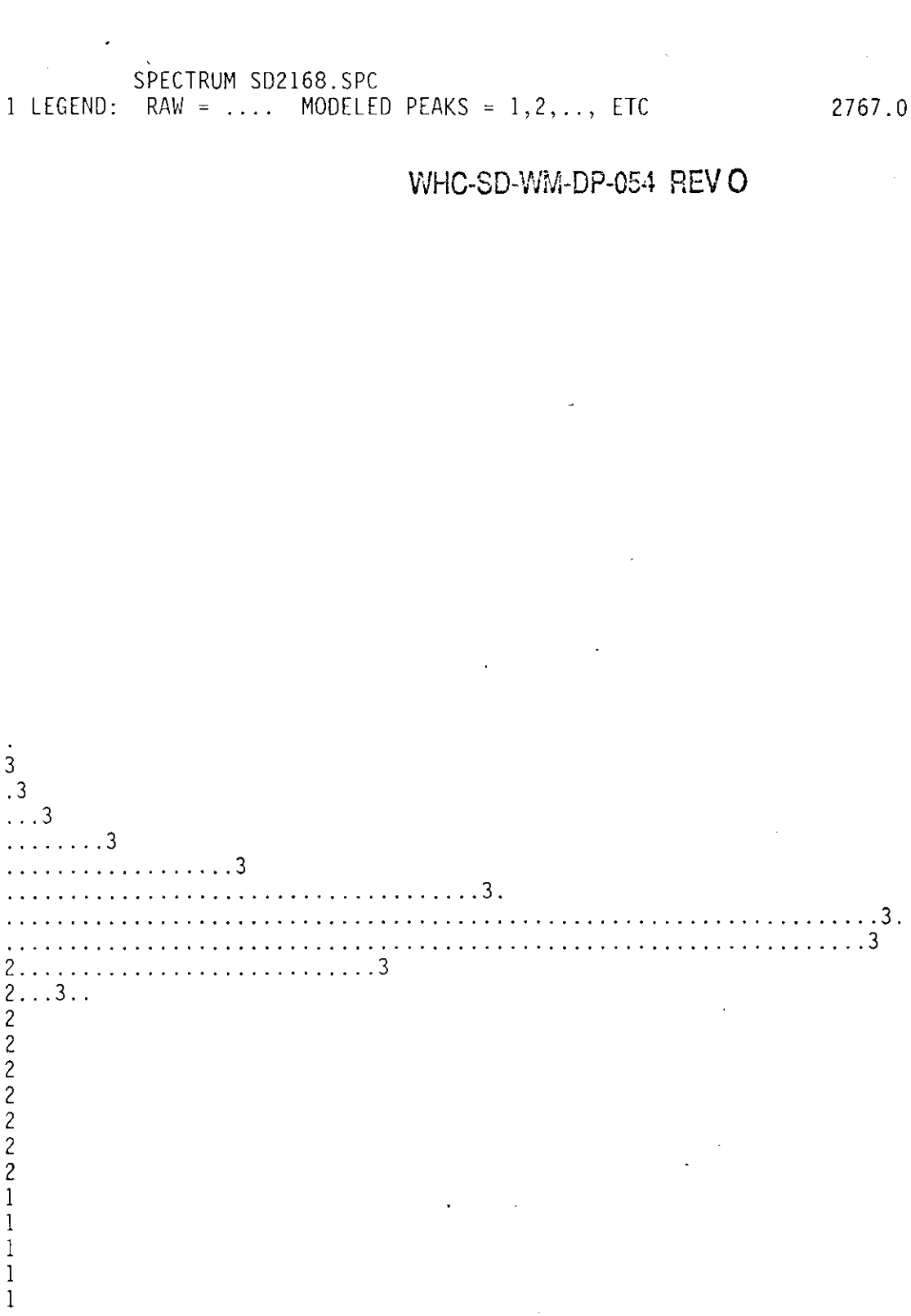
DETECTOR CALIBRATION

Energy(MEV) = 4.083 + (0.0046)*Channel
Energy range (MeV): 4.083 TO 6.438
Efficiency = 0.1993 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	10630.0	100.000
Smoothed	10629.7	99.997
Composite fit	10503.7	98.812
Residuals	126.0	1.185

Analyzed by: _____
VR


SPECTRUM SD2168.SPC
1 LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC
2767.0

Raw Data Dump for AEA Spectrum: SP:SD2168.SPC

1	0.	0.	0.	0.	0.	0.	1.	0.	0.	2.
11	0.	0.	0.	0.	0.	1.	0.	0.	1.	1.
21	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
31	0.	0.	0.	0.	1.	0.	1.	0.	1.	1.
41	1.	1.	1.	0.	0.	1.	1.	2.	1.	0.
51	0.	1.	1.	1.	0.	0.	2.	0.	1.	0.
61	1.	1.	0.	0.	1.	0.	0.	1.	1.	2.
71	0.	1.	0.	0.	2.	1.	1.	0.	1.	1.
81	0.	0.	1.	0.	1.	0.	2.	0.	0.	1.
91	0.	2.	3.	0.	0.	0.	1.	1.	1.	2.
101	1.	1.	0.	1.	1.	2.	0.	1.	0.	2.
111	2.	3.	0.	2.	1.	1.	2.	1.	2.	1.
121	3.	1.	0.	2.	1.	0.	1.	2.	2.	1.
131	0.	1.	3.	1.	1.	1.	0.	1.	1.	2.
141	2.	4.	0.	0.	1.	1.	1.	1.	2.	0.
151	1.	2.	1.	0.	3.	2.	2.	1.	0.	3.
161	0.	2.	2.	3.	0.	2.	2.	2.	4.	0.
171	3.	0.	4.	2.	2.	2.	4.	5.	6.	4.
181	1.	2.	2.	3.	4.	4.	3.	4.	4.	3.
191	2.	2.	6.	6.	6.	6.	6.	7.	3.	5.
201	10.	11.	6.	10.	10.	10.	9.	15.	16.	11.
21	12.	10.	14.	15.	14.	16.	20.	22.	23.	23.
22	22.	24.	29.	40.	31.	37.	49.	53.	56.	38.
231	74.	64.	78.	96.	94.	120.	93.	108.	130.	137.
241	168.	173.	232.	222.	195.	277.	243.	321.	292.	354.
251	383.	393.	421.	416.	424.	430.	402.	413.	355.	339.
261	295.	304.	253.	218.	167.	140.	117.	80.	73.	56.
271	53.	37.	24.	19.	17.	20.	9.	8.	4.	7.
281	5.	4.	2.	2.	2.	8.	6.	6.	3.	6.
291	7.	10.	4.	7.	14.	11.	7.	13.	10.	6.
301	13.	8.	7.	13.	5.	14.	8.	6.	4.	6.
311	5.	3.	3.	5.	2.	7.	0.	1.	3.	2.
321	0.	1.	0.	0.	1.	2.	0.	0.	1.	2.
331	1.	2.	1.	1.	1.	2.	1.	2.	1.	1.
341	0.	1.	1.	0.	3.	1.	2.	4.	3.	3.
351	3.	2.	2.	0.	2.	4.	3.	5.	2.	1.
361	2.	3.	5.	1.	1.	0.	2.	0.	1.	1.
371	1.	2.	3.	1.	0.	1.	0.	0.	0.	0.
381	0.	1.	0.	0.	0.	0.	1.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
421	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
431	1.	0.	1.	1.	0.	0.	1.	0.	1.	0.
441	1.	1.	1.	0.	0.	1.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
461	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
47	0.	0.	0.	2.	0.	0.	2.	2.	0.	0.
48	0.	0.	2.	1.	1.	1.	1.	1.	1.	0.
491	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

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

WHC-SD-WM-DP-054 REV O DATA REDUCTION REPORT

SAMPLE
G607-5782
File ID: 9a1174.CNF

Counted on: 8/19/93 @18: 4
Detector: AEA9
Geometry number: 1
Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Final	Peak center Initial	Final	FWHM Initial	Final	Tau Initial	Final
1	115.9	115.9	255.747	255.747	10.000	3.741	5.000	2.069

PEAK RESULTS
Peak Error Limit: 15%

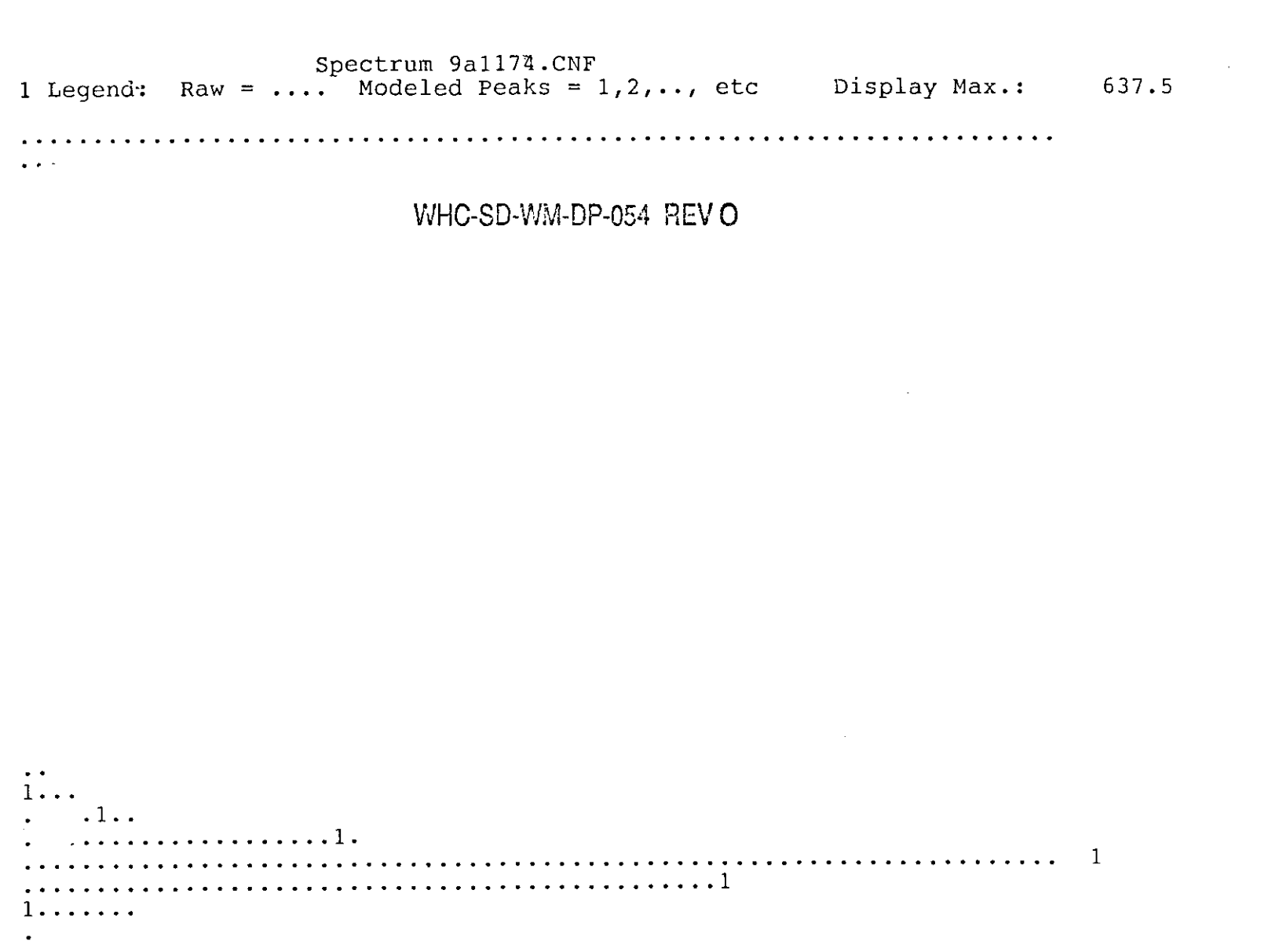
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.851	5.234	5.274	-.0400	0.02	2.94	5.2	24.3	0.109E-04
Totals:		0.851	<--valid peaks only-->				2.94			

DETECTOR CALIBRATION
Energy(MEV) = 4.097 + (0.0046)*Channel
Energy range (MeV): 4.097 TO 6.453
Efficiency = 0.1224 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	1659.0	100.000
Smoothed	1771.5	106.781
Composite fit	1411.3	85.072
Residuals	247.7	14.928

Analyzed by: EMB


Spectrum 9a1174.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 637.5

Raw Data Dump for AEA Spectrum: 9a1174.CNF

1	28800.	0.	0.	0.	0.	0.	0.	0.	0.	1.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	1.	0.	0.	1.	0.	1.	0.	1.	0.
31	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
51	0.	2.	0.	0.	0.	2.	0.	1.	0.	0.
61	2.	0.	0.	0.	1.	1.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
81	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	1.	0.	0.	0.	1.	1.	0.	0.
101	2.	0.	0.	0.	0.	1.	0.	0.	1.	1.
111	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.
121	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.
131	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
141	0.	0.	0.	0.	2.	2.	0.	0.	0.	0.
151	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
161	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
171	0.	2.	0.	3.	0.	0.	1.	1.	2.	1.
181	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
191	0.	2.	0.	2.	1.	1.	2.	0.	0.	2.
201	0.	1.	2.	0.	1.	0.	0.	0.	1.	0.
211	0.	3.	1.	0.	0.	2.	1.	6.	1.	0.
221	2.	3.	6.	3.	5.	3.	3.	5.	3.	9.
231	8.	5.	10.	14.	7.	7.	16.	9.	9.	16.
241	15.	14.	24.	34.	25.	32.	44.	46.	52.	61.
251	51.	74.	98.	113.	117.	156.	117.	99.	61.	23.
261	21.	13.	12.	11.	7.	5.	6.	13.	3.	3.
271	4.	6.	1.	2.	0.	1.	0.	1.	2.	0.
281	0.	0.	0.	0.	1.	1.	1.	0.	0.	2.
291	0.	1.	2.	0.	2.	0.	1.	0.	2.	1.
301	0.	3.	1.	1.	2.	2.	1.	0.	0.	0.
311	0.	0.	0.	1.	0.	1.	0.	0.	0.	2.
321	0.	0.	3.	1.	1.	3.	0.	0.	1.	0.
331	3.	0.	4.	1.	1.	0.	2.	0.	1.	0.
341	1.	0.	1.	1.	0.	2.	2.	0.	0.	1.
351	1.	1.	1.	0.	0.	1.	0.	1.	0.	0.
361	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	1.	0.	0.	0.	0.	0.	0.	2.	0.
441	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

D.W. Widdoes
8-20-93

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

WHC-SD-WM-DP-054 REV 0

SAMPLE
G608-5782 AM/102
File ID: 11a3069.CNF

Counted on: 8/20/93 @ 2:50
Detector: AEA11
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	127.5	127.5	255.813	255.813	12.000	4.393	6.000	1.186

