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

Document number: SD-WM-DP-184

Section 3 **of** 4

Title: Final Report for Tank 241U107 & Push Mode Cores 129 & 134 & 135

Date: 07/26/1996 **Revision:** R001

Originator: Jaiduk J
Co: WHC

Recipient:
Co:

References: ECN-633311

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV.

Sample: 24N12A Date: 06/10/96 Time: 22:17:06

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.75 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.01	1.70	82.35
3	1.51	12.70	86.61
4	2.01	78.30	83.78
5	2.51	234.00	66.54
6	3.00	396.30	40.95
7	3.50	492.50	19.53
8	4.00	534.50	7.86
9	4.50	548.00	2.46
10	5.00	552.30	0.78
11	5.50	554.20	0.34
12	6.00	555.30	0.20
13	6.50	556.10	0.14
14	7.00	556.90	0.14
15	7.50	557.60	0.13
16	8.00	558.20	0.11
17	8.50	558.70	0.09
18	9.00	559.20	0.09
19	9.50	559.60	0.07
20	10.00	560.00	0.07
21	10.50	560.40	0.07
22	11.00	560.60	0.04

USER INPUT BLANK VALUE
BLANK VALUE = 30.24966 micrograms carbon
BLANK FACTOR = 30.24966 / 10.99988 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:
(560.6 - 30.24966)(1)/(200) = +2.652E+00 g/L Carbon
(560.6 - 30.24966)(1)/(200)(12) = +2.210E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.200mL 24N12A

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0 WHC-SD-WM-DP-184, REV. 1

Sample: BLANK Date: 06/10/96 Time: 22:31:55

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .49 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	0.40	50.00
3	1.51	0.90	55.56
4	2.00	1.20	25.00
5	2.50	1.50	20.00
6	3.00	1.80	16.67
7	3.50	2.00	10.00
8	4.00	2.20	9.09
9	4.50	2.30	4.35
10	5.00	2.70	14.81
11	5.50	2.70	0.00
12	6.00	2.90	6.90
13	6.50	3.10	6.45
14	7.00	3.30	6.06
15	7.50	3.40	2.94
16	8.00	3.60	5.56
17	8.50	3.80	5.26
18	9.00	3.90	2.56
19	9.50	4.10	4.88
20	10.00	4.30	4.65
21	10.50	4.60	6.52
22	11.00	4.60	0.00

USER INPUT BLANK VALUE
BLANK VALUE = 5.38994 micrograms carbon
BLANK FACTOR = 5.38994 / 10.99988 = +4.9E-01 ug/min Carbon

SAMPLE RESULTS:
(4.6 - 5.390299)(1)/(1) = < 5.00 E-3 g/L Carbon
(4.6 - 5.390299)(1)/(1)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: PJ McCown
PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T001119 Date: 06/10/96 Time: 23:38:48

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.75 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.20	0.00
2	1.01	5.10	76.47
3	1.50	49.20	89.63
4	2.00	178.40	72.42
5	2.50	342.70	47.94
6	3.00	448.70	23.62
7	3.50	502.50	10.71
8	4.00	527.40	4.72
9	4.50	538.50	2.06
10	5.00	544.60	1.12
11	5.50	548.50	0.71
12	6.00	551.70	0.58
13	6.50	553.90	0.40
14	7.00	555.70	0.32
15	7.50	556.90	0.22
16	8.00	558.30	0.25
17	8.50	559.40	0.20
18	9.00	560.30	0.16
19	9.50	561.20	0.16
20	10.00	561.90	0.12
21	10.50	562.70	0.14
22	11.00	563.30	0.11

USER INPUT BLANK VALUE
BLANK VALUE = 30.24966 micrograms carbon
BLANK FACTOR = 30.24966 / 10.99988 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:
(563.3 - 30.24698)(1)/(1) = +5.331E+02 g/L Carbon
(563.3 - 30.24698)(1)/(1)(12) = +4.442E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.145 g
.100 mL

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T001119DUP Date: 06/11/96 Time: 01:04:34

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.75 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.30	0.00
2	1.01	6.10	78.69
3	1.50	56.50	89.20
4	2.00	190.80	70.39
5	2.50	346.70	44.97
6	3.00	442.40	21.63
7	3.50	491.00	9.90
8	%-1436.00	512.70	4.23
9	%-1435.50	522.60	1.89
10	%-1435.00	528.20	1.06
11	%-1434.50	532.00	0.71
12	%-1434.00	534.70	0.50
13	%-1433.50	536.80	0.39
14	%-1433.00	538.70	0.35
15	%-1432.50	540.10	0.26
16	%-1432.00	541.30	0.22
17	%-1431.50	542.40	0.20
18	%-1431.00	543.40	0.18
19	%-1430.50	544.20	0.15
20	%-1430.00	545.00	0.15
21	%-1429.50	545.80	0.15
22	%-1429.00	546.30	0.09

USER INPUT BLANK VALUE
BLANK VALUE = 30.24966 micrograms carbon
BLANK FACTOR = 30.24966 / 10.99988 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:
(546.3 --3929.751)(1)/(1) = +4.476E+03 g/L Carbon
(546.3 --3929.751)(1)/(1)(12) = +3.730E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000
.1390 g
.100 mL

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T001119SPK Date: 06/11/96 Time: 01:36:24

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.75 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.30	0.00
2	1.01	5.60	76.79
3	1.51	44.40	87.39
4	2.00	168.60	73.67
5	2.50	415.10	59.38
6	3.00	622.40	33.31
7	3.50	723.50	13.97
8	4.00	769.50	5.98
9	4.50	786.20	2.12
10	5.00	790.70	0.57
11	5.50	794.00	0.42
12	6.00	796.10	0.26
13	6.50	797.30	0.15
14	7.00	798.00	0.09
15	7.50	798.50	0.06
16	8.00	798.70	0.03
17	8.50	798.80	0.01
18	9.00	798.90	0.01
19	9.50	798.90	0.00
20	10.00	798.90	0.00
21	10.50	798.90	0.00
22	11.00	798.90	0.00

USER INPUT BLANK VALUE
BLANK VALUE = 30.24966 micrograms carbon
BLANK FACTOR = 30.24966 / 10.99988 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:
(798.9 - 30.24956)(1)/(1) = +7.687E+02 g/L Carbon
(798.9 - 30.24956)(1)/(1)(12) = +6.405E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1439g
.100mL
+.100mL 14N12A

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T001120 Date: 06/11/96 Time: 02:32:21

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.75 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.50	0.00
2	1.01	2.30	78.26
3	1.50	14.70	84.35
4	2.00	62.70	76.56
5	2.51	120.70	48.05
6	3.01	157.20	23.22
7	3.51	176.30	10.83
8	4.00	188.00	6.22
9	4.50	195.90	4.03
10	5.00	201.50	2.78
11	5.50	209.50	3.82
12	6.00	213.30	1.78
13	6.50	217.70	2.02
14	7.00	220.90	1.45
15	7.50	223.60	1.21
16	8.00	225.80	0.97
17	8.50	227.40	0.70
18	9.00	229.10	0.74
19	9.50	230.50	0.61
20	10.00	231.90	0.60
21	10.50	233.00	0.47
22	11.00	234.10	0.47

USER INPUT BLANK VALUE
BLANK VALUE = 30.24966 micrograms carbon
BLANK FACTOR = 30.24966 / 10.99988 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:
(234.1 - 30.25453)(1)/(1) = +2.038E+02 g/L Carbon
(234.1 - 30.25453)(1)/(1)(12) = +1.699E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1063g
.100mL

