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

DOCUMENT NUMBER: Wm-DP-159

SECTION 2 **OF** 2

TITLE: 60-Day Waste Compatibility

DATE: 12-11-95

ORIGINATOR: Young AE

CO:

RECIPIENT:

CO:

REFERENCES:

LABCORE Data Entry Template for Worklist# 3349

Analyst: RK (low level) **Instrument:** TIC01 _____ **Book #** 17N12-A

Method: LA-622-102 Rev/Mod C-0

Worklist Comment: SY-102 TIC

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK				TIC-01	LIQUID	1	~~<5.00~~ 0.1	N/A	ug/mL
		2	STD				TIC-01	LIQUID	6.00E+2	5.81E+2	N/A	ug/mL
95000172	SY-102 GRAB	3	SAMPLE	S95T003139	0		TIC-01	LIQUID	N/A	1.41E+3	1.75E+1	ug/mL
95000172	SY-102 GRAB	4	DUP	S95T003139	0		TIC-01	LIQUID	1.41E+3	1.44E+3	N/A	ug/mL
95000172	SY-102 GRAB	5	SPK	S95T003139	0		TIC-01	LIQUID	100	~~2.58E+3~~ 97.8	N/A	ug/mL
95000172	SY-102 GRAB	6	SAMPLE	S95T003140	0		TIC-01	LIQUID	N/A	1.65E+3	2.00E+1	ug/mL
95000172	SY-102 GRAB	7	DUP	S95T003140	0		TIC-01	LIQUID	1.65E+3	1.58E+3	N/A	ug/mL
95000139	AY-102 GRAB	8	SAMPLE	S95T002911	0		TIC-01	LIQUID	N/A	5.31E+2	5.00	ug/mL
95000139	AY-102 GRAB	9	DUP	S95T002911	0		TIC-01	LIQUID	5.31E+2	5.36E+2	N/A	ug/mL

HLA 11-14-95

HLA 11-14-95

Final page for worklist # 3349

for Rob King
Heather Knaster 11-8-95
Analyst Signature Date

Analyst Signature Date 11/14/95

Reviewed RW Schroeder 11/15/95

The reported blank result is $\left|\text{blank} - \frac{\text{baseline}}{\text{reading}}\right| = \left|1.8 - 1.7\right| = 0.1 \frac{\text{ug}}{\text{mL}}$

RWE 12/4/95

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 3349

Analyst: RK **Instrument:** TIC01 _____ **Book #** 17112-B

Method: LA-622-102 Rev/Mod _____

Worklist Comment: SY-102 TIC

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK				TIC-01	LIQUID			N/A	ug/mL
		2	STD				TIC-01	LIQUID			N/A	ug/mL
95000172	SY-102 GRAB	3	SAMPLE	S95T003139	0		TIC-01	LIQUID	N/A			ug/mL
95000172	SY-102 GRAB	4	DUP	S95T003139	0		TIC-01	LIQUID			N/A	ug/mL
95000172	SY-102 GRAB	5	SPK	S95T003139	0		TIC-01	LIQUID			N/A	ug/mL
95000172	SY-102 GRAB	6	SAMPLE	S95T003140	0		TIC-01	LIQUID	N/A			ug/mL
95000172	SY-102 GRAB	7	DUP	S95T003140	0		TIC-01	LIQUID			N/A	ug/mL

Final page for worklist # 3349

Nat Kong 11/7/95
Analyst Signature **Date**

_____
Analyst Signature **Date**

Needed only for Signature

Data Entry Comments:

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

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-159, REV. 0

TIC : LA-622-102 (C-0) LIQUIDS

			BLANK
Type	Sample Volume in mL	(SS)	0.200
BLANK	Dilution Factor	(DF)	1.000
Work List	Digest Dilution Factor	(DDF)	1.000
3349	µg of Carbon in Sample	(C1)	1.8
Test Code	µg of Carbon in Blank	(C2)	1.7
TIC-01			
Matrix			
LIQUID	g of Carbon/L	= <	5.00E-03
Sample #			
17N12-A			
Instrument Code			
TIC01			
Analyst			
R. KING			
Date			
11/07/95			
Time			

g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{SS * 1000}$

µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 m

Detection Level (µg/mL) = $\frac{1 \text{ µg C} * DF * DDF}{SS}$

NOTE: Reported Result is Below Detection Level.

µg Carbon/mL =	< 5.00E+00	DETECTION LEVEL in µg/mL
		5.00E+00

Data Entry by:	H. Knotts	Date:	11/13/95
Approved by:	R.W. Schroeder	Date:	11/15/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-159, REV. 0

TIC : LA-622-102 (C-0) LIQUIDS

Type	Work List #	Test Code	Matrix	Sample #	Instrument Code	Analyst	Date	Notebook
STANDARD	3349	TIC-01	LIQUID	17N12-A	TIC01	R. KING	11/07/95	

		STANDARD
Sample Volume in mL	(SS)	0.200
Dilution Factor	(DF)	1.000
Digest Dilution Factor	(DDF)	1.000
µg of Carbon in Sample	(C1)	117.9
µg of Carbon in Blank	(C2)	1.7
g of Carbon/L	=	5.81E-01

g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{SS * 1000}$

µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 m

Detection Level (µg/mL) = $\frac{1 \text{ µg C} * DF * DDF}{SS}$

µg Carbon/mL =	5.81E+02	DETECTION LEVEL in µg/mL
		5.00E+00

Data Entry by:	N. Proctor	Date:	11/13/95
Approved by:	RW Schroeder	Date:	11/15/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-159, REV. 0

TIC : LA-622-102 (C-0) LIQUIDS

			SAMPLE
	Sample Volume in mL	(SS)	0.200
SAMPLE	Dilution Factor	(DF)	3.500
	Digest Dilution Factor	(DDF)	1.000
3349	µg of Carbon in Sample	(C1)	82
	µg of Carbon in Blank	(C2)	1.7
TIC-01			
LIQUID	g of Carbon/L	=	1.41E+00

S95T003139

TIC01

R. KING

11/07/95

g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{SS * 1000}$

µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 m

Detection Level (µg/mL) = $\frac{1 \text{ µg C} * DF * DDF}{SS}$

µg Carbon/mL =	1.41E+03	DETECTION LEVEL in µg/mL
		1.78E+01

Data Entry by:	H. Angeles	Date:	11/13/95
Approved by:	RW Schroeder	Date:	11/15/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-159, REV. 0

TIC : LA-622-102 (C-0) LIQUIDS

			SAMPLE/DUP
	Sample Volume in mL	(SS)	0.200
SAMPLE/DUP	Dilution Factor	(DF)	3.500
	Digest Dilution Factor	(DDF)	1.000
3349	µg of Carbon in Sample	(C1)	84.2
	µg of Carbon in Blank	(C2)	1.7
TIC-01			
LIQUID	g of Carbon/L	=	1.44E+00
S95T003139	g of Carbon/L =	$\frac{(C1-C2) * DF * DDF}{SS * 1000}$	
TIC01			
	µg of Carbon/mL =	g of Carbon/L * 1000000 µg/g / 1000 m	
R. KING			
11/07/95	Detection Level (µg/mL) =	$\frac{1 \text{ µg C} * DF * DDF}{SS}$	

µg Carbon/mL =	1.44E+03	DETECTION LEVEL In µg/mL
		1.76E+01

Data Entry by:	Heather Angstor	Date:	11/13/95
Approved by:	RW Schroeder	Date:	11/15/95

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

WHC-SD-WM-DP-159, REV. 0

TIC: LA-622-102 (C-0)

~~TOC: LA-344-105~~ Hca 11-14-95 **SPIKED SAMPLE**

SPIKE
3349
TIC-01
Liquid
95ET00312
TIC01
R. King
11/07/95
03:00 PM

SPIKE

>>>>>> Sample Vial Data <<<<<<	
Sample Volume in mL	0.200
H2SO4 Volume in mL	0.000
Volume Injected in mL	0.200
µg of Carbon in Sample	82
µg of Carbon in Blank	1.7

>>>>>> Spiked Vial Data <<<<<<	
Sample Size in mL (SS)	0.200
Spike Volume in mL	0.400
H2SO4 Volume in mL	0.000
Volume Injected in mL	0.200
Sample Pre-Spike Dil. Factor (PDF)	1
Spike Value (µg/ml)	600
µg C in Sample + Spike	173.6
µg C in Blank	1.7

PERCENT SPIKE REC = $\frac{\text{µg Carbon Recovered from Spike} * 100}{\text{µg Carbon in Spike}}$

WHERE : µg Carbon Recovered from Spike =

[(µgC in sample + spike - µgC in blank) * (Spike Correction Factor)]

- [(µgC sample - µgC blank) * (Sample Correction Factor) * (Sample Size Correction Factor) * (PDF)]

Spike Correction Factor = $\frac{\text{Total volume in spiked sample vial (mL)}}{\text{Volume injected (mL)}}$

Sample Correction Factor = $\frac{\text{Total volume in sample vial (mL)}}{\text{Volume injected (mL)}}$

Sample Size Correction Factor = $\frac{\text{Sample size in (mL) in spiked vial}}{\text{Sample size (mL) in sample}}$

Sample Pre-Spike Dilution Factor = $\frac{1}{\text{Dilution of Sample Before Added to Spike Vial}}$

WHERE : µg Carbon in Spike = Spike Value (µg/mL) * Spike Volume (mL)

Percent Spike Recovery 97.8%

Data Entry by: Heather Kopator Date: 14-Nov-95

Approved by: Robert A. Schroeder Date: 11/15/95

Form X Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-159, REV. 0

TIC : LA-622-102 (C-0) LIQUIDS

			SAMPLE
	Sample Volume in mL	(SS)	0.050
SAMPLE	Dilution Factor	(DF)	1.000
	Digest Dilution Factor	(DDF)	1.000
3349	µg of Carbon in Sample	(C1)	84.3
	µg of Carbon in Blank	(C2)	1.7
TIC-01			
LIQUID	g of Carbon/L	=	1.65E+00

5951003140

g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{SS * 1000}$

TIC01

µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 m

R. KING

11/07/95

Detection Level (µg/mL) = $\frac{1 \text{ µg C} * DF * DDF}{SS}$

µg Carbon/mL =	1.65E+03	DETECTION LEVEL in µg/mL
		2.00E+01

Data Entry by:	W. Ignatow	Date:	11/13/95
Approved by:	RW Schroeder	Date:	11/15/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-159, REV. 0

TIC : LA-622-102 (C-0) LIQUIDS

			SAMPLE/DUP
	Sample Volume in mL	(SS)	0.050
SAMPLE/DUP	Dilution Factor	(DF)	1.000
	Digest Dilution Factor	(DDF)	1.000
3349	µg of Carbon in Sample	(C1)	80.9
	µg of Carbon in Blank	(C2)	1.7
TIC-01			
LIQUID	g of Carbon/L	=	1.58E+00
S95T003149	g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{SS * 1000}$		
TIC01	µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 m		
R. KING			
11/07/95	Detection Level (µg/mL) = $\frac{1 µg C * DF * DDF}{SS}$		

µg Carbon/mL =	1.58E+03	DETECTION LEVEL in µg/mL
		2.00E+01

Data Entry by:	W. Traynor	Date:	11/13/95
Approved by:	RW Schroeder	Date:	11/15/95

^p^

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BLK Date: 11/07/95 Time: 13:51:57

Sample Size = 200 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = N/A

Analyst : RW KING
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	0.20	50.00
3	1.50	0.30	33.33
4	2.00	0.40	25.00
5	2.50	0.50	20.00
6	3.01	0.70	28.57
7	3.51	0.80	12.50
8	4.00	1.10	27.27
9	4.50	1.10	0.00
10	5.00	1.30	15.38
11	5.50	1.30	0.00
12	6.00	1.40	7.14
13	6.50	1.60	12.50
14	7.00	1.70	5.88

:

:200 Acid direct

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 118 TO 125.

BLANK VALUE = 1.7 micrograms carbon
BLANK FACTOR = 1.7 / 7.003845 = +2.4E-01 ug/min Carbon

baseline reading
RWK 12/4/95

Sample Run By: Robert King 11-08-95
RW. KING 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: REAGENT BLK Date: 11/07/95 Time: 14:11:26

Sample Size = 200 uL Analyst : RW KING
Dil Factor = 1 Min Readings = 14
Blank ID # = BLK Max Readings = 14
Blank Value = .2427238 ug/minute C % Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.20	100.00
3	1.51	0.30	33.33
4	2.01	0.50	40.00
5	2.51	0.60	16.67
6	3.01	0.80	25.00
7	3.51	1.00	20.00
8	4.01	1.10	9.09
9	4.50	1.20	8.33
10	5.00	1.30	7.69
11	5.50	1.40	7.14
12	6.00	1.50	6.67
13	6.50	1.70	11.76
14	7.00	1.80	5.56

1 200 ml direct

BLANK VALUE = 1.7 micrograms carbon
BLANK FACTOR = 1.7 / 7.003845 = +2.4E-01 ug/min Carbon

SAMPLE RESULTS:
(1.8 - 1.700045)(1)/(200) = < 5.00 E-3 g/L Carbon
(1.8 - 1.700045)(1)/(200)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: Rob King
RW KING 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD Date: 11/07/95 Time: 14:02:29

Sample Size = 200 uL Analyst : RW KING
Dil Factor = 1 Min Readings = 14
Blank ID # = BLK Max Readings = 14
Blank Value = .2427238 ug/minute C % Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	1.00	100.00
3	1.51	13.50	92.59
4	2.01	36.80	63.32
5	2.51	61.20	39.87
6	3.01	81.80	25.18
7	3.51	95.70	14.52
8	4.01	104.70	8.60
9	4.51	110.30	5.08
10	5.01	113.80	3.08
11	5.51	115.70	1.64
12	6.01	116.90	1.03
13	6.51	117.40	0.43
14	7.01	117.90	0.42

.200 ml 17N12-A direct

BLANK VALUE = 1.7 micrograms carbon
BLANK FACTOR = 1.7 / 7.003845 = +2.4E-01 ug/min Carbon

SAMPLE RESULTS:
(117.9 - 1.700445)(1)/(200) = +5.810E-01 g/L Carbon
(117.9 - 1.700445)(1)/(200)(12) = +4.842E-02 Molar Carbon

Sample Run By: Rob King
RW KING 00000

0.581 / 0.600 x 100 = 96.8%

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S95T3139 Date: 11/07/95 Time: 14:46:19

Sample Size = 200 uL
Dil Factor = 3.5
Blank ID # = BLK
Blank Value = .2427238 ug/minute C

Analyst : RW KING
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	19.80	98.99
3	1.51	53.40	62.92
4	2.01	69.80	23.50
5	2.51	76.70	9.00
6	3.01	79.30	3.28
7	3.51	80.20	1.12
8	4.01	80.70	0.62
9	4.51	81.00	0.37
10	5.01	81.20	0.25
11	5.51	81.50	0.37
12	6.01	81.60	0.12
13	6.51	82.00	0.49
14	7.00	82.00	0.00

.200 + .500 H_2O — .200 inject

BLANK VALUE = 1.7 micrograms carbon
BLANK FACTOR = 1.7 / 7.003845 = +2.4E-01 ug/min Carbon

SAMPLE RESULTS:
(82 - 1.7)(3.5)/(200) = +1.41E+00 g/L Carbon
(82 - 1.7)(3.5)/(200)(12) = +1.17E-01 Molar Carbon

Sample Run By: Rob King 11-08-95
RW KING 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S95T3139-Dup. Date: 11/07/95 Time: 14:56:13

Sample Size = 200 uL
Dil Factor = 3.5
Blank ID # = BLK
Blank Value = .2427238 ug/minute C

Analyst : RW KING
Min Readings = 14
Max Readings = 14
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	24.60	99.19
3	1.51	56.60	56.54
4	2.01	72.20	21.61
5	2.51	78.70	8.26
6	3.01	81.40	3.32
7	3.51	82.20	0.97
8	4.01	82.90	0.84
9	4.50	83.10	0.24
10	5.00	83.40	0.36
11	5.50	83.60	0.24
12	6.00	83.80	0.24
13	6.50	84.00	0.24
14	7.00	84.20	0.24

.200 + .500 H_2O – .200 inject

BLANK VALUE = 1.7 micrograms carbon
BLANK FACTOR = 1.7 / 7.003845 = +2.4E-01 ug/min Carbon

SAMPLE RESULTS:
(84.2 - 1.700237)(3.5)/(200) = +1.44E+00 g/L Carbon
(84.2 - 1.700237)(3.5)/(200)(12) = +1.20E-01 Molar Carbon

Sample Run By: Rob King
RW KING 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S95T3139-SP. Date: 11/07/95 Time: 15:04:54

Sample Size = 200 uL
Dil Factor = 3
Blank ID # = BLK
Blank Value = .2427238 ug/minute C

Analyst : RW KING
Min Readings = 14
Max Readings = 14
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	38.50	99.74
3	1.51	106.40	63.82
4	2.00	144.30	26.26
5	2.50	160.90	10.32
6	3.01	168.10	4.28
7	3.51	170.80	1.58
8	4.01	171.70	0.52
9	4.50	172.30	0.35
10	5.01	172.70	0.23
11	5.51	173.10	0.23
12	6.00	173.30	0.12
13	6.51	173.50	0.12
14	7.00	173.60	0.06

.700 + .400 spike # 17712-A

BLANK VALUE = 1.7 micrograms carbon
BLANK FACTOR = 1.7 / 7.003845 = +2.4E-01 ug/min Carbon

SAMPLE RESULTS:
(173.6 - 1.700252)(3)/(200) = +2.578E+00 g/L Carbon
(173.6 - 1.700252)(3)/(200)(12) = +2.149E-01 Molar Carbon

Sample Run By: Rob King
RW KING 00000

P

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S95T3140 Date: 11/07/95 Time: 15:15:15

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = .2427238 ug/minute C

Analyst : RW KING
Min Readings = 14
Max Readings = 14
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.10	0.00
2	1.01	25.40	99.61
3	1.51	60.70	58.15
4	2.01	74.70	18.74
5	2.51	79.90	6.51
6	3.01	81.90	2.44
7	3.51	82.30	0.49
8	4.01	82.90	0.72
9	4.51	83.10	0.24
10	5.01	83.30	0.24
11	5.51	83.50	0.24
12	6.01	83.70	0.24
13	6.50	84.10	0.48
14	7.00	84.30	0.24

.050 ml sample Direct

BLANK VALUE = 1.7 micrograms carbon
BLANK FACTOR = 1.7 / 7.003845 = +2.4E-01 ug/min Carbon

SAMPLE RESULTS:
(84.3 - 1.700237)(1)/(50) = +1.65E+00 g/L Carbon
(84.3 - 1.700237)(1)/(50)(12) = +1.38E-01 Molar Carbon

Sample Run By: Mark King
RW KING 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S95T3140-DUP Date: 11/07/95 Time: 15:23:05

Sample Size = 50 uL *Analyst : RW KING*
Dil Factor = 1 *Min Readings = 14*
Blank ID # = BLK *Max Readings = 14*
Blank Value = .2427238 ug/minute C *% Difference = 10*

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	11.90	99.16
3	1.51	49.00	75.71
4	2.01	67.00	26.87
5	2.51	74.50	10.07
6	3.01	77.40	3.75
7	3.51	78.80	1.78
8	4.01	79.20	0.51
9	4.51	79.70	0.63
10	5.01	79.90	0.25
11	5.51	80.20	0.37
12	6.01	80.40	0.25
13	6.50	80.60	.0.25
14	7.00	80.90	0.37

.050ml sample Direct

BLANK VALUE = 1.7 micrograms carbon
BLANK FACTOR = 1.7 / 7.003845 = +2.4E-01 ug/min Carbon

SAMPLE RESULTS:
(80.9 - 1.700237)(1)/(50) = +1.58E+00 g/L Carbon
(80.9 - 1.700237)(1)/(50)(12) = +1.32E-01 Molar Carbon

Sample Run By: _____
RW KING 00000

RADIOCHEMICAL ANALYSES

LABCORE Data Entry Template for Worklist# 3049

Analyst: Kim Thomas **Instrument:** GEA00 3 **Book#** 144852

Method: LA-548-121 **Rev/Mod** 0-1

Worklist Comment: GEA SY-102; use 0.500 mL sample. R(0) -PPB

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S95T003142	0		@GEA-01	LIQUID	95000172	SY-102 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S95T003142	0		@GEA-01	LIQUID		
5	SAMPLE	S95T003143	0		@GEA-01	LIQUID	95000172	SY-102 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S95T003143	0		@GEA-01	LIQUID		

Final page for worklist # 3049

Kim Thomas 10-26-95
Analyst Signature Date

AR Thomas 10/26/95 10/27/95
Analyst Signature Date

MB Sielman 10/31/95

Data Entry Comments:

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

```
**********************************************************************************
* 222-S Laboratory Counting Room   27-OCT-1995 00:11:30.91                      *
**********************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              3049
Sample ID:               WL3049-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3773.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.53 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       26-OCT-1995 23:20:39.67
Decayed to:              26-OCT-1995 23:20:39.67
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
**********************************************************************************
```

Removed by: Em Bueler

Verified by: B Bachelor 10/30/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.78*	22819	1.50	1323.73	1317	14	1.4		CS-137	25.8
0	1173.41	13673	1.82	2347.09	2337	19	1.9		CO-60	21.6
0	1332.70	12172	1.99	2665.78	2656	19	1.9		CO-60	21.3

Sample ID : WL3049-STD Acquisition date : 26-OCT-1995 23:20:39

Total number of lines in spectrum 3
Number of unidentified lines 0
Number of lines tentatively identified by NID 3 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.143E+01	2.143E+01	0.028E+01	1.31	
CS-137	30.00Y	1.000	2.579E+01	2.579E+01	0.037E+01	1.44	
	Total Activity :		4.722E+01	4.722E+01			
	Grand Total Activity :		4.722E+01	4.722E+01			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1110.	477.59	1.0976E+00
NA-22	93.	1274.53	7.5500E-02
NA-24	26.	1368.55	4.2977E-02
K-40	114.	1460.75	8.7505E-01
SC-46	504.	1120.55	1.5810E-01
CR-51	1071.	320.08	8.1121E-01
MN-54	643.	834.83	1.3860E-01
CO-56	616.	846.76	1.3747E-01
CO-57	1151.	122.06	5.8710E-02
CO-58	606.	810.78	1.3195E-01
FE-59	586.	1099.25	2.9692E-01
ZN-65	590.	1115.55	3.3612E-01
SE-75	1332.	264.66	1.3558E-01
KR-85	787.	514.00	2.3369E+01
SR-85	787.	514.01	1.0565E-01
Y-88	10.	1836.06	3.2890E-02
Y-90	15.	1760.70	1.3685E-01
Y-91	184.	1204.67	3.3908E+01
NB-94	686.	871.09	1.4864E-01
NB-95	525.	765.78	1.1661E-01
ZR-95	526.	756.73	2.1149E-01
RU-103	859.	497.08	1.1335E-01
RURH-106	546.	621.93	2.0023E+00
AG-108m	539.	722.94	1.2357E-01
CD-109	1083.	88.03	1.8862E+00
AG-110M	714.	657.76	1.2583E-01
SN-113	1064.	391.69	1.4832E-01
TE-123m	1220.	159.00	6.2185E-02
SB-124	582.	602.73	1.0211E-01
SB-125	1147.	427.89	3.5942E-01
TE-125m	1069.	109.27	1.8421E+01
I-129	991.	39.60	0.0000E+00
I-131	1048.	364.48	1.1002E-01
XE-131m	1200.	163.93	2.6827E+00
BA-133	1033.	356.02	1.4029E-01
CS-134	566.	604.70	1.0121E-01
CS-136	584.	818.51	1.3037E-01
CS-138	24.	1435.86	9.0547E-02
CE-139	1245.	165.85	6.7381E-02
BA-140	671.	537.31	3.9885E-01
LA-140	20.	1596.21	4.4635E-02
CE-141	1230.	145.44	1.0603E-01
CE-144	1240.	133.51	4.6121E-01
CEPR-144	1240.	133.51	9.2163E-01
EU-152	29.	1408.01	2.2089E-01
EU-154	92.	1274.51	2.1930E-01
EU-155	1071.	86.54	2.1262E-01
HF-181	1007.	482.18	1.3544E-01
TA-182	965.	67.75	3.0322E-01
HG-203	1181.	279.20	9.5171E-02
BI-207	603.	569.70	9.9013E-02

Sample ID : WL3049-STD Acquisition date : 26-OCT-1995 23:20:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	1233.	277.36	1.2495E+00
PB-210	1013.	46.50	0.0000E+00
BI-212	514.	727.18	1.6562E+00
PB-212	1441.	238.63	1.7533E-01
BI-214	579.	609.31	2.2435E-01
PB-214	1063.	351.92	4.3634E-01
RA-224	1446.	240.99	1.9505E+00
RA-226	1402.	186.10	1.7532E+00
AC-228	835.	911.21	6.4029E-01
TH-228	1016.	84.37	5.6256E+00
TH-229	1080.	88.47	2.7300E-01
U-232	948.	57.78	1.4409E+02
PA-233	1118.	312.17	2.1234E-01
PA-234M	703.	1001.03	2.8723E-01
TH-234	968.	63.29	3.6976E+00
U-235	1396.	185.71	1.0634E-01
NP-237	1069.	86.48	5.6279E-01
U-237	968.	59.54	6.8059E-01
NP-238	646.	984.45	5.7932E-01
NP-239	1094.	106.12	2.3652E-01
PU-239	1194.	129.30	7.8711E+02
AM-241	968.	59.54	6.5281E-01
AM-243	1028.	74.67	1.5812E-01

```
**********************************************************************************
* 222-S Laboratory Counting Room   30-OCT-1995 15:33:38.99                       *
**********************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              3049
Sample ID:               WORKLIST3049-BLK
Sample Size:             5.00000E-01 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3801.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.45 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       30-OCT-1995 14:42:56.61
Decayed to:              30-OCT-1995 14:42:56.61
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:28:40.20
**********************************************************************************

Post-NID Peak Search Report
***** No peaks found *****
```