PEAK RESULTS
Peak Error Limit: 15%

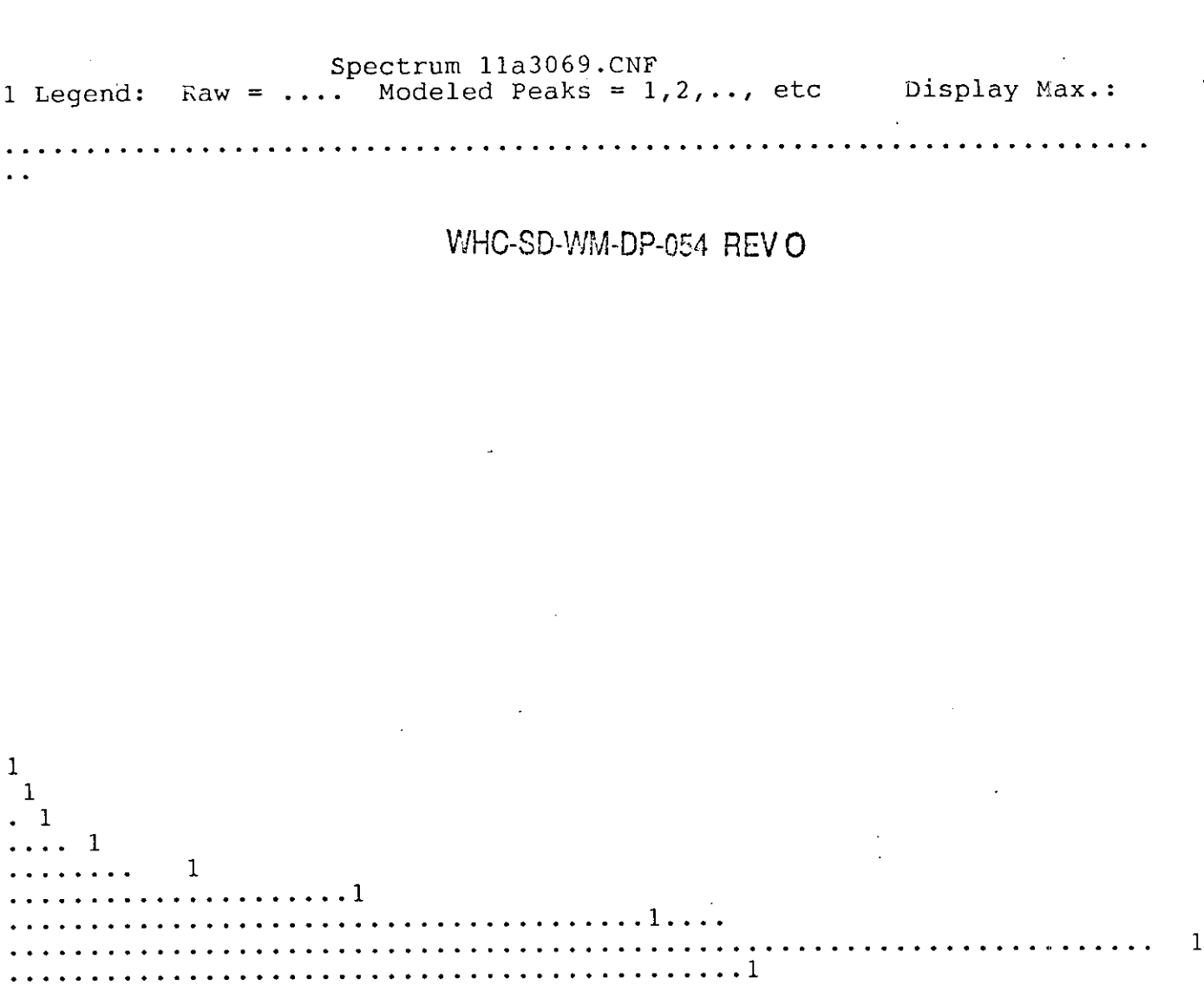
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.983	5.276	5.297	-.021	0.02	5.05	4.0	39.5	0.178E-04
Totals:		0.983	<--valid peaks only-->				5.05			

DETECTOR CALIBRATION
Energy(MEV) = 4.095 + (0.0047)*Channel
Energy range (MeV): 4.095 TO 6.502
Efficiency = 0.1290 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	2466.0	100.000
Smoothed	2578.5	104.563
Composite fit	2424.0	98.299
Residuals	42.0	1.701

Analyzed by: _____
VR


Spectrum 11a3069.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 796.3

Raw Data Dump for AEA Spectrum: 11a3069.CNF

1	28803.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
101	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
111	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
121	0.	1.	1.	0.	1.	0.	0.	0.	0.	1.
131	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
141	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.
151	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
161	1.	0.	0.	1.	0.	0.	1.	0.	0.	1.
171	0.	0.	2.	0.	2.	1.	0.	3.	1.	0.
181	0.	0.	1.	0.	1.	1.	1.	2.	0.	0.
191	1.	0.	1.	0.	1.	2.	0.	2.	1.	2.
201	2.	1.	0.	1.	2.	1.	0.	2.	1.	2.
211	0.	5.	5.	1.	4.	3.	1.	3.	8.	9.
221	9.	6.	8.	5.	6.	12.	10.	14.	13.	11.
231	16.	22.	20.	24.	25.	29.	28.	49.	51.	33.
241	47.	55.	74.	64.	71.	80.	73.	80.	86.	70.
251	96.	84.	111.	111.	135.	157.	134.	117.	78.	39.
261	26.	18.	14.	9.	7.	10.	9.	8.	2.	5.
271	3.	6.	4.	0.	1.	1.	0.	0.	0.	0.
281	0.	0.	1.	0.	0.	0.	0.	1.	1.	1.
291	0.	2.	0.	0.	0.	1.	0.	2.	2.	5.
301	0.	1.	1.	1.	0.	2.	0.	0.	0.	2.
3	0.	0.	2.	0.	0.	1.	0.	0.	0.	0.
3	1.	0.	2.	0.	0.	1.	0.	0.	1.	2.
331	1.	0.	3.	1.	0.	0.	0.	2.	0.	1.
341	1.	1.	0.	1.	1.	1.	0.	0.	4.	3.
351	0.	1.	4.	0.	2.	3.	1.	5.	1.	2.
361	5.	1.	3.	1.	2.	1.	2.	4.	2.	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.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

D. H Mirelis
8-20-93

Westinghouse Hanford Co.

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

WHC-SD-WM-DP-054 REV O DATA REDUCTION REPORT

SAMPLE
G609-5782 AM/102
File ID: 12a4069.CNF

Counted on: 8/20/93 @ 2:50
Detector: AEA12
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	758.9	758.9	254.608	254.608	10.000	3.697	5.000	2.063

PEAK RESULTS
Peak Error Limit: 15%

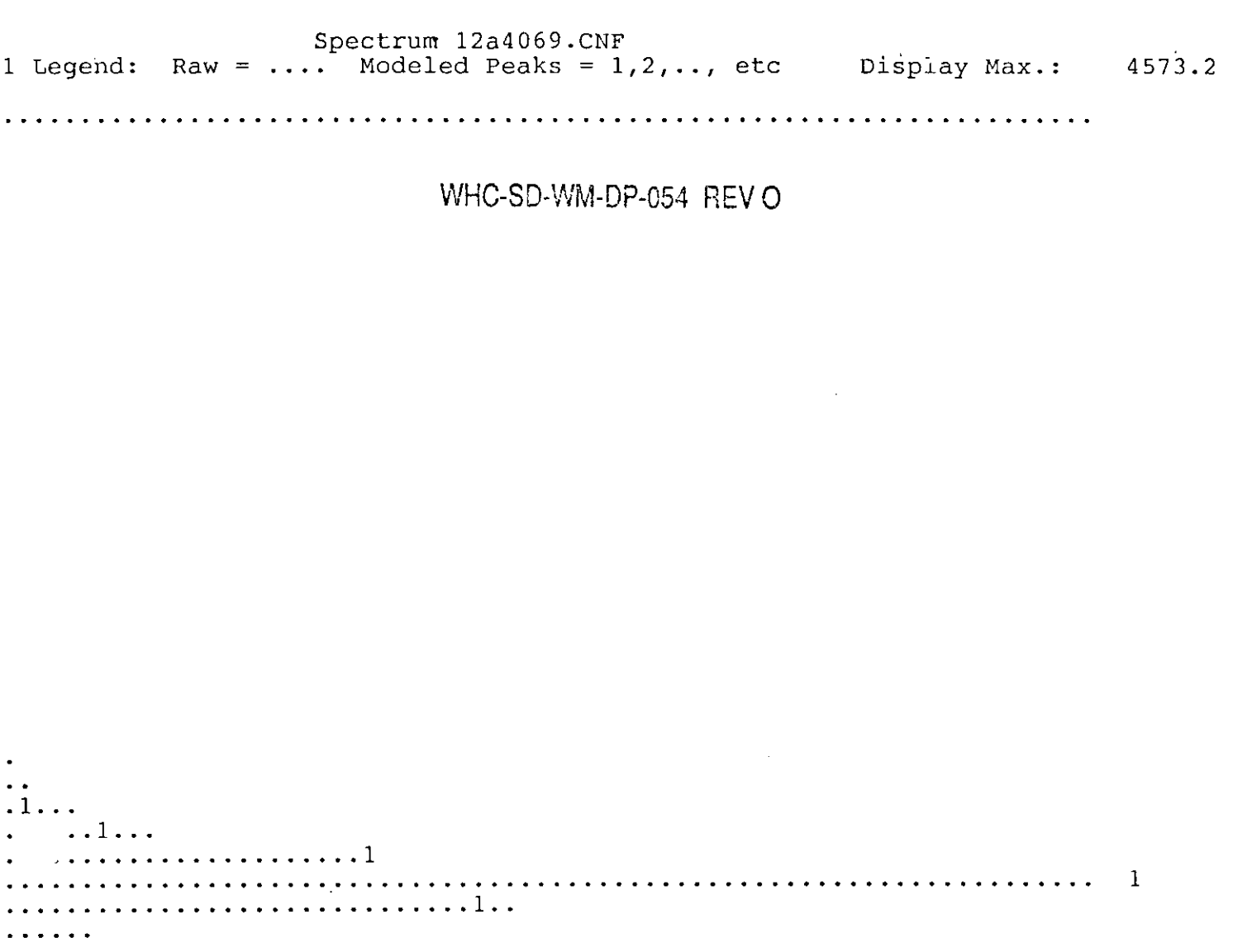
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.870	5.276	5.292	-.0160	2.02	19.10	2.0	149.6	0.674E-04
Totals:		0.870	<--valid peaks only-->				19.10			

DETECTOR CALIBRATION
Energy(MEV) = 4.095 + (0.0047)*Channel
Energy range (MeV): 4.095 TO 6.502
Efficiency = 0.1290 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	10538.0	100.000
Smoothed	10650.5	101.068
Composite fit	9169.4	87.013
Residuals	1368.6	12.987

Analyzed by: _____
VR


Spectrum 12a4069.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 4573.2

Raw Data Dump for AEA Spectrum: 12a4069.CNF

1	28804.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	1.	0.	0.	1.	0.	0.	1.	0.	0.
31	0.	1.	0.	0.	1.	0.	1.	0.	0.	0.
41	1.	0.	0.	0.	0.	2.	0.	0.	0.	0.
51	0.	0.	0.	1.	0.	0.	0.	2.	2.	1.
61	0.	0.	0.	3.	1.	1.	1.	0.	1.	0.
71	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.
81	1.	2.	0.	1.	2.	1.	0.	1.	0.	0.
91	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.
101	1.	0.	0.	1.	1.	1.	0.	3.	1.	0.
111	1.	1.	0.	2.	0.	1.	0.	0.	1.	3.
121	0.	1.	0.	0.	1.	2.	1.	1.	0.	1.
131	1.	1.	3.	0.	2.	3.	1.	1.	1.	1.
141	2.	3.	1.	1.	3.	0.	2.	0.	0.	2.
151	2.	2.	0.	1.	3.	3.	3.	3.	2.	1.
161	2.	2.	1.	3.	4.	6.	1.	2.	4.	4.
171	1.	0.	4.	3.	0.	5.	4.	2.	5.	0.
181	3.	6.	6.	1.	3.	7.	4.	1.	9.	5.
191	8.	2.	5.	4.	8.	6.	5.	6.	6.	7.
201	7.	6.	11.	9.	9.	5.	6.	8.	15.	13.
211	7.	15.	10.	15.	14.	12.	20.	17.	18.	18.
221	18.	21.	27.	30.	25.	31.	36.	41.	52.	49.
231	63.	59.	63.	63.	68.	94.	85.	100.	113.	136.
241	109.	163.	189.	199.	223.	274.	290.	300.	303.	389.
251	463.	604.	807.	867.	943.	859.	578.	331.	171.	118.
261	68.	74.	73.	53.	51.	41.	49.	35.	44.	22.
271	12.	19.	3.	2.	1.	0.	2.	0.	1.	0.
281	0.	2.	0.	1.	1.	2.	1.	1.	0.	3.
291	6.	4.	5.	3.	2.	4.	4.	6.	8.	8.
301	6.	7.	5.	4.	2.	2.	2.	2.	0.	1.
311	1.	1.	0.	0.	1.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
341	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.
351	0.	1.	2.	3.	1.	4.	2.	2.	2.	2.
361	2.	4.	1.	4.	1.	1.	1.	0.	1.	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.	0.
431	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Duplicate
8-20-93

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
G-610-5782
File ID: SD4773.SPC

Counted on: 8/20/93 @ 4: 0
Detector/Geometry number: 4/ 1
Count time: 30000. 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	161.2	155.1	256.043	256.043	20.000	8.849	10.000	7.094

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	Activity d/m	Activity uCi/ea
1		1.0000		5.301		0.04	2.29	16.92	0.762E-05

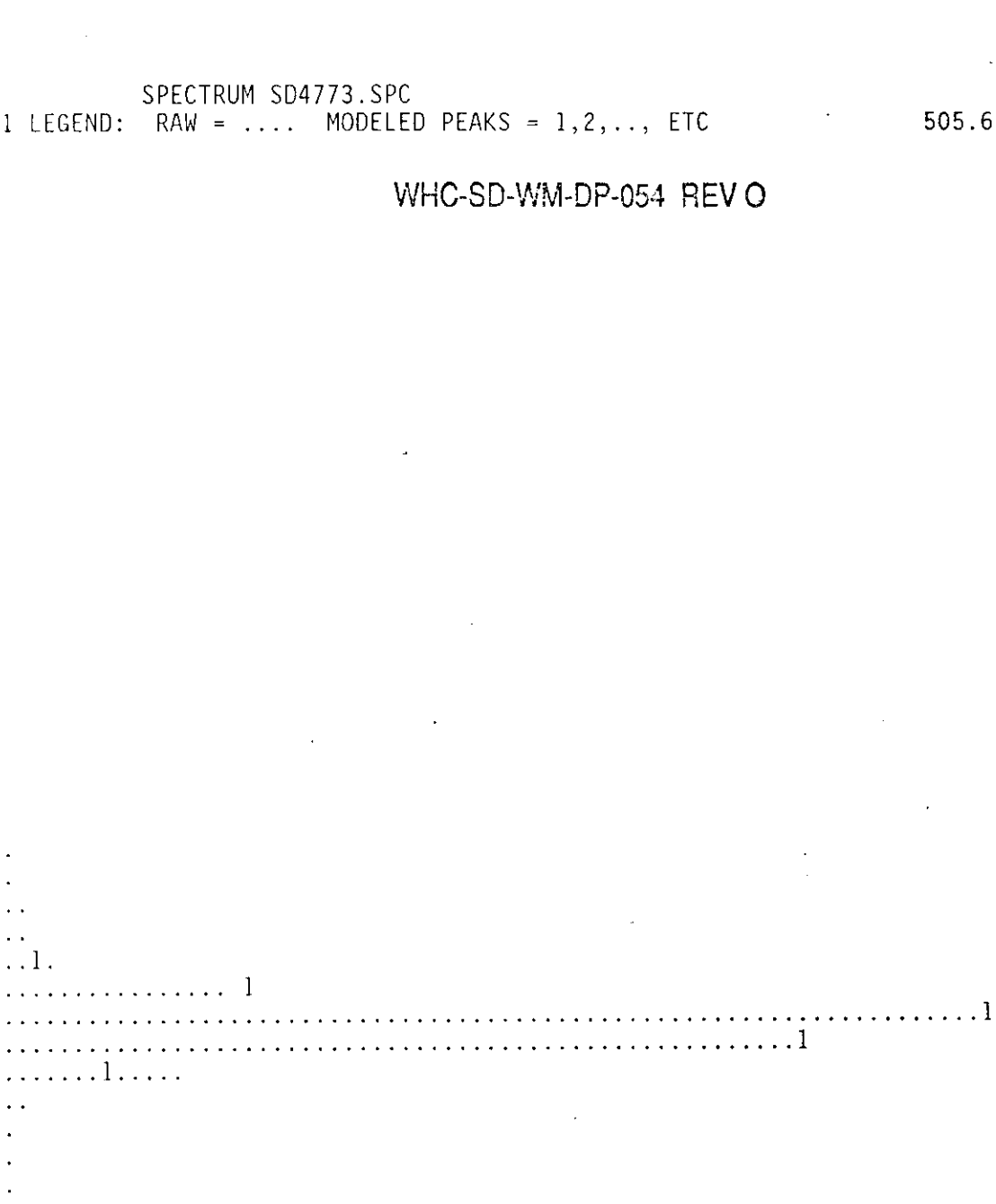
DETECTOR CALIBRATION

Energy(MEV) = 4.098 + (0.0047)*Channel
Energy range (MeV): 4.098 TO 6.504
Efficiency = 0.1356 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	1346.0	100.000
Smoothed	1345.6	99.972
Composite fit	1146.9	85.206
Residuals	198.7	14.759

Analyzed by: _____


SPECTRUM SD4773.SPC
1 LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC
505.6

Raw Data Dump for AEA Spectrum: SP:SD4773.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
31	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
71	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
91	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
101	0.	1.	0.	0.	0.	0.	0.	1.	0.	1.
111	1.	1.	0.	0.	1.	0.	0.	0.	0.	0.
121	0.	0.	1.	0.	0.	0.	0.	1.	1.	0.
131	0.	0.	0.	0.	2.	2.	1.	0.	0.	0.
141	0.	0.	2.	0.	0.	2.	0.	1.	0.	0.
151	0.	1.	0.	0.	1.	0.	1.	0.	0.	1.
161	1.	0.	0.	1.	0.	0.	0.	0.	0.	1.
171	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
181	0.	1.	0.	1.	0.	1.	2.	0.	0.	0.
191	0.	1.	1.	0.	0.	2.	1.	1.	1.	0.
201	3.	1.	2.	0.	0.	2.	2.	1.	2.	1.
211	2.	3.	1.	1.	1.	2.	1.	4.	2.	2.
22	1.	4.	2.	2.	5.	1.	2.	4.	0.	3.
231	3.	4.	2.	0.	4.	5.	5.	2.	7.	9.
241	8.	9.	19.	14.	16.	19.	22.	33.	40.	57.
251	74.	79.	96.	114.	99.	103.	76.	73.	54.	33.
261	24.	19.	13.	11.	8.	6.	5.	6.	6.	2.
271	1.	3.	1.	2.	0.	0.	1.	0.	0.	0.
281	2.	0.	0.	0.	1.	3.	1.	1.	2.	2.
291	2.	1.	0.	0.	2.	1.	1.	2.	1.	3.
301	0.	2.	0.	0.	0.	0.	1.	0.	0.	1.
311	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	1.	3.	0.	1.	1.	0.	0.
351	0.	1.	0.	1.	0.	1.	1.	2.	0.	0.
361	1.	1.	1.	1.	0.	0.	0.	0.	3.	1.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	1.	0.	2.	0.	0.	1.	0.	0.
48	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

WESTINGHOUSE HANFORD COMPANY Batch 13666

222-S LABORATORY

WHC-SD-WM-DP-054 REV O

ANALYTICAL BATCH 102-S-Day

Lab Segment Serial No.	Customer ID:
G 614, 615, 616, 617, 618	B5, B4, B5, B4, B7
Analysis: Am 241	Sample Prep: Direct

Instrument: WB57237	Procedure/ Rev: CA-503-156-D-0
Technologist: JI Solbrack Jeff Solbrack	Date: 8-11-93 8-12-93
Starting Time: 2150 8-11-93	Temperature NA
Ending Time: 0715 8-12-93	Chemist: S Catlow

Comments: Low tracer recoveries, high standard recovery, varying results -- Rerun requested on G614 and G617.