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T001120DUP Date: 06/11/96 Time: 02:59:41

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.75 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.70	0.00
2	1.01	1.80	61.11
3	1.51	9.40	80.85
4	2.00	36.90	74.53
5	2.50	88.80	58.45
6	3.00	129.50	31.43
7	3.50	152.80	15.25
8	4.00	162.90	6.20
9	4.50	171.50	5.01
10	5.00	178.70	4.03
11	5.50	183.10	2.40
12	6.00	187.50	2.35
13	6.50	190.80	1.73
14	7.00	193.50	1.40
15	7.50	196.10	1.33
16	8.00	198.30	1.11
17	8.50	200.20	0.95
18	9.00	201.70	0.74
19	9.50	203.40	0.84
20	10.00	204.80	0.68
21	10.50	206.00	0.58
22	11.00	207.20	0.58

USER INPUT BLANK VALUE
BLANK VALUE = 30.24966 micrograms carbon
BLANK FACTOR = 30.24966 / 10.99988 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:
(207.2 - 30.24954)(1)/(1) = +1.770E+02 g/L Carbon
(207.2 - 30.24954)(1)/(1)(12) = +1.475E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

-1065g
.100mL

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV.

Sample: S96T001120TRP Date: 06/11/96 Time: 03:26:25

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.75 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.60	0.00
2	1.01	1.50	60.00
3	1.50	8.30	81.93
4	2.00	35.70	76.75
5	2.50	86.70	58.82
6	3.00	120.90	28.29
7	3.51	138.30	12.58
8	4.00	147.30	6.11
9	4.50	153.30	3.91
10	5.00	157.20	2.48
11	5.50	160.10	1.81
12	6.00	163.20	1.90
13	6.50	165.30	1.27
14	7.00	167.40	1.25
15	7.50	169.00	0.95
16	8.00	170.20	0.71
17	8.50	171.80	0.93
18	9.00	173.30	0.87
19	9.50	174.50	0.69
20	10.00	175.60	0.63
21	10.50	176.50	0.51
22	11.00	177.40	0.51

USER INPUT BLANK VALUE
BLANK VALUE = 30.24966 micrograms carbon
BLANK FACTOR = 30.24966 / 10.99988 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:
(177.4 - 30.25185)(1)/(1) = +1.471E+02 g/L Carbon
(177.4 - 30.25185)(1)/(1)(12) = +1.226E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1041 g
.100 mL

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0 WHC-SD-WM-DP-184, REV. 1

Sample: S96T001121 Date: 06/11/96 Time: 03:56:32

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.75 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.40	0.00
2	1.01	1.30	69.23
3	1.51	3.60	63.89
4	2.00	12.70	71.65
5	2.50	33.40	61.98
6	3.00	63.70	47.57
7	3.50	84.60	24.70
8	4.00	102.50	17.46
9	4.50	111.70	8.24
10	5.00	119.40	6.45
11	5.50	127.90	6.65
12	6.00	132.70	3.62
13	6.50	136.90	3.07
14	7.00	140.80	2.77
15	7.50	144.00	2.22
16	8.00	146.10	1.44
17	8.50	147.80	1.15
18	9.00	149.50	1.14
19	9.50	150.90	0.93
20	10.00	152.10	0.79
21	10.50	153.10	0.65
22	11.00	154.00	0.58

USER INPUT BLANK VALUE
BLANK VALUE = 30.24966 micrograms carbon
BLANK FACTOR = 30.24966 / 10.99988 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:
(154 - 30.24677)(1)/(1) = +1.238E+02 g/L Carbon
(154 - 30.24677)(1)/(1)(12) = +1.031E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1062g
.100mL

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T001121DUP Date: 06/11/96 Time: 04:27:21

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.75 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.50	0.00
2	1.01	1.70	70.59
3	1.51	5.90	71.19
4	2.00	20.30	70.94
5	2.50	43.30	53.12
6	3.00	62.90	31.16
7	3.50	77.50	18.84
8	4.00	86.90	10.82
9	4.50	94.90	8.43
10	5.00	99.50	4.62
11	5.50	103.90	4.23
12	6.00	107.20	3.08
13	6.50	110.00	2.55
14	7.00	112.70	2.40
15	7.50	114.70	1.74
16	8.00	116.70	1.71
17	8.50	118.50	1.52
18	9.00	120.10	1.33
19	9.50	121.60	1.23
20	10.00	122.60	0.82
21	10.50	123.70	0.89
22	11.00	124.60	0.72

USER INPUT BLANK VALUE
BLANK VALUE = 30.24966 micrograms carbon
BLANK FACTOR = 30.24966 / 10.99988 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:
(124.6 - 30.24908)(1)/(1) = +9.435E+01 g/L Carbon
(124.6 - 30.24908)(1)/(1)(12) = +7.863E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1040g
.100mL

LABCORE Data Entry Template for Worklist# 7972

Analyst: DJM **Instrument:** CARB2 _____ **Book#** Tic 22N12A
TOC 16N12E

Method: LA-342-100 Rev/Mod D-C

Worklist Comment: U-107 TICTOC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	SOLID		
2	STD				@TICTOC1	SOLID		
3	SAMPLE	S96T001873	0		@TICTOC1	SOLID	96000422	U-107
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T001873	0		@TICTOC1	SOLID		
5	SPK	S96T001873	0		@TICTOC1	SOLID		
6	TRIPL	S96T001873	0		@TICTOC1	SOLID		

Final page for worklist # 7972 (T1 7972)

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

RCHtch 4-26/96 **Analyst Signature** **Date**

Uploaded + Validated
by HAnastos 5-9-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 7972

Analyst: RJ McCown **Instrument:** CARB2 _____ **Book#** TIC 22N12A
TOC 16N12E

Method: LA-342-100 Rev/Mod D-0

Worklist Comment: U-107 TICTOC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	SOLID		
2	STD				@TICTOC1	SOLID		
3	SAMPLE	S96T001873	0		@TICTOC1	SOLID	96000422	U-107
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T001873	0		@TICTOC1	SOLID		
5	SPK	S96T001873	0		@TICTOC1	SOLID		

Final page for worklist # 7972

RJ McCown 4/25/96
Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7972

5-9-96

Analyst: ~~hla~~ PJM **Instrument:** CARB2 **Book#** TIC 22N12A TOC 16N12E

Method: LA-342-100 Rev/Mod D-Ø

Worklist Comment: U-107 TICTOC. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK			0	@TICTOC1 TIC-02	SOLID	1	3.00E-1	0.300	ug/g
1	BLNK			0	@TICTOC1 TOC-02	SOLID	1	1.64E+1	16.400	ug/g
2	STD			0	@TICTOC1 TIC-02	SOLID	6.02E+02	6.02E+2	100.000	% Recovery
2	STD			0	@TICTOC1 TOC-02	SOLID	2.99E+03	2.55E+3	85.284	% Recovery
3	SAMPLE	S96T001873		0	@TICTOC1 TIC-02	SOLID	N/A	6.40E+02	5.000	ug/g
3	SAMPLE	S96T001873		0	@TICTOC1 TOC-02	SOLID	N/A	5.18E+02	40.000	ug/g
4	DUP	S96T001873		0	@TICTOC1 TIC-02	SOLID	6.40E+2	6.03E+2	5.953	RPD
4	DUP	S96T001873		0	@TICTOC1 TOC-02	SOLID	5.18E+2	4.93E+2	4.946	RPD
5	SPK	S96T001873		0	@TICTOC1 TIC-02	SOLID	1.00E+02	9.69E+01	96.900	% Recovery
5	SPK	S96T001873		0	@TICTOC1 TOC-02	SOLID	1.00E+02	8.77E+01	87.700	% Recovery
6	TRIPL	S96T001873		0	@TICTOC1 TIC-02	SOLID	6.40E+2	6.16E+2	3.822	RPD
6	TRIPL	S96T001873		0	@TICTOC1 TOC-02	SOLID	5.18E+2	4.77E+2	8.241	RPD