Removed by:

10-30-95

Verified by:

10/31/95

Sample ID : WORKLIST3049-BLK Acquisition date : 30-OCT-1995 14:42:56

**** There are no nuclides meeting summary criteria ****

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	33.	477.59	3.7981E-04
NA-22	9.	1274.53	4.8097E-05
NA-24	9.	1368.55	5.0312E-05
K-40	114.	1460.75	1.7466E-03
SC-46	15.	1120.55	5.4564E-05
CR-51	52.	320.08	3.5695E-04
MN-54	23.	834.83	5.2505E-05
CO-56	12.	846.76	3.8737E-05
CO-57	79.	122.06	3.0684E-05
CO-58	16.	810.78	4.2769E-05
FE-59	13.	1099.25	8.6908E-05
CO-60	13.	1332.50	5.9361E-05
ZN-65	18.	1115.55	1.1719E-04
SE-75	51.	264.66	5.3106E-05
KR-85	42.	514.00	1.0769E-02
SR-85	42.	514.01	4.8648E-05
Y-88	3.	1836.06	3.5281E-05
Y-90	4.	1760.70	1.3631E-04
Y-91	13.	1204.67	1.8136E-02
NB-94	12.	871.09	3.9950E-05
NB-95	18.	765.78	4.3081E-05
ZR-95	19.	756.73	7.9900E-05
RU-103	33.	497.08	4.4398E-05
RURH-106	15.	621.93	6.7101E-04
AG-108m	16.	722.94	4.2089E-05
CD-109	54.	88.03	8.3998E-04
AG-110M	18.	657.76	4.0407E-05
SN-113	38.	391.69	5.6065E-05
TE-123m	85.	159.00	3.2759E-05
SB-124	27.	602.73	4.3817E-05
SB-125	34.	427.89	1.2433E-04
TE-125m	70.	109.27	9.4096E-03
I-129	56.	39.60	0.0000E+00
I-131	43.	364.48	4.4456E-05
XE-131m	82.	163.93	1.4054E-03
BA-133	50.	356.02	6.2000E-05
CS-134	25.	604.70	4.2564E-05
CS-136	10.	818.51	3.4568E-05
CS-137	155.	661.66	1.3092E-04
CS-138	9.	1435.86	1.1065E-04
CE-139	87.	165.85	3.5625E-05
BA-140	31.	537.31	1.7196E-04
LA-140	4.	1596.21	4.1679E-05
CE-141	99.	145.44	6.0124E-05
CE-144	70.	133.51	2.1920E-04
CEPR-144	70.	133.51	4.3812E-04
EU-152	11.	1408.01	2.6774E-04
EU-154	9.	1274.51	1.3974E-04
EU-155	54.	86.54	9.5291E-05
HF-181	31.	482.18	4.7305E-05
TA-182	58.	67.75	1.4929E-04

Sample ID : WORKLIST3049-BLK Acquisition date : 30-OCT-1995 14:42:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
HG-203	57.	279.20	4.1718E-05
BI-207	27.	569.70	4.1966E-05
TL-208	52.	277.36	5.1072E-04
PB-210	43.	46.50	0.0000E+00
BI-212	18.	727.18	6.1275E-04
PB-212	76.	238.63	8.0294E-05
BI-214	32.	609.31	1.0527E-04
PB-214	62.	351.92	2.0977E-04
RA-224	63.	240.99	8.1318E-04
RA-226	74.	186.10	8.0625E-04
AC-228	30.	911.21	2.4291E-04
TH-228	71.	84.37	2.9767E-03
TH-229	56.	88.47	1.2395E-04
U-232	76.	57.78	8.1591E-02
PA-233	56.	312.17	9.5291E-05
PA-234M	8.	1001.03	6.0013E-05
TH-234	53.	63.29	1.7350E-03
U-235	68.	185.71	4.7027E-05
NP-237	54.	86.48	2.5250E-04
U-237	72.	59.54	3.7128E-04
NP-238	11.	984.45	1.5114E-04
NP-239	63.	106.12	1.1359E-04
PU-239	70.	129.30	3.8062E-01
AM-241	72.	59.54	3.5610E-04
AM-243	69.	74.67	8.2007E-05

Rerun

****

* 222-S Laboratory Counting Room 27-OCT-1995 11:56:14.76 *

****

>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<

Worklist #: 3049
Sample ID: S95T003142-SAM
Sample Size: 1.00000E-03 L
Dilution Factor: 2.00000E+00

Removed by:

10-27-95

>>>>>>>>>> COUNT INFORMATION <<<<<<<<<<

Detector ID: GEA3
File Number: dka300:[spec.GEA3]3g3782.cnf
Geometry: 43
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:51:42.62 sec
Dead Time: 3.3%

Verified by:

10/30/95

>>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<

Sample Count Time: 27-OCT-1995 11:03:49.15
Decayed to: 27-OCT-1995 11:03:49.15
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: ALJ
Background Subtract: DKA300:[SPEC.GEA3]3GBACK

>>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<

Date of last energy calibration: 11-MAR-1994 11:47:01.11
Date of last efficiency calibration: 15-MAR-1994 10:11:20.05

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.69*	777718	1.53	1323.56	1315	18	0.2		CS-137	6.855E+03
0	1322.62	187	3.30	2645.62	2635	23	35.8			
0	1460.72*	25	1.30	2921.93	2915	14	101.6		K-40	3.21

Total number of lines in spectrum 3
Number of unidentified lines 1
Number of lines tentatively identified by NID 2 66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~3.210E+00~~	~~3.210E+00~~	~~3.260E+00~~	~~101.55~~	~~K~~
CS-137	30.00Y	1.000	6.855E+03	6.855E+03	0.016E+03	0.23	
	Total Activity :		6.858E+03	6.858E+03			
	Grand Total Activity :		6.858E+03	6.858E+03			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	23240.	477.59	4.0397E+01
NA-22	53.	1274.53	4.2698E-01
NA-24	7.	1368.55	1.6233E-01
SC-46	120.	1120.55	5.7729E-01
CR-51	20503.	320.08	2.8587E+01
MN-54	407.	834.83	8.5680E-01
CO-56	383.	846.76	8.4195E-01
CO-57	21534.	122.06	2.0652E+00
CO-58	381.	810.78	8.1349E-01
FE-59	142.	1099.25	1.0965E+00
CO-60	15.	1332.50	2.3462E-01
ZN-65	104.	1115.55	1.0588E+00
SE-75	22781.	264.66	4.5929E+00
KR-85	11878.	514.00	7.3437E+02
SR-85	11875.	514.01	3.3202E+00
Y-88	1.	1836.06	6.9099E-02
Y-90	7.	1760.70	6.7014E-01
Y-91	67.	1204.67	1.5158E+02
NB-94	309.	871.09	7.7488E-01
NB-95	502.	765.78	8.8677E-01
ZR-95	541.	756.73	1.6690E+00
RU-103	14550.	497.08	3.7697E+00
RURH-106	4249.	621.93	4.3863E+01
AG-108m	581.	722.94	9.9845E-01
CD-109	17647.	88.03	6.5610E+01
AG-110M	11568.	657.76	3.9526E+00
SN-113	21134.	391.69	5.1851E+00
TE-123m	22720.	159.00	2.3081E+00
SB-124	4351.	602.73	2.2039E+00
SB-125	24333.	427.89	1.3074E+01
TE-125m	19552.	109.27	6.5020E+02
I-129	15749.	39.60	0.0000E+00
I-131	19972.	364.48	3.7914E+00
XE-131m	22529.	163.93	1.0085E+02
BA-133	19817.	356.02	4.8649E+00
CS-134	4314.	604.70	2.2035E+00
CS-136	401.	818.51	8.3931E-01
CS-138	6.	1435.86	3.3915E-01
CE-139	22536.	165.85	2.4941E+00
BA-140	8521.	537.31	1.1461E+01
LA-140	3.	1596.21	1.2309E-01
CE-141	22510.	145.44	3.7909E+00
CE-144	21985.	133.51	1.5902E+01
CEPR-144	21985.	133.51	3.1776E+01
EU-152	5.	1408.01	6.7372E-01
EU-154	54.	1274.51	1.2424E+00
EU-155	17683.	86.54	7.4608E+00
HF-181	19028.	482.18	4.7419E+00
TA-182	15995.	67.75	1.0355E+01
HG-203	22101.	279.20	3.3653E+00
BI-207	5382.	569.70	2.3619E+00

Sample ID : S95T003142-SAM Acquisition date : 27-OCT-1995 11:03:49

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	22235.	277.36	4.3377E+01
PB-210	15838.	46.50	0.0000E+00
BI-212	599.	727.18	1.3913E+01
PB-212	24743.	238.63	6.0103E+00
BI-214	4309.	609.31	4.8223E+00
PB-214	20032.	351.92	1.5268E+01
RA-224	24596.	240.99	6.6440E+01
RA-226	29667.	186.10	7.0743E+01
AC-228	260.	911.21	2.7676E+00
TH-228	17674.	84.37	2.0299E+02
TH-229	17670.	88.47	9.5096E+00
U-232	15626.	57.78	4.1784E+03
PA-233	20431.	312.17	7.3371E+00
PA-234M	168.	1001.03	1.0702E+00
TH-234	15664.	63.29	1.1995E+02
U-235	29234.	185.71	4.2689E+00
NP-237	17694.	86.48	1.9770E+01
U-237	15700.	59.54	2.0664E+01
NP-238	222.	984.45	2.5951E+00
NP-239	19291.	106.12	8.2470E+00
PU-239	22046.	129.30	2.7568E+04
AM-241	15700.	59.54	1.9820E+01
AM-243	17022.	74.67	5.5386E+00

Rerun

****
* 222-S Laboratory Counting Room 27-OCT-1995 13:08:12.24 *
****

>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<

Worklist #:	2049
Sample ID:	S95T003142-DUP
Sample Size:	1.00000E-03 L
Dilution Factor:	2.00000E+00

Removed by:

>>>>>>>>>> COUNT INFORMATION <<<<<<<<<<

Detector ID:	GEA3
File Number:	dka300:[spec.GEA3]3g3783.cnf
Geometry:	43
Count Time:	0 00:50:00.00 sec
Real Time:	0 00:51:43.79 sec
Dead Time:	3.3%

Verified by: 10/30/95

>>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<

Sample Count Time:	27-OCT-1995 12:15:45.59
Decayed to:	27-OCT-1995 12:15:45.59
Standard Deviations:	2
Analysis Library:	ENVGEA
Analyst:	ALJ
Background Subtract:	DKA300:[SPEC.GEA3]3GBACK

>>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<

Date of last energy calibration: 11-MAR-1994 11:47:01.11
Date of last efficiency calibration: 15-MAR-1994 10:11:20.05

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.69*	786440	1.54	1323.55	1315	18	0.2		CS-137	6.932E+03
6	1319.91	38	1.13	2640.19	2638	15	61.0	7.83E-01		
6	1322.88	148	2.57	2646.12	2638	15	32.7			

Sample ID : S95T003142-DUP Acquisition date : 27-OCT-1995 12:15:45

Total number of lines in spectrum 3
Number of unidentified lines 2
Number of lines tentatively identified by NID 1 33.33%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	6.932E+03	6.932E+03	0.016E+03	0.23	
Total Activity :			6.932E+03	6.932E+03			
Grand Total Activity :			6.932E+03	6.932E+03			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Sample ID : S95T003142-DUP Acquisition date : 27-OCT-1995 12:15:45

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	23778.	477.59	4.0862E+01
NA-22	62.	1274.53	4.6015E-01
NA-24	8.	1368.55	1.7802E-01
K-40	112.	1460.75	6.3960E+00
SC-46	143.	1120.55	6.3183E-01
CR-51	20454.	320.08	2.8553E+01
MN-54	379.	834.83	8.2680E-01
CO-56	370.	846.76	8.2693E-01
CO-57	21387.	122.06	2.0582E+00
CO-58	434.	810.78	8.6720E-01
FE-59	124.	1099.25	1.0265E+00
CO-60	20.	1332.50	2.7389E-01
ZN-65	107.	1115.55	1.0719E+00
SE-75	23170.	264.66	4.6319E+00
KR-85	11973.	514.00	7.3731E+02
SR-85	11972.	514.01	3.3338E+00
Y-88	4.	1836.06	1.5154E-01
Y-90	3.	1760.70	4.5520E-01
Y-91	52.	1204.67	1.3363E+02
NB-94	322.	871.09	7.9036E-01
NB-95	453.	765.78	8.4210E-01
ZR-95	491.	756.73	1.5895E+00
RU-103	14964.	497.08	3.8230E+00
RURH-106	4248.	621.93	4.3857E+01
AG-108m	664.	722.94	1.0673E+00
CD-109	17826.	88.03	6.5941E+01
AG-110M	11901.	657.76	4.0091E+00
SN-113	21579.	391.69	5.2395E+00
TE-123m	22703.	159.00	2.3072E+00
SB-124	4396.	602.73	2.2154E+00
SB-125	24606.	427.89	1.3148E+01
TE-125m	19384.	109.27	6.4739E+02
I-129	15772.	39.60	0.0000E+00
I-131	20391.	364.48	3.8309E+00
XE-131m	22681.	163.93	1.0119E+02
BA-133	20055.	356.02	4.8940E+00
CS-134	4403.	604.70	2.2262E+00
CS-136	436.	818.51	8.7515E-01
CS-138	12.	1435.86	4.8425E-01
CE-139	22664.	165.85	2.5012E+00
BA-140	8581.	537.31	1.1501E+01
LA-140	8.	1596.21	2.0029E-01
CE-141	22880.	145.44	3.8220E+00
CE-144	22456.	133.51	1.6072E+01
CEPR-144	22455.	133.51	3.2114E+01
EU-152	8.	1408.01	8.4331E-01
EU-154	62.	1274.51	1.3386E+00
EU-155	17720.	86.54	7.4687E+00
HF-181	19159.	482.18	4.7582E+00
TA-182	16229.	67.75	1.0430E+01
HG-203	22457.	279.20	3.3923E+00

Sample ID : S95T003142-DUP Acquisition date : 27-OCT-1995 12:15:45

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	5197.	569.70	2.3210E+00
TL-208	22642.	277.36	4.3773E+01
PB-210	15657.	46.50	0.0000E+00
BI-212	582.	727.18	1.3712E+01
PB-212	24823.	238.63	6.0200E+00
BI-214	4337.	609.31	4.8377E+00
PB-214	20388.	351.92	1.5407E+01
RA-224	24870.	240.99	6.6810E+01
RA-226	30025.	186.10	7.1168E+01
AC-228	261.	911.21	2.7713E+00
TH-228	17492.	84.37	2.0194E+02
TH-229	17874.	88.47	9.5642E+00
U-232	15720.	57.78	4.1909E+03
PA-233	20966.	312.17	7.4326E+00
PA-234M	178.	1001.03	1.1026E+00
TH-234	16069.	63.29	1.2149E+02
U-235	29540.	185.71	4.2912E+00
NP-237	17710.	86.48	1.9778E+01
U-237	15756.	59.54	2.0701E+01
NP-238	204.	984.45	2.4877E+00
NP-239	19025.	106.12	8.1899E+00
PU-239	22375.	129.30	2.7773E+04
AM-241	15756.	59.54	1.9856E+01
AM-243	16988.	74.67	5.5330E+00

Rerun

****

* 222-S Laboratory Counting Room 27-OCT-1995 10:58:20.85 *

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>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<

Worklist #: 3049
Sample ID: S95T003143-SAM
Sample Size: 1.00000E-03 L
Dilution Factor: 2.00000E+00

Removed by:

10-27-95

>>>>>>>>>> COUNT INFORMATION <<<<<<<<<<

Detector ID: GEA3
File Number: dka300:[spec.GEA3]3g3781.cnf
Geometry: 43
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:55:53.36 sec
Dead Time: 11% OK

Verified by:

Bachelor 10/30/95

>>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<

Sample Count Time: 27-OCT-1995 10:01:44.28
Decayed to: 27-OCT-1995 10:01:44.28
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: ALJ
Background Subtract: DKA300:[SPEC.GEA3]3GBACK

>>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<

Date of last energy calibration: 11-MAR-1994 11:47:01.11
Date of last efficiency calibration: 15-MAR-1994 10:11:20.05

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	188.72	15958	6.50	377.87	370	21	16.3			
0	661.70*	2454901	1.55	1323.58	1315	18	0.1		CS-137	2.164E+04
0	1322.35	1532	2.48	2645.08	2637	21	13.2			

Sample ID : S95T003143-SAM Acquisition date : 27-OCT-1995 10:01:44

Total number of lines in spectrum 3
Number of unidentified lines 2
Number of lines tentatively identified by NID 1 33.33%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.164E+04	2.164E+04	0.003E+04	0.13	
	Total Activity :		2.164E+04	2.164E+04			
	Grand Total Activity :		2.164E+04	2.164E+04			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	77203.	477.59	7.3631E+01
NA-22	624.	1274.53	1.4599E+00
NA-24	73.	1368.55	5.3883E-01
K-40	141.	1460.75	7.1880E+00
SC-46	1219.	1120.55	1.8424E+00
CR-51	66079.	320.08	5.1323E+01
MN-54	3886.	834.83	2.6471E+00
CO-56	3717.	846.76	2.6217E+00
CO-57	68312.	122.06	3.6784E+00
CO-58	4306.	810.78	2.7332E+00
FE-59	1385.	1099.25	3.4303E+00
CO-60	130.	1332.50	6.9196E-01
ZN-65	1234.	1115.55	3.6447E+00
SE-75	74260.	264.66	8.2925E+00
KR-85	40373.	514.00	1.3539E+03
SR-85	40367.	514.01	6.1217E+00
Y-88	7.	1836.06	1.9822E-01
Y-90	16.	1760.70	1.0367E+00
Y-91	640.	1204.67	4.6936E+02
NB-94	3261.	871.09	2.5165E+00
NB-95	4762.	765.78	2.7317E+00
ZR-95	5082.	756.73	5.1154E+00
RU-103	49167.	497.08	6.9300E+00
RURH-106	15042.	621.93	8.2524E+01
AG-108m	6099.	722.94	3.2357E+00
CD-109	55299.	88.03	1.1614E+02
AG-110M	39131.	657.76	7.2695E+00
SN-113	68806.	391.69	9.3560E+00
TE-123m	71468.	159.00	4.0936E+00
SB-124	15947.	602.73	4.2195E+00
SB-125	79483.	427.89	2.3630E+01
TE-125m	61533.	109.27	1.1535E+03
I-129	49351.	39.60	0.0000E+00
I-131	65451.	364.48	6.8644E+00
XE-131m	71157.	163.93	1.7925E+02
BA-133	64653.	356.02	8.7871E+00
CS-134	16017.	604.70	4.2458E+00
CS-136	4048.	818.51	2.6667E+00
CS-138	35.	1435.86	8.5293E-01
CE-139	71426.	165.85	4.4402E+00
BA-140	29506.	537.31	2.1329E+01
LA-140	23.	1596.21	3.4964E-01
CE-141	70994.	145.44	6.7327E+00
CE-144	70899.	133.51	2.8557E+01
CEPR-144	70897.	133.51	5.7063E+01
EU-152	62.	1408.01	2.3786E+00
EU-154	624.	1274.51	4.2420E+00
EU-155	55409.	86.54	1.3207E+01
HF-181	62454.	482.18	8.5910E+00
TA-182	50540.	67.75	1.8406E+01
HG-203	71111.	279.20	6.0366E+00

Sample ID : S95T003143-SAM Acquisition date : 27-OCT-1995 10:01:44

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	18969.	569.70	4.4342E+00
TL-208	71852.	277.36	7.7976E+01
PB-210	48868.	46.50	0.0000E+00
BI-212	5985.	727.18	4.3988E+01
PB-212	78947.	238.63	1.0736E+01
BI-214	15644.	609.31	9.1879E+00
PB-214	64863.	351.92	2.8650E+01
RA-224	78344.	240.99	1.1861E+02
RA-226	94856.	186.10	1.2650E+02
AC-228	2779.	911.21	9.0437E+00
TH-228	55259.	84.37	3.5892E+02
TH-229	55430.	88.47	1.6843E+01
U-232	48935.	57.78	7.3941E+03
PA-233	66461.	312.17	1.3234E+01
PA-234M	1826.	1001.03	3.5286E+00
TH-234	49627.	63.29	2.1350E+02
U-235	93589.	185.71	7.6380E+00
NP-237	55434.	86.48	3.4992E+01
U-237	49127.	59.54	3.6560E+01
NP-238	1972.	984.45	7.7400E+00
NP-239	59873.	106.12	1.4535E+01
PU-239	69748.	129.30	4.9036E+04
AM-241	49127.	59.54	3.5061E+01
AM-243	52801.	74.67	9.7546E+00

Rerun -

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**********************************************************************************
* 222-S Laboratory Counting Room   27-OCT-1995 09:21:53.21                       *
**********************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              3049
Sample ID:               S95T003143-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3780.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:55:52.30 sec
Dead Time:               11% OK