	Description		Lab ID
1	CMCS STD	*	G612-5582
2	Reagent Blank	*	G613-5682
3	Sample	*	G614-5782
4	Sample		G615-5782
5	Sample		G616-5782
6	Sample	*	G617-5782
7	Sample		G618-5782
8			
9			
10			

	Description		Lab ID
11			
12			
13	* OUT FOR RERUN		
14			
15			
16			
17			
18			
19			
20			

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
CMCS STD	63843 .100 mL			
Spike	58843 .100 mL			

ANALYTICAL BATCH SUMMARY SHEET

WHC-SD-WM-DP-054 REV 0

METHOD: LA-503-156

DATE START: August 12, 1993

PREPARED BY: L. L. Fritts

DATE COMPLETE: August 19, 1993

UNITS:		uCi/mL							
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	AVERAGE	RPD%	%REC	DET LIM	% CT ER
STD 63B43	G612	Am-241	3.12E+1				116.4		12.2
BLANK	G613	Am-241	<1.27E-5				20.2		38.1
B-3	G614	Am-241	1.93E-5				4.2	1.27E-5	46.4
B-4	G615	Am-241	<1.27E-5				11.3	1.27E-5	35.9
B-5	G616	Am-241	<1.27E-5				6.2	1.27E-5	58.1
B-6	G617	Am-241	6.37E-5				1.0	1.27E-5	111.8
B-7	G618	Am-241	<1.27E-5				9.6	1.27E-5	58.2

NARRATIVE: ☐ NO SPECIAL PROBLEMS/METHOD VARIATIONS IN THIS BATCH

LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in uCi/L.

Rerun Requested: G617 and G614--Results were obtained and the % recovery is low.

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

3.3 3542

Serial No	Sample Point	Date	Time Issued	Priority
G 612.-5582	102 5 DAY	7-22-93	14:36	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	D44B3	0

Sample Size	Customer ID
? 100-10-1ml. 1ml. 8M HNO3 acid adj. .140 ml. 58843	STD

Remarks, Calculations, Results

EDP R201 AR001

STD# 63843 RESULT 31.2 uCi/L

STD VAL 26.805 uCi/L %REC 116.4

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Eric Bowden			
	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr.	
8-12-93	0215		

54 6900 061 (R 10 83)

WHC-SD-WM-DP-054 REV 0

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

Serial No.		STANDARD
G612-5582	Spike (Tracer) Book Number	58B43
Batch ID	Activity of Am243 Tracer in dpm/mL (SPKA)	5655
1366	Spike (Tracer) Volume in mL (SPKV)	0.1
Rerun No.	Volume of Sample in mL (SS)	1
0	Dilution Factor (DF)	101
Analyst	Digest Dilution Factor (DDF)	1
	Am-241 Area Peak Height from AEA (C241)	149
	Am-243 Area Peak Height from AEA (C243)	123
Date	Total AT Count (ATOT)	957
08/12/93	AT Count Time in Minutes (MIN CTd)	30
	Background in CPM (BKG)	2

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

µCi/mL = µCi/L / (1000mL/L)

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

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

Am-241 µCi/L	=	3.12E+01
Am-241 µCi/mL	=	3.12E-02
Relative counting error	=	12.2%
Am-243 Tracer Recovery	=	4.8%

Data Entry by: Date: 13-Aug-93

Approved by: Date: August 19, 1993

Form 3 Rev. 1.1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#2 8-12-93

$\frac{957}{30}$ - 2 G612-5582

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

401 5664

Serial No	Sample Point	Date	Time Issued	Priority
G 613.-5682	102 5 DAY	7-22-93	14:37	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? 1ml. + 100ml 58843	BLK

Remarks, Calculations, Results

REAGENT BLANK $< 1.27 \times 10^{-5}$ µCi/ml

COUNT AS uCI/L

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

Date	Time Completed	Lab Supervisor	
8-12-93	0715		

54-6400-061-R 10-91

WHC-SD-WM-DP-054 REV O

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G613-5682	1366	0		08/12/93

			BLANK
Spike (Tracer) Book Number			58B43
Activity of Am243 Tracer in dpm/mL	(SPKA)		5655
Spike (Tracer) Volume in mL	(SPKV)		0.1
Volume of Sample in mL	(SS)		1
Dilution Factor	(DF)		1
Digest Dilution Factor	(DDF)		1
Am-241 Area Peak Height from AEA	(C241)		7
Am-243 Area Peak Height from AEA	(C243)		451
Total AT Count	(ATOT)		1950
AT Count Time in Minutes	(MIN CTd)		30
Background in CPM	(BKG)		7

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

µCi/mL = µCi/L / (1000mL/L)

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

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

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

Am-241 µCi/L	=	< 1.27E-02
Am-241 µCi/mL	=	< 1.27E-05
Relative counting error	=	38.1%
Am-243 Tracer Recovery	=	20.2%

Data Entry by:	Date: 19-Aug-93
Approved by:	Date: August 19, 1993

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 B-1293 90

G613-5682

1950-7
30

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

3.2 2146

Serial No	Sample Point	Date	Time Issued	Priority
G 614.-5782	102 5 DAY	7-22-93	14:38	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? 6ml + 100ml 58843	B-3

Remarks Calculations Results

COUNT AS uCI/L 1.93×10^{-5} µCi/ml

OUT FOR RERUN

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

Date	Time Completed	Lab Unit Mgr
8-12-93	0715	

54 6800-061 (R 10 83)

WHC-SD-WM-DP-051 REV 0

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

Serial No	Spike (Tracer) Book Number		SAMPLE
G614-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
1366	Volume of Sample in mL	(SS)	1
Rerun No.	Dilution Factor	(DF)	1
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	5
	Am-243 Area Peak Height from AEA	(C243)	66
Date	Total AT Count	(ATOT)	591
08/12/93	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	7

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

µCi/mL = µCi/L / (1000mL/L)

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

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

Am-241 µCi/L	=	1.93E-02
Am-241 µCi/mL	=	1.93E-05
Relative counting error	=	46.4%
Am-243 Tracer Recovery	=	4.2%

Data Entry by:		Date: 13-Aug-93
Approved by:		Date: August 19, 1993

Form 3 Rev. 1.1

Page 1 of 1

#3 8-12-93

$\frac{591}{30}$ -7 G614-5282

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

H-4 8329

Serial No	Sample Point	Date	Time Issued	Priority
G 615.-5782	102 5 DAY	7-22-93	14:40	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? 1mL + .100mL 58843	B-4

Remarks Calculations Results

COUNT AS uCI/L $< 1.27 \times 10^{-5}$ $\mu Ci/ml$

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

Date	Time Completed	Lab Unit Mgr
8-12-93	0715	

54 6A00 061 (R 10 93)

WHC-SD-WM-DP-051 REV 0

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G615-5782	1366	0		08/12/93

			SAMPLE
Spike (Tracer) Book Number			58843
Activity of Am243 Tracer in dpm/mL	(SPKA)		5655
Spike (Tracer) Volume in mL	(SPKV)		0.1
Volume of Sample in mL	(SS)		1
Dilution Factor	(DF)		1
Digest Dilution Factor	(DDF)		1
Am-241 Area Peak Height from AEA	(C241)		8
Am-243 Area Peak Height from AEA	(C243)		269
Total AT Count	(ATOT)		1195
AT Count Time in Minutes	(MIN CTd)		30
Background in CPM	(BKG)		7

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

µCi/mL = µCi/L / (1000mL/L)

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

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

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

Am-241 µCi/L	=	< 1.27E-02
Am-241 µCi/mL	=	< 1.27E-05
Relative counting error	=	35.9%
Am-243 Tracer Recovery	=	11.3%

Data Entry by:	Date: 13-Aug-93
Approved by:	Date: August 19, 1993

Form 3 Rev. 1.1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 8-12-93

1195/30 -7 G615-5782

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

H-3 7108

Serial No	Sample Point	Date	Time Issued	Priority
G 616.-5782	102 5 DAY	7-22-93	14:40	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? 1ml. + 100 ml. 58843	B-5

Remarks, Calculations, Results

COUNT AS uCI/L $< 1.27 \times 10^{-5}$ µCi/ml

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

Date	Time Completed	Lab Unit Mgr.	
8-12-93	0715		

54 6800 061 (R 10 83)

WHC-SD-WM-DP-051 REV 0

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

Serial No.			SAMPLE
G616-5782	Spike (Tracer) Book Number		58843
Batch ID	Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
1366	Spike (Tracer) Volume in mL	(SPKV)	0.1
Rerun No.	Volume of Sample in mL	(SS)	1
0	Dilution Factor	(DF)	1
Analyst	Digest Dilution Factor	(DDF)	1
	Am-241 Area Peak Height from AEA	(C241)	3
	Am-243 Area Peak Height from AEA	(C243)	254
Date	Total AT Count	(ATOT)	590
08/12/93	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	2

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

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

Am-241 µCi/L	=	< 1.27E-02
Am-241 µCi/mL	=	< 1.27E-05
Relative counting error	=	58.1%
Am-243 Tracer Recovery	=	6.2%

Data Entry by: Date: 13-Aug-93
Approved by: LA Fitts Date: August 19, 1993

Form 3 Rev. 1.1

#2 8-12-93

G616-5282

590/30 - 2

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

4.2 6582

Serial No	Sample Point	Date	Time Issued	Priority
G 617.-5782	102 5 DAY	7-22-93	14:41	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? 1ml. + 100ml. 58B43	B-6

Remarks Calculations Results

COUNT AS uCI/L ~~$<1.27 \times 10^{-5}$ µCi/ml~~ 8.19.93

6.37×10^{-5} µCi/ml

OUT FOR RERUN

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Eric Barela			
	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr.	
8-12-93	0715		

54 6800 061 R-10 831

WHC-SD-WM-DP-053 REV 0

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

Serial No.			SAMPLE
G617-5782	Spike (Tracer) Book Number		58B43
	Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
1366	Volume of Sample in mL	(SS)	1
Rerun No.	Dilution Factor	(DF)	1
0	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	1
	Am-243 Area Peak Height from AEA	(C243)	4
Date	Total AT Count	(ATOT)	318
08/12/93	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	7

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

µCi/mL = µCi/L / (1000mL/L)

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

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

Am-241 µCi/L	=	6.37E-02
Am-241 µCi/mL	=	6.37E-05
Relative counting error	=	111.8%
Am-243 Tracer Recovery	=	1.0%

Data Entry by:	Date: 19-Aug-93
Approved by:	Date: August 19, 1993

Form 3 Rev. 1.1

#3 8-12-93

G617-5782

318/30 - 7

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

304 4747

Serial No	Sample Point	Date	Time Issued	Priority
G 618.-5782	102 5 DAY	7-22-93	14:41	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	0

Sample Size	Customer ID
? /ml + .100ml 58843	B-7

Remarks Calculations Results

COUNT AS uCI/L $< 1.27 \times 10^{-5}$ uCi/ml

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Ev Barbe			
	Hrs	Hrs	Hrs	Hrs

Date	Time Completed	Lab Unit Mgr
8-12-93	0715	

54 6800-061 (R 10 83)

WHC-SD-WM-DP-054 REV 0

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

Serial No.		SAMPLE
G618-5782	Spike (Tracer) Book Number	58843
Batch ID	Activity of Am243 Tracer in dpm/mL (SPKA)	5655
1366	Spike (Tracer) Volume in mL (SPKV)	0.1
Rerun No.	Volume of Sample in mL (SS)	1
0	Dilution Factor (DF)	1
Analyst	Digest Dilution Factor (DDF)	1
	Am-241 Area Peak Height from AEA (C241)	3
	Am-243 Area Peak Height from AEA (C243)	197
Date	Total AT Count (ATOT)	1038
08/12/93	AT Count Time in Minutes (MIN CTd)	30
	Background in CPM (BKG)	7

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

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

Am-241 µCi/L	=	< 1.27E-02
Am-241 µCi/mL	=	< 1.27E-05
Relative counting error	=	58.2%
Am-243 Tracer Recovery	=	9.6%

Data Entry by:	Date: 19-Aug-93
Approved by:	Date: August 19, 1993

Form 3 Rev. 1.1

AMERICIUM 241 ANALYSIS - UNDIGESTED SAMPLE

#1 8-12-93

$\frac{1038}{30}$ -7 G618-5782

Eric Bierla
8-12-93

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. 1.10

DATA REDUCTION REPORT

SAMPLE
G612-5582
File ID: SD3542.SPC

Counted on: 8/12/93 @13: 0
Detector/Geometry number: 3/ 1
Count time: 30000. 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	247.5	245.1	307.589	307.589	28.000	25.238	14.000	8.314
2	200.0	209.3	261.733	261.733	28.000	23.158	14.000	9.197

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Pu238	0.5590	5.499	5.496	0.003	0.12	6.61	45.57	0.205E-04
	Am241		5.480	5.496	-0.016				0.157E-04
2	Am243	0.4410	5.234	5.276	-0.042	0.11	5.21	235.31	0.106E-03

DETECTOR CALIBRATION

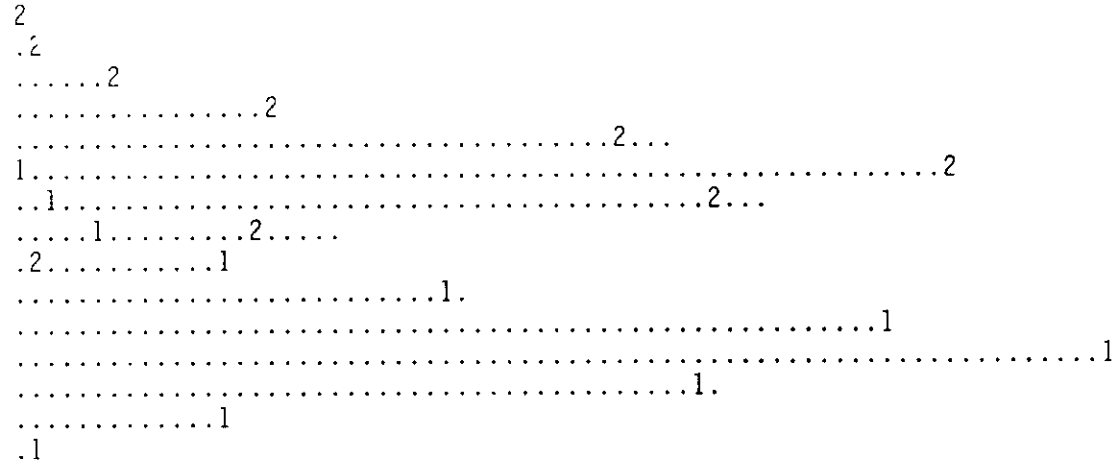
Energy(MEV) = 4.020 + (0.0048)*Channel
Energy range (MeV): 4.020 TO 6.477
Efficiency = 0.2014 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	5997.0	100.000
Smoothed	5996.6	99.994
Composite fit	5910.7	98.562
Residuals	85.9	1.432