Final page for worklist# 7972

See Attached for Signatures

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

H Anastos 5-9-96

Reviewer Signature **Date**

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

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (C-0) SOLIDS

			TIC	TOC
Sample Size in g		(SS)	0.0000	0.0000
Dilution Factor		(DF)	1	1
µg of Carbon in Sample		(C1)	6.6	21.5
µg of Carbon from Baseline		(C2)	6.9	37.9

Date: BLNK

Weight: 7972

Test Type: @TICTOC1

Matrix: SOLID

Batch Number: 96003809

Round: 0

Sample Prep: N/A

Sample: BLNK

Instrument Code: CARB2

Prepared By: RTS

Chemist: RWS

Analyst: pjm

Date Completed: 04/26/96

Analysis Date: 04/25/96

Analysis Time:

Sample Point: U-107

µg of Carbon = |C1-C2|

		TIC	TOC
Method Detection Limit in ug/g		5	40
µg of Carbon		3.00E-01	1.64E+01

Data Entered By:	RTS	Date:	04/26/96
Signature of Chemist:	HLarson	Date:	5-9-96

BLANK.WB1 REV 1.0 342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (C-0) LIQUIDS

			TIC	TOC
Type	Sample Size in mL	(SS)	1.0000	0.2000
STD	Dilution Factor	(DF)	1	1
Workbook	Final Coulometer Reading in µg	(C1)	609.1	574.5
7972	µg of Carbon from Baseline	(C2)	6.9	37.9
Standard Book	Standard Book Number		22N12A	16N12E
@TICTOC1	Standard Value (µg/ml)		602	2990

Matrix
LIQUID

Batch Number
96003809

Reqid
0

Sample Prep
N/A

Sample
STD

Instrument Code
CARB2

Prepared By
RTS

Chemist
RWS

Analyst
pjm

Date Completed
04/26/96

Analysis Date
04/25/96

Analysis Time

Sample Point
U-107

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	2.99E+03
QC Found in µg/mL	6.02E+02	2.68E+03
Percent Standard Recovery	100.0	89.7

Data Entered By:	RTS	Date:	04/26/96
Signature of Chemist:	HAnasts	Date:	5-9-96

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (C-0) SOLIDS

			TIC	TOC
Type	Sample Size in g	(SS)	0.2289	0.2289
SAMPLE	Dilution Factor	(DF)	1	1
Work Order	µg of Carbon in Sample	(C1)	153.4	156.4
7972	µg of Carbon from Baseline	(C2)	6.9	37.9
Instrument				
@TICTOC1				

Matrix: SOLID

Batch Number: 96003809

Rerun: 0

Sample Prep: N/A

Sample: S96T001873

Instrument Code: CARB2

Prepared By: RTS

Chemist: RWS

Analyst: pjm

Date Complete: 04/26/96

Analysis Date: 04/25/96

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

		TIC	TOC
Analysis Time	Method Detection Limit in ug/g	5	40
Sample Point	µg of Carbon/g	6.40E+02	5.18E+02
U-107			

Data Entered By:	RTS	Date:	04/26/96
Signature of Chemist:	H Anastos	Date:	5-9-96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (C-0) SOLIDS

			TIC	TOC
Type	Sample Size in g	(SS)	0.5193	0.5193
DUP	Dilution Factor	(DF)	1	1
Worksheet	µg of Carbon in Sample	(C1)	320	293.8
7972	µg of Carbon from Baseline	(C2)	6.9	37.9
Test Code	Known µg of C from Original Sample		6.40E+2	5.18E+2
@TICTOC1				

Matrix: SOLID

Batch Number: 96003809

Rerun: 0

Sample Prep: N/A

Sample #: S96T001873

Instrument Code: CARB2

Prepared By: RTS

Chemist: RWS

Analyst: pjm

Date Complete: 04/26/96

Analysis Date: 04/25/96

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

RPD (of Sample and Dup Results) = | Difference | / Average

		TIC	TOC
Analysis Time	Method Detection Limit in ug/g	5	40
Sample Point	µg of Carbon/g	6.03E+02	4.93E+02
U-107	RPD (of Sam and Dup Results)	6.0%	5.0%

Data Entered By:	RTS	Date:	04/26/96
Signature of Chemist:	H Anastos	Date:	5-9-96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (C-0) SOLIDS

			TIC	TOC
Type	Sample Vial Data			
SPK	Sample Size in g	(SS)	0.2289	0.2289
Workbook	Final Coulometer Reading in µg	(C1)	153.4	156.4
7972	Spiked Vial Data			
Instrument	Sample Size in g	(SPK SS)	0.4339	0.4339
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C3)	573.2	522.5
SOLID	Spike Book Number		22N12A	16N12E
Batch Number	Spike Standard Value in µg/ml		602	2990
96003809	Spike Concentration in µg	(SPK CONC)	301	299

Code
0

Sample Prep
N/A

Sample
S96T001873

Instrument Code
CARB2

Prepared By
RTS

Chemist
RWS

Analyst
pjm

Date Complete
04/26/96

Analysis Date
04/25/96

Analysis Time

Sample Point
U-107

Spike Concentration in µg = (Spike Std. Value in µg/mL)*(SPK VOL)

Percent Spike Recovery = (C3) / [(C1/SS * SPK SS) + (SPK CONC)] * 100

QC Actual in µg/mL = Spike Value (µg/mL)
QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100

	TIC	TOC
QC Actual in µg/mL	6.02E+02	2.99E+03
QC Found in µg/mL	5.83E+02	2.62E+03
Percent Spike Recovery	96.9	87.7

Data Entered By:	RTS	Date:	04/26/96
Signature of Chemist:	HAnastn	Date:	5-9-96

SPIKE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: TRIPL6

TIC/TOC : LA-342-100 (C-0)

WHC-SD-WM-DP-184, REV. 1

SOLIDS

			TIC	TOC
	Sample Size in g	(SS)	0.6263	0.6263
TRIPL	Dilution Factor	(DF)	1	1
	µg of Carbon in Sample	(C1)	392.8	336.7
7972	µg of Carbon from Baseline	(C2)	6.9	37.9
	Known µg of C from Original Sample		6.40E+2	5.18E+2
@TICTOC1	Duplicate Result		6.03E+2	4.93E+2

Matrix: SOLID

Batch Number: 96003809

Rerun: 0

Sample Prep: N/A

Sample: S96T001873

Instrument Code: CARB2

Prepared By: RTS

Chemist: RWS

Analyst: pjm

Date Complete: 04/26/96

Analysis Date: 04/25/96

Analysis Time:

Sample Point: U-107

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

RSD (of Sam, Dup, and Tripl Results) = Standard Deviation / Average

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	6.16E+02	4.77E+02
RSD (of Sam, Dup, and Tripl Results)	0.0303	0.0416

Data Entered By:	RTS	Date:	04/26/96
Signature of Chemist:	H Anastas	Date:	5-9-96

SAMPLE.WB1 REV 1.0 342100ML

I:\342100\OUT\TI7972.WB1 04/26/96 15:16:39

P

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

Sample: BASE Date: 04/24/96 Time: 20:20:24

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

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.80	0.00
2	1.01	1.30	38.46
3	1.51	1.90	31.58
4	2.01	2.30	17.39
5	2.50	2.60	11.54
6	3.00	2.90	10.34
7	3.50	3.20	9.37
8	4.00	3.50	8.57
9	4.50	3.70	5.41
10	5.00	4.00	7.50
11	5.50	4.20	4.76
12	6.00	4.50	6.67
13	6.50	4.70	4.26
14	7.00	5.00	6.00
15	7.50	5.20	3.85
16	8.00	5.50	5.45
17	8.50	5.70	3.51
18	9.00	6.00	5.00
19	9.50	6.20	3.23
20	10.00	6.50	4.62
21	10.50	6.70	2.99
22	11.00	6.90	2.90

BLANK VALUE = 6.9 micrograms carbon
BLANK FACTOR = 6.9 / 11.00171 = +6.3E-01 ug/min Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 942 TO 955.