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-OCT-1995 08:25:21.26
Decayed to:              27-OCT-1995 08:25:21.26
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       11-MAR-1994 11:47:01.11
 Date of last efficiency calibration:   15-MAR-1994 10:11:20.05
**********************************************************************************
```

Removed by: A L Johnson

Verified by: R J Machelor 10/30/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.72*	2449097	1.55	1323.61	1315	18	0.1		CS-137	2.159E+04
0	1322.55	1340	2.56	2645.47	2639	17	13.2			

Total number of lines in spectrum 2
Number of unidentified lines 1
Number of lines tentatively identified by NID 1 50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.159E+04	2.159E+04	0.003E+04	0.13	
Total Activity :			2.159E+04	2.159E+04			
Grand Total Activity :			2.159E+04	2.159E+04			

Flags: "K" = Keyline not found "M" = Manually accepted
"E" = Manually edited "A" = Nuclide specific abn. limit

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	76767.	477.59	7.3423E+01
NA-22	589.	1274.53	1.4184E+00
NA-24	67.	1368.55	5.1495E-01
K-40	164.	1460.75	7.7491E+00
SC-46	1196.	1120.55	1.8249E+00
CR-51	65431.	320.08	5.1071E+01
MN-54	3760.	834.83	2.6037E+00
CO-56	3719.	846.76	2.6226E+00
CO-57	68078.	122.06	3.6721E+00
CO-58	4217.	810.78	2.7046E+00
FE-59	1324.	1099.25	3.3543E+00
CO-60	141.	1332.50	7.1838E-01
ZN-65	1239.	1115.55	3.6520E+00
SE-75	73770.	264.66	8.2650E+00
KR-85	40285.	514.00	1.3524E+03
SR-85	40284.	514.01	6.1154E+00
Y-88	6.	1836.06	1.8613E-01
Y-90	13.	1760.70	9.3711E-01
Y-91	597.	1204.67	4.5355E+02
NB-94	3159.	871.09	2.4767E+00
NB-95	4853.	765.78	2.7578E+00
ZR-95	5041.	756.73	5.0946E+00
RU-103	48660.	497.08	6.8942E+00
RURH-106	14976.	621.93	8.2344E+01
AG-108m	6188.	722.94	3.2593E+00
CD-109	55818.	88.03	1.1669E+02
AG-110M	38002.	657.76	7.1639E+00
SN-113	68441.	391.69	9.3311E+00
TE-123m	71211.	159.00	4.0862E+00
SB-124	16031.	602.73	4.2306E+00
SB-125	79078.	427.89	2.3570E+01
TE-125m	60544.	109.27	1.1441E+03
I-129	49160.	39.60	0.0000E+00
I-131	65233.	364.48	6.8529E+00
XE-131m	71209.	163.93	1.7932E+02
BA-133	64220.	356.02	8.7576E+00
CS-134	15801.	604.70	4.2170E+00
CS-136	4076.	818.51	2.6758E+00
CS-138	51.	1435.86	1.0287E+00
CE-139	71458.	165.85	4.4413E+00
BA-140	29283.	537.31	2.1248E+01
LA-140	19.	1596.21	3.1768E-01
CE-141	70979.	145.44	6.7319E+00
CE-144	70534.	133.51	2.8484E+01
CEPR-144	70532.	133.51	5.6915E+01
EU-152	56.	1408.01	2.2647E+00
EU-154	588.	1274.51	4.1190E+00
EU-155	55814.	86.54	1.3255E+01
HF-181	62441.	482.18	8.5901E+00
TA-182	49749.	67.75	1.8262E+01
HG-203	70821.	279.20	6.0243E+00

Sample ID : S95T003143-DUP Acquisition date : 27-OCT-1995 08:25:21

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	18800.	569.70	4.4145E+00
TL-208	71276.	277.36	7.7663E+01
PB-210	48492.	46.50	0.0000E+00
BI-212	6051.	727.18	4.4230E+01
PB-212	79015.	238.63	1.0741E+01
BI-214	15740.	609.31	9.2160E+00
PB-214	65164.	351.92	2.8711E+01
RA-224	78293.	240.99	1.1857E+02
RA-226	94472.	186.10	1.2624E+02
AC-228	2714.	911.21	8.9377E+00
TH-228	55576.	84.37	3.5995E+02
TH-229	55966.	88.47	1.6924E+01
U-232	48722.	57.78	7.3781E+03
PA-233	66720.	312.17	1.3259E+01
PA-234M	1836.	1001.03	3.5380E+00
TH-234	49217.	63.29	2.1262E+02
U-235	93115.	185.71	7.6187E+00
NP-237	55819.	86.48	3.5114E+01
U-237	49269.	59.54	3.6613E+01
NP-238	1958.	984.45	7.7133E+00
NP-239	59784.	106.12	1.4524E+01
PU-239	69797.	129.30	4.9053E+04
AM-241	49269.	59.54	3.5112E+01
AM-243	52701.	74.67	9.7454E+00

LABCORE Data Entry Template for Worklist# 3828

Analyst: SCL **Instrument:** AB00 12 **Book#** 9856

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

Worklist Comment: Use 1 mL sample size. rerun #2. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK-PREP				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S95T003142	0		@SR90-01	LIQUID	95000172	SY-102 GRAB
	Analytes Requested:	SR90-01 , SR90-01C, SR90-01E						
5	DUP	S95T003142	0		@SR90-01	LIQUID		
6	SAMPLE	S95T003143	0		@SR90-01	LIQUID	95000172	SY-102 GRAB
	Analytes Requested:	SR90-01 , SR90-01C, SR90-01E						
7	DUP	S95T003143	0		@SR90-01	LIQUID		

Final page for worklist # 3828

Sue C Lai 11/27/95
Analyst Signature **Date**

[signature] 11/28/95
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 3828

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

Method: _____ Rev/Mod _____

Worklist Comment: Use 1 mL sample size. rerun #2. SLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		aSR90-01	SR90-01 LIQUID	1.15E-03	1.29E-3	112.170	% Recovery
1	STD		0		aSR90-01	SR90-01C LIQUID	100	8.74E+01	87.400	% Recovery
1	STD		0		aSR90-01	SR90-01E LIQUID	1.00	1.85E+00	1.850	% Ct. Error
2	BLNK-PREP		0		aSR90-01	SR90-01 LIQUID	1	2.07E-6	0.000	uCi/mL
2	BLNK-PREP		0		aSR90-01	SR90-01C LIQUID	100	7.70E+01	77.000	% Recovery
2	BLNK-PREP		0		aSR90-01	SR90-01E LIQUID	1.00	1.01E+02	101.000	% Ct. Error
3	BLNK/BKG		0		aSR90-01	SR90-01 LIQUID	1	1.62E+00	1.620	uCi/mL
4	SAMPLE	S95T003142	0		aSR90-01	SR90-01 LIQUID	N/A	9.73E-05	2.350e-006	uCi/mL
4	SAMPLE	S95T003142	0		aSR90-01	SR90-01C LIQUID	N/A	8.59E+01	1.000e-004	% Recovery
4	SAMPLE	S95T003142	0		aSR90-01	SR90-01E LIQUID	N/A	6.96E+00	0.000	% Ct. Error
5	DUP	S95T003142	0		aSR90-01	SR90-01 LIQUID	9.73E-5	9.57E-5	1.660	RPD
5	DUP	S95T003142	0		aSR90-01	SR90-01C LIQUID	100	8.52E+01	85.200	% Recovery
5	DUP	S95T003142	0		aSR90-01	SR90-01E LIQUID	1.00	7.03E+00	7.030	% Ct. Error
6	SAMPLE	S95T003143	0		aSR90-01	SR90-01 LIQUID	N/A	2.96E-04	2.330e-006	uCi/mL
6	SAMPLE	S95T003143	0		aSR90-01	SR90-01C LIQUID	N/A	8.62E+01	1.000e-004	% Recovery
6	SAMPLE	S95T003143	0		aSR90-01	SR90-01E LIQUID	N/A	3.89E+00	0.000	% Ct. Error
7	DUP	S95T003143	0		aSR90-01	SR90-01 LIQUID	2.96E-4	3.01E-4	1.680	RPD
7	DUP	S95T003143	0		aSR90-01	SR90-01C LIQUID	100	8.64E+01	86.400	% Recovery
7	DUP	S95T003143	0		aSR90-01	SR90-01E LIQUID	1.00	3.85E+00	3.850	% Ct. Error

Final page for worklist# 3828

Analyst Signature **Date**

Analyst Signature **Date**

Reviewer Signature 11/30/95 **Date**

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

WORKBOOK PAGE: STD1

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

						STANDARD
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
STD	TOTAL COUNTS	(TC)	11295	GROSS WEIGHT	(W2)	7.0445
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9571
3828	BACKGROUND in cpm	(BKG)	2.6	NET WEIGHT	(W3)	0.0874
	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	6.83
[illegible]	DILUTION FACTOR	(DF)	1			
	DIGEST DILUTION FACTOR	DDF	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1126.90	Sr-90 EFFICIENCY FACTO	(C1)	0.4190
	CRITICAL LEVEL	(Lc)	0.97	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
[illegible]	TIME OF SEPARATION	(ST)	11:35	Rmax		N/A
	DATE OF SEPARATION	(SD)	11/27/95	DETECTION LIMIT	(Ld)	2.03
9	TIME OF COUNT	(TOC)	18:26	Sr-89/90 CONC. in µCi/L		1.2874E+00
	DATE OF COUNT	(DOC)	11/27/95			
N/A	STANDARD BOOK #		9856			
	STANDARD VALUE in µCi/mL		1.1636E-03			
WRKLST3828						

WB27811

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

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

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

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

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

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

SCL NOTE: Expected weight = CVA * 0.1

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

11/29/95 Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

11/27/95	Sr-89/90 CONCENTRATION	1.29E-03	µCi/mL	DETECTION LEVEL
02:00 PM	RELATIVE COUNTING ERROR	1.9%		2.32E-06 µCi/L
SY-102 GRAB	PERCENT CARRIER RECOVERY	87.4%		

Analyst:		SCL	Date:	28-Nov-95
Signature of Chemist:		SLF	Date:	11/30/95

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

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

						BLNK-PREP
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK-PREP	TOTAL COUNTS	(TC)	42	GROSS WEIGHT	(W2)	6.9988
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9218
3828	BACKGROUND in cpm	(BKG)	2.8	NET WEIGHT	(W3)	0.0770
	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	7.08
SR90-01	DILUTION FACTOR	(DF)	1			
	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
	CRITICAL LEVEL	(Lc)	0.97	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95004309	TIME OF SEPARATION	(ST)	11:35	Rmax		N/A
	DATE OF SEPARATION	(SD)	11/27/95	DETECTION LIMIT	(Ld)	2.03
0	TIME OF COUNT	(TOC)	18:40	Sr-89/90 CONC in µCi/L		2.0694E-03
	DATE OF COUNT	(DOC)	11/27/95			

N/A

WRKLST#3828

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

WB27811 Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

11/28/95

			µCi/mL	DETECTION LEVEL
11/27/95	Sr-89/90 CONCENTRATION	2.07E-06	µCi/m	
02:00 PM	RELATIVE COUNTING ERROR	101.0%		2.63E-06 µCi/mL
SY-102 GRAB	PERCENT CARRIER RECOVERY	77.0%		

Analyst:		SCL	Date:	28-Nov-95
Signature of Chemist:		SLF	Date:	11/30/95

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

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

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	867	GROSS WEIGHT	(W2)	7.0171
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9312
3828	BACKGROUND in cpm	(BKG)	2.6	NET WEIGHT	(W3)	0.0859
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	7.33
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	84.10	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.97	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95004300	TIME OF SEPARATION	(ST)	11:35	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	11/27/95	DETECTION LIMIT	(Ld)	2.03
0	TIME OF COUNT	(TOC)	18:55	Sr-89/90 CONC in µCi/L		9.7252E-02
Sample Prep	DATE OF COUNT	(DOC)	11/27/95			
N/A						
Sample #						
S95T003142						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
11/28/95	

Analysis Date				DETECTION
11/27/95	Sr-89/90 CONCENTRATION	9.73E-05	µCi/mL	LEVEL
Analysis Time				
02:00 PM	RELATIVE COUNTING ERROR	7.0%		2.35E-06
Sample Point				µCi/mL
SY-102 GRAB	PERCENT CARRIER RECOVERY	85.9%		

Analyst:		SCL	Date:	28-Nov-95
Signature of Chemist:		SLF	Date:	11/30/95

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

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

						DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	852	GROSS WEIGHT	(W2)	6.9860
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9008
3828	BACKGROUND in cpm	(BKG)	2.6	NET WEIGHT	(W3)	0.0852
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	7.92
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	82.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.97	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95004300	TIME OF SEPARATION	(ST)	11:35	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	11/27/95	DETECTION LIMIT	(Ld)	2.03
0	TIME OF COUNT	(TOC)	19:30	Sr-89/90 CONC in µCi/L		9.5732E-02
Sample Prep	DATE OF COUNT	(DOC)	11/27/95			
N/A						
Sample #						
S95T003142						
Instrument Code						
WB27811						
Prepared By						
MCB						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
11/28/95						
Analysis Date						
11/27/95						
Analysis Time						
02:00 PM						
Sample Point						
SY-102 GRAB						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	9.57E-05	µCi/mL	
RELATIVE COUNTING ERROR	7.0%		2.36E-06 µCi/mL
PERCENT CARRIER RECOVERY	85.2%		

Analyst:		SCL	Date:	28-Nov-95
Signature of Chemist:		SLF	Date:	11/30/95

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM6

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

Type						SAMPLE
SAMPLE	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	2616	GROSS WEIGHT	(W2)	7.0557
3828	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9695
Test Code	BACKGROUND in cpm	(BKG)	2.6	NET WEIGHT	(W3)	0.0862
@SR90-01	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	8.08
Matrix	DILUTION FACTOR	(DF)	1			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	259.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
95004300	CRITICAL LEVEL	(Lc)	0.97	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	11:35	Rmax		N/A
0	DATE OF SEPARATION	(SD)	11/27/95	DETECTION LIMIT	(Ld)	2.03
Sample Prep	TIME OF COUNT	(TOC)	19:40	Sr-89/90 CONC in µCi/L		2.9619E-01
N/A	DATE OF COUNT	(DOC)	11/27/95			
Sample #						
S95T003143						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
11/28/95						

Analysis Date				DETECTION LEVEL
11/27/95	Sr-89/90 CONCENTRATION	2.96E-04	µCi/mL	
Analysis Time				
02:00 PM	RELATIVE COUNTING ERROR	3.9%		2.33E-06 µCi/mL
Sample Point				
SY-102 GRAB	PERCENT CARRIER RECOVERY	86.2%		

Analyst:		SCL	Date:	28-Nov-95
Signature of Chemist:		SLF	Date:	11/30/95

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP7

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

						DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	2669	GROSS WEIGHT	(W2)	7.0120
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9256
3828	BACKGROUND in cpm	(BKG)	2.6	NET WEIGHT	(W3)	0.0864
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	8.42
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	264.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.97	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95004300	TIME OF SEPARATION	(ST)	11:35	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	11/27/95	DETECTION LIMIT	(Ld)	2.03
0	TIME OF COUNT	(TOC)	20:00	Sr-89/90 CONC in µCi/L		3.0055E-01
Sample Prep	DATE OF COUNT	(DOC)	11/27/95			
N/A						
Sample #						
S95T003143						

Instrument Code
WB27811
Prepared By
MCB
Chemist
SLF
Analyst
SCL
Date Complete
11/28/95
Analysis Date
11/27/95
Analysis Time
02:00 PM
Sample Point
SY-102 GRAB

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

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	3.01E-04	µCi/mL	
RELATIVE COUNTING ERROR	3.8%		2.31E-06 µCi/mL
PERCENT CARRIER RECOVERY	86.4%		

Analyst:	SCL	Date:	28-Nov-95
Signature of Chemist:	SLF	Date:	11/30/95

SAMPLE WB1 REV 1.2 22010NML

LABCORE Completed Worklist Report for Worklist# 3025

Analyst: akl **Instrument:** AM01 **Book#** 104843

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

Worklist Comment: Use Ludlum to determine sample size. --LLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@AM24101 AM24101	LIQUID	3.07E-02		2.62E-2	85.340	% Recovery
1	STD		0		@AM24101 AM24101E	LIQUID	1.00		1.89E+00	1.890	% Ct. Error
1	STD		0		@AM24101 AM24101T	LIQUID	100		3.68E+01	36.800	% Recovery
2	BLNK		0		@AM24101 AM24101	LIQUID	1		<3.22E-5		uCi/mL
2	BLNK		0		@AM24101 AM24101E	LIQUID	1.00		1.00E+02	100.000	% Ct. Error
2	BLNK		0		@AM24101 AM24101T	LIQUID	100		7.73E+01	77.300	% Recovery
3	SAMPLE	S95T003142	0		@AM24101 AM24101	LIQUID	N/A	<	3.15E-05	3.150e-005	uCi/mL
3	SAMPLE	S95T003142	0		@AM24101 AM24101E	LIQUID	N/A		1.00E+02	0.000	% Ct. Error
3	SAMPLE	S95T003142	0		@AM24101 AM24101T	LIQUID	N/A		8.02E+01	1.000e-007	% Recovery
4	DUP	S95T003142	0		@AM24101 AM24101	LIQUID	<3.15E-5		<3.61E-5		RPD
4	DUP	S95T003142	0		@AM24101 AM24101E	LIQUID	1.00		1.00E+02	100.000	% Ct. Error
4	DUP	S95T003142	0		@AM24101 AM24101T	LIQUID	100		6.08E+01	60.800	% Recovery
5	SAMPLE	S95T003143	0		@AM24101 AM24101	LIQUID	N/A	<	2.72E-05	2.720e-005	uCi/mL
5	SAMPLE	S95T003143	0		@AM24101 AM24101E	LIQUID	N/A		5.75E+00	0.000	% Ct. Error
5	SAMPLE	S95T003143	0		@AM24101 AM24101T	LIQUID	N/A		9.18E+01	1.000e-007	% Recovery
6	DUP	S95T003143	0		@AM24101 AM24101	LIQUID	<2.72E-5		<3.02E-5		RPD
6	DUP	S95T003143	0		@AM24101 AM24101E	LIQUID	1.00		5.27E+00	5.270	% Ct. Error
6	DUP	S95T003143	0		@AM24101 AM24101T	LIQUID	100		8.33E+01	83.300	% Recovery

Final page for worklist# 3025

Analyst Signature Date

Analyst Signature Date

31 Oct 95

Reviewer Signature Date

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

LABCORE Data Entry Template for Worklist# 3025

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

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

Worklist Comment: Use Ludlum to determine sample size. --LLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AM24101	LIQUID		
2	BLNK				@AM24101	LIQUID		
3	SAMPLE	S95T003142	0		@AM24101	LIQUID	95000172	SY-102 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
4	DUP	S95T003142	0		@AM24101	LIQUID		
5	SAMPLE	S95T003143	0		@AM24101	LIQUID	95000172	SY-102 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
6	DUP	S95T003143	0		@AM24101	LIQUID		

Final page for worklist # 3025

RJ Lewis 10/27/95
Analyst Signature **Date**