Analyzed by: _____

SPECTRUM SD3542.SPC
1 LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC 941.2



Raw Data Dump for AEA Spectrum: SP:SD3542.SPC

1	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
21	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
31	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.
41	1.	1.	0.	3.	0.	0.	0.	0.	1.	2.
51	0.	0.	0.	2.	0.	0.	0.	0.	1.	1.
61	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	0.	1.	3.	0.
81	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.
91	1.	0.	0.	1.	0.	0.	0.	1.	1.	2.
101	0.	2.	0.	1.	0.	0.	2.	0.	0.	1.
111	1.	1.	0.	0.	1.	0.	1.	0.	0.	1.
121	0.	0.	0.	0.	0.	1.	0.	0.	0.	2.
131	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
141	1.	0.	0.	2.	1.	1.	0.	0.	0.	2.
151	1.	0.	0.	0.	1.	0.	0.	0.	1.	0.
161	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
171	2.	0.	0.	0.	1.	0.	2.	0.	0.	0.
181	1.	0.	1.	1.	0.	0.	0.	1.	1.	0.
191	1.	0.	1.	1.	0.	1.	0.	0.	0.	0.
201	1.	1.	0.	1.	0.	0.	0.	0.	0.	0.
211	0.	1.	0.	0.	1.	3.	1.	1.	4.	1.
221	2.	3.	2.	1.	5.	2.	6.	8.	4.	5.
231	6.	6.	11.	9.	10.	13.	11.	15.	16.	27.
241	23.	26.	20.	23.	41.	56.	30.	55.	60.	72.
251	72.	84.	87.	87.	101.	(123.)	108.	114.	111.	107.
261	99.	96.	116.	98.	105.	85.	81.	97.	65.	74.
271	43.	48.	40.	27.	26.	28.	24.	14.	18.	18.
281	17.	20.	21.	18.	25.	25.	20.	38.	32.	35.
291	49.	57.	56.	79.	69.	77.	87.	100.	90.	94.
301	122.	119.	132.	137.	117.	125.	134.	(149.)	128.	96.
311	104.	87.	108.	84.	76.	69.	59.	47.	40.	33.
321	24.	21.	12.	13.	3.	5.	4.	3.	2.	3.
331	5.	0.	3.	0.	1.	0.	0.	0.	1.	1.
341	1.	1.	1.	0.	1.	1.	0.	1.	0.	0.
351	0.	3.	2.	1.	2.	2.	5.	2.	1.	2.
361	0.	0.	1.	0.	1.	0.	0.	2.	0.	1.
371	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
381	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
411	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
431	0.	0.	0.	1.	0.	0.	1.	1.	0.	1.
441	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
451	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
471	1.	0.	0.	0.	1.	1.	0.	1.	1.	2.
481	0.	1.	1.	2.	2.	1.	2.	0.	2.	1.
491	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
511	0.	0.								

Eric Davis
8-12-93

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
G613-5682
File ID: SD5664.SPC

Counted on: 8/12/93 @13: 0
Detector/Geometry number: 5/ 1
Count time: 30000. 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	12.2	11.6	361.699	361.699	32.000	26.492	16.000	4.445
2	766.9	771.5	256.659	256.659	28.000	20.580	14.000	5.058
3	8.3	6.6	161.434	161.434	76.000	239.877	38.000	18.676

PEAK RESULTS

Peak	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
	Pu236	0.0185	5.756	5.748	0.008	0.12	0.42	0.00	0.282E-10
2	Am243	0.9550	5.234	5.265	-0.031	0.09	21.68	0.03	0.130E-07
3	Np237	0.0265	4.640	4.827	-0.187	1.10	0.60	0.00	0.661E-09
	Np237		4.781	4.827	-0.046				0.456E-10

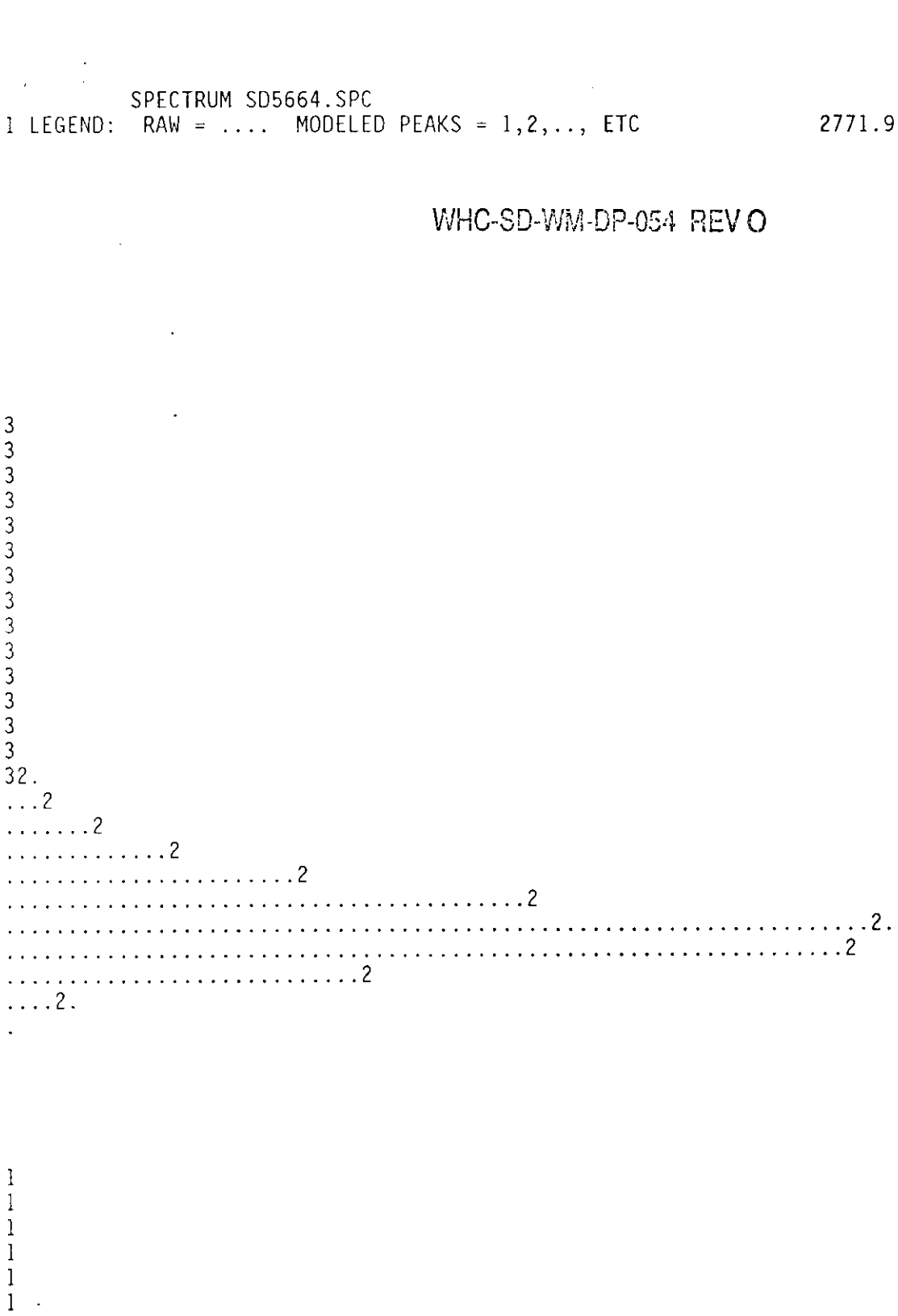
DETECTOR CALIBRATION

Energy(MEV) = 4.084 + (0.0046)*Channel
Energy range (MeV): 4.084 TO 6.440
Efficiency = ******* CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	11523.0	100.000
Smoothed	11523.0	100.000
Composite fit	11349.3	98.492
Residuals	173.7	1.508

Analyzed by: _____


SPECTRUM SD5664.SPC
1 LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC
2771.9

Raw Data Dump for AEA Spectrum: SP:SD5664.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	1.	3.	2.	0.	0.	2.	2.
21	1.	1.	0.	1.	0.	1.	1.	0.	1.	0.
31	0.	1.	1.	0.	1.	1.	1.	0.	2.	0.
41	1.	1.	0.	1.	0.	1.	0.	1.	1.	1.
51	3.	1.	1.	0.	0.	2.	0.	0.	1.	2.
61	2.	2.	1.	1.	2.	0.	1.	4.	1.	2.
71	1.	4.	2.	0.	0.	2.	1.	2.	0.	0.
81	1.	0.	2.	1.	2.	0.	1.	4.	0.	1.
91	4.	1.	4.	0.	0.	3.	0.	1.	2.	2.
101	1.	1.	0.	1.	1.	1.	0.	0.	3.	1.
111	0.	0.	1.	1.	0.	1.	1.	1.	3.	2.
121	2.	0.	2.	2.	1.	1.	5.	1.	2.	3.
131	2.	2.	6.	2.	0.	1.	6.	2.	2.	3.
141	2.	3.	3.	3.	5.	0.	1.	0.	3.	5.
151	2.	5.	3.	8.	4.	0.	5.	5.	5.	7.
161	6.	5.	5.	1.	3.	6.	4.	3.	3.	3.
171	2.	6.	3.	7.	4.	2.	5.	10.	5.	5.
181	9.	12.	8.	7.	6.	7.	11.	7.	10.	10.
191	9.	6.	14.	6.	8.	12.	9.	9.	8.	11.
201	5.	11.	21.	21.	18.	21.	20.	22.	22.	26.
21	18.	23.	29.	38.	25.	21.	40.	36.	40.	45.
2	43.	47.	57.	53.	61.	66.	68.	76.	76.	88.
231	93.	103.	113.	119.	118.	133.	134.	134.	162.	156.
241	192.	178.	229.	227.	221.	268.	297.	307.	333.	336.
251	394.	382.	374.	412.	451.	396.	420.	375.	373.	331.
261	306.	256.	251.	197.	153.	124.	118.	75.	71.	65.
271	44.	26.	29.	24.	19.	7.	13.	10.	6.	6.
281	6.	5.	4.	0.	4.	0.	5.	2.	5.	3.
291	6.	2.	5.	4.	4.	5.	4.	5.	2.	4.
301	4.	6.	4.	3.	3.	7.	1.	4.	3.	4.
311	1.	1.	3.	1.	1.	1.	1.	2.	3.	1.
321	1.	0.	1.	0.	1.	1.	2.	1.	1.	0.
331	1.	0.	1.	1.	1.	3.	1.	2.	2.	1.
341	2.	3.	3.	4.	3.	3.	5.	1.	0.	4.
351	0.	2.	7.	4.	8.	7.	10.	3.	6.	10.
361	4.	5.	8.	5.	7.	4.	6.	1.	9.	7.
371	2.	1.	2.	1.	0.	1.	1.	1.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
421	1.	1.	0.	0.	0.	2.	0.	0.	0.	1.
431	1.	0.	0.	0.	0.	1.	1.	1.	1.	0.
441	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
47	0.	0.	0.	0.	0.	1.	1.	1.	0.	0.
4	2.	3.	0.	0.	0.	1.	2.	1.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Em Barker
8-12-93

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
G614-5782
File ID: SD2146.SPC

Counted on: 8/12/93 @13: 0
Detector/Geometry number: 2/ 1
Count time: 30000. 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	17.3	6.7	294.130	294.130	16.000	15.702	8.000	0.000
2	106.7	106.4	257.371	257.371	24.000	16.371	12.000	6.020

PEAK RESULTS

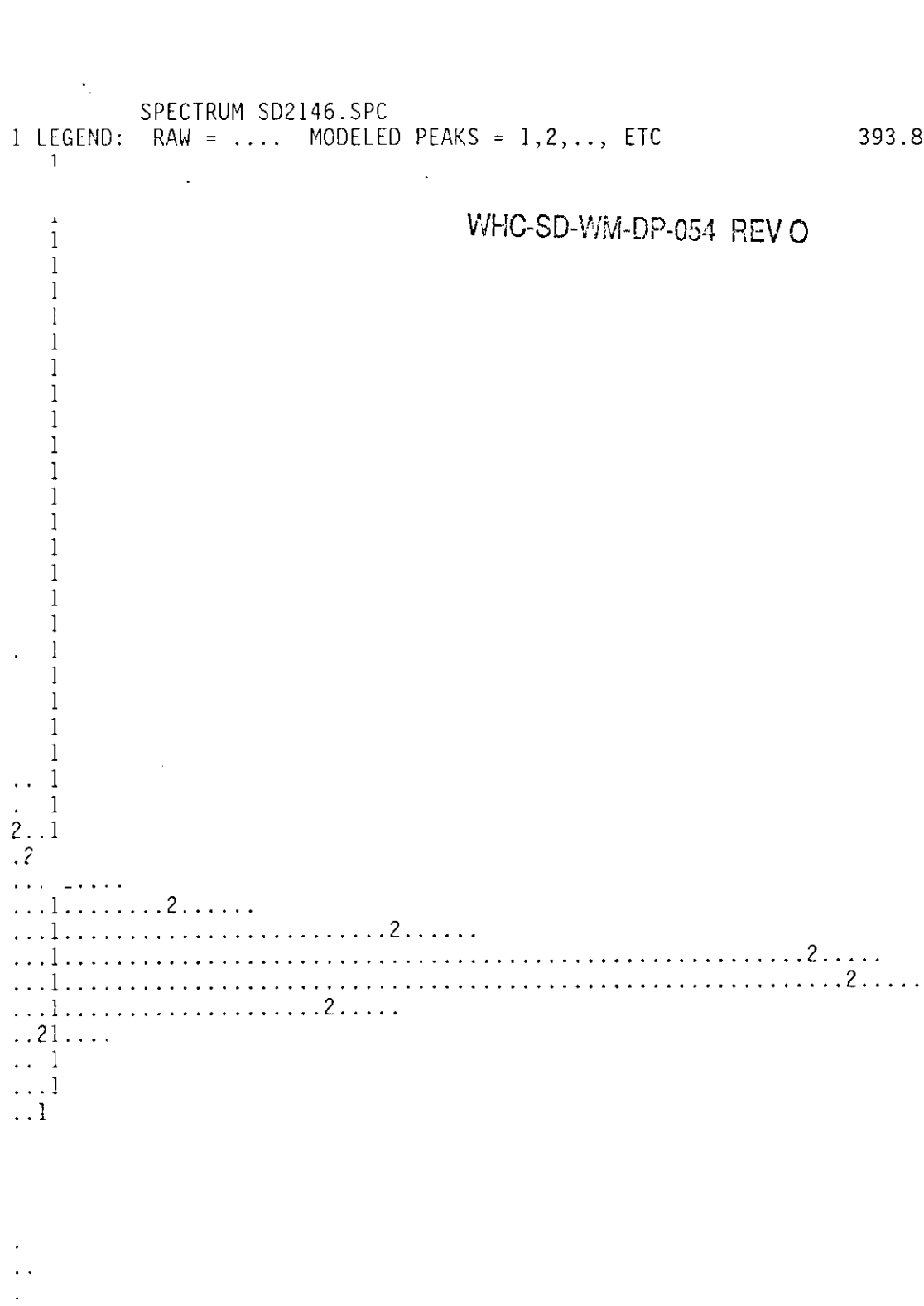
Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Th228	0.4578	5.430	5.437	-0.007	0.07	2.01	0.00	0.216E-09
2	Am243	0.5422	5.234	5.268	-0.034	0.08	2.39	0.00	0.165E-08

DETECTOR CALIBRATION
Energy(MEV) = 4.084 + (0.0046)*Channel
Energy range (MeV): 4.084 TO 6.440
Efficiency = ******* CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	1604.0	100.000
Smoothed	1604.0	99.998
Composite fit	2200.5	137.189
Residuals	-596.6	-37.192

Analyzed by: _____


SPECTRUM SD2146.SPC
1 LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC
393.8