Sample Run By: PJ McCown 4/25/96
PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE Date: 04/24/96 Time: 20:33:55

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

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.90	66.67
3	1.51	2.90	68.97
4	2.00	11.90	75.63
5	2.50	22.30	46.64
6	3.00	27.30	18.32
7	3.50	29.70	8.08
8	4.00	31.00	4.19
9	4.50	32.00	3.13
10	5.00	32.80	2.44
11	5.50	33.40	1.80
12	6.00	33.90	1.47
13	6.50	34.60	2.02
14	7.00	35.00	1.14
15	7.50	35.40	1.13
16	8.00	35.90	1.39
17	8.50	36.30	1.10
18	9.00	36.60	0.82
19	9.50	37.00	1.08
20	10.00	37.30	0.80
21	10.50	37.60	0.80
22	11.00	37.90	0.79

BLANK VALUE = 37.9 micrograms carbon
BLANK FACTOR = 37.9 / 10.99988 = +3.45E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 22N12A Date: 04/24/96 Time: 22:41:05

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .63 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.50	0.00
2	1.01	51.20	99.02
3	1.51	233.00	78.03
4	2.00	405.50	42.54
5	2.50	517.40	21.63
6	3.00	573.00	9.70
7	3.50	594.50	3.62
8	4.00	601.40	1.15
9	4.50	603.60	0.36
10	5.00	604.60	0.17
11	5.50	605.20	0.10
12	6.00	605.70	0.08
13	6.50	606.20	0.08
14	7.00	606.50	0.05
15	7.50	606.90	0.07
16	8.00	607.20	0.05
17	8.50	607.60	0.07
18	9.00	607.90	0.05
19	9.50	608.20	0.05
20	10.00	608.50	0.05
21	10.50	608.90	0.07
22	11.00	609.10	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 6.929923 micrograms carbon
BLANK FACTOR = 6.929923 / 10.99988 = +6.3E-01 ug/min Carbon

SAMPLE RESULTS:
(609.1 - 6.929308)(1)/(1000) = +6.022E-01 g/L Carbon
(609.1 - 6.929308)(1)/(1000)(12) = +5.018E-02 Molar Carbon

Sample Run By: PJ McCown 4/24/96
PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 16N12E Date: 04/24/96 Time: 22:57:46

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.45 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	15.40	98.05
3	1.51	163.70	90.59
4	2.00	404.60	59.54
5	2.50	521.90	22.48
6	3.00	554.70	5.91
7	3.50	564.10	1.67
8	4.00	566.90	0.49
9	4.50	568.30	0.25
10	5.00	569.10	0.14
11	5.50	569.80	0.12
12	6.00	570.40	0.11
13	6.50	570.90	0.09
14	7.00	571.40	0.09
15	7.50	572.00	0.10
16	8.00	572.40	0.07
17	8.50	572.80	0.07
18	9.00	573.10	0.05
19	9.50	573.60	0.09
20	10.00	573.90	0.05
21	10.50	574.20	0.05
22	11.00	574.50	0.05

USER INPUT BLANK VALUE
BLANK VALUE = 37.94958 micrograms carbon
BLANK FACTOR = 37.94958 / 10.99988 = +3.5E+00 ug/min Carbon

SAMPLE RESULTS:
(574.5 - 37.94579)(1)/(200) = +2.683E+00 g/L Carbon
(574.5 - 37.94579)(1)/(200)(12) = +2.236E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown 4/24/96
PJ MCCOWN 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLANK Date: 04/24/96 Time: 23:13:41

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .63 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.10	0.00
2	1.01	2.00	45.00
3	1.51	2.50	20.00
4	2.00	2.90	13.79
5	2.50	3.30	12.12
6	3.00	3.50	5.71
7	3.50	3.70	5.41
8	4.00	4.00	7.50
9	4.50	4.10	2.44
10	5.00	4.30	4.65
11	5.50	4.50	4.44
12	6.00	4.70	4.26
13	6.50	5.00	6.00
14	7.00	5.20	3.85
15	7.50	5.30	1.89
16	8.00	5.40	1.85
17	8.50	5.60	3.57
18	9.00	5.80	3.45
19	9.50	5.90	1.69
20	10.00	6.20	4.84
21	10.50	6.40	3.13
22	11.00	6.60	3.03

USER INPUT BLANK VALUE
BLANK VALUE = 6.929923 micrograms carbon
BLANK FACTOR = 6.929923 / 10.99988 = +6.3E-01 ug/min Carbon

SAMPLE RESULTS:
(6.6 - 6.930923)(1)/(1) = < 5.00 E-3 g/L Carbon
(6.6 - 6.930923)(1)/(1)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: PJ McCown
PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLANK Date: 04/24/96 Time: 23:41:34

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.45 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	0.60	66.67
3	1.50	1.20	50.00
4	2.00	2.60	53.85
5	2.50	6.70	61.19
6	3.00	12.00	44.17
7	3.50	15.40	22.08
8	4.00	16.90	8.88
9	4.50	17.60	3.98
10	5.00	18.30	3.83
11	5.50	18.80	2.66
12	6.00	19.20	2.08
13	6.50	19.60	2.04
14	7.00	19.90	1.51
15	7.50	20.10	1.00
16	8.00	20.40	1.47
17	8.50	20.60	0.97
18	9.00	20.70	0.48
19	9.50	20.90	0.96
20	10.00	21.20	1.42
21	10.50	21.30	0.47
22	11.00	21.50	0.93

USER INPUT BLANK VALUE
BLANK VALUE = 37.94958 micrograms carbon
BLANK FACTOR = 37.94958 / 10.99988 = +3.5E+00 ug/min Carbon

SAMPLE RESULTS:
(21.5 - 37.94579)(1)/(1) = < 5.00 E-3 g/L Carbon
(21.5 - 37.94579)(1)/(1)(12) = < 4.17 E-4 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001873 Date: 04/25/96 Time: 02:23:32

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .63 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	1.50	93.33
3	1.50	20.50	92.68
4	2.00	55.60	63.13
5	2.50	88.30	37.03
6	3.00	110.80	20.31
7	3.50	124.10	10.72
8	4.00	131.60	5.70
9	4.50	136.10	3.31
10	5.00	139.40	2.37
11	5.50	141.70	1.62
12	6.00	143.80	1.46
13	6.50	145.40	1.10
14	7.00	146.70	0.89
15	7.50	147.90	0.81
16	8.00	149.10	0.80
17	8.50	150.10	0.67
18	9.00	150.90	0.53
19	9.50	151.70	0.53
20	10.00	152.40	0.46
21	10.50	152.80	0.26
22	11.00	153.40	0.39