SE Hogan 10/30/95
Analyst Signature **Date**

Data Entry Comments:

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

WORKBOOK PAGE: STD1

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

Type	Date Counted		OCT-28-95	Am 241 AEA Frac.	(C241)	0.34
STD	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.543
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
3025	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		9511
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		36.55
LIQUID	Detector Number		1	Am 243 cpm		58.41
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95003375	Standard Book No		104B43	AEA Count Time	(min)	480
Rerun	Standard Value in µCi/mL		0.03067	Am 241 µCi/L =		2.6248E+01
0				Cm 243/244 µCi/L =	<	1.0496E+01
Sample Prep						
N/A						
Sample Number	Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
WORKLIST3025-STD	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
Instrument Code						
AL10539	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100					
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV					
SEH						
Chemist						
LLF	Am 241 µCi/mL = 2.62E-02			DETECTION LEVELS in µCi/mL		
Analyst	Relative Counting Error = 1.9%					
AKL						
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241		
10/30/95	Cm 243/244 µCi/mL < 1.05E-02			1.05E-02		
Analysis Date	Relative Counting Error = 100.0%			Cm 243/244		
10/27/95	Am 243 Tracer Recovery = 36.8%			1.05E-02		
Analysis Time						
02:30 PM						
Sample Point						
SY-102 GRAB						

Analyst:	AKL	Date:	10/30/95
Signature of Chemist:	LLF	Date:	30 Oct 95

STANDARD.WB1 REV 1.2 953103ML

WORKBOOK PAGE: BLANK2

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

						BLNK
Type	Date Counted		OCT-28-95	Am 241 AEA Frac.	(C241)	0
BLNK	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.835
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
3025	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		12909
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	4
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		0
LIQUID	Detector Number		2	Am 243 cpm		122.47
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95003375				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	3.2166E-02
0				Cm 243/244 µCi/L =	<	3.2166E-02
Sample Prep						
N/A						
Sample Number	Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
WORKLIST3025-BLK	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
Instrument Code						
AL10540	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100					
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV					
SEH						
Chemist	NOTE: Am-241 Result is a LESS THAN Value.					
LLF	Am 241 µCi/mL =		< 3.22E-05	DETECTION LEVELS in µCi/mL		
Analyst	Relative Counting Error =		100.0%			
AKL						
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241		
10/30/95	Cm 243/244 µCi/mL		< 3.22E-05	3.22E-05		
Analysis Date	Relative Counting Error =		100.0%	Cm 243/244		
10/27/95	Am 243 Tracer Recovery =		77.3%	3.22E-05		
Analysis Time						
02:30 PM						
Sample Point						
SY-102 GRAB						

Analyst:	AKL	Date:	10/30/95
Signature of Chemist:	LLF	Date:	30 Oct 95

BLANK.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM3

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

							SAMPLE
Type	Date Counted		OCT-28-95	Am 241 AEA Frac.	(C241)		0
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.823
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)		0
3025	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			13614
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)		5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			0
LIQUID	Detector Number		3	Am 243 cpm			135.7
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95003375				AEA Count Time	(min)		480
Rerun				Am 241 µCi/L =		<	3.1451E-02
0				Cm 243/244 µCi/L =		<	3.1451E-02
Sample Prep							
N/A							
Sample Number							
S95T003142							
Instrument Code							
AL10541							
Prepared By							
SEH							
Chemist							
LLF							
Analyst							
AKL							
Date Complete							
10/30/95							
Analysis Date							
10/27/95							
Analysis Time							
02:30 PM							
Sample Point							
SY-102 GRAB							

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

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

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

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

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

Am 241 µCi/mL =	< 3.15E-05	DETECTION LEVELS in µCi/mL
Relative Counting Error =	100.0%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241
Cm 243/244 µCi/mL	< 3.15E-05	3.15E-05
Relative Counting Error =	100.0%	Cm 243/244
Am 243 Tracer Recovery =	80.2%	3.15E-05

Analyst:	AKL	Date:	10/30/95
Signature of Chemist:	LLF	Date:	30 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP4

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

Type	Date Counted		OCT-28-95	Am 241 AEA Frac.	(C241)	DUP 0
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.946
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
3025	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		9032
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		0
LIQUID	Detector Number		1	Am 243 cpm		100.97
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95003375				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	3.6084E-02
0				Cm 243/244 µCi/L =	<	3.6084E-02
Sample Prep						
N/A						
Sample Number						
S95T003142						
Instrument Code						
AL10539						
Prepared By						
SEH						
Chemist						
LLF						
Analyst						
AKL						
Date Complete						
10/30/95						
Analysis Date						
10/27/95						
Analysis Time						
02:30 PM						
Sample Point						
SY-102 GRAB						

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

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

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

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

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

Am 241 µCi/mL =	< 3.61E-05	DETECTION LEVELS in µCi/mL
Relative Counting Error =	100.0%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241
Cm 243/244 µCi/mL	< 3.61E-05	3.61E-05
Relative Counting Error =	100.0%	Cm 243/244
Am 243 Tracer Recovery =	60.8%	3.61E-05

Analyst:	AKL	Date:	10/30/95
Signature of Chemist:	LLF	Date:	30 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

WHC-SD-WM-DP-159, REV. 0

WORKBOOK PAGE: SAM5

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

Type	Date Counted		OCT-28-95	Am 241 AEA Frac.	(C241)	SAMPLE 0.016
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.831
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
3025	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		15388
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	4
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		2.47
LIQUID	Detector Number		2	Am 243 cpm		127.13
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95003375				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	2.7203E-02
0				Cm 243/244 µCi/L =	<	2.7203E-02
Sample Prep						
N/A						
Sample Number	Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
S95T003143	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
Instrument Code						
AL10540	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100					
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV					
SEH						
Chemist	NOTE: Am-241 Result is a LESS THAN Value.					
LLF	Am 241 µCi/mL =		< 2.72E-05	DETECTION LEVELS in µCi/mL		
Analyst	Relative Counting Error =		5.7%			
AKL						
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241		
10/30/95	Cm 243/244 µCi/mL		< 2.72E-05	2.72E-05		
Analysis Date	Relative Counting Error =		100.0%	Cm 243/244		
10/27/95	Am 243 Tracer Recovery =		91.8%	2.72E-05		
Analysis Time						
02:30 PM						
Sample Point						
SY-102 GRAB						

Analyst:	AKL	Date:	10/30/95
Signature of Chemist:	LLF	Date:	30 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP6

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

Type	Date Counted		OCT-28-95	Am 241 AEA Frac.	(C241)	DUP 0.017
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.826
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
3025	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		14092
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		2.94
LIQUID	Detector Number		3	Am 243 cpm		141.66
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95003375				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	3.0152E-02
0				Cm 243/244 µCi/L =	<	3.0152E-02
Sample Prep						
N/A						
Sample Number	Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
S95T003143	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
Instrument Code						
AL10541	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100					
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV					
SEH						
Chemist	NOTE: Am-241 Result is a LESS THAN Value.					
LLF	Am 241 µCi/mL =		< 3.02E-05	DETECTION LEVELS in µCi/mL		
Analyst	Relative Counting Error =		5.3%			
AKL						
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241		
10/30/95	Cm 243/244 µCi/mL		< 3.02E-05	3.02E-05		
Analysis Date	Relative Counting Error =		100.0%	Cm 243/244		
10/27/95	Am 243 Tracer Recovery =		83.3%	3.02E-05		
Analysis Time						
02:30 PM						
Sample Point						
SY-102 GRAB						

Analyst:	AKL	Date:	10/30/95
Signature of Chemist:	LLF	Date:	30 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

10-28-95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
WORKLIST-3025-ST
File ID: 13a1357.CNF

Counted on: 10/28/95 @ 1: 6
Detector: AEA13
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1255.1	1255.1	299.762	299.762	10.000	4.588	5.000	2.124
2	2021.4	2021.4	253.852	253.848	10.000	4.015	5.000	1.770
3	37.3	37.3	182.565	182.484	92.000	1.000	46.000	0.100
4?	2.3	2.3	156.539	155.702	4.000	0.000	2.000	1.843
5?	2.3	2.3	152.676	151.573	4.000	0.000	2.000	3.758

PEAK RESULTS
Peak Error Limit: 30%

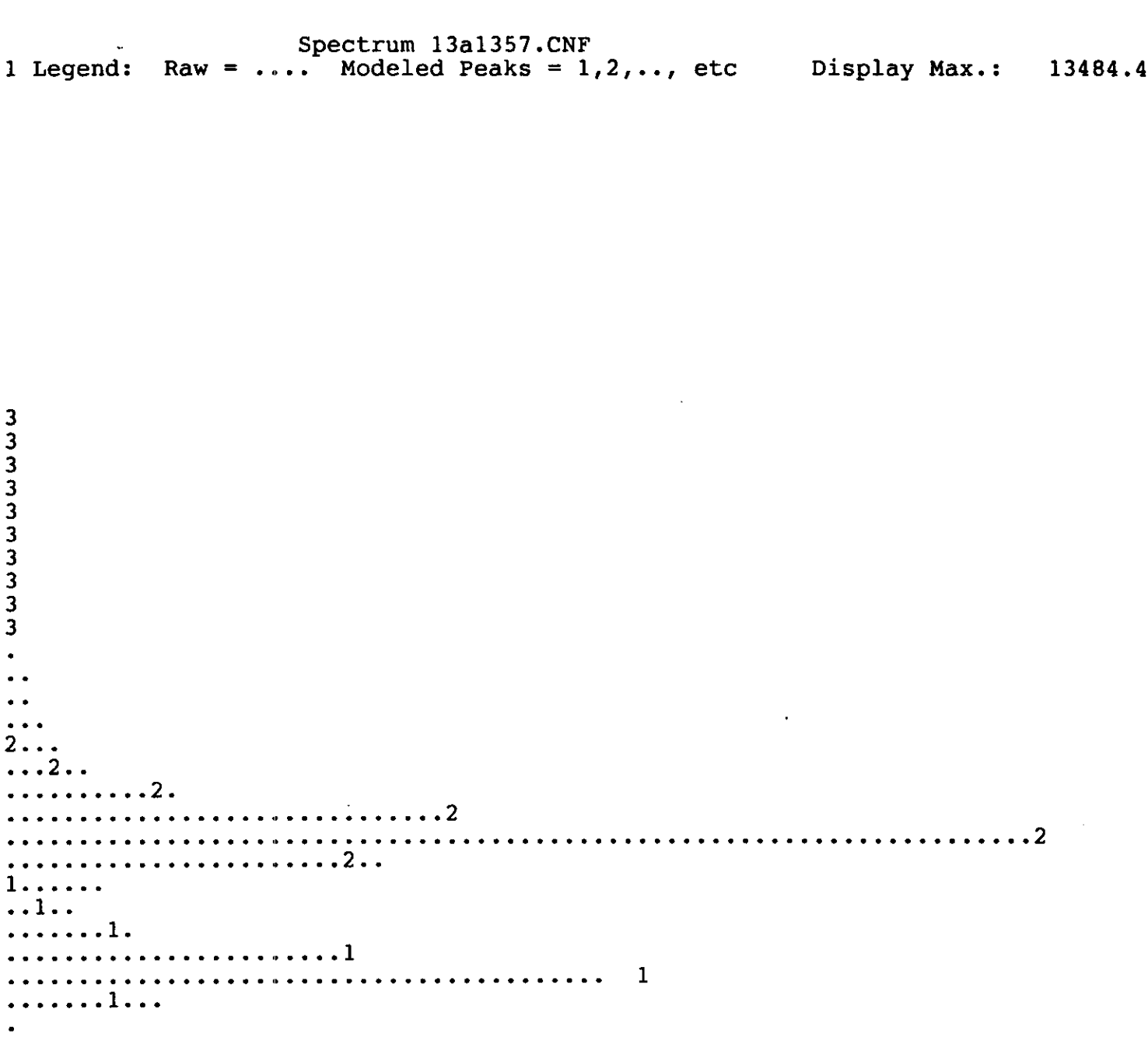
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.340	5.487	5.483	0.004	0.02	36.55	1.5	458.9	0.207E-03
	Am241		5.479	5.483	-.004				351.5	0.158E-03
2	Am243	0.543	5.270	5.272	-.002	0.02	58.41	1.2	533.4	0.240E-03
3		0.028		4.944	0.00		2.98	5.2	27.0	0.121E-04
4		????		4.821			0.00	1000.		
5		????		4.802			0.00	1000.		
Totals:		0.911	<--valid peaks only-->				97.93			

DETECTOR CALIBRATION
Energy(MEV) = 4.104 + (0.0046)*Channel
Energy range (MeV): 4.104 TO 6.460
Efficiency = 0.1106 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	51617.0	100.000
Smoothed	51617.0	100.000
Composite fit	47010.0	91.075
Residuals	4607.0	8.925

Analyzed by: _____
DM


Spectrum 13a1357.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 13484.4

Raw Data Dump for AEA Spectrum: 13a1357.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	1.	1.	0.	0.	1.	3.	1.
31	1.	0.	0.	1.	0.	0.	0.	1.	1.	0.
41	0.	3.	1.	0.	0.	4.	0.	0.	0.	1.
51	2.	1.	4.	2.	1.	0.	1.	0.	2.	1.
61	1.	2.	3.	1.	0.	3.	2.	0.	2.	1.
71	0.	4.	2.	2.	1.	1.	2.	4.	3.	3.
81	1.	3.	1.	7.	4.	5.	3.	2.	6.	5.
91	3.	6.	4.	8.	3.	5.	3.	1.	5.	3.
101	6.	3.	5.	2.	4.	4.	6.	7.	7.	1.
111	5.	3.	10.	3.	8.	12.	8.	10.	8.	8.
121	3.	6.	10.	9.	9.	9.	10.	16.	11.	8.
131	9.	8.	17.	12.	10.	11.	12.	10.	15.	17.
141	10.	15.	15.	13.	11.	13.	15.	16.	12.	12.
151	18.	27.	15.	14.	17.	21.	19.	20.	13.	19.
161	17.	17.	23.	20.	27.	20.	26.	25.	30.	22.
171	33.	29.	30.	40.	29.	35.	30.	23.	37.	40.
181	35.	40.	40.	38.	33.	33.	36.	33.	37.	38.
191	37.	34.	46.	43.	64.	56.	53.	54.	45.	65.
201	71.	63.	59.	62.	60.	73.	72.	71.	66.	76.
211	86.	76.	82.	87.	74.	93.	100.	117.	115.	122.
221	104.	109.	127.	125.	136.	148.	143.	158.	187.	174.
231	212.	216.	233.	266.	287.	310.	296.	338.	392.	468.
241	515.	559.	641.	775.	863.	921.	1000.	1097.	1277.	1481.
251	1682.	1912.	2230.	2395.	2305.	1877.	1166.	542.	295.	229.
261	197.	180.	204.	179.	203.	184.	150.	150.	138.	107.
271	81.	106.	110.	98.	109.	115.	132.	115.	123.	140.
281	158.	177.	219.	226.	210.	263.	282.	368.	385.	447.
291	551.	588.	641.	705.	756.	846.	1030.	1177.	1341.	1547.
301	1432.	1044.	633.	357.	311.	243.	215.	172.	148.	105.
311	65.	51.	32.	15.	10.	4.	1.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
351	2.	0.	0.	1.	1.	2.	2.	0.	1.	1.
361	1.	1.	0.	0.	1.	0.	0.	0.	1.	0.
371	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

10-28-95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
WORKLIST-3025-BL
File ID: 14a1462.CNF

Counted on: 10/28/95 @ 1: 8
Detector: AEA14
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak	Peak height		Peak center		FWHM		Tau	
ID	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	4066.4	4066.4	253.796	253.796	12.000	4.612	6.000	2.000
2	128.4	128.4	183.231	183.138	78.000	310.536	39.000	90.338

PEAK RESULTS
Peak Error Limit: 30%

Peak		AEA	Peak Centroid				Count	%err		Activity
ID	Isotope	Frac	Exp.	Obs.	Diff.	FWHM	Rate c/m	@95	d/m	uCi/ea
1	Am243	0.835	5.270	5.262	0.008	0.02	122.47	0.8	10057.3	0.453E-02
2	Np237	0.153	4.769	4.937	-.168	1.43	22.50	4.8	2102.2	0.947E-03
	Pu242		4.891	4.937	-.046				1828.9	0.824E-03
Totals:		0.988	<--valid peaks only-->				144.96			

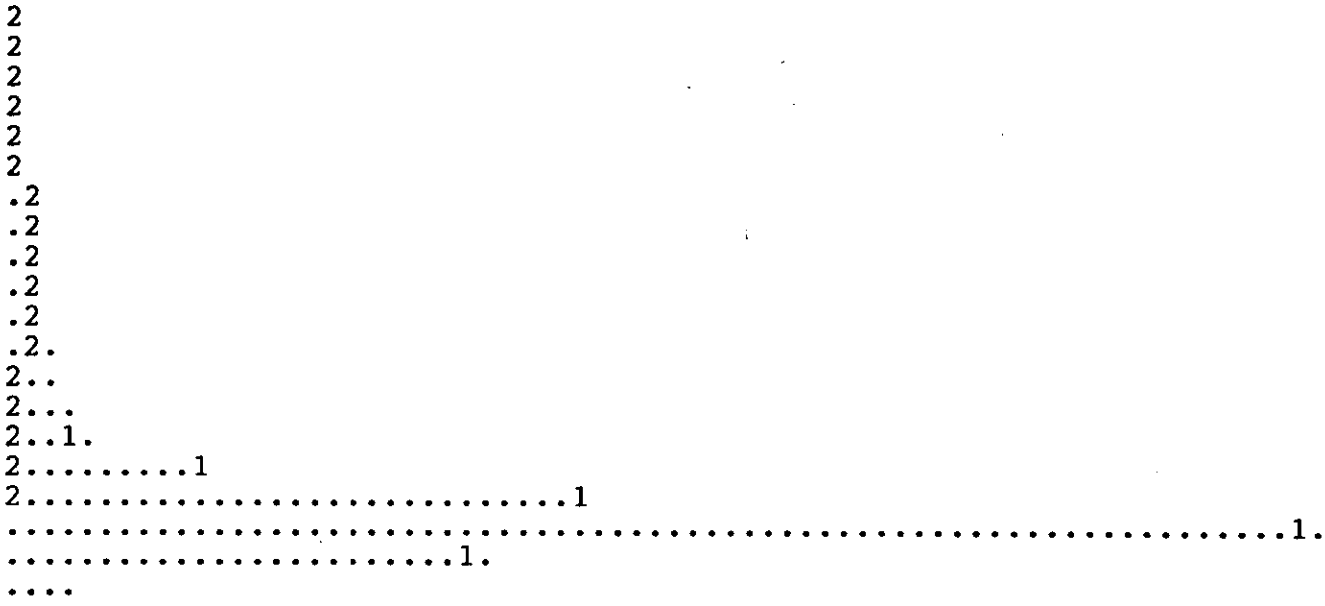
DETECTOR CALIBRATION
Energy(MEV) = 4.095 + (0.0046)*Channel
Energy range (MeV): 4.095 TO 6.450
Efficiency = 0.0123 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	70408.0	100.000
Smoothed	70408.1	100.000
Composite fit	69592.3	98.842
Residuals	815.7	1.158

Analyzed by: _____
DM

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 28041.0



Raw Data Dump for AEA Spectrum: 14a1462.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	2.	1.	2.	4.	1.	0.	2.
31	0.	0.	1.	1.	0.	0.	0.	0.	2.	0.
41	1.	2.	1.	2.	2.	2.	1.	0.	0.	3.
51	0.	2.	2.	1.	2.	2.	2.	2.	1.	2.
61	0.	4.	1.	6.	2.	3.	4.	4.	3.	1.
71	3.	5.	4.	3.	4.	4.	1.	3.	4.	4.
81	3.	5.	5.	3.	2.	2.	3.	3.	6.	4.
91	6.	5.	8.	8.	7.	7.	5.	9.	3.	9.
101	6.	10.	6.	6.	15.	15.	10.	11.	6.	24.
111	9.	9.	6.	8.	15.	8.	11.	14.	18.	12.
121	23.	25.	24.	22.	21.	22.	16.	23.	25.	20.
131	26.	19.	14.	25.	35.	26.	26.	27.	25.	25.
141	32.	33.	25.	35.	31.	42.	43.	44.	31.	35.
151	58.	54.	34.	47.	56.	49.	55.	48.	47.	59.
161	57.	56.	60.	51.	68.	59.	72.	81.	70.	98.
171	80.	77.	91.	81.	101.	77.	97.	92.	108.	82.
181	113.	121.	119.	118.	102.	114.	91.	104.	121.	123.
191	130.	150.	125.	140.	141.	145.	141.	144.	152.	145.
201	130.	163.	140.	159.	188.	167.	166.	173.	181.	195.
211	160.	177.	181.	183.	209.	199.	200.	200.	230.	216.
221	249.	235.	217.	250.	257.	256.	291.	306.	289.	349.
231	383.	339.	419.	460.	502.	538.	634.	657.	776.	884.
241	1006.	1080.	1317.	1544.	1782.	1995.	2353.	2537.	2858.	3208.
251	3545.	4041.	4500.	4636.	4479.	3877.	2630.	1534.	725.	444.
261	341.	306.	247.	239.	261.	224.	201.	176.	146.	106.
271	69.	41.	19.	10.	2.	0.	1.	0.	3.	1.
281	0.	2.	2.	1.	1.	1.	1.	1.	3.	2.
291	1.	6.	5.	5.	12.	2.	8.	9.	11.	9.
301	9.	8.	8.	2.	7.	1.	3.	0.	2.	3.
311	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
321	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.
341	1.	0.	0.	1.	1.	0.	0.	0.	0.	2.
351	3.	1.	2.	1.	3.	1.	2.	0.	3.	0.
361	1.	2.	0.	3.	0.	0.	0.	0.	0.	1.
371	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

A Johnson 10-28-95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T3142-SAM
File ID: 15a1544.CNF

Counted on: 10/28/95 @ 1: 9
Detector: AEA15
Geometry number: 1
Count time: 28810. 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?	27.8	27.8	299.276	299.276	14.000	6.690	7.000	2.029
2	4788.2	4788.2	253.703	253.703	10.000	4.069	5.000	1.871

PEAK RESULTS
Peak Error Limit: 30%

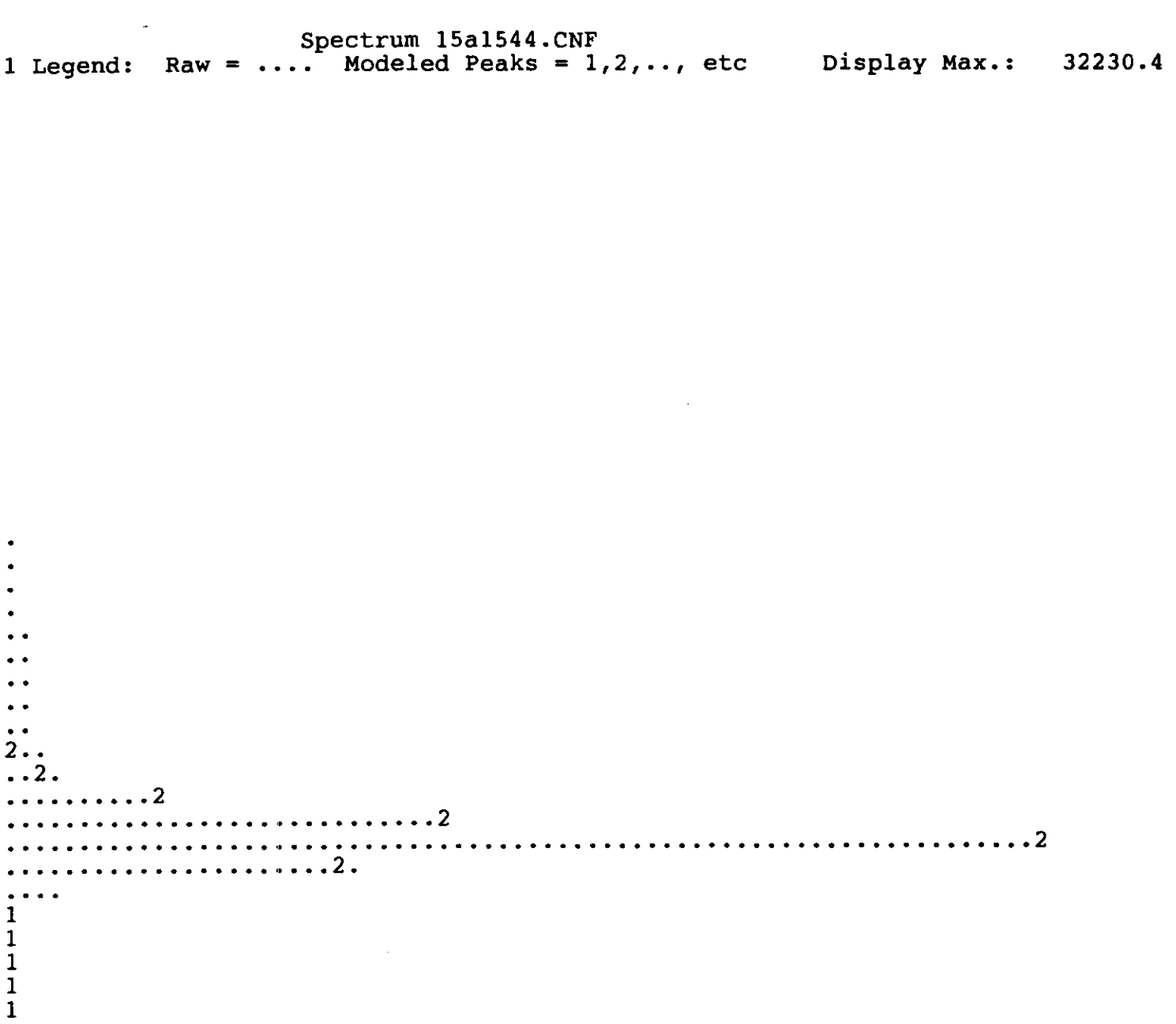
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1		????		5.483			1.11	8.5		
2	Am243	0.823	5.270	5.274	-.004	0.02	135.70	0.8	16514.5	0.744E-02
Totals:		0.823	<--valid peaks only-->				135.70			

DETECTOR CALIBRATION
Energy(MEV) = 4.107 + (0.0046)*Channel
Energy range (MeV): 4.107 TO 6.462
Efficiency = 0.0083 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	79195.0	100.000
Smoothed	79195.0	100.000
Composite fit	65690.6	82.948
Residuals	13504.4	17.052

Analyzed by: _____
DM


Spectrum 15a1544.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 32230.4

Raw Data Dump for AEA Spectrum: 15a1544.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	7.	2.	4.	5.	3.	4.	1.
31	4.	1.	3.	3.	1.	5.	5.	3.	6.	4.
41	3.	9.	5.	3.	1.	3.	9.	6.	2.	5.
51	2.	9.	5.	1.	10.	8.	10.	7.	12.	8.