Raw Data Dump for AEA Spectrum: SP:SD2146.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
81	0.	0.	1.	0.	0.	1.	1.	0.	0.	0.
91	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
101	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
111	1.	0.	0.	0.	0.	1.	0.	1.	1.	0.
121	0.	1.	0.	0.	1.	0.	0.	0.	0.	0.
131	0.	0.	1.	0.	0.	1.	0.	0.	1.	0.
141	0.	1.	0.	0.	1.	0.	0.	0.	0.	0.
151	0.	0.	0.	1.	2.	2.	0.	2.	1.	1.
161	0.	0.	1.	0.	1.	0.	0.	0.	1.	1.
171	0.	1.	1.	0.	0.	0.	0.	2.	1.	0.
181	0.	0.	0.	0.	0.	3.	0.	1.	0.	0.
191	0.	2.	2.	0.	3.	2.	3.	2.	1.	1.
201	0.	2.	1.	1.	0.	2.	1.	2.	2.	1.
211	4.	3.	2.	3.	5.	3.	5.	2.	3.	1.
221	4.	5.	4.	5.	7.	6.	3.	6.	6.	10.
231	8.	10.	18.	11.	12.	19.	15.	16.	14.	14.
241	25.	21.	32.	23.	35.	33.	37.	30.	39.	41.
251	66.	48.	59.	59.	58.	(66.)	66.	54.	66.	47.
261	40.	41.	31.	32.	30.	15.	13.	12.	13.	13.
271	6.	5.	2.	3.	6.	2.	2.	2.	4.	3.
281	2.	2.	1.	0.	0.	1.	3.	1.	2.	4.
291	4.	4.	1.	2.	1.	(5.)	2.	2.	2.	2.
301	3.	0.	2.	1.	1.	0.	0.	1.	0.	0.
311	0.	0.	0.	0.	1.	0.	0.	0.	0.	2.
321	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
331	0.	1.	0.	0.	2.	1.	0.	0.	2.	0.
341	0.	3.	3.	4.	1.	1.	1.	1.	1.	2.
351	3.	0.	1.	2.	2.	2.	0.	1.	0.	1.
361	2.	0.	0.	0.	0.	0.	0.	0.	1.	0.
371	0.	0.	2.	1.	0.	0.	0.	0.	0.	0.
381	1.	0.	0.	0.	0.	0.	1.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	1.	0.	0.	1.	0.	0.	1.	0.	0.
431	0.	0.	1.	1.	0.	1.	0.	2.	0.	0.
441	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
461	1.	0.	0.	2.	0.	0.	0.	1.	0.	1.
471	0.	1.	0.	0.	1.	0.	1.	1.	0.	0.
481	0.	2.	2.	0.	1.	1.	1.	0.	0.	1.
491	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
511	0.	0.								

Em Bureau
8-12-93

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. 1.10

DATA REDUCTION REPORT

SAMPLE
G615-5782
File ID: SD8329.SPC

Counted on: 8/12/93 @13: 0
Detector/Geometry number: 8/ 1
Count time: 30000. 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	9.5	7.3	303.646	303.646	16.000	11.601	8.000	0.000
2	467.9	472.3	256.850	256.850	20.000	14.773	10.000	5.373

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
	Pu238	0.1790	5.499	5.485	0.014	0.05	2.24	15.05	0.678E-05
	Am241		5.480	5.485	-0.005				0.519E-05
2	Am243	0.8210	5.234	5.265	-0.031	0.07	10.28	451.75	0.203E-03

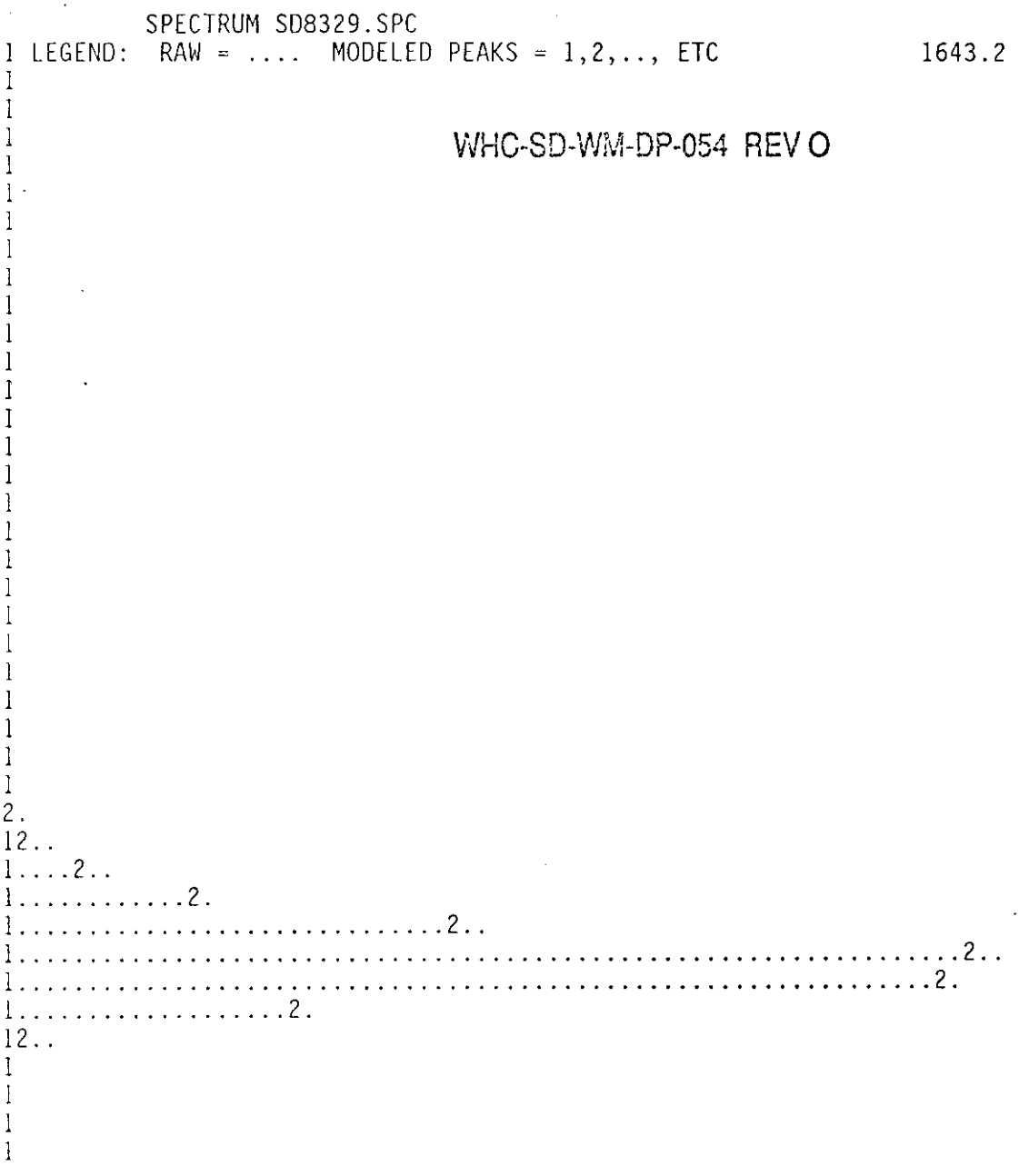
DETECTOR CALIBRATION

Energy(MEV) = 4.057 + (0.0047)*Channel
Energy range (MeV): 4.057 TO 6.464
Efficiency = 0.2068 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	5956.0	100.000
Smoothed	5956.0	100.000
Composite fit	6258.8	105.084
Residuals	-302.8	-5.084

Analyzed by: _____


SPECTRUM SD8329.SPC
LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC
1643.2

Raw Data Dump for AEA Spectrum: SP:SD8329.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	2.	1.	0.	1.	0.	1.
21	1.	1.	1.	1.	3.	0.	2.	3.	1.	1.
31	2.	1.	0.	0.	2.	0.	0.	0.	4.	0.
41	3.	1.	1.	2.	1.	2.	2.	2.	1.	1.
51	1.	2.	0.	1.	1.	1.	1.	1.	1.	0.
61	0.	0.	1.	3.	1.	2.	3.	1.	0.	2.
71	1.	1.	0.	0.	2.	1.	1.	0.	3.	1.
81	1.	0.	2.	1.	1.	2.	2.	0.	2.	2.
91	2.	3.	2.	1.	0.	1.	0.	1.	1.	1.
101	1.	2.	1.	2.	0.	2.	2.	3.	2.	1.
111	0.	2.	1.	0.	4.	2.	0.	0.	4.	2.
121	1.	1.	3.	2.	1.	3.	0.	0.	4.	1.
131	0.	2.	2.	1.	2.	0.	1.	2.	0.	0.
141	2.	1.	0.	0.	2.	3.	3.	6.	1.	1.
151	2.	3.	2.	2.	1.	4.	3.	3.	2.	2.
161	2.	4.	3.	2.	3.	5.	7.	1.	1.	2.
171	1.	5.	7.	3.	1.	5.	5.	4.	5.	5.
181	5.	1.	2.	9.	5.	7.	4.	4.	2.	1.
191	3.	4.	3.	6.	3.	8.	10.	7.	5.	3.
201	5.	1.	7.	2.	3.	7.	4.	10.	6.	4.
21	12.	7.	10.	11.	14.	8.	8.	7.	8.	21.
22	17.	22.	14.	13.	18.	23.	25.	28.	33.	30.
231	40.	25.	39.	47.	49.	55.	49.	55.	54.	63.
241	64.	84.	95.	114.	110.	165.	142.	151.	203.	182.
251	248.	248.	234.	264.	254.	265.	269.	261.	205.	212.
261	189.	147.	93.	85.	65.	52.	40.	36.	25.	25.
271	12.	10.	11.	6.	10.	9.	2.	3.	2.	3.
281	4.	1.	1.	3.	3.	2.	0.	1.	3.	2.
291	3.	2.	0.	3.	3.	1.	8.	4.	2.	4.
301	0.	3.	3.	2.	6.	3.	3.	3.	1.	1.
311	1.	0.	1.	0.	0.	1.	1.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	2.	0.	0.	1.	2.	0.	0.
341	1.	0.	0.	0.	0.	1.	3.	0.	2.	0.
351	4.	2.	4.	4.	1.	2.	5.	2.	1.	3.
361	1.	4.	0.	2.	3.	3.	2.	0.	1.	1.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	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.	1.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	1.	2.	0.	0.
48	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Gin Barnes
8-12-93

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
G616-5782
File ID: SD7108.SPC

Counted on: 8/12/93 @13: 0
Detector/Geometry number: 7/ 1
Count time: 30000. 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	371.6	361.0	262.164	262.164	20.000	10.060	10.000	7.712

PEAK RESULTS

Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1		1.0000		5.302		0.05	5.68	33.00	0.149E-04

DETECTOR CALIBRATION

Energy(MEV) = 4.096 + (0.0046)*Channel
Energy range (MeV): 4.096 TO 6.451
Efficiency = 0.1721 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	3101.0	100.000
Smoothed	3101.0	100.000
Composite fit	2839.5	91.567
Residuals	261.5	8.433