USER INPUT BLANK VALUE
BLANK VALUE = 6.929923 micrograms carbon
BLANK FACTOR = 6.929923 / 10.99988 = +6.3E-01 ug/min Carbon

SAMPLE RESULTS:
(153.4 - 6.928625)(1)/(1) = +1.465E+02 g/L Carbon
(153.4 - 6.928625)(1)/(1)(12) = +1.221E+01 Molar Carbon

Sample Run By: PJ McCown
PJ MCCOWN 00000

-2289g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001873 Date: 04/25/96 Time: 02:47:24

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.45 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.70	0.00
2	1.01	3.40	79.41
3	1.51	25.20	86.51
4	2.01	66.50	62.11
5	2.51	103.40	35.69
6	3.01	123.00	15.93
7	3.51	132.40	7.10
8	4.00	136.90	3.29
9	4.50	140.10	2.28
10	5.00	142.60	1.75
11	5.50	144.70	1.45
12	6.00	146.50	1.23
13	6.50	148.10	1.08
14	7.00	149.60	1.00
15	7.50	150.70	0.73
16	8.00	151.80	0.72
17	8.50	152.80	0.65
18	9.00	153.60	0.52
19	9.50	154.40	0.52
20	10.00	155.10	0.45
21	10.50	155.70	0.39
22	11.00	156.40	0.45

USER INPUT BLANK VALUE
BLANK VALUE = 37.94958 micrograms carbon
BLANK FACTOR = 37.94958 / 10.99988 = +3.5E+00 ug/min Carbon

SAMPLE RESULTS:
(156.4 - 37.95579)(1)/(1) = +1.184E+02 g/L Carbon
(156.4 - 37.95579)(1)/(1)(12) = +9.870E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.2289 g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001873DUP Date: 04/25/96 Time: 03:07:38

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .63 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	2.50	88.00
3	1.50	42.50	94.12
4	2.00	111.60	61.92
5	2.50	173.70	35.75
6	3.00	219.40	20.83
7	3.50	249.10	11.92
8	4.00	268.20	7.12
9	4.50	280.00	4.21
10	5.00	287.80	2.71
11	5.50	293.90	2.08
12	6.00	298.80	1.64
13	6.50	302.60	1.26
14	7.00	305.80	1.05
15	7.50	308.60	0.91
16	8.00	310.90	0.74
17	8.50	313.10	0.70
18	9.00	315.00	0.60
19	9.50	316.30	0.41
20	10.00	317.90	0.50
21	10.50	319.10	0.38
22	11.00	320.00	0.28

USER INPUT BLANK VALUE
BLANK VALUE = 6.929923 micrograms carbon
BLANK FACTOR = 6.929923 / 10.99988 = +6.3E-01 ug/min Carbon

SAMPLE RESULTS:
(320 - 6.929789)(1)/(1) = +3.131E+02 g/L Carbon
(320 - 6.929789)(1)/(1)(12) = +2.609E+01 Molar Carbon

Sample Run By: PJ McCown
PJ MCCOWN 00000

.5193g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001873DUP Date: 04/25/96 Time: 03:22:43

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.45 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.00	0.00
2	1.01	4.30	76.74
3	1.51	56.10	92.34
4	2.00	143.40	60.88
5	2.50	210.30	31.81
6	3.00	243.70	13.71
7	3.50	258.10	5.58
8	4.00	265.40	2.75
9	4.50	270.40	1.85
10	5.00	274.20	1.39
11	5.50	277.50	1.19
12	6.00	280.00	0.89
13	6.50	282.70	0.96
14	7.00	284.80	0.74
15	7.50	286.50	0.59
16	8.00	288.00	0.52
17	8.50	289.40	0.48
18	9.00	290.30	0.31
19	9.50	291.30	0.34
20	10.00	292.20	0.31
21	10.50	293.00	0.27
22	11.00	293.80	0.27

USER INPUT BLANK VALUE
BLANK VALUE = 37.94958 micrograms carbon
BLANK FACTOR = 37.94958 / 10.99988 = +3.5E+00 ug/min Carbon

SAMPLE RESULTS:
(293.8 - 37.94889)(1)/(1) = +2.559E+02 g/L Carbon
(293.8 - 37.94889)(1)/(1)(12) = +2.132E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.5193g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001873SPK Date: 04/25/96 Time: 03:41:37

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .63 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.60	0.00
2	1.01	2.50	76.00
3	1.50	62.40	95.99
4	2.00	198.30	68.53
5	2.50	327.60	39.47
6	3.00	421.90	22.35
7	3.50	479.30	11.98
8	4.00	512.40	6.46
9	4.50	529.80	3.28
10	5.00	539.40	1.78
11	5.50	545.70	1.15
12	6.00	550.60	0.89
13	6.50	554.60	0.72
14	7.00	557.80	0.57
15	7.50	560.80	0.53
16	8.00	563.10	0.41
17	8.50	565.40	0.41
18	9.00	567.50	0.37
19	9.50	568.90	0.25
20	10.00	570.50	0.28
21	10.50	572.00	0.26
22	11.00	573.20	0.21

USER INPUT BLANK VALUE
BLANK VALUE = 6.929923 micrograms carbon
BLANK FACTOR = 6.929923 / 10.99988 = +6.3E-01 ug/min Carbon

SAMPLE RESULTS:
(573.2 - 6.929884)(1)/(1) = +5.663E+02 g/L Carbon
(573.2 - 6.929884)(1)/(1)(12) = +4.719E+01 Molar Carbon

Sample Run By: PJ McCown
PJ MCCOWN 00000

.4339g
+ .500 mL TIC STD # 22N12A
.100 mL TOC STD # 16N12E

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001873SPK Date: 04/25/96 Time: 03:54:25

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.45 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.10	0.00
2	1.01	4.30	74.42
3	1.51	43.80	90.18
4	2.00	160.90	72.78
5	2.50	322.00	50.03
6	3.00	421.20	23.55
7	3.50	466.30	9.67
8	4.00	485.70	3.99
9	4.50	493.90	1.66
10	5.00	499.00	1.02
11	5.50	502.80	0.76
12	6.00	505.90	0.61
13	6.50	508.40	0.49
14	7.00	510.50	0.41
15	7.50	512.50	0.39
16	8.00	514.70	0.43
17	8.50	516.20	0.29
18	9.00	517.70	0.29
19	9.50	519.30	0.31
20	10.00	520.50	0.23
21	10.50	521.50	0.19
22	11.00	522.50	0.19

USER INPUT BLANK VALUE
BLANK VALUE = 37.94958 micrograms carbon
BLANK FACTOR = 37.94958 / 10.99988 = +3.5E+00 ug/min Carbon

SAMPLE RESULTS:
(522.5 - 37.946)(1)/(1) = +4.846E+02 g/L Carbon
(522.5 - 37.946)(1)/(1)(12) = +4.038E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.4339g
+ .500ML TIC STD # 22N12A
.100ML TOC STD # 16N12E

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001873TRP Date: 04/25/96 Time: 04:10:00

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .63 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.60	0.00
2	1.01	6.70	91.04
3	1.50	72.10	90.71
4	2.00	152.90	52.84
5	2.50	219.00	30.18
6	3.00	267.10	18.01
7	3.50	300.10	11.00
8	4.00	322.10	6.83
9	4.50	337.30	4.51
10	5.00	347.90	3.05
11	5.50	356.10	2.30
12	6.00	362.20	1.68
13	6.50	367.80	1.52
14	7.00	372.30	1.21
15	7.50	376.20	1.04
16	8.00	379.80	0.95
17	8.50	382.60	0.73
18	9.00	385.40	0.73
19	9.50	387.60	0.57
20	10.00	389.40	0.46
21	10.50	391.20	0.46
22	11.00	392.80	0.41