61	8.	4.	7.	8.	3.	4.	8.	3.	7.	3.
71	8.	6.	11.	7.	12.	12.	7.	15.	12.	7.
81	10.	9.	12.	13.	8.	9.	10.	12.	14.	13.
91	13.	18.	13.	21.	14.	17.	16.	21.	22.	18.
101	17.	20.	13.	18.	24.	32.	14.	22.	18.	18.
111	22.	14.	26.	21.	24.	35.	39.	36.	31.	33.
121	32.	32.	49.	41.	28.	33.	34.	39.	39.	41.
131	44.	50.	53.	46.	46.	31.	58.	53.	56.	49.
141	57.	65.	64.	66.	74.	59.	62.	67.	66.	53.
151	82.	73.	72.	70.	87.	71.	89.	91.	86.	75.
161	90.	95.	88.	107.	84.	88.	92.	78.	112.	104.
171	108.	110.	109.	98.	115.	99.	117.	116.	116.	131.
181	143.	114.	119.	122.	102.	121.	135.	127.	137.	127.
191	114.	123.	128.	158.	115.	136.	133.	136.	165.	141.
201	132.	143.	157.	143.	149.	152.	164.	143.	146.	150.
211	168.	171.	172.	151.	151.	164.	171.	173.	191.	172.
221	200.	191.	204.	198.	217.	232.	215.	267.	291.	343.
231	358.	396.	427.	462.	526.	565.	631.	644.	856.	1041.
241	1115.	1353.	1512.	1823.	2037.	2349.	2516.	2748.	3173.	3513.
251	4059.	4731.	5370.	5541.	5488.	4243.	2591.	1167.	682.	460.
261	404.	365.	312.	333.	314.	251.	269.	188.	149.	93.
271	69.	43.	14.	7.	4.	4.	2.	1.	1.	4.
281	1.	4.	3.	5.	7.	9.	9.	11.	10.	10.
291	9.	12.	21.	21.	16.	21.	25.	32.	37.	24.
301	27.	27.	20.	11.	7.	9.	7.	2.	4.	5.
311	1.	1.	0.	0.	1.	1.	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.	0.
341	0.	0.	0.	0.	0.	1.	1.	0.	0.	2.
351	0.	0.	0.	1.	0.	3.	1.	4.	1.	2.
361	3.	0.	1.	3.	1.	0.	1.	1.	0.	1.
371	3.	2.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

10-28-95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T3142-DUP
File ID: 16a1635.CNF

Counted on: 10/28/95 @ 1: 9
Detector: AEA16
Geometry number: 1
Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1?	21.9	21.9	301.463	301.463	12.000	5.350	6.000	1.628
2	3594.8	3594.8	255.065	255.065	12.000	4.101	6.000	1.928

PEAK RESULTS
Peak Error Limit: 30%

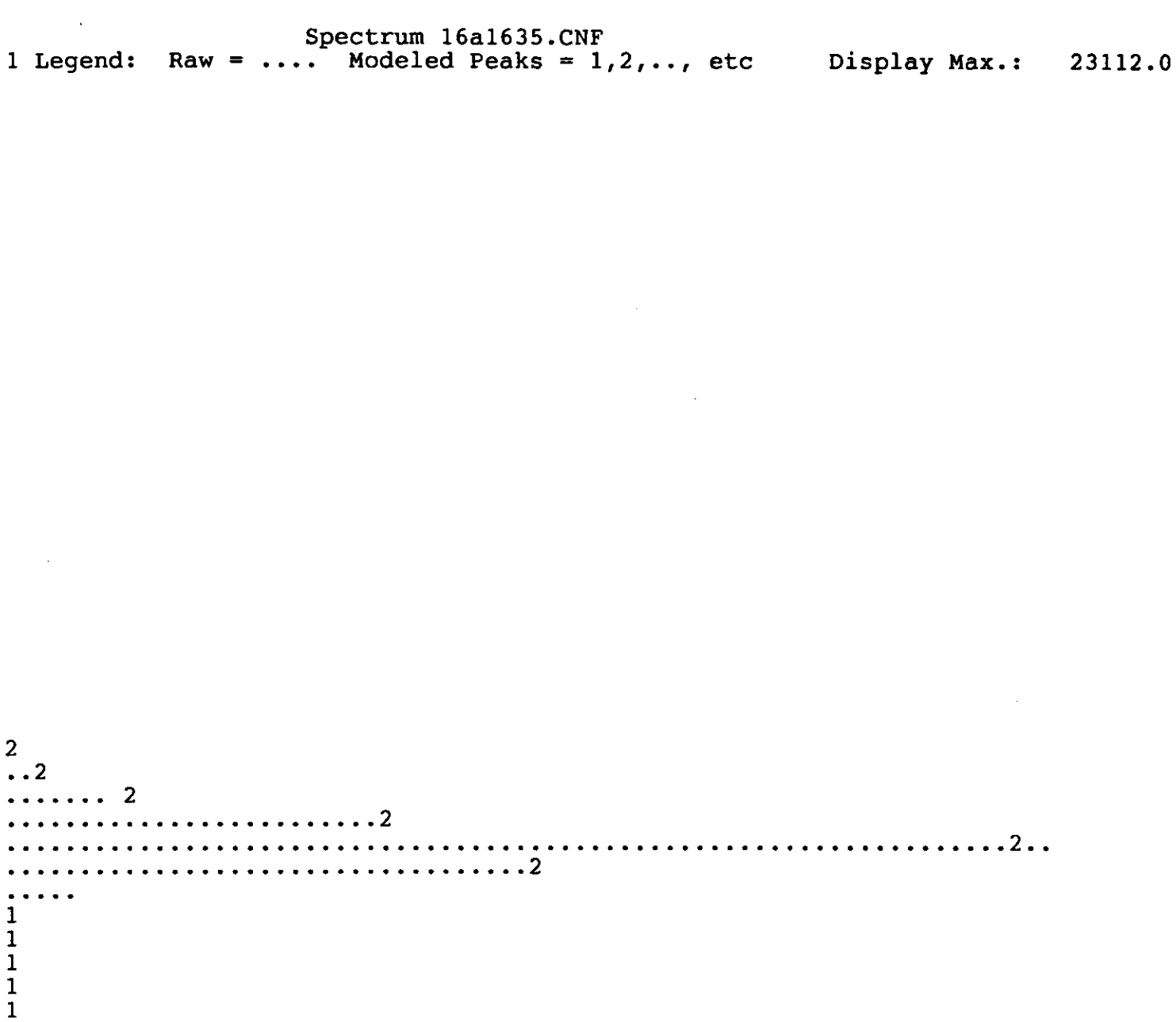
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1		????		5.472			0.83	9.8		
2	Am243	0.946	5.270	5.259	0.011	0.02	100.97	0.9	5203.7	0.234E-02
Totals:		0.946	<--valid peaks only-->				100.97			

DETECTOR CALIBRATION
Energy(MEV) = 4.085 + (0.0046)*Channel
Energy range (MeV): 4.085 TO 6.441
Efficiency = 0.0196 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	51232.0	100.000
Smoothed	51232.0	100.000
Composite fit	48866.4	95.383
Residuals	2365.6	4.617

Analyzed by: _____
DM


Spectrum 16a1635.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 23112.0
2
..2
..... 2
.....2
.....2..
.....2
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1
1
1
1
1

Raw Data Dump for AEA Spectrum: 16a1635.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	1.	0.	2.	0.
31	0.	0.	0.	3.	0.	0.	1.	2.	1.	1.
41	2.	1.	2.	0.	0.	2.	1.	1.	3.	1.
51	2.	1.	1.	0.	0.	2.	0.	1.	0.	2.
61	0.	1.	2.	1.	0.	0.	0.	1.	0.	0.
71	1.	4.	1.	4.	2.	2.	0.	1.	1.	2.
81	2.	1.	1.	1.	1.	1.	3.	0.	1.	2.
91	0.	2.	0.	1.	2.	6.	2.	1.	2.	1.
101	2.	1.	0.	2.	3.	1.	2.	2.	2.	3.
111	0.	2.	4.	2.	4.	2.	1.	0.	2.	1.
121	3.	1.	5.	2.	2.	4.	7.	1.	6.	1.
131	4.	1.	3.	7.	4.	2.	4.	2.	3.	3.
141	6.	1.	0.	8.	3.	6.	6.	9.	6.	4.
151	3.	3.	5.	2.	1.	5.	7.	2.	6.	5.
161	2.	6.	3.	6.	4.	5.	11.	3.	5.	7.
171	4.	7.	7.	11.	6.	5.	7.	3.	3.	7.
181	6.	9.	11.	12.	1.	8.	10.	10.	7.	14.
191	14.	8.	13.	12.	12.	15.	12.	16.	18.	12.
201	12.	18.	12.	17.	19.	23.	25.	22.	27.	19.
211	25.	30.	35.	29.	39.	44.	34.	41.	55.	51.
221	68.	61.	70.	75.	86.	112.	96.	111.	152.	142.
231	162.	181.	208.	229.	269.	335.	339.	354.	468.	607.
241	593.	731.	883.	1055.	1280.	1457.	1760.	1869.	2090.	2317.
251	2757.	3083.	3389.	3771.	4087.	4236.	3628.	2330.	1190.	549.
261	352.	328.	273.	241.	228.	199.	219.	196.	154.	119.
271	80.	57.	40.	15.	5.	3.	2.	3.	2.	3.
281	1.	1.	2.	4.	3.	7.	8.	7.	8.	9.
291	9.	10.	11.	11.	9.	10.	14.	20.	16.	21.
301	24.	28.	25.	11.	12.	7.	8.	3.	5.	3.
311	4.	5.	0.	2.	2.	0.	0.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
331	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
341	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
351	1.	0.	0.	1.	4.	0.	1.	0.	3.	1.
361	0.	2.	0.	1.	2.	2.	1.	2.	0.	1.
371	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Johnson 10-28-

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
S95T3143-SAM
File ID: 17a1725.CNF

Counted on: 10/28/95 @ 1:10
Detector: AEA17
Geometry number: 1
Count time: 28810. 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	83.6	83.6	299.593	299.593	10.000	4.534	5.000	2.021
2	4701.1	4701.1	253.677	253.677	10.000	3.629	5.000	1.733
3	104.6	104.6	188.327	188.229	62.000	307.627	31.000	95.638
4?	0.8	0.1	182.427	182.000	4.000	0.100	2.000	0.100
5	17.9	17.9	113.564	112.454	24.000	71.161	12.000	25.029
6?	4.7	4.7	98.175	98.175	18.000	0.047	9.000	24.904

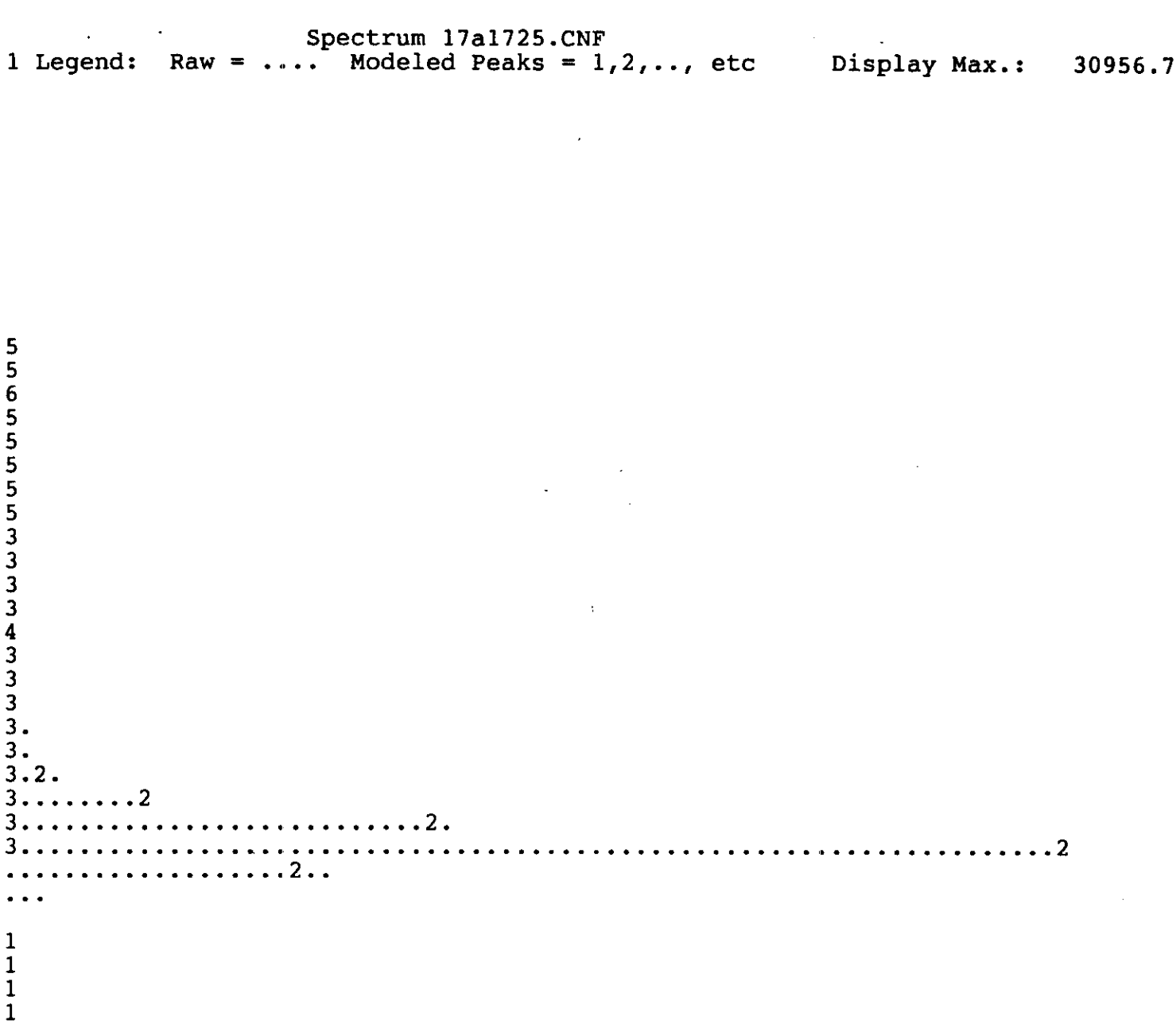
PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.016	5.487	5.480	0.007	0.02	2.47	5.7	39.4	0.177E-04
	Am241		5.479	5.480	-.001				30.2	0.136E-04
2	Am243	0.831	5.270	5.269	0.001	0.02	127.13	0.8	1472.7	0.663E-03
3	Np237	0.119	4.769	4.968	-.199	1.42	18.23	5.9	240.3	0.108E-03
	Pu242		4.891	4.968	-.077				209.1	0.942E-04
4		????		4.940			0.00	*****		
5		????		4.620			1.53	13.8		
6		????		4.554			0.01	583.		
Totals:		0.966	<--valid peaks only-->				147.84			

DETECTOR CALIBRATION
Energy(MEV) = 4.102 + (0.0046)*Channel
Energy range (MeV): 4.102 TO 6.458
Efficiency = 0.0872 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	73497.0	100.000
Smoothed	73498.9	100.003
Composite fit	71726.1	97.590
Residuals	1770.9	2.410


Spectrum 17a1725.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 30956.7
5
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5
3
3
3
3
4
3
3
3
3.
3.
3.2.
3.....2
3.....2.
3.....2
.....2..
...
1
1
1
1

Raw Data Dump for AEA Spectrum: 17a1725.CNF

1	0.	0.	2.	1.	2.	0.	4.	5.	3.	5.
11	3.	3.	0.	5.	4.	1.	5.	4.	2.	3.
21	7.	2.	2.	7.	5.	3.	2.	2.	5.	1.
31	4.	6.	4.	3.	2.	3.	2.	3.	3.	3.
41	2.	3.	2.	4.	7.	7.	3.	6.	5.	7.
51	7.	11.	5.	7.	10.	6.	4.	7.	6.	6.
61	6.	7.	7.	5.	8.	8.	6.	6.	9.	6.
71	12.	7.	5.	12.	8.	8.	11.	11.	4.	8.
81	11.	11.	7.	12.	11.	9.	10.	14.	10.	14.
91	9.	18.	11.	16.	20.	9.	16.	19.	20.	14.
101	11.	10.	19.	14.	20.	25.	20.	14.	18.	28.
111	24.	32.	23.	27.	30.	24.	18.	21.	24.	29.
121	20.	31.	22.	23.	27.	38.	29.	37.	31.	41.
131	34.	33.	37.	39.	32.	50.	45.	38.	47.	38.
141	44.	37.	60.	36.	60.	37.	53.	50.	57.	52.
151	52.	69.	74.	61.	64.	70.	57.	61.	61.	72.
161	61.	86.	70.	78.	66.	76.	90.	80.	68.	74.
171	90.	83.	62.	88.	83.	79.	87.	94.	82.	101.
181	96.	119.	116.	84.	105.	85.	94.	111.	94.	102.
191	92.	89.	101.	97.	108.	101.	102.	112.	116.	113.
201	102.	111.	112.	98.	131.	101.	97.	109.	121.	99.
211	135.	115.	136.	137.	118.	127.	142.	171.	131.	147.
221	160.	183.	173.	185.	212.	194.	214.	255.	235.	267.
231	355.	353.	380.	457.	482.	500.	592.	681.	770.	876.
241	1063.	1237.	1461.	1646.	2033.	2260.	2373.	2560.	2952.	3294.
251	3776.	4609.	5236.	5608.	5440.	3967.	2160.	952.	520.	383.
261	315.	318.	234.	250.	231.	231.	204.	154.	124.	91.
271	66.	33.	11.	10.	5.	7.	8.	9.	8.	8.
281	11.	11.	14.	8.	9.	15.	12.	26.	34.	36.
291	41.	43.	48.	43.	57.	64.	65.	82.	90.	100.
301	101.	58.	40.	22.	24.	13.	8.	13.	8.	5.
311	3.	6.	1.	1.	0.	0.	0.	0.	0.	0.
321	1.	0.	0.	1.	0.	1.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
351	0.	1.	1.	1.	3.	0.	2.	3.	1.	1.
361	0.	2.	1.	1.	0.	0.	4.	0.	4.	1.
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.	1.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
431	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T3143-DUP
File ID: 18a1862.CNF

Counted on: 10/28/95 @ 1:10
Detector: AEA18
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	91.9	91.9	301.391	301.391	12.000	5.364	6.000	2.228
2	5179.8	5179.8	255.686	255.686	10.000	4.027	5.000	1.979
3	119.2	119.2	201.242	200.845	60.000	145.594	30.000	7.707

PEAK RESULTS
Peak Error Limit: 30%

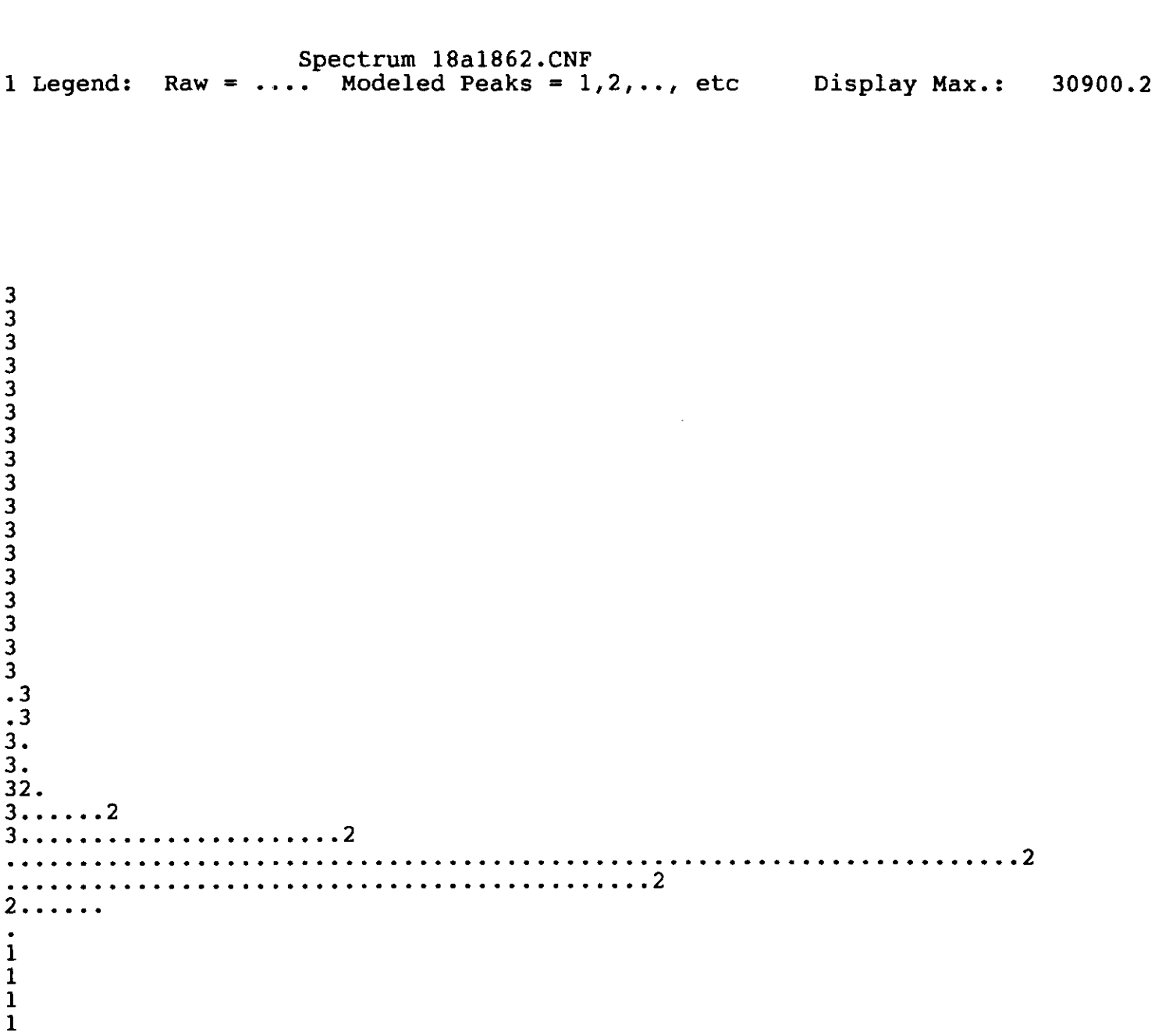
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.017	5.487	5.479	0.008	0.02	2.94	5.2	214.6	0.967E-04
	Am241		5.479	5.479	0.000				164.4	0.741E-04
2	Am243	0.826	5.270	5.268	0.002	0.02	141.66	0.8	7531.0	0.339E-02
3	Pu242	0.141	4.891	5.016	-.125	0.67	24.10	4.8	1268.2	0.571E-03
Totals:		0.984	<--valid peaks only-->				168.69			

DETECTOR CALIBRATION
Energy(MEV) = 4.092 + (0.0046)*Channel
Energy range (MeV): 4.092 TO 6.448
Efficiency = 0.0190 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	82326.0	100.000
Smoothed	82329.6	100.004
Composite fit	80977.1	98.361
Residuals	1348.9	1.639

Analyzed by: _____
DM


Spectrum 18a1862.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 30900.2

Raw Data Dump for AEA Spectrum: 18a1862.CNF

1	0.	0.	2.	2.	4.	3.	1.	1.	3.	2.
11	3.	3.	3.	0.	1.	3.	3.	4.	5.	2.
21	0.	2.	3.	1.	0.	5.	2.	0.	4.	5.
31	4.	3.	3.	0.	1.	3.	4.	4.	5.	2.
41	3.	5.	2.	3.	1.	2.	0.	8.	3.	3.
51	9.	6.	2.	8.	3.	6.	10.	5.	2.	7.
61	7.	3.	11.	10.	8.	5.	4.	11.	7.	6.
71	15.	11.	9.	10.	4.	15.	12.	9.	8.	13.
81	14.	15.	11.	10.	18.	8.	10.	14.	9.	14.
91	18.	11.	15.	17.	19.	18.	17.	16.	18.	13.
101	25.	21.	18.	23.	20.	25.	28.	20.	24.	27.
111	20.	43.	21.	29.	25.	33.	38.	28.	27.	34.
121	25.	28.	43.	39.	47.	35.	33.	43.	51.	50.
131	32.	51.	47.	36.	53.	61.	54.	45.	45.	43.
141	59.	58.	62.	61.	58.	67.	47.	71.	77.	60.
151	70.	75.	70.	65.	75.	80.	80.	84.	80.	78.
161	86.	91.	92.	68.	66.	84.	88.	91.	99.	87.
171	88.	106.	82.	75.	91.	99.	112.	101.	95.	107.
181	117.	99.	117.	87.	108.	100.	106.	80.	118.	105.
191	124.	105.	101.	112.	124.	115.	102.	110.	120.	134.
201	123.	127.	117.	128.	99.	128.	113.	125.	131.	114.
211	140.	142.	117.	145.	142.	138.	150.	164.	130.	134.
221	147.	162.	151.	171.	180.	174.	184.	230.	242.	225.
231	245.	299.	262.	332.	369.	423.	450.	505.	607.	685.
241	778.	964.	1060.	1303.	1528.	1835.	2133.	2440.	2710.	2903.
251	3378.	3794.	4544.	5081.	5818.	6016.	5896.	4634.	2641.	1214.
261	665.	545.	433.	384.	340.	332.	334.	267.	291.	204.
271	163.	109.	80.	48.	23.	11.	11.	9.	8.	7.
281	9.	8.	8.	8.	10.	9.	16.	15.	29.	29.
291	28.	34.	50.	46.	52.	70.	71.	59.	93.	93.
301	110.	93.	117.	63.	47.	32.	17.	13.	15.	18.
311	13.	7.	5.	5.	3.	3.	2.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
341	1.	2.	1.	0.	0.	0.	1.	0.	1.	1.
351	0.	0.	0.	0.	0.	1.	1.	1.	2.	3.
361	3.	1.	1.	1.	0.	1.	1.	0.	0.	1.
371	3.	2.	2.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	1.	0.	0.	0.	0.	0.	0.	0.	0.	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.	1.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

LABCORE Completed Worklist Report for Worklist# 3024

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

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

Worklist Comment: Use Ludlum to determine sample size. --LLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@PU23901	PU23901	LIQUID	1.28E-01	1.11E-1	86.720	% Recovery
1	STD		0	@PU23901	PU23901E	LIQUID	1.00	4.27E+00	4.270	% Ct. Error
1	STD		0	@PU23901	PU23901T	LIQUID	100	2.33E+01	23.300	% Recovery
2	BLNK		0	@PU23901	PU23901	LIQUID	1	<8.29E-6		uCi/mL
2	BLNK		0	@PU23901	PU23901T	LIQUID	100	3.30E+01	33.000	% Recovery
2	BLNK		0	@PU23901	PU23901E	LIQUID	1.00	1.00E+02	100.000	% Ct. Error
3	SAMPLE	S95T003142	0	@PU23901	PU23901	LIQUID	N/A	3.30E-05	1.270e-005	uCi/mL
3	SAMPLE	S95T003142	0	@PU23901	PU23901T	LIQUID	N/A	3.42E+01	1.000e-007	% Recovery
3	SAMPLE	S95T003142	0	@PU23901	PU23901E	LIQUID	N/A	4.95E+00	0.000	% Ct. Error
4	DUP	S95T003142	0	@PU23901	PU23901	LIQUID	3.30E-5	2.80E-5	16.390	RPD
4	DUP	S95T003142	0	@PU23901	PU23901T	LIQUID	100	3.64E+01	36.400	% Recovery
4	DUP	S95T003142	0	@PU23901	PU23901E	LIQUID	1.00	5.04E+00	5.040	% Ct. Error
5	SAMPLE	S95T003143	0	@PU23901	PU23901	LIQUID	N/A	1.20E-04	2.220e-005	uCi/mL
5	SAMPLE	S95T003143	0	@PU23901	PU23901T	LIQUID	N/A	3.12E+01	1.000e-007	% Recovery
5	SAMPLE	S95T003143	0	@PU23901	PU23901E	LIQUID	N/A	3.40E+00	0.000	% Ct. Error
6	DUP	S95T003143	0	@PU23901	PU23901	LIQUID	1.20E-4	1.16E-4	3.390	RPD
6	DUP	S95T003143	0	@PU23901	PU23901T	LIQUID	100	3.92E+01	39.200	% Recovery
6	DUP	S95T003143	0	@PU23901	PU23901E	LIQUID	1.00	3.04E+00	3.040	% Ct. Error

Final page for worklist# 3024

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

31 Oct 95

Reviewer Signature **Date**

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

LABCORE Data Entry Template for Worklist# 3024

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

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

Worklist Comment: Use Ludlum to determine sample size. --LLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@PU23901	LIQUID		
2	BLNK				@PU23901	LIQUID		
3	SAMPLE	S95T003142	0		@PU23901	LIQUID	95000172	SY-102 GRAB
	Analytes Requested: PU23901 , PU23901E, PU23901T							
4	DUP	S95T003142	0		@PU23901	LIQUID		
5	SAMPLE	S95T003143	0		@PU23901	LIQUID	95000172	SY-102 GRAB
	Analytes Requested: PU23901 , PU23901E, PU23901T							
6	DUP	S95T003143	0		@PU23901	LIQUID		

Final page for worklist # 3024

Analyst Signature 10-26-95 Date

Analyst Signature 10/30/95 Date

Data Entry Comments:

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

WORKBOOK PAGE: STD1

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

						STD
Type	DATE COUNTED		OCT-27-95	PU 236 AEA FRAC	(C236)	0.485
STD	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC	(C238)	0.000
Work List	SAMPLE DILUTION FACTOR	DF	101.000	PU 239 AEA FRAC	(C239)	0.540
3024	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		1735
Test Code	DIGEST DILUTION FACTOR	DDF	1.000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)	5.000
Matrix	DETECTOR NUMBER		1	PU 236 cpm		8.330
LIQUID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm		0.000
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		9.260
95003374	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME		480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		2198.137	Pu 239/240 µCi/L		1.1135E+02
0	PU-238 TRACER VALUE (dpm/mL		0.000			
Sample Prep	STANDARD BOOK NO		104B43			
N/A	STANDARD VALUE in µCi/mL		0.128			

Sample #	
WORKLIST#3024	
Instrument Code	Decay Time = Date Counted - Tracer Preparation Date
AL10539	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]
Prepared By	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg)* 1/EFF *C236*100/Pu-236 Decay Corr'd Value * SPKV
CJO	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(2220000 dpm/µCi)]
Chemist	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
LLF	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Analyst	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
JMV	
Date Complete	v RESULTS v

10/30/95	Pu 239/240 µCi/mL		1.11E-01	DETECTION LEVELS in µCi/mL
Analysis Date	Relative Counting Error	=	4.3%	
10/27/95				Pu 239/240
Analysis Time				2.65E-02
12:00 PM				
Sample Point				
SY-102	Pu 236 Tracer Recovery	=	23.3%	

Analyst:	JMV	Date:	30-Oct-95
Signature of Chemist:	LLF	Date:	31 Oct 95

STANDARD.WB1 REV 1.2 943127ML

WORKBOOK PAGE: BLANK2

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

						BLNK
Sample Type	DATE COUNTED		OCT-27-95	PU 236 AEA FRAC	(C236)	1.084
BLNK	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC	(C238)	0.000
Work Lot #	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.000
3024	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		1125
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm (Bkg)		4.000
Matrix	DETECTOR NUMBER		2	PU 236 cpm		13.280
LIQUID	EFFICIENCY FACTOR	EFF	0.5000	PU 238 cpm		0.000
Tracer Lot #	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		0.000
95003374	TRACER PREPARATION VALUE (dpm/mL)		2265.00	AEA COUNT TIME		480
Decay Corr'd	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2198.14	Pu 239/240 µCi/L =	<	8.294E-03
0	PU-238 TRACER VALUE	(dpm/mL)	0.00			

Sample Code	
N/A	
Sample #	Decay Time = Date Counted - Tracer Preparation Date
895T3142-PREP	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg)*C236*100/(Pu-236 Decay Corr'd Value * SPKV*EFF)
AL10540	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
CJO	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
LLF	
Analyst	
JMV	
Data Complete	v RESULTS v
10/30/95	Pu 239/240 µCi/mL < 8.29E-06
Analysis Date	Relative Counting Error = 100.0%
10/27/95	
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.
12:00 PM	Pu 238 µCimL < 8.29E-06
Sample Code	Relative Counting Error = 100.0%
SY-102	Pu 236 Tracer Recovery = 33.0%

DETECTION LEVELS in µCi/mL	
Pu 239/240	8.29E-06
Pu 238	8.29E-06

Analyst:		JMV	Date:	30-Oct-95
Signature of Chemist:		LLF	Date:	31 Oct 95

BLANK.WB1 REV 1.2 943127ML

WORKBOOK PAGE: SAM3

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