Analyzed by: _____

```
        SPECTRUM SD7108.SPC
1 LEGEND:  RAW = ....  MODELED PEAKS = 1,2,.., ETC                1346.7

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

Raw Data Dump for AEA Spectrum: SP:SD7108.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	2.	1.	1.	0.	0.	0.	1.	0.	1.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.	2.	0.	1.	0.	0.
101	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
111	0.	1.	0.	0.	1.	0.	1.	0.	2.	0.
121	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
131	0.	0.	0.	1.	1.	0.	1.	1.	1.	1.
141	0.	0.	1.	0.	0.	1.	0.	2.	1.	0.
151	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.
161	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
171	0.	1.	1.	0.	0.	0.	1.	0.	0.	0.
181	0.	0.	0.	0.	0.	1.	1.	0.	2.	0.
191	0.	0.	1.	0.	0.	2.	1.	1.	0.	0.
201	2.	2.	0.	0.	0.	1.	1.	0.	1.	2.
211	1.	1.	0.	1.	2.	0.	1.	3.	1.	2.
221	0.	1.	4.	4.	3.	1.	3.	5.	1.	4.
231	5.	4.	2.	4.	6.	6.	4.	6.	8.	3.
241	4.	2.	10.	14.	11.	20.	19.	24.	35.	43.
251	50.	68.	82.	82.	127.	140.	165.	207.	193.	225.
261	254.	185.	229.	172.	131.	109.	67.	34.	40.	23.
271	20.	27.	11.	12.	3.	4.	11.	12.	4.	5.
281	2.	3.	0.	2.	4.	1.	3.	0.	0.	1.
291	0.	1.	1.	1.	3.	2.	3.	2.	0.	1.
301	0.	1.	0.	0.	1.	2.	2.	3.	1.	3.
311	1.	0.	0.	1.	1.	1.	0.	1.	0.	1.
321	0.	0.	0.	0.	0.	1.	0.	2.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	1.	0.	0.	1.	1.	2.	0.	0.
351	3.	1.	3.	0.	1.	0.	0.	2.	2.	1.
361	0.	0.	1.	1.	1.	0.	1.	2.	3.	1.
371	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
471	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
491	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Em Barcen
8-12-93

GENERAL ALPHA ENERGY ANALYSIS
Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
G617-5782
File ID: SD6582.SPC

Counted on: 8/12/93 @13: 0
Detector/Geometry number: 6/ 1
Count time: 30000. 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	4.3	3.8	268.593	268.593	48.000	120.801	24.000	12.132

PEAK RESULTS

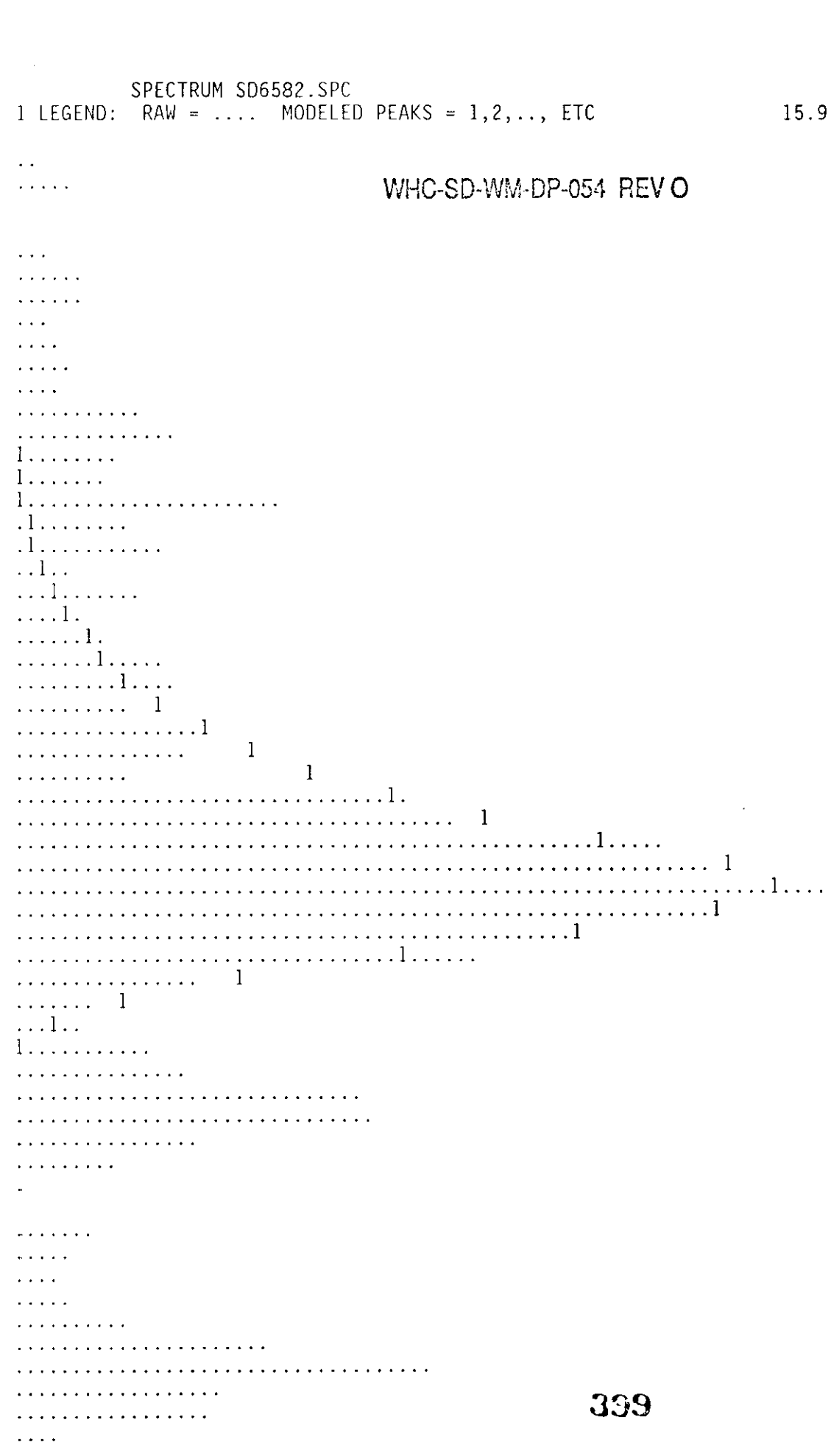
Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Am243	1.0000	5.234	5.324	-0.090	0.56	0.26	12.55	0.565E-05
	Pu240		5.144	5.324	-0.180				0.622E-06

DETECTOR CALIBRATION
Energy(MEV) = 4.088 + (0.0046)*Channel
Energy range (MeV): 4.088 TO 6.443
Efficiency = 0.1887 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	227.0	100.000
Smoothed	227.0	99.985
Composite fit	130.3	57.385
Residuals	96.7	42.594

Analyzed by: _____


SPECTRUM SD6582.SPC
1 LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC 15.9

Raw Data Dump for AEA Spectrum: SP:SD6582.SPC

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.
51	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
81	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	1.	0.	0.	0.	0.	1.	1.	0.
101	1.	0.	0.	0.	0.	0.	0.	1.	0.	3.
111	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
121	0.	1.	0.	0.	0.	0.	0.	1.	1.	1.
131	1.	1.	1.	1.	0.	1.	0.	0.	0.	0.
141	0.	1.	0.	0.	0.	1.	0.	1.	1.	0.
151	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
161	0.	2.	0.	0.	0.	0.	1.	1.	0.	0.
171	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
181	1.	0.	1.	0.	0.	0.	0.	0.	1.	1.
191	1.	0.	1.	0.	1.	0.	0.	1.	0.	0.
201	0.	2.	0.	0.	0.	0.	0.	0.	1.	0.
21	1.	0.	1.	0.	2.	0.	1.	0.	0.	0.
22	0.	1.	1.	1.	0.	0.	0.	0.	1.	0.
231	0.	0.	0.	1.	0.	3.	3.	0.	2.	2.
241	0.	1.	1.	0.	2.	1.	0.	2.	3.	1.
251	3.	0.	2.	2.	2.	1.	3.	1.	2.	2.
261	1.	1.	(4)	0.	2.	2.	2.	3.	4.	1.
271	2.	1.	1.	2.	1.	1.	0.	4.	3.	3.
281	1.	1.	2.	0.	2.	0.	1.	2.	1.	0.
291	0.	4.	1.	1.	1.	1.	1.	0.	0.	0.
301	0.	0.	0.	(1.)	0.	0.	1.	0.	0.	0.
311	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
321	1.	1.	0.	1.	0.	0.	0.	1.	0.	0.
331	0.	1.	1.	1.	0.	1.	0.	0.	0.	1.
341	1.	3.	3.	1.	0.	1.	1.	0.	2.	1.
351	0.	0.	0.	2.	0.	0.	0.	0.	0.	2.
361	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
391	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
411	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
421	0.	1.	0.	0.	0.	1.	0.	1.	2.	0.
431	2.	0.	1.	1.	1.	1.	3.	0.	1.	2.
441	0.	0.	0.	1.	0.	0.	0.	1.	0.	1.
451	1.	0.	1.	1.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	1.	0.	1.	2.	0.
47	0.	0.	0.	1.	1.	0.	1.	0.	0.	2.
48	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
491	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
511	0.	0.								

Eva Barela
8-12-93

GENERAL ALPHA ENERGY ANALYSIS

Rev. 1.10

DATA REDUCTION REPORT

SAMPLE
G618-5782
File ID: SD4747.SPC

Counted on: 8/12/93 @13: 0
Detector/Geometry number: 4/ 1
Count time: 30000. 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	336.1	337.0	254.258	254.258	20.000	12.381	10.000	5.269

PEAK RESULTS

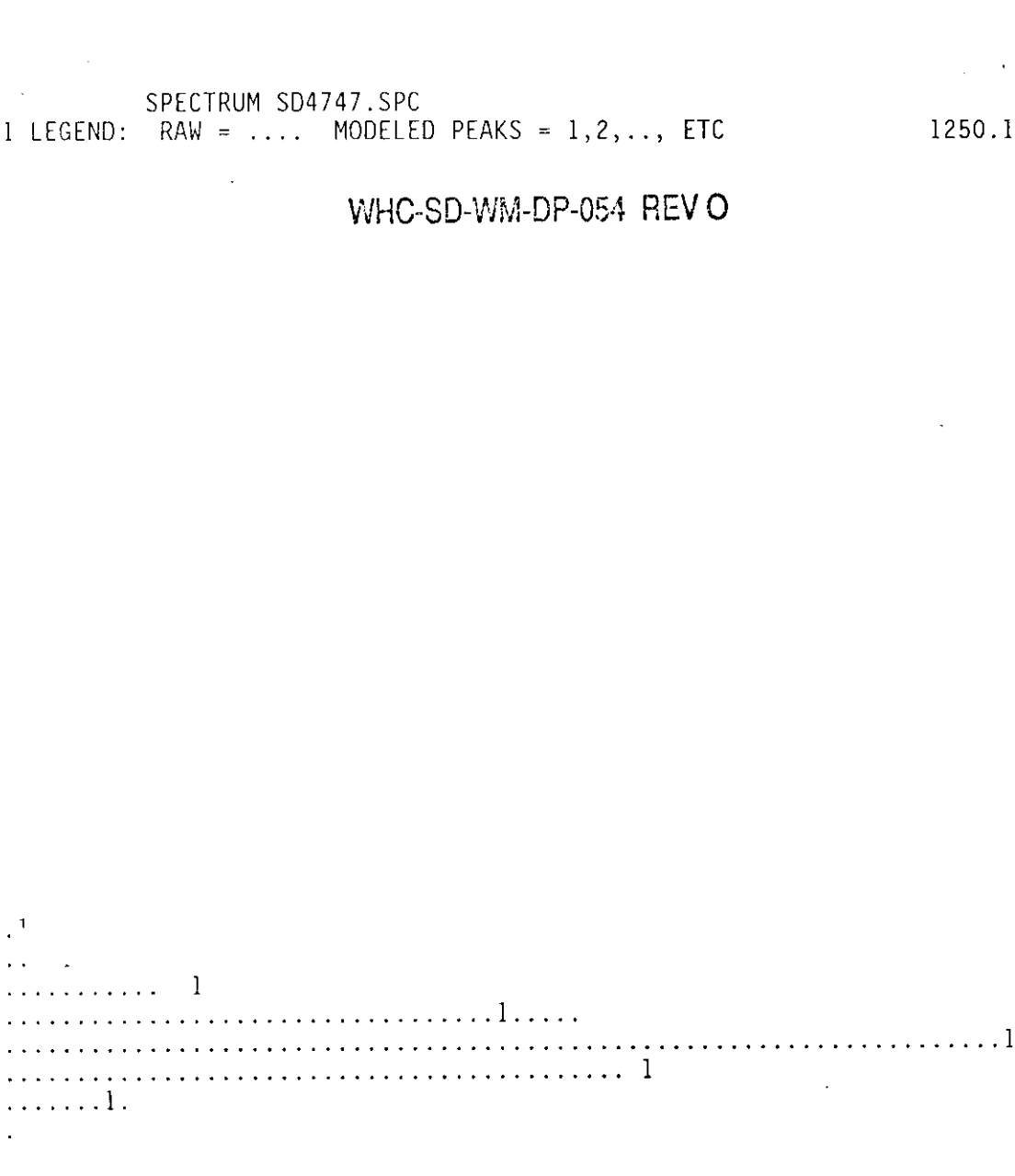
Peak ID	Isotope	AEA Fract.	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	d/m	Activity uCi/ea
1	Am243	1.0000	5.234	5.266	-0.032	0.06	6.56	399.12	0.180E-03

DETECTOR CALIBRATION
Energy(MEV) = 4.096 + (0.0046)*Channel
Energy range (MeV): 4.096 TO 6.452
Efficiency = 0.1494 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	3404.0	100.000
Smoothed	3403.7	99.991
Composite fit	3279.6	96.345
Residuals	124.1	3.647

Analyzed by: _____


SPECTRUM SD4747.SPC
1 LEGEND: RAW = ... MODELED PEAKS = 1,2,.., ETC
1250.1

Raw Data Dump for AEA Spectrum: SP:SD4747.SPC

1	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	1.	0.	1.	0.	0.	0.	0.	1.	0.
31	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	1.	0.	0.	0.	1.	0.	0.
81	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
101	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
111	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
121	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
131	0.	0.	0.	0.	0.	0.	3.	2.	1.	2.
141	0.	1.	1.	0.	0.	2.	1.	2.	1.	2.
151	1.	0.	0.	1.	0.	0.	0.	1.	3.	0.
161	0.	0.	1.	1.	1.	0.	1.	1.	0.	0.
171	0.	0.	1.	1.	2.	0.	2.	1.	1.	1.
181	1.	1.	0.	1.	1.	0.	0.	1.	2.	0.
191	1.	0.	1.	0.	0.	0.	1.	1.	0.	2.
201	0.	2.	0.	3.	2.	2.	1.	1.	2.	2.
211	3.	1.	0.	3.	3.	3.	1.	8.	8.	4.
221	5.	4.	2.	6.	6.	8.	8.	14.	11.	15.
231	10.	12.	18.	15.	21.	22.	25.	41.	49.	64.
241	70.	80.	91.	119.	108.	120.	132.	153.	157.	163.
251	154.	184.	194.	197.	193.	173.	137.	127.	74.	64.
261	49.	35.	21.	16.	11.	9.	12.	10.	5.	3.
271	7.	6.	2.	0.	2.	1.	0.	1.	1.	1.
281	0.	1.	1.	1.	0.	1.	1.	2.	2.	1.
291	1.	0.	3.	3.	2.	2.	1.	2.	0.	2.
301	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
311	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
341	0.	0.	2.	0.	2.	1.	0.	0.	0.	0.
351	0.	2.	0.	0.	0.	3.	0.	1.	0.	0.
361	1.	1.	0.	2.	1.	0.	1.	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.	1.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
471	0.	0.	0.	1.	0.	0.	0.	1.	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.								

WESTINGHOUSE HANFORD COMPANY

WHC-SD-WM-DP-054 REV O

222-S LABORATORY

Batch # 1741

ANALYTICAL BATCH

Lab Segment Serial No.	Customer ID:
G614, G617	102 5 Day
Analysis:	Sample Prep:
Uranium	Direct

Instrument: W65723J	Procedure/ Rev: LA 503-156 (0.0)
Technologist: MC Bierman	Date: 8/29/93
Starting Time: 1200 8/29	Temperature 25°C
Ending Time: 1100 8/30	Chemist: Stan Calton

Comments: _____

	Description	Lab ID
1	LMCS	G612-5582
2	Blank	G613-5682
3	sample	G614-5282
4	sample	G617-5282
5		
6		
7		
8		
9		
10		

	Description	Lab ID
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Standard Type	Primary Book No. and Aliquot Vol.	Second Book No. and Aliquot Vol.	Third Book No. and Aliquot Vol.	Final Vol. of Standard
LMCS	63343 1.0ml			
Spike	58343 1100ml			
		404		

ANALYTICAL BATCH SUMMARY SHEET

METHOD: LA-503-156

DATE START: August 29, 1993

PREPARED BY: L. L. Fritts 8.31.93

DATE COMPLETE: August 31, 1993

	UNITS:	uCi/mL							
SPL NAME	SPL ID	ANALYTE	RESULT #1	RESULT #2	AVERAGE	RPD%	%REC	DET LIM	% CT ER
STD 63843	G612	Am-241	2.80E+1				104.6		3.7
BLANK	G613	Am-241	<1.27E-5				32.1		44.9
B-3	G614	Am-241	<1.27E-5				71.6	1.27E-5	31.7
B-6	G617	Am-241	<1.27E-5				69.6	1.27E-5	31.7

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

LIST SPECIFIC PROBLEMS/VARIATIONS FOR THIS BATCH:

The results for the standard are in uCi/L.

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

7 7161

Serial No	Sample Point	Date	Time Issued	Priority
G 612.-5582	102 5 DAY	7-22-93	14:36	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	% RECOVERY	D44B3	1

Sample Size: ? 100 - 10 - 1.0 - 1

Customer ID: STD

EDP R201 AR001

STD# 64643 RESULT 28.04