USER INPUT BLANK VALUE
BLANK VALUE = 6.929923 micrograms carbon
BLANK FACTOR = 6.929923 / 10.99988 = +6.3E-01 ug/min Carbon

SAMPLE RESULTS:
(392.8 - 6.928635)(1)/(1) = +3.859E+02 g/L Carbon
(392.8 - 6.928635)(1)/(1)(12) = +3.216E+01 Molar Carbon

Sample Run By: PJ McCown
PJ MCCOWN 00000

·62638

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001873TRP Date: 04/25/96 Time: 04:22:42

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.45 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.40	0.00
2	1.01	3.60	61.11
3	1.51	36.70	90.19
4	2.00	114.40	67.92
5	2.50	200.40	42.91
6	3.00	255.90	21.69
7	3.50	283.80	9.83
8	4.00	297.30	4.54
9	4.50	304.50	2.36
10	5.00	310.10	1.81
11	5.50	314.30	1.34
12	6.00	317.70	1.07
13	6.50	320.80	0.97
14	7.00	323.70	0.90
15	7.50	325.80	0.64
16	8.00	327.80	0.61
17	8.50	329.70	0.58
18	9.00	331.00	0.39
19	9.50	332.50	0.45
20	10.00	333.90	0.42
21	10.50	335.40	0.45
22	11.00	336.70	0.39

USER INPUT BLANK VALUE
BLANK VALUE = 37.94958 micrograms carbon
BLANK FACTOR = 37.94958 / 10.99988 = +3.5E+00 ug/min Carbon

SAMPLE RESULTS:
(336.7 - 37.93963)(1)/(1) = +2.988E+02 g/L Carbon
(336.7 - 37.93963)(1)/(1)(12) = +2.490E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.6263g

LABCORE Data Entry Template for Worklist# 8429

Analyst: PJM **Instrument:** CARB2 _____ **Book#** Tic 22N12B 24N12A

Method: LA-342-100 Rev/Mod d-0

Worklist Comment: U-107 TICTOC. RTS

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	LIQUID		
2	STD				@TICTOC1	LIQUID		
3	SAMPLE	S96T002140	0		@TICTOC1	LIQUID	96000422	U-107
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T002140	0		@TICTOC1	LIQUID		
5	SPK	S96T002140	0		@TICTOC1	LIQUID		
6	SAMPLE	S96T002141	0		@TICTOC1	LIQUID	96000422	U-107
		Analytes Requested: TIC-02 , TOC-02						
7	DUP	S96T002141	0		@TICTOC1	LIQUID		

Final page for worklist # 8429

See Attached Sheet

Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 8429

Analyst: pjm **Instrument:** CARB2 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: U-107 TICTOC. RTS

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK			0	@TICTOC1 TIC-02	LIQUID	1	1.00E+0	1.000	ug/mL
1	BLNK			0	@TICTOC1 TOC-02	LIQUID	1	5.70E+0	5.700	ug/mL
2	STD			0	@TICTOC1 TIC-02	LIQUID	6.02E+02	6.04E+2	100.332	% Recovery
2	STD			0	@TICTOC1 TOC-02	LIQUID	3.00E+03	2.85E+3	95.000	% Recovery
3	SAMPLE	S96T002140		0	@TICTOC1 TIC-02	LIQUID	N/A	4.92E+03	5.000	ug/mL
3	SAMPLE	S96T002140		0	@TICTOC1 TOC-02	LIQUID	N/A	3.23E+03	40.000	ug/mL
4	DUP	S96T002140		0	@TICTOC1 TIC-02	LIQUID	4.92E+3	5.01E+3	1.813	RPD
4	DUP	S96T002140		0	@TICTOC1 TOC-02	LIQUID	3.23E+3	3.23E+3	0.000	RPD
5	SPK	S96T002140		0	@TICTOC1 TIC-02	LIQUID	1.00E+02	1.02E+02	102.000	% Recovery
5	SPK	S96T002140		0	@TICTOC1 TOC-02	LIQUID	1.00E+02	9.88E+01	98.800	% Recovery
6	SAMPLE	S96T002141		0	@TICTOC1 TIC-02	LIQUID	N/A	4.94E+03	5.000	ug/mL
6	SAMPLE	S96T002141		0	@TICTOC1 TOC-02	LIQUID	N/A	3.19E+03	40.000	ug/mL
7	DUP	S96T002141		0	@TICTOC1 TIC-02	LIQUID	4.94E+3	5.01E+3	1.407	RPD
7	DUP	S96T002141		0	@TICTOC1 TOC-02	LIQUID	3.19E+3	3.20E+3	0.313	RPD

Final page for worklist# 8429

[signature] 6-4-96
Analyst Signature **Date**

Analyst Signature **Date**

Robert W Schneider 6/5/96
Reviewer Signature **Date**

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

LABCORE Data Entry Template for Worklist# 8429

Analyst: RJMcCown **Instrument:** CARB2 **Book #** TIC 22N12B TOC 24N12A

Method: LA-342-100 Rev/Mod 0-0

Worklist Comment: U-107 TICTOC. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK				@TICTOC1 TIC-02	LIQUID	1	1	N/A	ug/mL
		1	BLNK				@TICTOC1 TOC-02	LIQUID	1	5.7	N/A	ug/mL
		2	STD				@TICTOC1 TIC-02	LIQUID	6.02^{E2}	6.04^{E2}	N/A	ug/mL
		2	STD				@TICTOC1 TOC-02	LIQUID	3.00^{E3}	2.84^{E3}	N/A	ug/mL
96000422	U-107	3	SAMPLE	S96T002140	0		@TICTOC1 TIC-02	LIQUID	N/A	7.69^{E3} ~~5.05^{E3}~~		ug/mL
96000422	U-107	3	SAMPLE	S96T002140	0		@TICTOC1 TOC-02	LIQUID	N/A	5.05^{E3}		ug/mL
96000422	U-107	4	DUP	S96T002140	0		@TICTOC1 TIC-02	LIQUID	7.69^{E3}	7.41^{E3}	N/A	ug/mL
96000422	U-107	4	DUP	S96T002140	0		@TICTOC1 TOC-02	LIQUID	5.05^{E3}	4.78^{E3}	N/A	ug/mL
96000422	U-107	5	SPK	S96T002140	0		@TICTOC1 TIC-02	LIQUID	100	95	N/A	ug/mL
96000422	U-107	5	SPK	S96T002140	0		@TICTOC1 TOC-02	LIQUID	100	93	N/A	ug/mL
96000422	U-107	6	SAMPLE	S96T002141	0		@TICTOC1 TIC-02	LIQUID	N/A	7.33^{E3}		ug/mL
96000422	U-107	6	SAMPLE	S96T002141	0		@TICTOC1 TOC-02	LIQUID	N/A	4.74^{E3}		ug/mL
96000422	U-107	7	DUP	S96T002141	0		@TICTOC1 TIC-02	LIQUID	7.33^{E3}	7.45^{E3}	N/A	ug/mL
96000422	U-107	7	DUP	S96T002141	0		@TICTOC1 TOC-02	LIQUID	4.74^{E3}	4.76^{E3}	N/A	ug/mL
96000422	U-107	8	SAMPLE	S96T002142	0		@TICTOC1 TIC-02	LIQUID	N/A	6.86^{E3}		ug/mL
96000422	U-107	8	SAMPLE	S96T002142	0		@TICTOC1 TOC-02	LIQUID	N/A	4.92^{E3}		ug/mL
96000422	U-107	9	DUP	S96T002142	0		@TICTOC1 TIC-02	LIQUID	6.86^{E3}	6.83^{E3}	N/A	ug/mL
96000422	U-107	9	DUP	S96T002142	0		@TICTOC1 TOC-02	LIQUID	4.92^{E3}	4.61^{E3}	N/A	ug/mL