Type						SAMPLE
SAMPLE	DATE COUNTED		OCT-27-95	PU 236 AEA FRAC	(C236)	0.685
Work List	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC	(C238)	0.067
3024	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.228
Test Code	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		1795
@PU23901	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
Matrix	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)	5.000
LIQUID	DETECTOR NUMBER		3	PU 236 cpm		13.070
Batch Number	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm		1.280
95003374	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		4.360
Rerun	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME		480
0	PU-236 DECAY CORR'D VALUE (dpm/mL)		2198.137	Pu 239/240 µCi/L		3.2957E-02
Sample Prep	PU-238 TRACER VALUE (dpm/mL)		0.000			
N/A						
Sample #						
S95T003142						
Instrument Code						
AL10541						
Prepared By						
CJO						
Chemist						
LLF						
Analyst						
JMV						
Date Complete						
10/30/95						
Analysis Date						
10/27/95						
Analysis Time						
12:00 PM						
Sample Point						
SY-102						

Decay Time = Date Counted - Tracer Preparation Date

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

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

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

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

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

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

v RESULTS v

Pu 239/240 µCi/mL		3.30E-05	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	4.9%	
NOTE: Pu 238 Result is a LESS THAN Value.			Pu 239/240
Pu 238 µCi/mL		< 1.27E-05	1.27E-05
Relative Counting Error	=	8.3%	Pu 238
Pu 236 Tracer Recovery	=	34.2%	1.27E-05

Analyst:	JMV	Date:	30-Oct-95
Signature of Chemist:	LLF	Date:	31 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

WORKBOOK PAGE: DUP4

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

						DUP
	DATE COUNTED		OCT-27-95	PU 236 AEA FRAC	(C236)	0.830
DUP	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC	(C238)	0.000
	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.235
3024	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		1596
	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)	5.000
	DETECTOR NUMBER		1	PU 236 cpm		14.319
LIQUID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm		0.000
	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		4.050
95003374	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME		480
	PU-236 DECAY CORR'D VALUE (dpm/mL)		2198.137	Pu 239/240 µCi/L		2.8034E-02
0	PU-238 TRACER VALUE (dpm/mL)		0.000			
N/A						

Decay Time = Date Counted - Tracer Preparation Date

S95T003142 — Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]

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

AL10539 — Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]

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

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

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

LLF

JMV

v RESULTS v

10/30/95	Pu 239/240 µCi/mL		2.80E-05	DETECTION LEVELS In µCi/mL
	Relative Counting Error	=	5.0%	
10/27/95				
	NOTE: Pu 238 Result Is a LESS THAN Value.			Pu 239/240
12:00 PM	Pu 238 µCi/mL		< 9.83E-06	9.83E-06
	Relative Counting Error	=	100.0%	Pu 238
SY-102	Pu 236 Tracer Recovery	=	36.4%	9.83E-06

Analyst:		JMV	Date:	30-Oct-95
Signature of Chemist:		LLF	Date:	31 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

WORKBOOK PAGE: SAM5

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

Type						SAMPLE
SAMPLE	DATE COUNTED		OCT-27-95	PU 236 AEA FRAC	(C236)	0.428
Work List	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC	(C238)	0.042
3024	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.517
Test Code	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		2526
@PU23901	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
Matrix	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)	4.000
LIQUID	DETECTOR NUMBER		2	PU 236 cpm		12.690
Batch Number	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm		1.250
95003374	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		16.320
Rerun	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME		480
0	PU-236 DECAY CORR'D VALUE (dpm/mL)		2198.137	Pu 239/240 µCi/L		1.1960E-01
Sample Prep	PU-238 TRACER VALUE (dpm/mL)		0.000			
N/A						
Sample #	Decay Time = Date Counted - Tracer Preparation Date					
S95T003143	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]					
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)					
AL10540	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]					
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)					
CJO	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]					
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100					
LLF						
Analyst						
JMV						
Date Complete	v RESULTS v					
10/30/95	Pu 239/240 µCi/mL		1.20E-04	DETECTION LEVELS in µCi/mL		
Analysis Date	Relative Counting Error	=	3.4%			
10/27/95						
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.			Pu 239/240		
12:00 PM	Pu 238 µCimL		< 2.22E-05	2.22E-05		
Sample Point	Relative Counting Error	=	8.4%	Pu 238		
SY-102	Pu 236 Tracer Recovery	=	31.2%	2.22E-05		

Analyst:		JMV	Date:	30-Oct-95
Signature of Chemist:		LLF	Date:	31 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

WORKBOOK PAGE: DUP6

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

						DUP
Type	DATE COUNTED		OCT-27-95	PU 236 AEA FRAC	(C236)	0.452
DUP	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC	(C238)	0.039
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.530
3024	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		3013
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)	5.000
Matrix	DETECTOR NUMBER		3	PU 236 cpm		16.030
LIQUID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm		1.400
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		18.800
95003374	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME		480
Rerun	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2198.137	Pu 239/240 µCi/L		1.1610E-01
0	PU-238 TRACER VALUE	(dpm/mL)	0.000			
Sample Prep						
N/A						

Sample #
S95T003143
Instrument Code
AL10541
Prepared By
CJO
Chemist
LLF
Analyst
JMV
Date Complete
10/30/95
Analysis Date
10/27/95
Analysis Time
12:00 PM
Sample Point
SY-102

Decay Time = Date Counted - Tracer Preparation Date

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

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

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

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

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

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

v RESULTS v

			DETECTION LEVELS in µCi/mL
Pu 239/240 µCi/mL		1.16E-04	
Relative Counting Error	=	3.0%	
NOTE: Pu 238 Result is a LESS THAN Value.			Pu 239/240
Pu 238 µCi/mL		< 1.67E-05	1.67E-05
Relative Counting Error	=	7.9%	Pu 238
Pu 236 Tracer Recovery	=	39.2%	1.67E-05

Analyst:	JMV	Date:	30-Oct-95
Signature of Chemist:	LLF	Date:	31 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

D. H. Silvia 10-28-95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
WL3024-STD
File ID: 25a2514.CNF

Counted on: 10/27/95 @17: 4
Detector: AEA25
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	172.4	172.4	360.998	360.998	10.000	4.310	5.000	0.877
2	247.8	247.8	228.396	228.396	14.000	5.327	7.000	1.663

PEAK RESULTS
Peak Error Limit: 30%

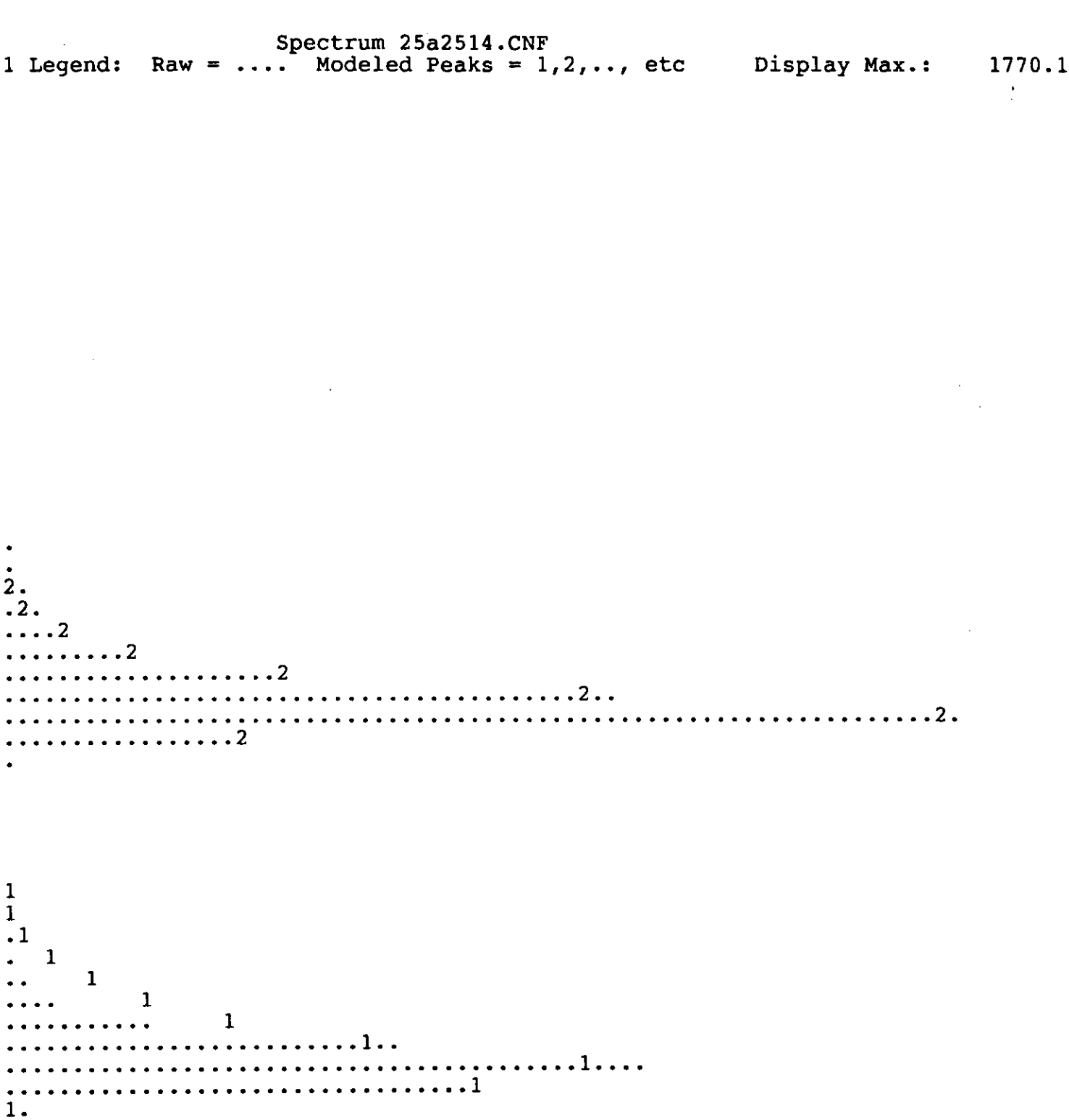
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.485	5.755	5.744	0.011	0.02	8.33	3.1	1307.3	0.589E-03
2	Pu239	0.540	5.147	5.134	0.013	0.02	9.26	2.9	1424.3	0.642E-03
	Pu240		5.144	5.134	0.01				1424.3	0.642E-03
Totals:		1.025	<--valid peaks only-->				17.59			

DETECTOR CALIBRATION
Energy(MEV) = 4.083 + (0.0046)*Channel
Energy range (MeV): 4.083 TO 6.439
Efficiency = 0.0065 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	8235.0	100.000
Smoothed	8237.2	100.026
Composite fit	8441.7	102.510
Residuals	-206.7	-2.510

Analyzed by: _____
VR


Spectrum 25a2514.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 1770.1

Raw Data Dump for AEA Spectrum: 25a2514.CNF

1	0.	0.	1.	0.	2.	0.	0.	0.	1.	0.
11	1.	0.	0.	0.	0.	0.	0.	1.	0.	2.
21	0.	0.	1.	0.	0.	1.	0.	1.	0.	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.	1.	0.	0.	1.	0.	0.	1.
61	0.	0.	0.	1.	0.	0.	0.	0.	1.	1.
71	0.	0.	0.	0.	1.	1.	0.	1.	2.	0.
81	0.	1.	1.	0.	2.	0.	1.	0.	1.	0.
91	1.	0.	1.	1.	0.	1.	0.	0.	0.	1.
101	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
111	1.	0.	1.	0.	1.	0.	0.	1.	2.	1.
121	2.	1.	2.	1.	1.	1.	2.	1.	2.	2.
131	0.	0.	1.	3.	2.	0.	1.	0.	1.	4.
141	1.	1.	3.	2.	1.	2.	2.	2.	2.	2.
151	0.	4.	3.	4.	3.	1.	4.	4.	1.	1.
161	4.	5.	6.	4.	4.	2.	5.	4.	2.	6.
171	0.	4.	8.	6.	2.	6.	6.	10.	8.	8.
181	3.	9.	7.	10.	6.	5.	9.	12.	8.	17.
191	18.	15.	13.	11.	18.	11.	10.	9.	20.	24.
201	19.	27.	26.	28.	39.	28.	42.	44.	42.	61.
211	51.	60.	82.	71.	114.	93.	131.	125.	141.	143.
221	154.	161.	184.	173.	238.	227.	241.	289.	270.	252.
231	202.	191.	112.	69.	25.	12.	3.	2.	0.	2.
241	1.	0.	1.	1.	1.	2.	1.	2.	1.	3.
251	1.	2.	2.	1.	2.	1.	0.	1.	2.	2.
261	1.	1.	0.	0.	2.	3.	0.	2.	0.	0.
271	3.	0.	5.	2.	1.	1.	0.	3.	1.	3.
281	3.	1.	0.	1.	2.	0.	2.	2.	1.	3.
291	2.	5.	2.	2.	2.	5.	6.	3.	9.	8.
301	4.	2.	13.	5.	6.	6.	5.	1.	5.	5.
311	1.	5.	3.	5.	3.	8.	8.	5.	4.	5.
321	8.	6.	10.	6.	9.	13.	6.	10.	11.	14.
331	17.	13.	22.	20.	15.	15.	26.	29.	34.	43.
341	34.	54.	50.	57.	66.	76.	86.	95.	94.	118.
351	129.	156.	137.	172.	159.	138.	134.	144.	164.	193.
361	175.	189.	185.	136.	87.	34.	5.	2.	0.	1.
371	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	1.	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. Milicia 10-28-95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
WL3024-BLK
File ID: 26a2620.CNF

Counted on: 10/27/95 @17: 5
Detector: AEA26
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	129.0	129.0	350.905	350.905	28.000	29.580	14.000	3.068

PEAK RESULTS
Peak Error Limit: 30%

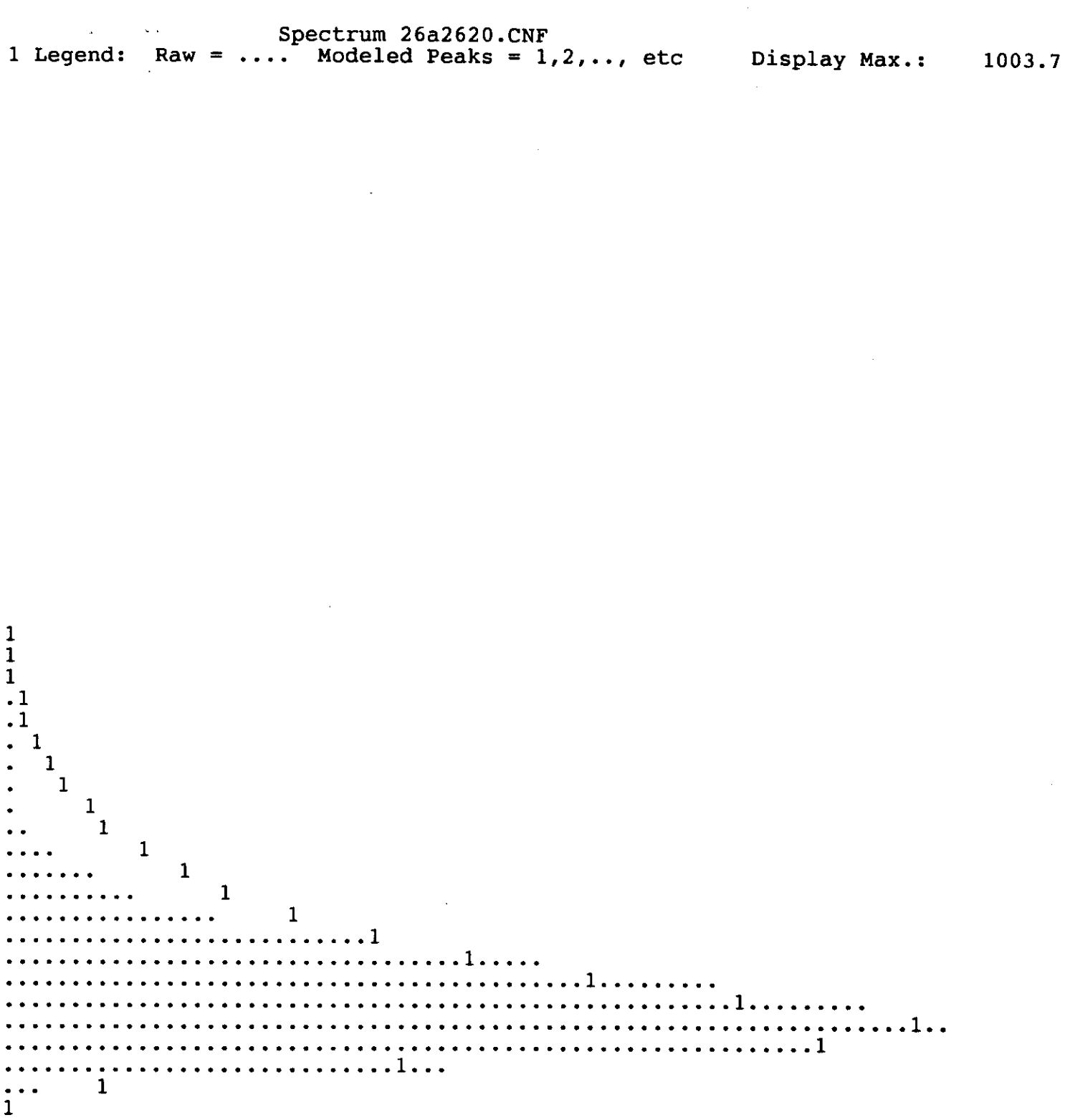
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Ra224	1.084	5.686	5.708	-.022	0.14	13.28	2.5	1139.4	0.513E-03
	Pu236		5.755	5.708	0.047				1092.9	0.492E-03
Totals:		1.084	<--valid peaks only-->				13.28			

DETECTOR CALIBRATION
Energy(MEV) = 4.094 + (0.0046)*Channel
Energy range (MeV): 4.094 TO 6.449
Efficiency = 0.0124 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	5879.0	100.000
Smoothed	5879.0	100.000
Composite fit	6375.7	108.448
Residuals	-496.7	-8.448

Analyzed by: _____
VR


Spectrum 26a2620.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 1003.7

Raw Data Bump for AEA Spectrum: 26a2620.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
51	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
71	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
101	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
111	1.	2.	0.	0.	0.	0.	1.	1.	0.	0.
121	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
131	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
141	1.	0.	0.	0.	3.	0.	1.	0.	0.	0.
151	1.	1.	2.	0.	0.	0.	0.	1.	1.	0.
161	0.	1.	0.	1.	1.	0.	0.	0.	1.	0.
171	1.	0.	0.	1.	1.	0.	0.	1.	0.	0.
181	0.	0.	1.	1.	0.	2.	1.	0.	0.	1.
191	1.	4.	1.	0.	1.	2.	1.	1.	1.	0.
201	0.	5.	2.	0.	0.	0.	2.	2.	1.	1.
211	1.	1.	0.	0.	0.	1.	2.	0.	3.	2.
221	1.	1.	4.	2.	3.	2.	2.	3.	4.	4.
231	2.	1.	1.	2.	1.	2.	3.	1.	2.	2.
241	3.	2.	1.	4.	2.	0.	3.	2.	2.	2.
251	5.	6.	1.	2.	0.	4.	1.	2.	3.	3.
261	2.	3.	3.	3.	3.	2.	2.	4.	6.	4.
271	5.	2.	2.	2.	4.	8.	5.	4.	9.	7.
281	5.	4.	11.	8.	5.	13.	11.	12.	8.	9.
291	13.	14.	11.	11.	22.	22.	12.	24.	14.	13.
301	20.	26.	27.	18.	21.	19.	26.	36.	33.	33.
311	40.	42.	38.	45.	43.	51.	52.	60.	52.	59.
321	77.	75.	71.	69.	64.	95.	82.	84.	71.	101.
331	100.	103.	110.	84.	116.	100.	113.	114.	104.	126.
341	111.	142.	109.	122.	136.	122.	112.	129.	126.	138.
351	121.	137.	124.	126.	124.	99.	107.	95.	85.	85.
361	111.	75.	80.	68.	47.	37.	12.	4.	1.	1.
371	0.	1.	1.	1.	0.	1.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	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. Nikkila 10-28-95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T3142-SAM
File ID: 27a2713.CNF

Counted on: 10/27/95 @17: 6
Detector: AEA27
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	215.8	215.8	355.399	355.399	26.000	19.694	13.000	4.362
2	12.2	12.2	302.609	301.260	20.000	13.124	10.000	1.159
3	72.9	72.9	224.850	224.809	20.000	14.198	10.000	2.813

PEAK RESULTS
Peak Error Limit: 30%

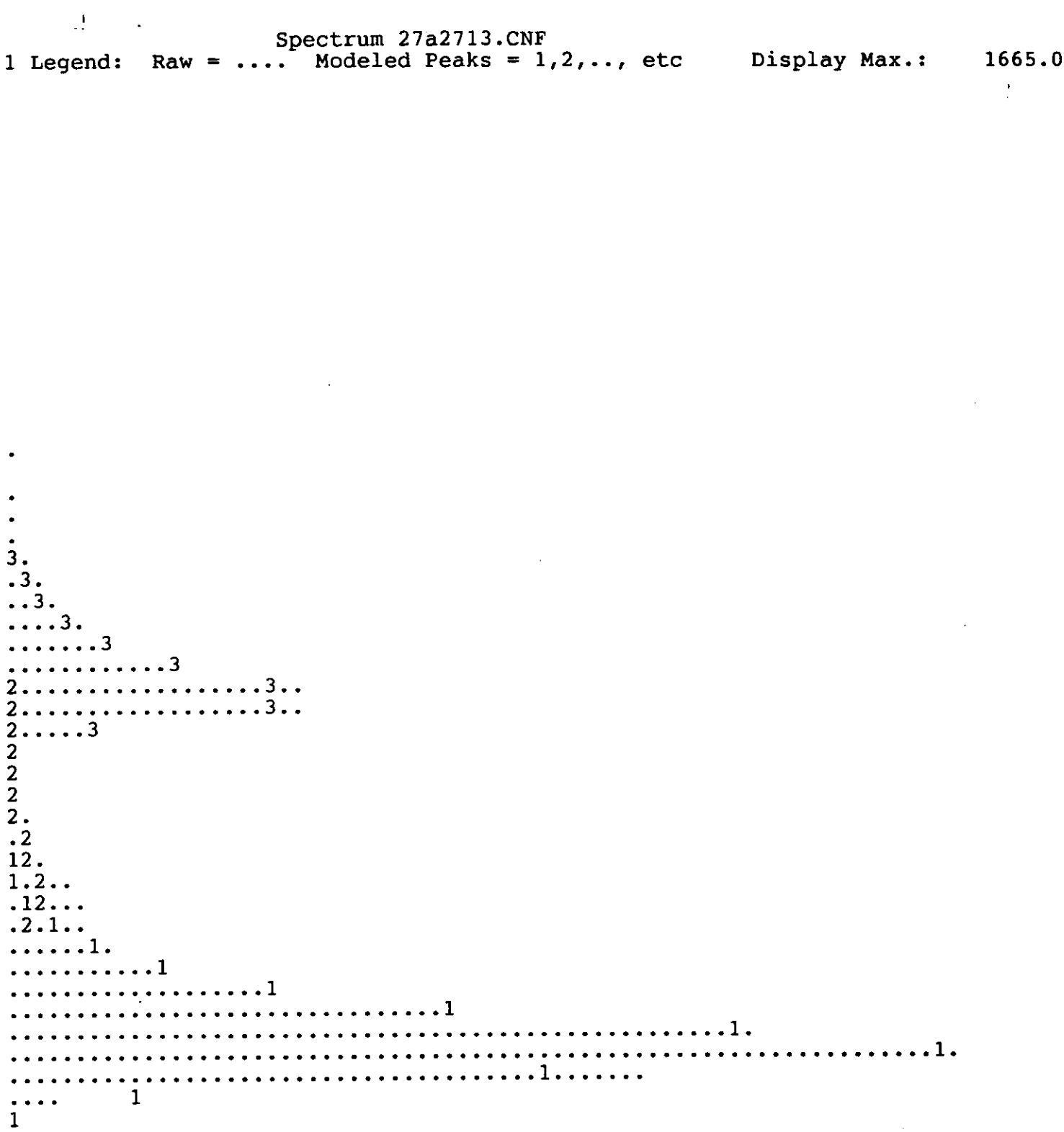
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Ra224	0.685	5.686	5.716	-.030	0.09	13.07	2.5	129.8	0.585E-04
	Pu236		5.755	5.716	0.039				124.5	0.561E-04
2	Am241	0.067	5.479	5.467	0.012	0.06	1.28	11.0	12.7	0.572E-05
	Pu238		5.487	5.467	0.020				16.6	0.747E-05
3	Pu239	0.228	5.147	5.115	0.032	0.07	4.36	4.4	40.7	0.183E-04
	Pu240		5.144	5.115	0.029				40.7	0.183E-04
Totals:		0.981	<--valid peaks only-->				18.71			

DETECTOR CALIBRATION
Energy(MEV) = 4.081 + (0.0046)*Channel
Energy range (MeV): 4.081 TO 6.436
Efficiency = 0.1071 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	9157.0	100.000
Smoothed	9157.1	100.002
Composite fit	8980.7	98.075
Residuals	176.3	1.925

Analyzed by: VR


Spectrum 27a2713.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 1665.0

Raw Data Dump for AEA Spectrum: 27a2713.CNF

1	0.	0.	1.	0.	0.	0.	0.	1.	0.	0.
11	0.	0.	1.	0.	0.	2.	0.	0.	1.	0.
21	0.	1.	0.	0.	0.	0.	0.	1.	1.	0.
31	0.	0.	0.	1.	1.	2.	1.	0.	0.	0.
41	0.	0.	0.	1.	0.	0.	0.	1.	0.	3.
51	1.	1.	1.	1.	0.	2.	0.	1.	1.	1.
61	0.	2.	0.	1.	2.	0.	2.	0.	0.	0.
71	0.	0.	0.	0.	1.	0.	1.	0.	0.	2.
81	0.	0.	0.	1.	0.	0.	1.	0.	0.	2.
91	0.	2.	1.	4.	2.	0.	0.	1.	2.	0.
101	1.	0.	1.	1.	0.	0.	2.	0.	0.	0.
111	1.	2.	2.	2.	3.	3.	2.	1.	0.	2.
121	4.	1.	1.	3.	1.	4.	4.	5.	4.	6.
131	6.	3.	8.	0.	2.	3.	1.	1.	1.	5.
141	4.	5.	1.	2.	3.	3.	4.	7.	4.	2.
151	5.	4.	1.	3.	3.	5.	3.	3.	5.	5.
161	8.	4.	2.	6.	3.	1.	4.	3.	6.	8.
171	4.	8.	5.	10.	5.	5.	8.	8.	10.	8.
181	10.	11.	12.	11.	9.	11.	12.	17.	13.	18.
191	9.	25.	19.	11.	18.	18.	16.	23.	28.	19.
201	22.	23.	22.	22.	21.	30.	30.	40.	24.	45.
211	35.	49.	34.	49.	53.	53.	54.	74.	75.	56.
221	69.	72.	77.	77.	80.	78.	68.	71.	73.	54.
231	55.	45.	45.	27.	25.	13.	5.	6.	4.	2.
241	2.	2.	2.	5.	2.	7.	2.	4.	3.	3.
251	9.	5.	6.	4.	2.	3.	3.	8.	3.	4.
261	6.	3.	5.	11.	4.	10.	6.	5.	10.	8.
271	6.	10.	5.	15.	5.	5.	10.	10.	7.	12.
281	13.	7.	10.	12.	11.	12.	12.	13.	11.	22.
291	19.	9.	15.	16.	18.	23.	13.	20.	18.	23.
301	22.	22.	25.	21.	20.	18.	25.	19.	23.	11.
311	25.	15.	26.	16.	25.	26.	29.	43.	26.	36.
321	28.	21.	38.	41.	42.	39.	51.	45.	45.	50.
331	61.	78.	54.	80.	78.	71.	70.	77.	85.	111.
341	107.	123.	115.	120.	129.	157.	153.	182.	176.	181.
351	190.	238.	216.	208.	228.	233.	203.	199.	206.	194.
361	201.	202.	184.	160.	145.	94.	36.	7.	1.	0.
371	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

D Hamilton 10-28-95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T3142-DUP
File ID: 28a2816.CNF

Counted on: 10/27/95 @17: 6
Detector: AEA28
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	232.6	232.6	359.723	359.723	14.000	7.435	7.000	1.202
2?	0.0	0.1	304.198	304.198	0.000	0.100	0.000	0.100
3?	0.0	0.1	295.309	295.309	0.000	0.100	0.000	0.100
4	76.3	76.3	225.592	225.575	20.000	11.709	10.000	2.647

PEAK RESULTS
Peak Error Limit: 30%

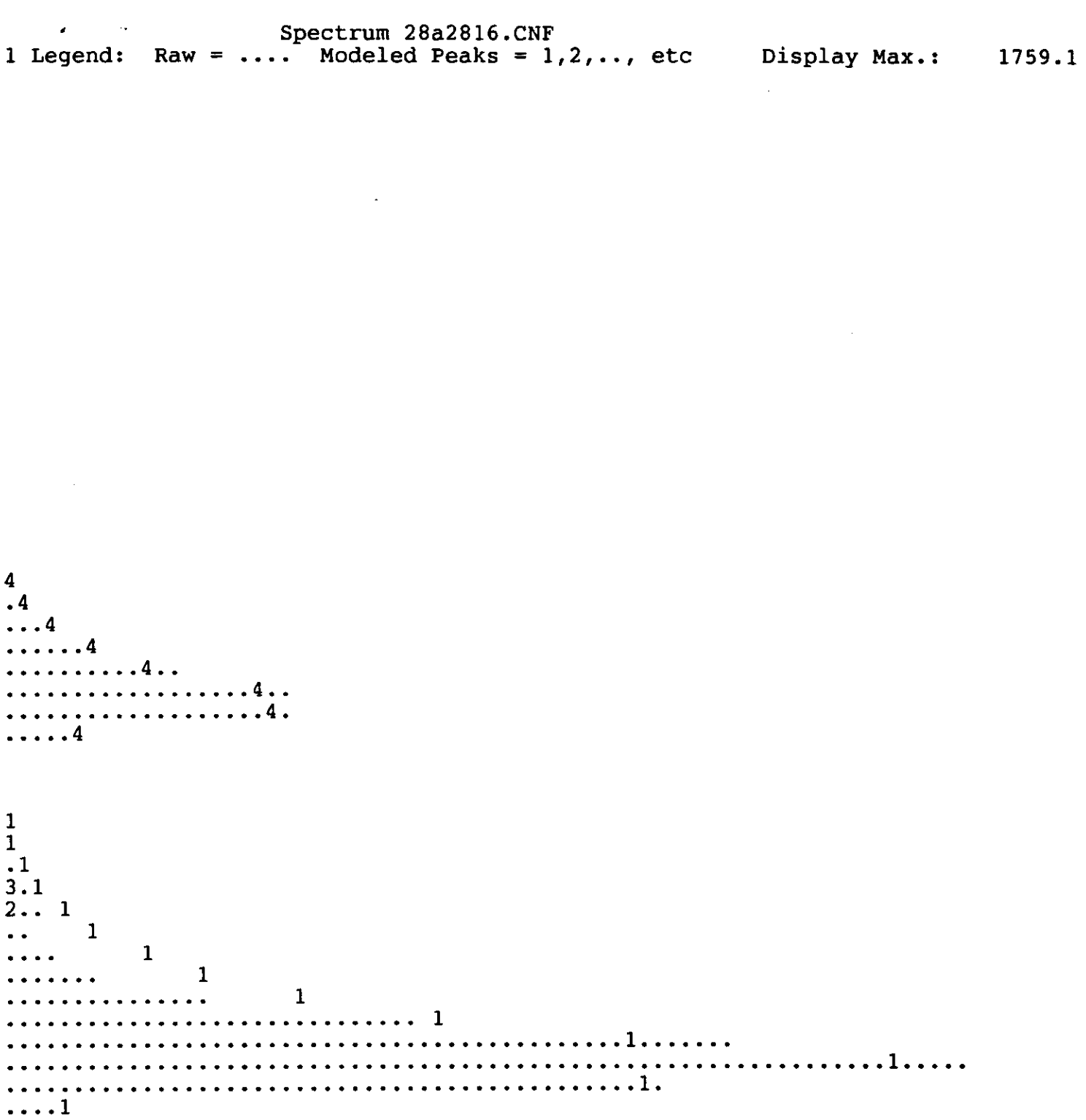
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Cm243	0.830	5.779	5.748	0.031	0.03	14.31	2.4	192.9	0.869E-04
	Pu236		5.755	5.748	0.007				143.7	0.647E-04
2		????		5.493			0.00	*****		
3		????		5.452			0.00	8337.		
4	Pu239	0.235	5.147	5.131	0.016	0.05	4.05	4.5	39.9	0.180E-04
	Pu240		5.144	5.131	0.013				39.9	0.180E-04
Totals:		1.066	<--valid peaks only-->				18.36			

DETECTOR CALIBRATION
Energy(MEV) = 4.093 + (0.0046)*Channel
Energy range (MeV): 4.093 TO 6.449
Efficiency = 0.1016 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	8273.0	100.000
Smoothed	8272.5	99.994
Composite fit	8816.0	106.564
Residuals	-543.0	-6.564

Analyzed by: VR


Spectrum 28a2816.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 1759.1

Raw Data Dump for AEA Spectrum: 28a2816.CNF

1	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	1.	0.	1.	0.	0.	0.	0.	1.	1.	0.
61	0.	1.	1.	0.	0.	0.	1.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
81	0.	0.	1.	0.	1.	0.	1.	1.	0.	0.
91	0.	0.	0.	2.	0.	0.	0.	1.	0.	0.