STD VAL 26.506 %REC 104.68

58843, 100 - 1 D.I. in 8% HNO3

$\frac{1490(.1)(101)(2.5576-3)(100)}{1367} = 28.04$

Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5
	Hrs	Hrs	Hrs	Hrs

Date: 8/29/93 Time Completed: 1100 (8-30-93) Lab

WHC-SD-WM-DP-054 REV 0

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

Serial No.	Spike (Tracer) Book Number		STANDARD
G612-5582	Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
1741	Volume of Sample in mL	(SS)	1
Rerun No.	Dilution Factor	(DF)	101
1	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	1490
	Am-243 Area Peak Height from AEA	(C243)	1367
Date	Total AT Count	(ATOT)	11353
08/29/93	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	1

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

µCi/mL = µCi/L / (1000mL/L)

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

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

Am-241 µCi/L	=	2.80E+01
Am-241 µCi/mL	=	2.80E-02
Relative counting error	=	3.7%
Am-243 Tracer Recovery	=	63.9%

Data Entry by: Date: 31-Aug-93

Approved by: Date: August 31, 1993

Form 3 Rev. 1.1

8-30-93
#2

G 612-5582

11353-1
30

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

10 6631

Serial No	Sample Point	Date	Time Issued	Priority
G 613.-5682	102 5 DAY	7-22-93	14:37	23

Determination	Method Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	1

Sample Size	Customer ID
? 0	BLK

Remarks Calculations Results

REAGENT BLANK $< 1.27 \times 10^{-5}$ uCi/ml RERUN

COUNT AS uCI/L

58843, 100-1

1.0-1 8A HNO3

Analyst - 1	Analyst - 2	Analyst - 3	Analyst - 4	Analyst - 5
	Hrs	Hrs	Hrs	Hrs
Date: 8/29/93	Time Completed: 1100 (130 B)	Lab Unit Mgr:		

54 6400 4061 A 10 831

WHC-SD-WM-DP-054 REV 0

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G613-5682	1741	1		08/29/93

		BLANK
Spike (Tracer) Book Number		58843
Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
Spike (Tracer) Volume in mL	(SPKV)	0.1
Volume of Sample in mL	(SS)	1
Dilution Factor	(DF)	1
Digest Dilution Factor	(DDF)	1
Am-241 Area Peak Height from AEA	(C241)	5
Am-243 Area Peak Height from AEA	(C243)	828
Total AT Count	(ATOT)	2890
AT Count Time in Minutes	(MIN CT'd)	30
Background in CPM	(BKG)	5

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

µCi/mL = µCi/L / (1000mL/L)

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

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

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

Am-241 µCi/L	=	< 1.27E-02
Am-241 µCi/mL	=	< 1.27E-05
Relative counting error	=	44.9%
Am-243 Tracer Recovery	=	32.1%

Data Entry by:	Date: 31-Aug-93
Approved by:	Date: August 31, 1993

Form 3 Rev. 1.1

#3 8-30-93

G613-5682

2890/30 -5

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

4 4798

Serial No	Sample Point	Date	Time Issued	Priority
G 614.-5782	102 5 DAY	7-22-93	14:38	23

Determination	Method-Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	1

Sample Size	Customer ID
? 1.0 ml	B-3

Remarks, Calculations, Results

COUNT AS uCI/L $< 1.27 \times 10^{-5}$ uCi/ml RERUN
58843, 100 ml
Co. HNO_3 1.0 ml

MB Burns

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

Date	Time Completed	Lab Unit Mgr
8/29/93	1100 8-30-93	LL Fitts

54 6800-0A (R 12-83)

WHC-SD-WM-DP-05[illegible] REV 0

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

Serial No.	Batch ID	Rerun No.	Analyst	Date
G614-5782	1741	1	r.	08/29/93

		SAMPLE
Spike (Tracer) Book Number		58843
Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
Spike (Tracer) Volume in mL	(SPKV)	0.1
Volume of Sample in mL	(SS)	1
Dilution Factor	(DF)	1
Digest Dilution Factor	(DDF)	1
Am-241 Area Peak Height from AEA	(C241)	10
Am-243 Area Peak Height from AEA	(C243)	1587
Total AT Count	(ATOT)	6320
AT Count Time in Minutes	(MIN CTd)	30
Background in CPM	(BKG)	7

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

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

Am-241 µCi/L	=	< 1.27E-02
Am-241 µCi/mL	=	< 1.27E-05
Relative counting error	=	31.7%
Am-243 Tracer Recovery	=	71.6%

Data Entry by: LL Fitts Date: 31-Aug-93
Approved by: LL Fitts Date: August 31, 1993

#1 8-30-93

G614-5282

6320
30 - 7

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

8 8379

Serial No	Sample Point	Date	Time Issued	Priority
G 617.-5782	102 5 DAY	7-22-93	14:41	23

Determination	Method-Standard	Result Units	Charge Code	Reruns
Am241	LA-503-156	uCi/ML	D44B3	1

Sample Size	Customer ID
? 1.0 ml	B-6

Remarks Calculations Results

COUNT AS uCI/L $< 1.27 \times 10^{-5}$ uCi/ml RERUN

58B43, 100 ml

$C_6H_4NO_3$ 1.0 ml

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

Date	Time Completed	Lab Unit Mgr
8/29/93	1100 8-30-93	

54 6A00-06 (3 10 83)

WHC-SD-WM-DP-051 REV 0

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

Serial No.	Spike (Tracer) Book Number		SAMPLE
G617-5782	Activity of Am243 Tracer in dpm/mL	(SPKA)	5655
Batch ID	Spike (Tracer) Volume in mL	(SPKV)	0.1
1741	Volume of Sample in mL	(SS)	1
Rerun No.	Dilution Factor	(DF)	1
1	Digest Dilution Factor	(DDF)	1
Analyst	Am-241 Area Peak Height from AEA	(C241)	10
	Am-243 Area Peak Height from AEA	(C243)	2168
Date	Total AT Count	(ATOT)	6138
08/29/93	AT Count Time in Minutes	(MIN CTd)	30
	Background in CPM	(BKG)	7

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

µCi/mL = µCi/L / (1000mL/L)

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

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

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

Am-241 µCi/L	=	< 1.27E-02
Am-241 µCi/mL	=	< 1.27E-05
Relative counting error	=	31.7%
Am-243 Tracer Recovery	=	69.6%

Data Entry by: [signature] Date: 31-Aug-93

Approved by: [signature] Date: August 31, 1993

Form 3 Rev. 1.1

#1 8-30-93

G617-5782

6138
30 -7

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
G612-5582
File ID: 7a7161.CNF

Counted on: 8/30/93 @14:27
Detector: AEA7
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1424.6	1424.6	298.582	298.582	18.000	14.873	9.000	4.353
2	1231.5	1231.5	252.309	252.144	20.000	14.073	10.000	3.617
3	270.4	270.4	228.777	225.895	16.000	7.481	8.000	2.381
4?	7.0	7.0	176.202	175.147	8.000	1.931	4.000	0.118

PEAK RESULTS
Peak Error Limit: 15%

ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.481	5.480	5.477	0.003	0.07	70.32	1.1	533.6	0.240E-03
	Pu238		5.499	5.477	0.022				696.6	0.314E-03
2	Am243	0.436	5.276	5.259	0.017	0.07	63.67	1.2	458.7	0.207E-03
	Pu240		5.144	5.259	-.115				454.1	0.205E-03
3	Pu239	0.074	5.143	5.136	0.007	0.04	10.75	4.7	76.7	0.345E-04
	Pu240		5.144	5.136	0.008				76.7	0.345E-04
4		????		4.897			0.86	12.2		
Totals:		0.991	<--valid peaks only-->				144.74			

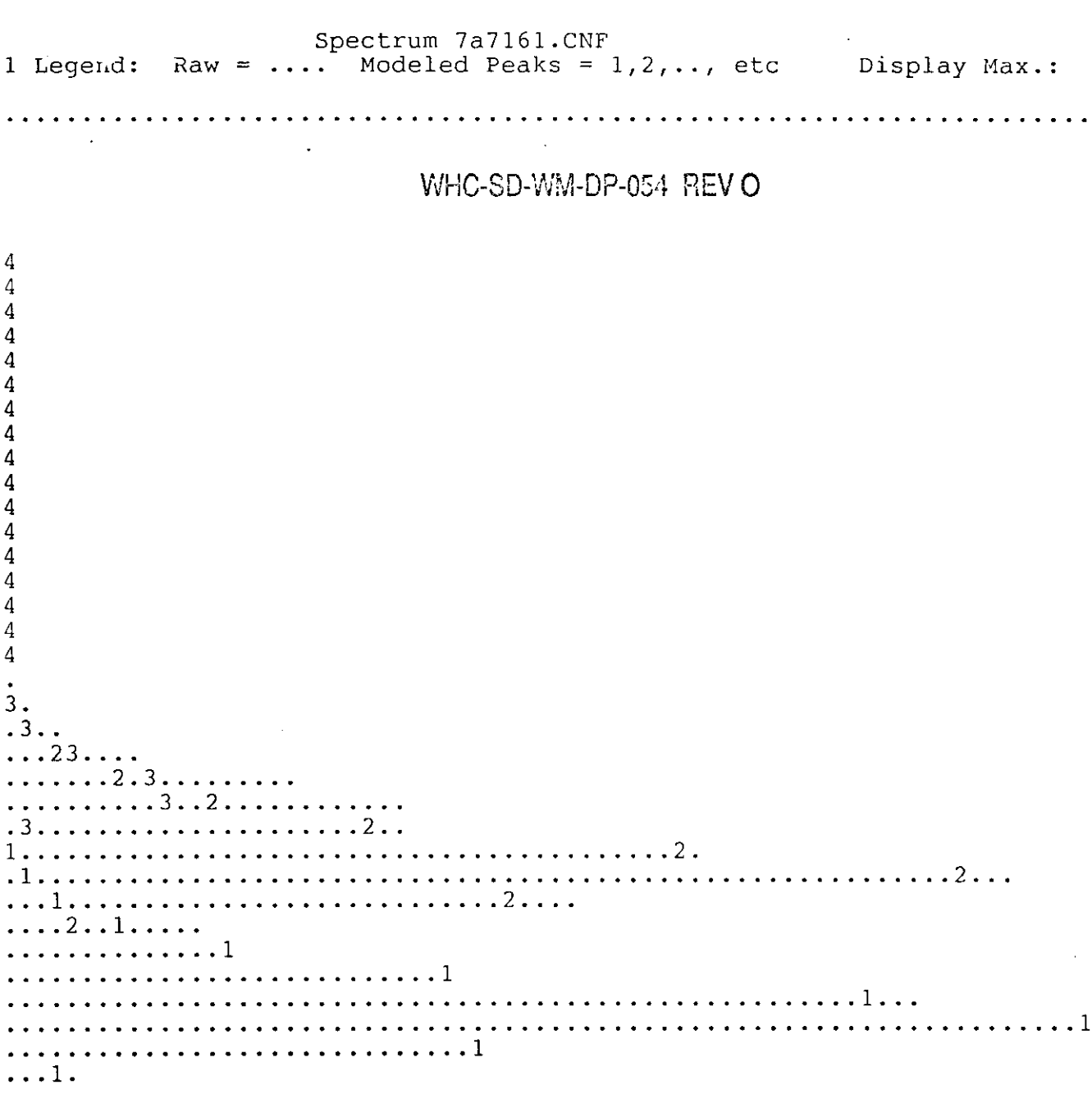
DETECTOR CALIBRATION
Energy(MEV) = 4.074 + (0.0047)*Channel
Energy range (MeV): 4.074 TO 6.480
Efficiency = 0.1402 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	70115.0	100.000
Smoothed	70227.3	100.160
Composite fit	69892.2	99.682
Residuals	222.8	0.318

Analyzed by: _____
RW

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 414 TO 425.


Spectrum 7a7161.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 10490.5

Raw Data Dump for AEA Spectrum: 7a7161.CNF

1	28802.	0.	0.	0.	0.	0.	1.	1.	0.	0.
11	0.	1.	1.	0.	1.	0.	2.	0.	0.	0.
21	1.	1.	1.	0.	0.	0.	1.	0.	0.	0.
[illegible]	2.	0.	1.	0.	1.	0.	0.	1.	2.	0.
	2.	0.	1.	0.	0.	2.	2.	1.	1.	0.
51	0.	1.	2.	2.	1.	1.	1.	0.	0.	0.
61	1.	3.	1.	0.	2.	0.	0.	1.	1.	2.
71	1.	0.	0.	1.	0.	2.	2.	1.	1.	0.
81	1.	0.	2.	1.	1.	0.	1.	2.	1.	0.
91	1.	2.	4.	2.	0.	2.	4.	3.	0.	1.
101	0.	1.	2.	0.	3.	3.	0.	3.	1.	3.
111	1.	2.	0.	1.	3.	1.	4.	1.	3.	4.
121	2.	3.	1.	3.	2.	5.	3.	1.	5.	2.
131	0.	4.	5.	4.	5.	6.	3.	5.	3.	3.
141	7.	6.	1.	4.	6.	5.	5.	7.	3.	2.
151	6.	5.	6.	4.	6.	8.	5.	4.	11.	8.
161	5.	17.	12.	12.	10.	11.	9.	9.	11.	10.
171	15.	18.	11.	13.	19.	19.	19.	14.	14.	14.
181	14.	19.	22.	15.	24.	22.	31.	18.	31.	30.
191	29.	33.	27.	35.	40.	45.	46.	51.	55.	58.
201	75.	82.	84.	82.	94.	93.	87.	131.	142.	154.
211	165.	174.	190.	202.	247.	283.	292.	326.	354.	393.
221	403.	423.	450.	480.	504.	519.	550.	526.	527.	540.
231	507.	474.	448.	477.	455.	443.	467.	561.	544.	608.
241	677.	679.	789.	859.	908.	1006.	1144.	1141.	1213.	1317.
251	1367.	1335.	1318.	1287.	1183.	1175.	1037.	912.	810.	614.
261	520.	388.	352.	312.	284.	239.	210.	188.	183.	224.
271	187.	227.	230.	228.	244.	234.	308.	317.	321.	337.