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.

worklistrpt Version 2.1 05/15/95
05/31/96 16:32

LABCORE Data Entry Template for Worklist# 8429

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

Final page for worklist # 8429

RSMcCown 6/2/96
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

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

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (C-0) LIQUIDS

			TIC	TOC
	Sample Size in mL	(SS)	0.0000	0.0000
BLNK	Dilution Factor	(DF)	1	1
	µg of Carbon in Sample	(C1)	7.7	23.2
8429	µg of Carbon from Baseline	(C2)	6.7	28.9

@TICTOC1

LIQUID

96004348

µg of Carbon = |C1-C2|

0

N/A

BLNK

CARC2

RTS

RWS

PJM

06/04/96

06/02/96

		TIC	TOC
	Method Detection Limit in µg/mL	5	40
	µg of Carbon	1.00E+00	5.70E+00

U-107

Data Entered By:	RTS	Date:	06/04/96
Signature of Chemist:	RW Schroeder	Date:	6/5/96

BLANK.WB1 REV 1.0 342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (C-0) LIQUIDS

			TIC	TOC
	Sample Size in mL	(SS)	1.0000	0.2000
STD	Dilution Factor	(DF)	1	1
	Final Coulometer Reading in µg	(C1)	610.8	598
8429	µg of Carbon from Baseline	(C2)	6.7	28.9
	Standard Book Number		22N12B	24N12A
@TICTOC1	Standard Value (µg/ml)		602	3000

LIQUID

96004348

0

N/A

STD

CARC2

RTS

RWS

PJM

06/04/96

06/02/96

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

		TIC	TOC
	Method Detection Limit in µg/mL	5	40
	QC Actual in µg/mL	6.02E+02	3.00E+03
	QC Found in µg/mL	6.04E+02	2.85E+03
U-107	Percent Standard Recovery	100.3	94.9

Data Entered By:	RTS	Date:	06/04/96
Signature of Chemist:	RW Schwerdt	Date:	6/5/96

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

WHC-SD-WM-DP-184, REV. |

TIC/TOC : LA-342-100 (C-0) LIQUIDS

			TIC	TOC
	Sample Size in mL	(SS)	0.1563	0.1563
SAMPLE	Dilution Factor	(DF)	1	1
	µg of Carbon in Sample	(C1)	775.4	534
8429	µg of Carbon from Baseline	(C2)	6.7	28.9
@TICTOC1				

Matrix
LIQUID

Batch Number
96004348

Rerun
0

Sample Weight
N/A

Sample
S96T002140

Instrument Code
CARC2

Operator
RTS

Chemist
RWS

Analyst
PJM

Date Completed
06/04/96

Analysis Date
06/02/96

µg of Carbon/mL = (C1-C2) * DF / SS
µg of Carbon/mL for TIC = 5 if C1 < C2
µg of Carbon/mL for TOC = 40 if C1 < C2

		TIC	TOC
Analysis Time	Method Detection Limit in µg/mL	5	40
Sample Point	µg of Carbon/mL	4.92E+03	3.23E+03
U-107			

Data Entered By:	RTS	Date:	06/04/96
Signature of Chemist:	RW Schwab	Date:	6/5/96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (C-0) LIQUIDS

			TIC	TOC
Type	Sample Size in mL	(SS)	0.1563	0.1563
SAMPLE	Dilution Factor	(DF)	1	1
Work Order	µg of Carbon in Sample	(C1)	775.4	534
8429	µg of Carbon from Baseline	(C2)	6.7	28.9
Analysis				
@TICTOC1				

Matrix
LIQUID

Batch Number
96004348

Run
0

Standard Lot
N/A

Sample
S96T002140

Instrument
CARC2

Procedure
RTS

Chemist
RWS

Analyst
PJM

Date Completed
06/04/96

Analysis Date
06/02/96

µg of Carbon/mL = (C1-C2) * DF / SS
µg of Carbon/mL for TIC = 5 if C1 < C2
µg of Carbon/mL for TOC = 40 if C1 < C2

		TIC	TOC
Analysis Time	Method Detection Limit in µg/mL	5	40
Sample Point	µg of Carbon/mL	4.92E+03	3.23E+03
U-107			

Data Entered By:	RTS	Date:	06/04/96
Signature of Chemist:	RW Schroeder	Date:	6/5/96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (C-0) LIQUIDS

			TIC	TOC
	Sample Size in mL	(SS)	0.1478	0.1478
DUP	Dilution Factor	(DF)	1	1
	µg of Carbon in Sample	(C1)	747.6	506.8
8429	µg of Carbon from Baseline	(C2)	6.7	28.9
	Known µg of C from Original Sample		4.92E+3	3.23E+3
@TICTOC1				

LIQUID

96004348

0

N/A

S96T002140

CARC2

RTS

RWS

PJM

06/04/96

06/02/96

µg of Carbon/mL = (C1-C2) * DF / SS
µg of Carbon/mL for TIC = 5 if C1 < C2
µg of Carbon/mL for TOC = 40 if C1 < C2

RPD (of Sample and Dup Results) = | Difference | / Average

		TIC	TOC
	Method Detection Limit in µg/mL	5	40
	µg of Carbon/mL	5.01E+03	3.23E+03
U-107	RPD (of Sam and Dup Results)	~~1.9%~~ 1.8 RWS 6/5/96	~~0.1%~~ 0.0 RWS 6/5/96

Data Entered By:	RTS	Date:	06/04/96
Signature of Chemist:	RW Schroeder	Date:	6/5/96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (C-0) LIQUIDS

WHC-SD-WM-DP-184, REV. 1

Type	Sample Vial Data		TIC	TOC
SPK	Sample Volume in mL	(SS)	0.1563	0.1563
Vial	Final Coulometer Reading in µg	(C1)	775.4	534
8429	**Spiked Vial Data**			
	Sample Volume in mL	(SPK SS)	0.1425	0.1425
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C3)	1025	777.5
LIQUID	Spike Book Number		22N12B	24N12A
Batch Number	Spike Standard Value in µg/ml		602	3000
96004348	Spike Concentration in µg	(SPK CONC)	301	300

Room
0

Sample Prep
N/A

Sample
S96T002140

Instrument
CARC2

Standard
RTS

Chemist
RWS

Analyst
PJM

Date Completed
06/04/96

Analysis Date
06/02/96

Analysis Time

Sample Point
U-107

Spike Concentration in µg = (Spike Std. Value in µg/mL)*(SPK VOL)

Percent Spike Recovery = (C3) / [(C1/SS * SPK SS) + (SPK CONC)] * 100

QC Actual in µg/mL = Spike Value (µg/mL)
QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100

	TIC	TOC
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	6.12E+02	2.96E+03
Percent Spike Recovery	101.7	98.8

RW Schroeder 6/5/96

WORKBOOK PAGE: SAM6

TIC/TOC : LA-342-100 (C-0) LIQUIDS

			TIC	TOC
Type	Sample Size in mL	(SS)	0.1484	0.1484
SAMPLE	Dilution Factor	(DF)	1	1
Work Order	µg of Carbon in Sample	(C1)	739.9	502.9
8429	µg of Carbon from Baseline	(C2)	6.7	28.9
Instrument				
@TICTOC1				