101	0.	0.	0.	0.	2.	0.	0.	0.	0.	0.
111	0.	0.	0.	2.	1.	1.	2.	1.	1.	0.
121	1.	2.	2.	2.	0.	2.	0.	2.	1.	0.
131	3.	0.	0.	2.	0.	0.	3.	1.	0.	1.
141	1.	0.	1.	3.	0.	3.	3.	1.	1.	2.
151	0.	3.	4.	1.	2.	1.	0.	0.	3.	1.
161	0.	1.	1.	0.	2.	1.	2.	2.	1.	3.
171	6.	3.	2.	0.	2.	2.	4.	2.	4.	5.
181	6.	3.	5.	5.	8.	3.	5.	7.	4.	9.
191	10.	10.	8.	12.	15.	11.	15.	14.	16.	14.
201	11.	16.	16.	17.	26.	22.	23.	28.	29.	46.
211	44.	34.	46.	49.	48.	60.	62.	63.	64.	68.
221	74.	83.	65.	81.	82.	78.	80.	75.	67.	61.
231	55.	65.	30.	25.	11.	9.	2.	2.	1.	0.
241	1.	1.	1.	2.	2.	2.	3.	1.	2.	2.
251	6.	3.	0.	3.	2.	3.	7.	3.	2.	2.
261	0.	2.	3.	1.	3.	3.	2.	3.	4.	2.
271	2.	1.	3.	1.	4.	5.	3.	0.	2.	5.
281	1.	4.	5.	5.	3.	6.	11.	9.	11.	5.
291	9.	11.	5.	13.	16.	14.	8.	9.	11.	7.
301	12.	6.	16.	18.	5.	18.	7.	9.	6.	7.
311	4.	8.	11.	8.	14.	14.	10.	14.	15.	25.
321	19.	22.	19.	27.	20.	19.	31.	28.	44.	37.
331	48.	39.	45.	59.	68.	81.	78.	90.	83.	95.
341	112.	113.	115.	142.	132.	143.	151.	162.	171.	215.
351	210.	228.	244.	238.	214.	204.	226.	210.	207.	270.
361	226.	216.	194.	185.	154.	83.	26.	15.	2.	0.
371	0.	0.	1.	2.	1.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	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. Wilkins 10-28-95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T3143-SAM
File ID: 29a2903.CNF

Counted on: 10/27/95 @17: 7
Detector: AEA29
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	304.6	304.6	361.394	361.394	14.000	4.775	7.000	1.220
2	32.6	32.6	302.446	302.199	12.000	4.985	6.000	1.472
3	406.8	406.8	229.044	229.044	14.000	5.413	7.000	1.676

PEAK RESULTS
Peak Error Limit: 30%

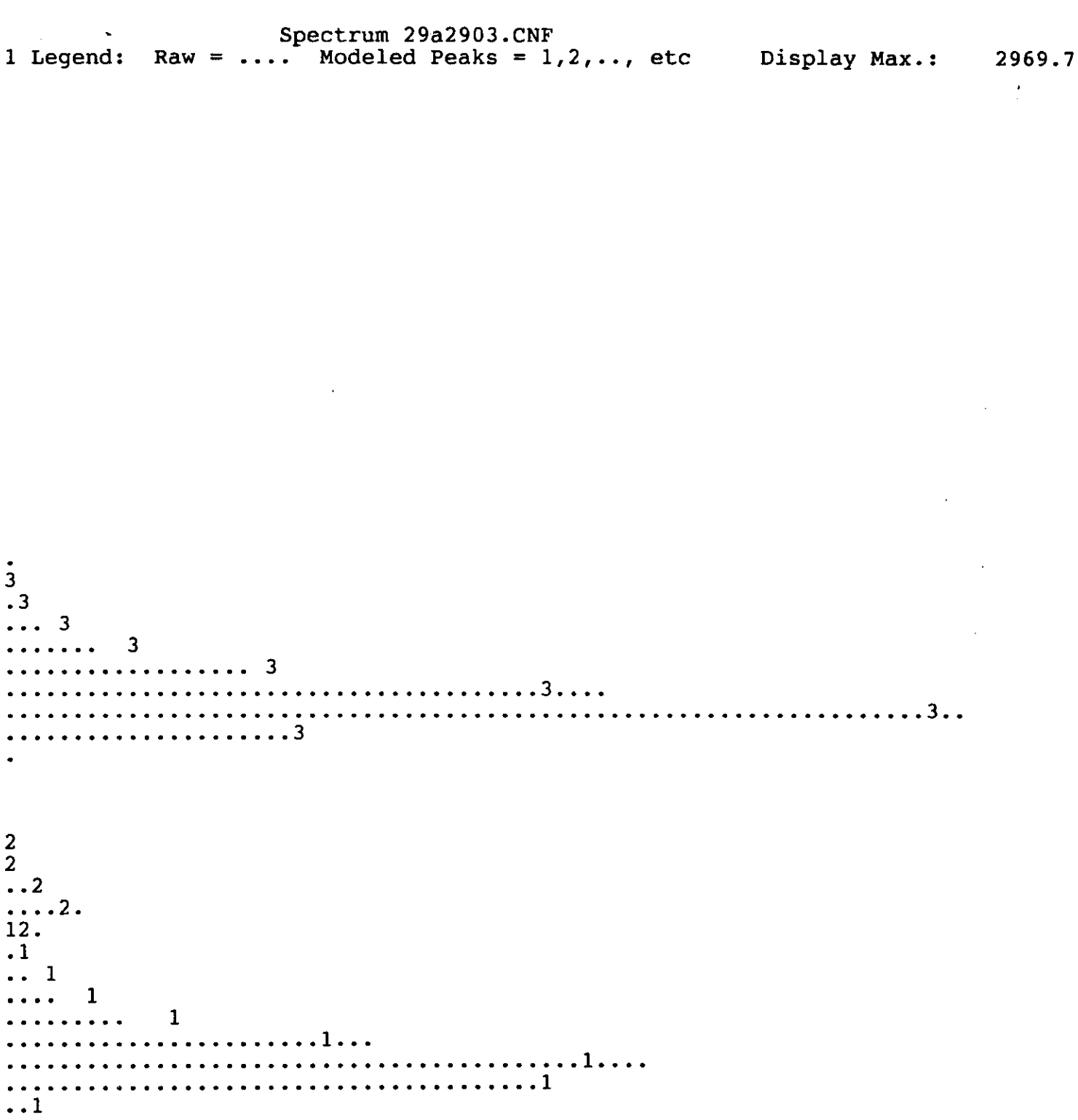
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.428	5.755	5.754	0.001	0.02	12.69	2.5	685.1	0.309E-03
2	Pu238	0.042	5.487	5.481	0.006	0.02	1.25	9.2	91.6	0.412E-04
	Am241		5.479	5.481	-.002				70.1	0.316E-04
3	Pu239	0.517	5.147	5.145	0.002	0.02	15.32	2.3	810.6	0.365E-03
	Pu240		5.144	5.145	-.001				810.6	0.365E-03
Totals:		0.987	<--valid peaks only-->				29.26			

DETECTOR CALIBRATION
Energy(MEV) = 4.091 + (0.0046)*Channel
Energy range (MeV): 4.091 TO 6.447
Efficiency = 0.0189 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	14229.0	100.000
Smoothed	14228.0	99.993
Composite fit	14044.6	98.704
Residuals	184.4	1.296

Analyzed by: VR


Spectrum 29a2903.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 2969.7

Raw Data Dump for AEA Spectrum: 29a2903.CNF

1	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.
11	0.	0.	1.	0.	0.	1.	2.	1.	1.	0.
21	0.	0.	1.	0.	0.	1.	0.	2.	0.	0.
31	0.	0.	0.	1.	1.	0.	1.	0.	0.	1.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
61	0.	0.	0.	1.	0.	0.	1.	0.	1.	1.
71	0.	0.	1.	0.	0.	0.	0.	0.	1.	1.
81	1.	0.	0.	0.	1.	3.	0.	0.	3.	1.
91	0.	1.	1.	3.	0.	0.	0.	2.	2.	1.
101	2.	0.	1.	1.	2.	0.	1.	2.	1.	3.
111	0.	1.	1.	2.	2.	0.	3.	0.	1.	6.
121	0.	1.	1.	2.	2.	0.	1.	1.	1.	3.
131	2.	2.	1.	3.	1.	1.	4.	3.	2.	7.
141	1.	7.	2.	5.	2.	6.	3.	6.	6.	3.
151	5.	2.	2.	3.	5.	4.	3.	9.	2.	5.
161	5.	3.	7.	2.	2.	1.	5.	3.	7.	6.
171	8.	5.	6.	6.	1.	5.	7.	9.	7.	11.
181	11.	8.	16.	10.	10.	9.	15.	6.	22.	13.
191	15.	12.	12.	12.	12.	18.	19.	25.	23.	29.
201	21.	41.	34.	42.	46.	45.	41.	63.	75.	72.
211	99.	93.	95.	136.	136.	155.	163.	201.	195.	223.
221	298.	291.	338.	347.	390.	356.	395.	394.	447.	452.
231	393.	331.	255.	155.	77.	37.	11.	6.	1.	2.
241	3.	2.	3.	2.	2.	2.	2.	2.	1.	4.
251	6.	3.	2.	6.	4.	8.	3.	5.	5.	4.
261	3.	4.	2.	2.	3.	3.	5.	3.	2.	4.
271	5.	6.	1.	3.	2.	4.	2.	6.	6.	6.
281	5.	5.	7.	7.	8.	7.	10.	16.	16.	18.
291	23.	19.	23.	21.	34.	31.	21.	31.	37.	41.
301	36.	40.	38.	47.	30.	23.	25.	19.	12.	6.
311	5.	6.	10.	6.	6.	9.	11.	4.	7.	15.
321	12.	14.	14.	18.	16.	15.	22.	16.	16.	25.
331	35.	24.	28.	28.	24.	23.	46.	42.	36.	60.
341	57.	57.	73.	75.	108.	106.	126.	152.	165.	190.
351	191.	220.	224.	277.	256.	254.	259.	267.	257.	326.
361	339.	314.	320.	302.	204.	100.	49.	9.	1.	1.
371	2.	2.	2.	3.	1.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	1.	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. Weinheimer 10-28-95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T3143-DUP
File ID: 30a3035.CNF

Counted on: 10/27/95 @17: 7
Detector: AEA30
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	411.6	411.6	357.293	357.293	10.000	4.111	5.000	1.120
2	42.1	42.1	298.978	298.793	10.000	3.339	5.000	1.092
3	551.7	551.7	224.841	224.840	12.000	5.055	6.000	1.813

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.452	5.755	5.743	0.0120	.02	16.03	2.2	843.0	0.380E-03
2	Pu238	0.039	5.487	5.474	0.0130	.02	1.40	8.5	100.3	0.452E-04
	Am241		5.479	5.474	0.005				76.8	0.346E-04
3	Pu239	0.530	5.147	5.134	0.0130	.02	18.80	2.1	969.1	0.437E-03
	Pu240		5.144	5.134	0.010				969.1	0.437E-03
Totals:		1.021	<--valid peaks only-->				36.23			

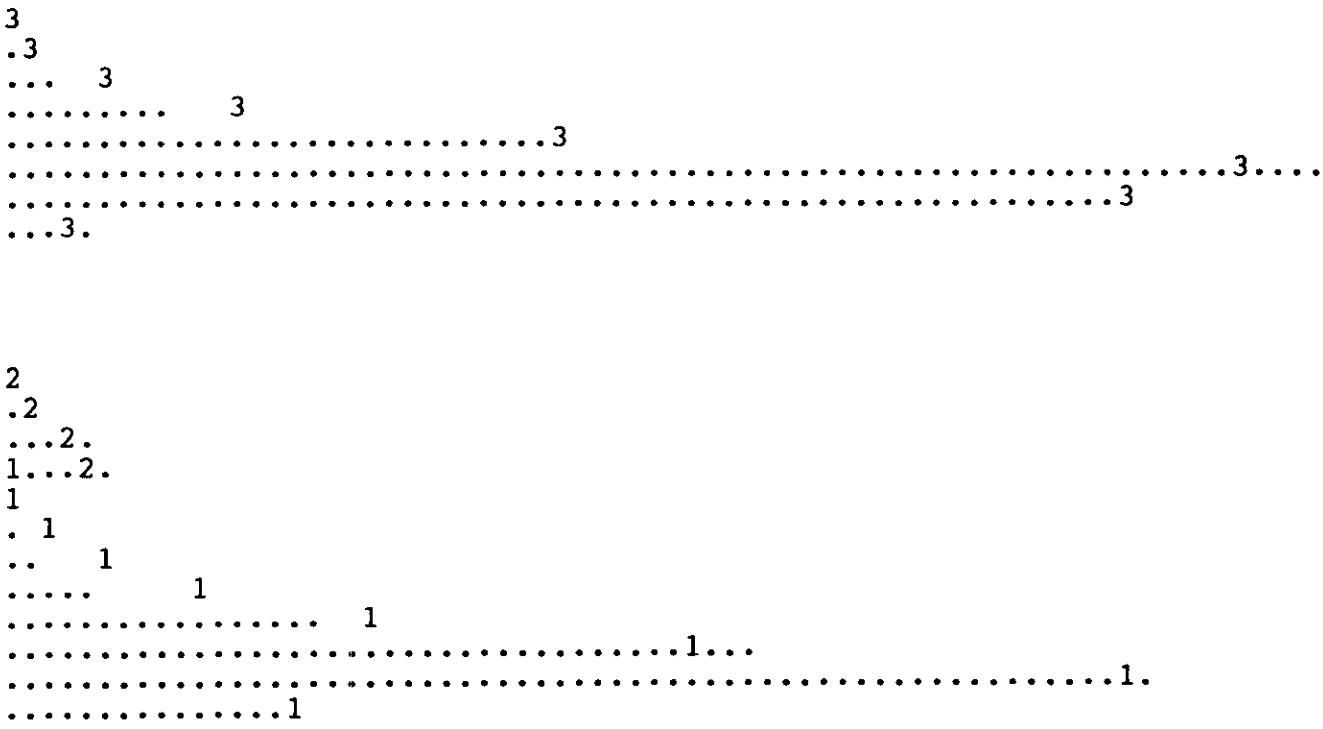
DETECTOR CALIBRATION
Energy(MEV) = 4.099 + (0.0046)*Channel
Energy range (MeV): 4.099 TO 6.455
Efficiency = 0.0194 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	17035.0	100.000
Smoothed	17034.8	99.999
Composite fit	17390.9	102.089
Residuals	-355.9	-2.089

Analyzed by: _____
VR

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 3388.6



Raw Data Dump for AEA Spectrum: 30a3035.CNF

1	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
11	0.	0.	0.	0.	0.	1.	0.	0.	2.	0.
21	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
41	0.	0.	0.	0.	1.	0.	3.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
61	0.	1.	0.	0.	0.	1.	0.	1.	0.	0.
71	0.	0.	0.	1.	0.	0.	1.	0.	2.	0.
81	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
91	1.	0.	0.	0.	0.	1.	0.	1.	0.	1.
101	1.	0.	0.	0.	1.	1.	3.	0.	1.	1.
111	1.	0.	1.	0.	0.	3.	0.	1.	0.	4.
121	4.	1.	1.	2.	3.	1.	0.	4.	4.	4.
131	4.	2.	1.	1.	4.	1.	2.	1.	4.	2.
141	4.	4.	3.	6.	4.	2.	2.	10.	4.	5.
151	0.	2.	3.	3.	8.	3.	4.	3.	7.	2.
161	5.	4.	6.	3.	4.	4.	2.	4.	7.	2.
171	9.	6.	7.	4.	7.	11.	8.	5.	10.	5.
181	12.	5.	11.	7.	12.	9.	8.	14.	8.	11.
191	19.	16.	18.	13.	22.	18.	28.	41.	29.	30.
201	37.	39.	59.	54.	80.	63.	76.	110.	109.	134.
211	146.	199.	242.	235.	273.	297.	344.	347.	419.	439.
221	473.	511.	544.	569.	613.	602.	540.	389.	279.	169.
231	89.	35.	9.	2.	1.	1.	1.	0.	1.	0.
241	2.	2.	0.	2.	0.	2.	0.	1.	3.	1.
251	0.	3.	2.	3.	5.	1.	5.	0.	0.	3.
261	2.	5.	1.	4.	2.	4.	3.	1.	4.	7.
271	5.	4.	9.	6.	4.	7.	10.	6.	9.	4.
281	13.	9.	11.	8.	11.	17.	17.	30.	24.	23.
291	31.	39.	32.	32.	43.	41.	42.	43.	55.	59.
301	35.	39.	22.	16.	5.	8.	5.	2.	6.	6.
311	7.	5.	4.	2.	7.	6.	9.	10.	6.	10.
321	15.	8.	14.	24.	12.	25.	11.	18.	19.	21.
331	30.	20.	37.	41.	53.	55.	49.	82.	92.	102.
341	109.	138.	163.	184.	196.	181.	248.	301.	270.	277.
351	322.	308.	321.	356.	394.	412.	448.	459.	436.	362.
361	222.	93.	34.	4.	1.	1.	1.	1.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

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

LABCORE Data Entry Template for Worklist# 3061

Analyst: RK **Instrument:** AB00 12 **Book #** 51352

Method: LA-220-101 Rev/Mod 0-1

DATA NOT USED IN PACKAGE

Worklist Comment: Determine sample size using Ludlum. SLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
		1	STD				@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
		1	STD				@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
		2	BLNK				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
		2	BLNK				@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
		2	BLNK				@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
		3	BLNK/BKG				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000172	SY-102 GRAB	4	SAMPLE	S95T003142	0		@SR90-01 SR90-01	LIQUID	N/A			uCi/mL
95000172	SY-102 GRAB	4	SAMPLE	S95T003142	0		@SR90-01 SR90-01C	LIQUID	N/A			% Recovery
95000172	SY-102 GRAB	4	SAMPLE	S95T003142	0		@SR90-01 SR90-01E	LIQUID	N/A			% Ct. Error
95000172	SY-102 GRAB	5	DUP	S95T003142	0		@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000172	SY-102 GRAB	5	DUP	S95T003142	0		@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
95000172	SY-102 GRAB	5	DUP	S95T003142	0		@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
95000172	SY-102 GRAB	6	SAMPLE	S95T003143	0		@SR90-01 SR90-01	LIQUID	N/A			uCi/mL
95000172	SY-102 GRAB	6	SAMPLE	S95T003143	0		@SR90-01 SR90-01C	LIQUID	N/A			% Recovery
95000172	SY-102 GRAB	6	SAMPLE	S95T003143	0		@SR90-01 SR90-01E	LIQUID	N/A			% Ct. Error
95000172	SY-102 GRAB	7	DUP	S95T003143	0		@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000172	SY-102 GRAB	7	DUP	S95T003143	0		@SR90-01 SR90-01C	LIQUID			N/A	% Recovery

Data Entry Comments:

Sample Size too low. Batch will be rerun using ~~a~~ SLF 10/31/95 larger sample volume.

10/31/95

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

LABCORE Data Entry Template for Worklist# 3061

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
95000172	SY-102 GRAB	7 DUP	S95T003143	0		@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error

Final page for worklist # 3061

Rob King 10/27/95
Analyst Signature **Date**

[signature] 10/27/95
Analyst Signature **Date**

DATA NOT USED IN PACKAGE

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 3061

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

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using Ludlum. SLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01 SR90-01	LIQUID	1.09E-03	1.07E-3	98.170	% Recovery
1	STD		0		@SR90-01 SR90-01C	LIQUID	100	8.73E+01	87.300	% Recovery
1	STD		0		@SR90-01 SR90-01E	LIQUID	1.00	2.06E+00	2.060	% Ct. Error
2	BLNK		0		@SR90-01 SR90-01	LIQUID	1	<2.81E-4		uCi/mL
2	BLNK		0		@SR90-01 SR90-01C	LIQUID	100	9.13E+01	91.300	% Recovery
2	BLNK		0		@SR90-01 SR90-01E	LIQUID	1.00	2.94E+02	294.000	% Ct. Error
3	BLNK/BKG		0		@SR90-01 SR90-01	LIQUID	1	1.25E+00	1.250	uCi/mL
4	SAMPLE	S95T003142	0		@SR90-01 SR90-01	LIQUID	N/A	3.17E-04	3.660e-004	uCi/mL
4	SAMPLE	S95T003142	0		@SR90-01 SR90-01C	LIQUID	N/A	9.18E+01	1.000e-004	% Recovery
4	SAMPLE	S95T003142	0		@SR90-01 SR90-01E	LIQUID	N/A	9.50E+01	0.000	% Ct. Error
5	DUP	S95T003142	0		@SR90-01 SR90-01	LIQUID	3.17E-4	3.37E-4	6.120	RPD
5	DUP	S95T003142	0		@SR90-01 SR90-01C	LIQUID	100	9.20E+01	92.000	% Recovery
5	DUP	S95T003142	0		@SR90-01 SR90-01E	LIQUID	1.00	8.96E+01	89.600	% Ct. Error
6	SAMPLE	S95T003143	0		@SR90-01 SR90-01	LIQUID	N/A	3.19E-03	1.010e-003	uCi/mL
6	SAMPLE	S95T003143	0		@SR90-01 SR90-01C	LIQUID	N/A	9.17E+01	1.000e-004	% Recovery
6	SAMPLE	S95T003143	0		@SR90-01 SR90-01E	LIQUID	N/A	3.50E+01	0.000	% Ct. Error
7	DUP	S95T003143	0		@SR90-01 SR90-01	LIQUID	3.19E-3	8.52E-4	115.690	RPD
7	DUP	S95T003143	0		@SR90-01 SR90-01C	LIQUID	100	8.70E+01	87.000	% Recovery
7	DUP	S95T003143	0		@SR90-01 SR90-01E	LIQUID	1.00	1.01E+02	101.000	% Ct. Error

Final page for worklist# 3061

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

Reviewer Signature 10/31/95 **Date**

DATA NOT USED IN PACKAGE

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

WORKBOOK PAGE: STD1

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

Type						STANDARD
STD	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	9066	GROSS WEIGHT	(W2)	6.9529
3061	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.8656
Test Code	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0873
@SR90-01	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	3.42
Matrix	DILUTION FACTOR	(DF)	1			
LIQUID	DIGEST DILUTION FACTOR	DDF	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	905.00	SR-90 EFFICIENCY FACTO	(C1)	0.4180
95003420	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	02:55	Rmax		N/A
0	DATE OF SEPARATION	(SD)	10/27/95	DETECTION LIMIT	(Ld)	1.61
Sample Prep	TIME OF COUNT	(TOC)	06:20	Sr-89/90 CONC. in µCi/L		1.0738E+00
N/A	DATE OF COUNT	(DOC)	10/27/95			
Sample #	STANDARD BOOK #		51B52			
WRKLST#3061	STANDARD VALUE in µCi/mL		1.0901E-03			
Instrument Code						
WB27811	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
Prepared By	Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0					
MCB	RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
Chemist	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
SLF	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
Analyst	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
RWK	NOTE: Expected weight = CVA * 0.1					
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
10/27/95	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
Analysis Date						DETECTION LEVEL
10/27/95	Sr-89/90 CONCENTRATION		1.07E-03	µCi/mL		
Analysis Time						
05:00 AM	RELATIVE COUNTING ERROR		2.1%			1.92E-06 µCi/L
Sample Point						
SY-102 GRAB	PERCENT CARRIER RECOVERY		87.3%			

Analyst:		RWK	Date:	27-Oct-95
Signature of Chemist:		SLF	Date:	10/31/95

STANDARD.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: BLANK2

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

Type						BLNK
BLNK	DETECTOR NUMBER		12	CARRIER ADDED In mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	20	GROSS WEIGHT	(W2)	6.9613
3061	COUNT TIME In MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.8700
Test Code	BACKGROUND In cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0913
@SR90-01	SAMPLE VOLUME In mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	3.58
Matrix	DILUTION FACTOR	(DF)	101			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	0.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
95003420	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	02:55	Rmax		1.23
0	DATE OF SEPARATION	(SD)	10/27/95	DETECTION LIMIT	(Ld)	1.61
Sample Prep	TIME OF COUNT	(TOC)	06:30	Sr-89/90 CONC In µCi/L	<	2.8147E-01
N/A	DATE OF COUNT	(DOC)	10/27/95			
Sample #						
WRKLST#3061						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
RWK	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
10/27/95	

Analysis Date				DETECTION LEVEL
10/27/95	Sr-89/90 CONCENTRATION	< 2.81E-04	µCi/m	
Analysis Time	LESS THAN Value was Determined from Rmax.			
05:00 AM	RELATIVE COUNTING ERROR	294.0%		3.69E-04 µCi/mL
Sample Point				
SY-102 GRAB	PERCENT CARRIER RECOVERY	91.3%		

Analyst:		RWK	Date:	27-Oct-95
Signature of Chemist:		SLF	Date:	10/31/95

BLANK.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM4

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

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	30	GROSS WEIGHT	(W2)	6.9911
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.8993
3061	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0918
Test Code	SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	3.92
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95003420	TIME OF SEPARATION	(ST)	02:55	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	10/27/95	DETECTION LIMIT	(Ld)	1.61
0	TIME OF COUNT	(TOC)	06:50	Sr-89/90 CONC in µCi/L		3.1733E-01
Sample Prep	DATE OF COUNT	(DOC)	10/27/95			
N/A						
Sample #						
S95T003142						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
RWK	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
10/27/95	

				DETECTION LEVEL
Analysis Date				
10/27/95	Sr-89/90 CONCENTRATION	3.17E-04	µCi/mL	
Analysis Time				
05:00 AM	RELATIVE COUNTING ERROR	95.0%		3.66E-04 µCi/mL
Sample Point				
SY-102 GRAB	PERCENT CARRIER RECOVERY	91.8%		

Analyst:	RWK	Date:	27-Oct-95
Signature of Chemist:	SLF	Date:	10/31/95

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP5

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

							DUP
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	31	GROSS WEIGHT	(W2)	7.0023
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9103
3061	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0920
	SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	4.50
@SR90-01	DILUTION FACTOR	(DF)	101			
	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1.50	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95003420	TIME OF SEPARATION	(ST)	02:55	Rmax		N/A
	DATE OF SEPARATION	(SD)	10/27/95	DETECTION LIMIT	(Ld)	1.61
0	TIME OF COUNT	(TOC)	07:25	Sr-89/90 CONC in µCi/L		3.3709E-01
	DATE OF COUNT	(DOC)	10/27/95			

N/A

S95T003142

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

WB27811

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

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

MCB

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

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

SLF

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

NOTE: Expected weight = CVA * 0.1

RWK

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

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

10/27/95

				DETECTION LEVEL