281	399.	428.	527.	556.	575.	678.	714.	799.	875.	947.
291	1074.	1149.	1230.	1349.	1462.	1442.	1455.	1490.	1460.	1486.
301	1388.	1254.	1102.	991.	816.	695.	580.	448.	373.	317.
[illegible]	240.	181.	128.	121.	79.	51.	48.	29.	24.	17.
321	10.	7.	0.	4.	3.	0.	1.	0.	0.	0.
331	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
341	1.	0.	1.	1.	1.	2.	1.	1.	1.	0.
351	0.	0.	2.	1.	2.	0.	1.	1.	2.	1.
361	1.	2.	1.	1.	2.	4.	1.	3.	2.	1.
371	4.	3.	0.	1.	1.	0.	1.	0.	1.	0.
381	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

WHC-SD-WM-DP-054 REV 0

SAMPLE
G613-5682
File ID: 6a6631.CNF

Counted on: 8/30/93 @14:26
Detector: AEA6
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	783.4	783.4	245.851	245.851	22.000	18.286	11.000	9.516

PEAK RESULTS
Peak Error Limit: 15%

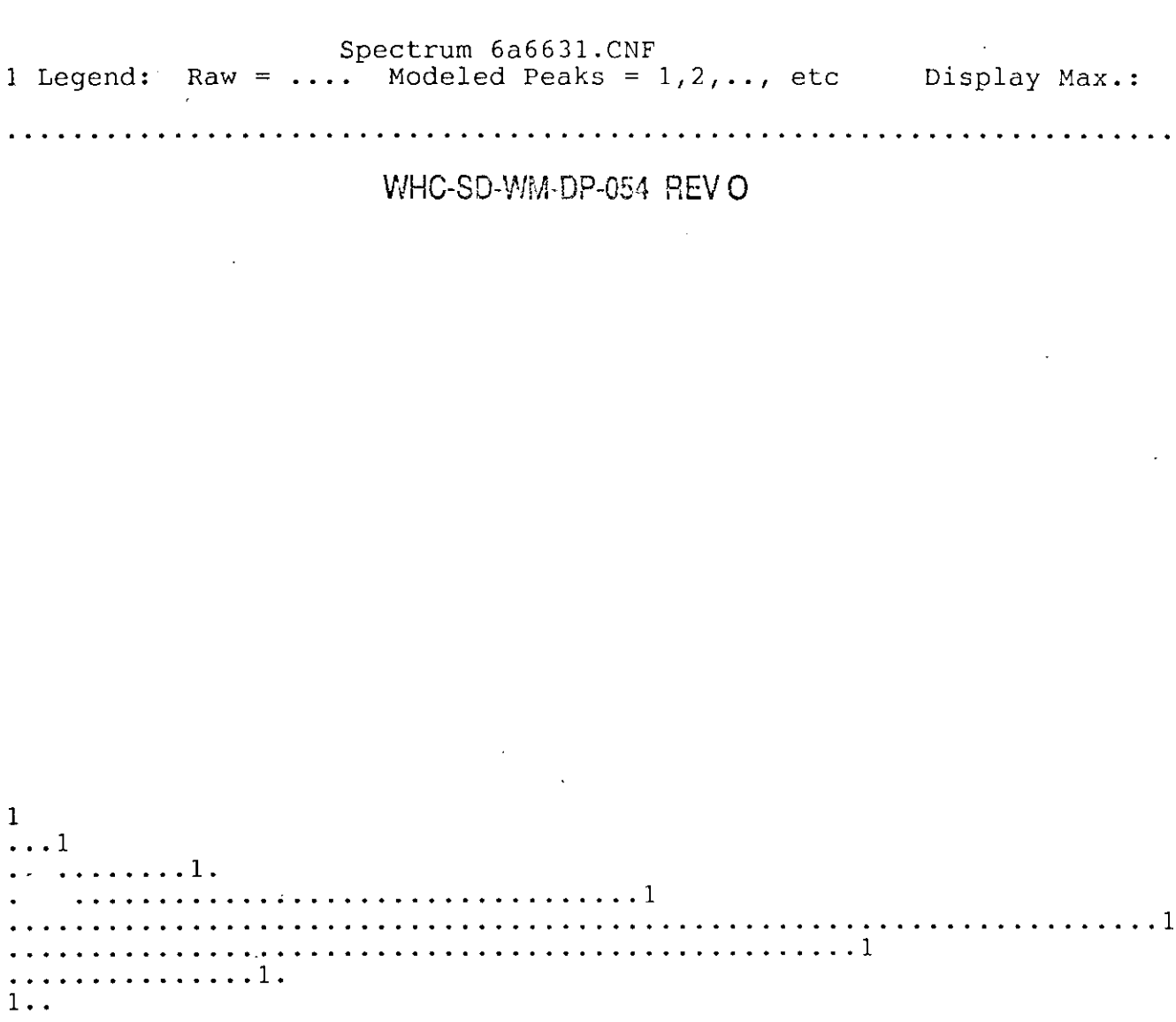
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.979	5.276	5.229	0.047	0.09	35.00	1.5	252.1	0.114E-03
	Pu240		5.144	5.229	-.085				249.6	0.112E-03
Totals:		0.979	<--valid peaks only-->				35.00			

DETECTOR CALIBRATION
Energy(MEV) = 4.074 + (0.0047)*Channel
Energy range (MeV): 4.074 TO 6.480
Efficiency = 0.1402 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	17161.0	100.000
Smoothed	17275.7	100.668
Composite fit	16801.8	97.907
Residuals	359.2	2.093

Analyzed by: _____
RW


Spectrum 6a6631.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 5871.5

Raw Data Dump for AEA Spectrum: 6a6631.CNF

1	28806.	0.	0.	1.	0.	1.	0.	0.	0.	0.
11	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
21	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
41	0.	0.	1.	0.	1.	0.	0.	1.	0.	0.
51	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.
71	0.	1.	0.	0.	0.	1.	1.	0.	2.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	1.	2.	0.	1.	1.	0.
101	0.	0.	0.	0.	2.	0.	1.	1.	0.	0.
111	0.	1.	0.	2.	1.	1.	0.	0.	1.	1.
121	0.	0.	0.	0.	2.	1.	0.	1.	1.	1.
131	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.
141	0.	0.	2.	0.	0.	1.	0.	0.	1.	2.
151	0.	0.	1.	1.	1.	0.	4.	0.	3.	0.
161	0.	0.	3.	3.	2.	1.	1.	1.	1.	3.
171	1.	1.	2.	3.	4.	0.	1.	6.	2.	2.
181	1.	4.	3.	7.	2.	4.	4.	3.	3.	8.
191	2.	4.	4.	7.	5.	7.	7.	5.	11.	3.
201	3.	3.	10.	15.	13.	8.	16.	8.	11.	14.
211	14.	11.	17.	15.	12.	19.	29.	29.	29.	32.
221	44.	44.	53.	52.	89.	89.	124.	124.	173.	177.
231	200.	250.	255.	329.	348.	426.	408.	545.	559.	637.
241	672.	722.	803.	828.	826.	825.	816.	756.	700.	674.
251	618.	549.	446.	451.	333.	303.	265.	211.	178.	133.
261	92.	93.	65.	46.	42.	30.	28.	20.	14.	10.
271	7.	3.	2.	11.	2.	3.	0.	1.	3.	4.
281	2.	5.	3.	3.	3.	5.	1.	1.	1.	2.
291	5.	1.	3.	3.	1.	0.	2.	1.	1.	1.
301	1.	1.	1.	1.	0.	0.	0.	1.	2.	0.
311	0.	1.	0.	1.	0.	0.	0.	0.	1.	1.
321	0.	1.	0.	0.	1.	3.	2.	0.	1.	0.
331	2.	1.	1.	1.	2.	1.	3.	1.	1.	2.
341	0.	1.	3.	1.	0.	0.	1.	0.	0.	0.
351	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
361	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	1.	0.	0.	0.	1.	2.	0.	0.
441	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
451	0.	1.	2.	0.	0.	1.	0.	0.	1.	0.
461	0.	0.	0.	0.	1.	1.	0.	3.	2.	4.
471	1.	4.	2.	5.	1.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
491	0.	0.	2.	3.	6.	10.	1.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

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

WHC-SD-WM-DP-054 REV O

DATA REDUCTION REPORT

SAMPLE
G-614-5782
File ID: 4a4798.CNF

Counted on: 8/30/93 @22:17
Detector: AEA4
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Final	Peak center Initial	Final	FWHM Initial	Final	Tau Initial	Final
1	1440.9	1440.9	254.896	254.896	14.000	6.088	7.000	1.819

PEAK RESULTS
Peak Error Limit: 15%

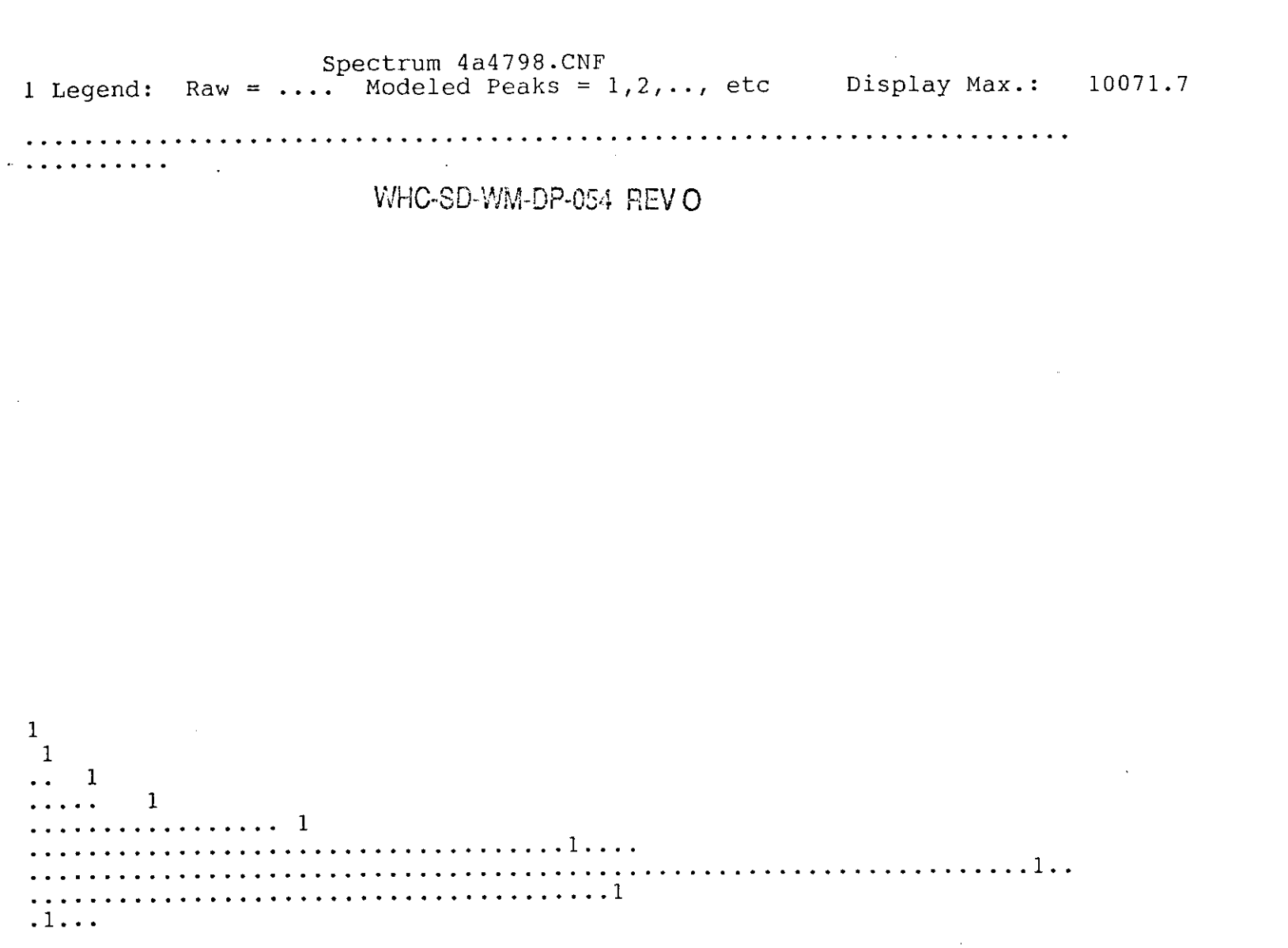
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.804	5.276	5.272	0.004	0.03	56.76	1.2	409.0	0.184E-03
Totals:		0.804	<--valid peaks only-->				56.76			

DETECTOR CALIBRATION
Energy(MEV) = 4.074 + (0.0047)*Channel
Energy range (MeV): 4.074 TO 6.480
Efficiency = 0.1402 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	33879.0	100.000
Smoothed	38416.9	113.394
Composite fit	27248.9	80.430
Residuals	6630.1	19.570

Analyzed by: _____
DM


Spectrum 4a4798.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 10071.7

Raw Data Dump for AEA Spectrum: 4a4798.CNF

1	28802.	0.	0.	4912.	1931.	0.	0.	0.	0.	0.
11	0.	0.	1.	1.	2.	0.	1.	0.	0.	0.
21	0.	0.	0.	0.	2.	0.	1.	0.	0.	0.
	0.	0.	2.	0.	1.	0.	0.	0.	0.	0.
	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.
51	0.	2.	1.	0.	0.	0.	0.	0.	0.	0.
61	2.	1.	0.	0.	1.	0.	1.	0.	0.	1.
71	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
81	1.	0.	1.	0.	2.	0.	1.	0.	0.	0.
91	1.	0.	1.	1.	1.	1.	0.	0.	0.	0.
101	0.	0.	1.	1.	1.	0.	0.	2.	0.	0.
111	0.	1.	1.	0.	2.	0.	1.	1.	0.	0.
121	0.	1.	1.	0.	1.	1.	0.	2.	1.	0.
131	0.	1.	0.	3.	2.	2.	2.	1.	1.	4.
141	1.	0.	2.	1.	3.	3.	0.	5.	0.	1.
151	3.	1.	1.	2.	1.	3.	4.	1.	1.	4.
161	1.	1.	1.	5.	5.	3.	4.	2.	5.	1.
171	1.	1.	4.	2.	3.	2.	4.	8.	6.	0.
181	3.	3.	3.	4.	7.	4.	5.	2.	5.	4.
191	9.	5.	6.	11.	7.	5.	9.	10.	5.	6.
201	7.	10.	17.	8.	12.	10.	10.	11.	14.	15.
211	18.	19.	20.	12.	21.	24.	22.	47.	36.	40.
221	47.	46.	74.	81.	68.	106.	90.	104.	116.	127.
231	142.	136.	197.	245.	310.	318.	355.	414.	467.	526.
241	558.	653.	651.	774.	854.	854.	975.	1056.	1064.	1155.
251	1183.	1274.	1393.	1554.	1587.	1568.	1400.	1098.	800.	537.
261	337.	193.	128.	102.	89.	85.	76.	52.	53.	49.
271	35.	27.	23.	16.	6.	4.	2.	0.	1.	0.
281	2.	0.	1.	3.	5.	3.	1.	5.	5.	5.
291	3.	4.	6.	7.	4.	6.	7.	10.	10.	7.
301	9.	3.	5.	5.	4.	1.	1.	1.	1.	0.
	0.	0.	0.	0.	0.	0.	0.	1.	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	1.	0.	0.	0.	1.	1.	3.	0.	1.	1.
351	0.	1.	1.	0.	0.	1.	1.	1.	1.	0.
361	0.	0.	0.	1.	1.	0.	1.	1.	1.	1.
371	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	1.	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.	1.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

D.H. Watkins
8-30-93

Westinghouse Hanford Co.

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

WHC-SD-WM-DP-054 REV 0 DATA REDUCTION REPORT

SAMPLE
G617-5782
File ID: 8a8379.CNF

Counted on: 8/30/93 @14:27
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	1998.5	1998.5	253.255	253.255	16.000	9.940	8.000	3.379

PEAK RESULTS
Peak Error Limit: 15%

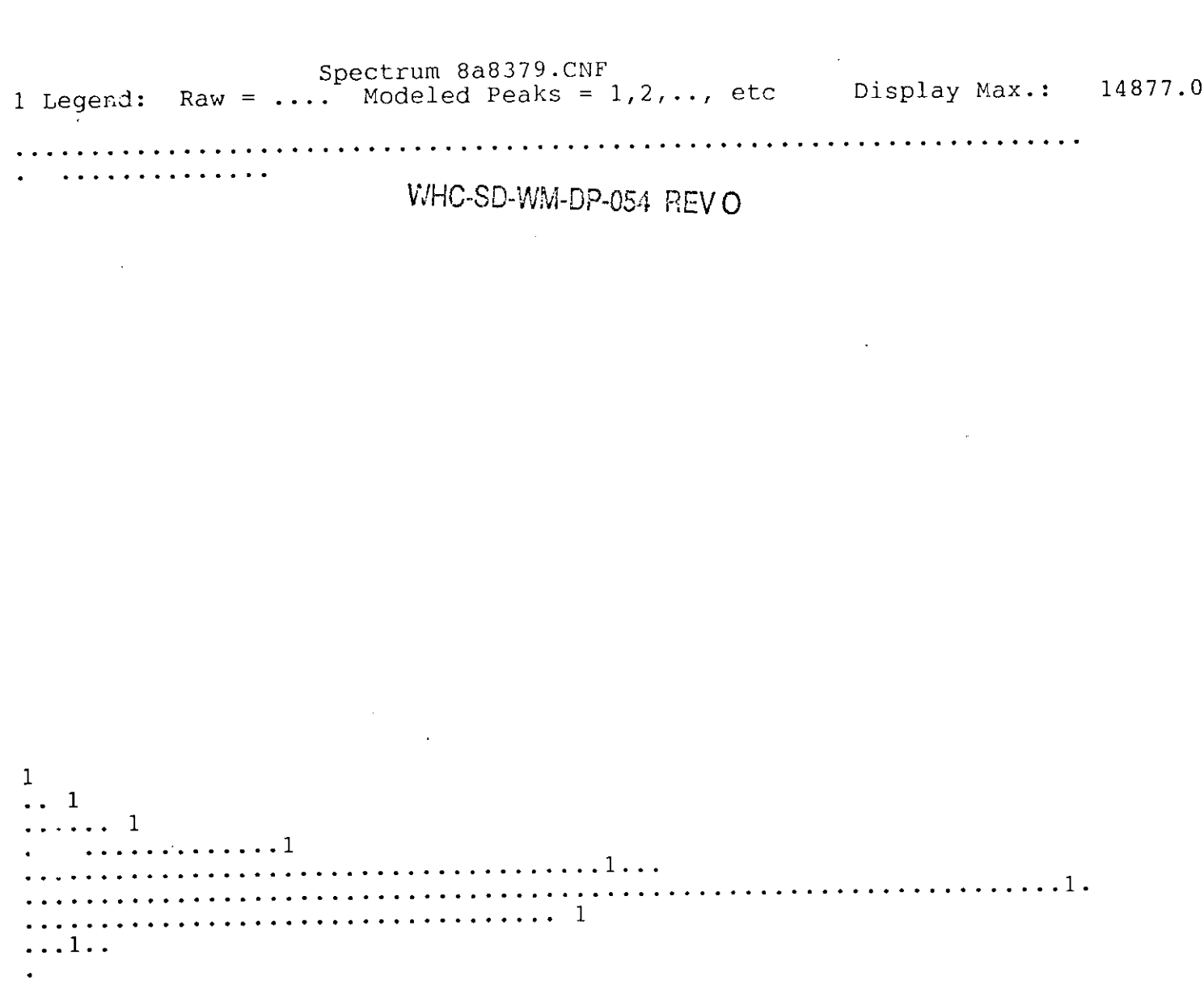
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.691	5.276	5.264	0.012	0.05	82.54	1.0	594.7	0.268E-03
Totals:		0.691	<--valid peaks only-->				82.54			

DETECTOR CALIBRATION
Energy(MEV) = 4.074 + (0.0047)*Channel
Energy range (MeV): 4.074 TO 6.480
Efficiency = 0.1402 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	57315.0	100.000
Smoothed	68808.8	120.054
Composite fit	39622.4	69.131
Residuals	17692.6	30.869

Analyzed by: RW


Spectrum 8a8379.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 14877.0

Raw Data Dump for AEA Spectrum: 8a8379.CNF

1	28802.	0.	0.	12608.	4980.	2.	1.	0.	2.	2.
11	1.	2.	2.	0.	1.	1.	1.	0.	1.	2.
21	3.	1.	2.	3.	3.	1.	0.	2.	2.	1.
31	2.	1.	1.	3.	0.	1.	1.	1.	0.	1.
41	2.	3.	0.	1.	1.	1.	1.	1.	1.	1.
51	0.	2.	0.	0.	0.	0.	1.	0.	0.	2.
61	0.	2.	0.	4.	0.	1.	0.	0.	1.	2.
71	3.	1.	0.	3.	0.	3.	0.	2.	0.	1.
81	1.	1.	2.	3.	1.	4.	2.	0.	0.	0.
91	0.	1.	1.	1.	2.	2.	0.	2.	1.	0.
101	3.	0.	3.	0.	4.	0.	0.	0.	2.	2.
111	2.	4.	1.	1.	3.	1.	1.	1.	1.	0.
121	2.	0.	2.	2.	2.	1.	2.	0.	1.	0.
131	5.	0.	1.	2.	1.	4.	0.	2.	5.	2.
141	1.	1.	2.	1.	1.	6.	2.	3.	1.	2.
151	1.	2.	2.	2.	2.	2.	2.	0.	1.	4.
161	7.	3.	5.	3.	2.	1.	1.	1.	1.	2.
171	2.	3.	2.	1.	2.	6.	2.	3.	2.	1.
181	5.	1.	4.	2.	4.	3.	3.	4.	6.	1.
191	5.	3.	4.	3.	5.	7.	4.	4.	9.	13.
201	5.	4.	9.	14.	11.	7.	11.	15.	13.	17.
211	18.	16.	31.	28.	38.	33.	38.	32.	48.	46.
221	65.	77.	79.	110.	108.	128.	155.	178.	179.	203.
231	291.	308.	300.	370.	420.	475.	565.	617.	714.	750.
241	907.	942.	1071.	1153.	1236.	1303.	1589.	1627.	1680.	1884.
251	2017.	2087.	2157.	2168.	1946.	1853.	1567.	1295.	999.	762.
261	564.	390.	270.	215.	181.	176.	136.	122.	109.	96.
271	51.	45.	38.	21.	13.	10.	6.	6.	3.	1.
281	0.	0.	4.	2.	5.	1.	2.	5.	6.	3.
291	3.	4.	5.	8.	7.	9.	6.	10.	5.	7.
301	6.	4.	5.	7.	5.	4.	2.	3.	2.	0.
311	1.	2.	0.	1.	1.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
341	0.	0.	0.	0.	1.	0.	0.	0.	2.	0.
351	0.	0.	0.	0.	1.	0.	1.	0.	1.	0.
361	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
371	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
431	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
441	0.	0.	1.	0.	0.	0.	0.	0.	0.	1.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								