10/27/95	Sr-89/90 CONCENTRATION	3.37E-04	µCi/mL	
05:00 AM	RELATIVE COUNTING ERROR	89.6%		3.63E-04 µCi/mL
SY-102 GRAB	PERCENT CARRIER RECOVERY	92.0%		

Analyst:		RWK	Date:	27-Oct-95
Signature of Chemist:		SLF	Date:	10/31/95

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

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

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	67	GROSS WEIGHT	(W2)	7.0813
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9896
3061	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0917
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	4.63
@SR90-01	DILUTION FACTOR	(DF)	561			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	5.10	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95003420	TIME OF SEPARATION	(ST)	03:02	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	10/27/95	DETECTION LIMIT	(Ld)	1.61
0	TIME OF COUNT	(TOC)	07:40	Sr-89/90 CONC in µCi/L		3.1888E+00
Sample Prep	DATE OF COUNT	(DOC)	10/27/95			
N/A						
Sample #						
S95T003143						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
RWK	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
10/27/95	

Analysis Date				DETECTION LEVEL
10/27/95	Sr-89/90 CONCENTRATION	3.19E-03	µCi/mL	
Analysis Time				
05:00 AM	RELATIVE COUNTING ERROR	35.0%		1.01E-03 µCi/mL
Sample Point				
SY-102 GRAB	PERCENT CARRIER RECOVERY	91.7%		

Analyst:	RWK	Date:	27-Oct-95
Signature of Chemist:	SLF	Date:	10/31/95

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP7

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

						DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	29	GROSS WEIGHT	(W2)	6.9465
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.8595
3061	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0870
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	5.13
@SR90-01	DILUTION FACTOR	(DF)	561			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95003420	TIME OF SEPARATION	(ST)	03:02	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	10/27/95	DETECTION LIMIT	(Ld)	1.61
0	TIME OF COUNT	(TOC)	08:10	Sr-89/90 CONC in µCi/L		8.5213E-01
Sample Prep	DATE OF COUNT	(DOC)	10/27/95			
N/A						
Sample #						
S95T003143						

Instrument Code
WB27811
Prepared By
MCB
Chemist
SLF
Analyst
RWK
Date Complete
10/27/95
Analysis Date
10/27/95
Analysis Time
05:00 AM
Sample Point
SY-102 GRAB

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	8.52E-04	µCi/mL	
RELATIVE COUNTING ERROR	101.1%		1.06E-03 µCi/mL
PERCENT CARRIER RECOVERY	87.0%		

Analyst:		RWK	Date:	27-Oct-95
Signature of Chemist:		SLF	Date:	10/31/95

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

LABCORE Completed Worklist Report for Worklist# 3229

Analyst: crj **Instrument:** AB10 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Use 1 ML. Rerun no.1. slf

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01 SR90-01	LIQUID	1.09E-03	3.12E-4	28.620	% Recovery
1	STD		0		@SR90-01 SR90-01C	LIQUID	100	8.60E+01	86.000	% Recovery
1	STD		0		@SR90-01 SR90-01E	LIQUID	1.00	3.63E+00	3.630	% Ct. Error
2	BLNK		0		@SR90-01 SR90-01	LIQUID	1	2.70E-6	0.000	uCi/mL
2	BLNK		0		@SR90-01 SR90-01C	LIQUID	100	8.36E+01	83.600	% Recovery
2	BLNK		0		@SR90-01 SR90-01E	LIQUID	1.00	1.08E+02	108.000	% Ct. Error
3	BLNK/BKG		0		@SR90-01 SR90-01	LIQUID	1	1.29E+00	1.290	uCi/mL
4	SAMPLE	S95T003142	0		@SR90-01 SR90-01	LIQUID	N/A	9.73E-05	3.690e-006	uCi/mL
4	SAMPLE	S95T003142	0		@SR90-01 SR90-01C	LIQUID	N/A	8.69E+01	1.000e-004	% Recovery
4	SAMPLE	S95T003142	0		@SR90-01 SR90-01E	LIQUID	N/A	6.82E+00	0.000	% Ct. Error
5	DUP	S95T003142	0		@SR90-01 SR90-01	LIQUID	9.73E-5	9.51E-5	2.290	RPD
5	DUP	S95T003142	0		@SR90-01 SR90-01C	LIQUID	100	8.58E+01	85.800	% Recovery
5	DUP	S95T003142	0		@SR90-01 SR90-01E	LIQUID	1.00	6.94E+00	6.940	% Ct. Error
6	SAMPLE	S95T003143	0		@SR90-01 SR90-01	LIQUID	N/A	3.12E-04	3.700e-006	uCi/mL
6	SAMPLE	S95T003143	0		@SR90-01 SR90-01C	LIQUID	N/A	8.60E+01	1.000e-004	% Recovery
6	SAMPLE	S95T003143	0		@SR90-01 SR90-01E	LIQUID	N/A	3.60E+00	0.000	% Ct. Error
7	DUP	S95T003143	0		@SR90-01 SR90-01	LIQUID	3.12E-4	2.96E-4	5.260	RPD
7	DUP	S95T003143	0		@SR90-01 SR90-01C	LIQUID	100	8.58E+01	85.800	% Recovery
7	DUP	S95T003143	0		@SR90-01 SR90-01E	LIQUID	1.00	3.72E+00	3.720	% Ct. Error

Final page for worklist# 3229

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

11/28/95

Reviewer Signature **Date**

DATA NOT USED IN PACKAGE

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

LABCORE Data Entry Template for Worklist# 3229

Analyst: CRJ **Instrument:** AB00 10 **Book #** 51BS2

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

Worklist Comment: Use 1 ML. Rerun no.1. slf

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
		1	STD				@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
		1	STD				@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
		2	BLNK				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
		2	BLNK				@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
		2	BLNK				@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
		3	BLNK/BKG				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000172	SY-102 GRAB	4	SAMPLE	S95T003142	0		@SR90-01 SR90-01	LIQUID	N/A			uCi/mL
95000172	SY-102 GRAB	4	SAMPLE	S95T003142	0		@SR90-01 SR90-01C	LIQUID	N/A			% Recovery
95000172	SY-102 GRAB	4	SAMPLE	S95T003142	0		@SR90-01 SR90-01E	LIQUID	N/A			% Ct. Error
95000172	SY-102 GRAB	5	DUP	S95T003142	0		@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000172	SY-102 GRAB	5	DUP	S95T003142	0		@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
95000172	SY-102 GRAB	5	DUP	S95T003142	0		@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
95000172	SY-102 GRAB	6	SAMPLE	S95T003143	0		@SR90-01 SR90-01	LIQUID	N/A			uCi/mL
95000172	SY-102 GRAB	6	SAMPLE	S95T003143	0		@SR90-01 SR90-01C	LIQUID	N/A			% Recovery
95000172	SY-102 GRAB	6	SAMPLE	S95T003143	0		@SR90-01 SR90-01E	LIQUID	N/A			% Ct. Error
95000172	SY-102 GRAB	7	DUP	S95T003143	0		@SR90-01 SR90-01	LIQUID	DATA NOT USED IN PACKAGE		N/A	uCi/mL
95000172	SY-102 GRAB	7	DUP	S95T003143	0		@SR90-01 SR90-01C	LIQUID			N/A	% Recovery

Data Entry Comments:

STD recovery is out of control limits. Batch will be recan. 11/28/95

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

LABCORE Data Entry Template for Worklist# 3229

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
95000172	SY-102 GRAB	7 DUP	S95T003143	0		@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error

Final page for worklist # 3229

Cynthia R Johnson 11/14/95
Analyst Signature **Date**

C J Simmons 11-16-95
Analyst Signature **Date**

DATA NOT USED IN PACKAGE

Data Entry Comments:

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

WORKBOOK PAGE: STD1

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

Type						STANDARD
STD	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	3179	GROSS WEIGHT	(W2)	7.0173
3229	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9313
Test Code	BACKGROUND in cpm	(BKG)	9.0	NET WEIGHT	(W3)	0.0860
@SR90-01	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	26.82
Matrix	DILUTION FACTOR	(DF)	1			
LIQUID	DIGEST DILUTION FACTOR	DDF	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	308.90	SR-90 EFFICIENCY FACTO	(C1)	0.4051
95003574	CRITICAL LEVEL	(Lc)	1.81	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
Rerun	TIME OF SEPARATION	(ST)	12:26	Rmax		N/A
0	DATE OF SEPARATION	(SD)	11/13/95	DETECTION LIMIT	(Ld)	3.71
Sample Prep	TIME OF COUNT	(TOC)	15:15	Sr-89/90 CONC. in µCi/L		3.1217E-01
N/A	DATE OF COUNT	(DOC)	11/14/95			
Sample #	STANDARD BOOK #		51B52			
WORKLIST#3229-ST	STANDARD VALUE in µCi/mL		1.0889E-03			
Instrument Code						
WB26870	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
Prepared By	Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0					
CJO	RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
Chemist	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
SLF	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
Analyst	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
CRJ	NOTE: Expected weight = CVA * 0.1					
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
11/16/95	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
Analysis Date						DETECTION LEVEL
11/13/95	Sr-89/90 CONCENTRATION		3.12E-04	µCi/mL		
Analysis Time						
12:15 PM	RELATIVE COUNTING ERROR		3.6%			3.74E-06 µCi/L
Sample Point						
SY-102	PERCENT CARRIER RECOVERY		86.0%			

Analyst:		CRJ	Date:	16-Nov-95
Signature of Chemist:		SLF	Date:	11/27/95

STANDARD.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: BLANK2

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

Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	116	GROSS WEIGHT	(W2)	6.9983
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9147
3229	BACKGROUND in cpm	(BKG)	9.0	NET WEIGHT	(W3)	0.0836
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	27.20
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	2.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.81	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
95003574	TIME OF SEPARATION	(ST)	12:18	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	11/13/95	DETECTION LIMIT	(Ld)	3.71
0	TIME OF COUNT	(TOC)	15:30	Sr-89/90 CONC in µCi/L		2.6957E-03
Sample Prep	DATE OF COUNT	(DOC)	11/14/95			
N/A						
Sample #						
S95T3142-BLANK						
Instrument Code						
WB26870						
Prepared By						
CJO						
Chemist						
SLF						
Analyst						
CRJ						
Date Complete						
11/16/95						
Analysis Date						
11/13/95						
Analysis Time						
12:15 PM						
Sample Point						
SY-102						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	2.70E-06	µCi/m	
RELATIVE COUNTING ERROR	108.2%		3.84E-06 µCi/mL
PERCENT CARRIER RECOVERY	83.6%		

Analyst:	CRJ	Date:	16-Nov-95
Signature of Chemist:	SLF	Date:	11/27/95

BLANK.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM4

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

						SAMPLE
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	1068	GROSS WEIGHT	(W2)	7.0197
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9328
3229	BACKGROUND in cpm	(BKG)	9.0	NET WEIGHT	(W3)	0.0869
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	27.60
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	97.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.81	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
95003574	TIME OF SEPARATION	(ST)	12:34	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	11/13/95	DETECTION LIMIT	(Ld)	3.71
0	TIME OF COUNT	(TOC)	16:10	Sr-89/90 CONC in µCi/L		9.7278E-02
Sample Prep	DATE OF COUNT	(DOC)	11/14/95			
N/A						
Sample #						
S95T003142						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
CJO	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
CRJ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
11/16/95						
Analysis Date						DETECTION LEVEL
11/13/95	Sr-89/90 CONCENTRATION		9.73E-05	µCi/mL		
Analysis Time						
12:15 PM	RELATIVE COUNTING ERROR		6.8%			3.69E-06 µCi/mL
Sample Point						
SY-102	PERCENT CARRIER RECOVERY		86.9%			

Analyst:		CRJ	Date:	16-Nov-95
Signature of Chemist:		SLF	Date:	11/27/95

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP5

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

						DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	1038	GROSS WEIGHT	(W2)	6.9868
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9010
3229	BACKGROUND in cpm	(BKG)	9.0	NET WEIGHT	(W3)	0.0858
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	28.23
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	94.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.81	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
95003574	TIME OF SEPARATION	(ST)	12:26	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	11/13/95	DETECTION LIMIT	(Ld)	3.71
0	TIME OF COUNT	(TOC)	16:40	Sr-89/90 CONC in µCi/L		9.5087E-02
Sample Prep	DATE OF COUNT	(DOC)	11/14/95			
N/A						
Sample #						
S95T003142						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
CJO	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
CRJ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
11/16/95	

Analysis Date				DETECTION LEVEL
11/13/95	Sr-89/90 CONCENTRATION	9.51E-05	µCi/mL	
Analysis Time				
12:15 PM	RELATIVE COUNTING ERROR	6.9%		3.72E-06 µCi/mL
Sample Point				
SY-102	PERCENT CARRIER RECOVERY	85.8%		

Analyst:	CRJ	Date:	16-Nov-95
Signature of Chemist:	SLF	Date:	11/27/95

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM6

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

							SAMPLE
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	3218	GROSS WEIGHT	(W2)		7.0520
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		6.9660
3229	BACKGROUND in cpm	(BKG)	9.0	NET WEIGHT	(W3)		0.0860
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		28.70
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	312.80	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.81	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
95003574	TIME OF SEPARATION	(ST)	12:08	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	11/13/95	DETECTION LIMIT	(Ld)		3.71
0	TIME OF COUNT	(TOC)	16:50	Sr-89/90 CONC in µCi/L			3.1202E-01
Sample Prep	DATE OF COUNT	(DOC)	11/14/95				
N/A							
Sample #							
S95T003143							

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
CJO	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
CRJ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
11/16/95	

Analysis Date				DETECTION LEVEL
11/13/95	Sr-89/90 CONCENTRATION	3.12E-04	µCi/mL	
Analysis Time				
12:15 PM	RELATIVE COUNTING ERROR	3.6%		3.70E-06 µCi/mL
Sample Point				
SY-102	PERCENT CARRIER RECOVERY	86.0%		

Analyst:	CRJ	Date:	16-Nov-95
Signature of Chemist:	SLF	Date:	11/27/95

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP7

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

Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	DUP 1.000
DUP	TOTAL COUNTS	(TC)	3043	GROSS WEIGHT	(W2)	7.0363
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9505
3229	BACKGROUND in cpm	(BKG)	9.0	NET WEIGHT	(W3)	0.0858
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	28.57
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	295.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.81	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
95003574	TIME OF SEPARATION	(ST)	12:26	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	11/13/95	DETECTION LIMIT	(Ld)	3.71
0	TIME OF COUNT	(TOC)	17:00	Sr-89/90 CONC in µCi/L		2.9552E-01
Sample Prep	DATE OF COUNT	(DOC)	11/14/95			
N/A						
Sample #						
S95T003143						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
CJO	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
CRJ	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
11/16/95						

Analysis Date				DETECTION LEVEL
11/13/95	Sr-89/90 CONCENTRATION	2.96E-04	µCi/mL	
Analysis Time				
12:15 PM	RELATIVE COUNTING ERROR	3.7%		3.71E-06 µCi/mL
Sample Point				
SY-102	PERCENT CARRIER RECOVERY	85.8%		

Analyst:		CRJ	Date:	16-Nov-95
Signature of Chemist:		SLF	Date:	11/27/95

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

DISTRIBUTION SHEET

To	From	Page 1 of 1
Distribution	Production Planning and Control	Date: 12/05/95
Project Title/Work Order - WHC-SD-WM-DP-159, Rev. 0, "60-Day Waste Compatibility Safety Issue and Final Results for Tank 241-SY-102, Grab Samples 2SY-95-1 and 2SY-95-2"		EDT NO.: EDT-613481
		ECN NO.: N/A

Name	MSIN	Text With all Attach	EDT/ECN ONLY
Pacific Northwest Laboratory			
J. R. Gormsen	K7-28		X
S. J. Harris	K7-22	X	
K. L. Silvers	P7-27		X
U.S. Department of Energy, RL			
C. A. Babel	S7-54	X	
Westinghouse Hanford Company			
J. N. Appel	G3-21		X
H. Babad	S7-30	X	
G. R. Bloom	H5-61	X	
R. A. Esch	T6-06	X	
S. D. Esty	R2-11	X	
G. D. Forehand	S7-31		X
V. W. Hall	T6-03	X	
D. C. Hetzer	S6-31		X
L. Jensen	R2-12	X	
N. W. Kirch	R2-11	X	
M. J. Kupfer	H5-49	X	
J. E. Meacham	S7-15	X	
P. M. Morant	H4-25	X	
K. L. Powell	T6-04		X
C. A. Rieck	S2-48	X	
L. W. Shelton	H5-49	X	
B. C. Simpson	R2-12		X
M. J. Sutey	T4-07	X	
J. A. Voogd	H5-03		X
Central Files	A3-88	2	
EDMC	H6-08	X	
LTIC	T6-03		X
TCRC	R2-12	X	
TFIC (Tank Farm Information Center)	R1-20		X
Washington State Department of Ecology			
Single-Shell Tank Unit Manager			
A. B. Stone	B5-18	X	
U. S. Department of Energy			
Jim Poppiti			X
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