Matrix
LIQUID

Batch Number
96004348

Dilution
0

Sample Prep
N/A

Sample ID
S96T002141

Instrument Code
CARC2

Data Entered By
RTS

Chemist
RWS

Analyst
PJM

Date Completed
06/04/96

Analysis Date
06/02/96

Analysis Time

Sample Point
U-107

µg of Carbon/mL = (C1-C2) * DF / SS
µg of Carbon/mL for TIC = 5 if C1 < C2
µg of Carbon/mL for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in µg/mL	5	40
µg of Carbon/mL	4.94E+03	3.19E+03

Data Entered By:	RTS	Date:	06/04/96
Signature of Chemist:	RW Schroeder	Date:	6/5/96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP7

TIC/TOC : LA-342-100 (C-0) LIQUIDS

			TIC	TOC
	Sample Size in mL	(SS)	0.1488	0.1488
DUP	Dilution Factor	(DF)	1	1
	µg of Carbon in Sample	(C1)	751.8	505
8429	µg of Carbon from Baseline	(C2)	6.7	28.9
	Known µg of C from Original Sample		4.94E+3	3.19E+3
@TICTOC1				

Matrix
LIQUID

Parent Sample
96004348

µg of Carbon/mL = (C1-C2) * DF / SS
µg of Carbon/mL for TIC = 5 if C1 < C2
µg of Carbon/mL for TOC = 40 if C1 < C2

0

Sample Type
N/A

RPD (of Sample and Dup Results) = | Difference | / Average

Sample
S96T002141

Instrument Code
CARC2

Prepared By
RTS

Chemist
RWS

Analyst
PJM

Date Completed
06/04/96

Analysis Date
06/02/96

		TIC	TOC
Analysis Time	Method Detection Limit in µg/mL	5	40
Sample Point	µg of Carbon/mL	5.01E+03	3.20E+03
U-107	RPD (of Sam and Dup Results)	1.4%	0.3%

Data Entered By:	RTS	Date:	06/04/96
Signature of Chemist:	RW Schroeder	Date:	6/5/96

SAMPLE.WB1 REV 1.0 342100ML

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>> WHC-SD-WM-DP-184, REV. /

Sample: BASE Date: 06/01/96 Time: 19:33:16

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

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	0.60	66.67
3	1.51	1.10	45.45
4	2.01	1.60	31.25
5	2.51	1.90	15.79
6	3.01	2.30	17.39
7	3.51	2.70	14.81
8	4.01	3.00	10.00
9	4.50	3.30	9.09
10	5.00	3.60	8.33
11	5.50	3.90	7.69
12	6.00	4.20	7.14
13	6.50	4.40	4.55
14	7.00	4.70	6.38
15	7.50	4.90	4.08
16	8.00	5.20	5.77
17	8.50	5.40	3.70
18	9.00	5.80	6.90
19	9.50	6.00	3.33
20	10.00	6.30	4.76
21	10.50	6.50	3.08
22	11.00	6.70	2.99

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 968 TO 983

BLANK VALUE = 6.7 micrograms carbon
BLANK FACTOR = 6.7 / 11.00256 = +6.1E-01 ug/min Carbon

Sample Run By: PJ McCown 6/12/96
PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>> WHC-SD-WM-DP-184, REV.

Sample: BASE Date: 06/01/96 Time: 19:47:21

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

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	1.10	81.82
3	1.50	3.10	64.52
4	2.00	7.50	58.67
5	2.50	13.00	42.31
6	3.01	17.30	24.86
7	3.51	20.00	13.50
8	4.00	21.70	7.83
9	4.50	22.80	4.82
10	5.00	23.50	2.98
11	5.50	24.10	2.49
12	6.00	24.70	2.43
13	6.50	25.30	2.37
14	7.00	25.70	1.56
15	7.50	26.10	1.53
16	8.00	26.60	1.88
17	8.50	27.00	1.48
18	9.00	27.40	1.46
19	9.50	27.80	1.44
20	10.00	28.20	1.42
21	10.50	28.50	1.05
22	11.00	28.90	1.38

BLANK VALUE = 28.9 micrograms carbon
BLANK FACTOR = 28.9 / 11.00244 = +2.63E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: 22N12B STD Date: 06/02/96 Time: 01:30:55

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .61 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	8.50	97.65
3	1.51	104.20	91.84
4	2.01	270.20	61.44
5	2.51	411.20	34.29
6	3.01	502.90	18.23
7	3.51	557.70	9.83
8	4.01	587.40	5.06
9	4.50	599.70	2.05
10	5.00	604.00	0.71
11	5.50	605.90	0.31
12	6.00	606.90	0.16
13	6.50	607.60	0.12
14	7.00	608.10	0.08
15	7.50	608.50	0.07
16	8.00	608.80	0.05
17	8.50	609.10	0.05
18	9.00	609.50	0.07
19	9.50	609.80	0.05
20	10.00	610.10	0.05
21	10.50	610.40	0.05
22	11.00	610.80	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 6.711489 micrograms carbon
BLANK FACTOR = 6.711489 / 11.00244 = +6.1E-01 ug/min Carbon

SAMPLE RESULTS:
(610.8 - 6.711522)(1)/(1000) = +6.041E-01 g/L Carbon
(610.8 - 6.711522)(1)/(1000)(12) = +5.034E-02 Molar Carbon

Sample Run By: PJ McCown
PJ MCCOWN 00000

1.0 mL

604.1 / 602 = 100.35%

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: 24N12A STD Date: 06/02/96 Time: 01:45:10

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.63 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.00	1.50	93.33
3	1.50	24.00	93.75
4	2.00	139.10	82.75
5	2.50	347.80	60.01
6	3.00	489.90	29.01
7	3.50	552.40	11.31
8	4.00	577.70	4.38
9	4.50	585.20	1.28
10	5.00	587.80	0.44
11	5.50	589.50	0.29
12	6.00	590.80	0.22
13	6.50	591.80	0.17
14	7.00	593.00	0.20
15	7.50	593.90	0.15
16	8.00	594.70	0.13
17	8.50	595.40	0.12
18	9.00	596.00	0.10
19	9.50	596.60	0.10
20	10.00	597.10	0.08
21	10.50	597.50	0.07
22	11.00	598.00	0.08

USER INPUT BLANK VALUE
BLANK VALUE = 28.93642 micrograms carbon
BLANK FACTOR = 28.93642 / 11.00244 = +2.6E+00 ug/min Carbon

SAMPLE RESULTS:
(598 - 28.9243)(1)/(200) = +2.845E+00 g/L Carbon
(598 - 28.9243)(1)/(200)(12) = +2.371E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.200 mL

$\frac{2845}{3.00E3} = 94.83\%$

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: BLANK Date: 06/02/96 Time: 02:00:43

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .61 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.50	0.00
2	1.01	0.80	37.50
3	1.50	1.50	46.67
4	2.00	2.00	25.00
5	2.50	2.40	16.67
6	3.00	2.90	17.24
7	3.50	3.20	9.37
8	4.00	3.60	11.11
9	4.50	3.90	7.69
10	5.00	4.10	4.88
11	5.50	4.50	8.89
12	6.00	4.70	4.26
13	6.50	5.00	6.00
14	7.00	5.30	5.66
15	7.50	5.70	7.02
16	8.00	5.90	3.39
17	8.50	6.20	4.84
18	9.00	6.50	4.62
19	9.50	6.70	2.99
20	10.00	7.10	5.63
21	10.50	7.30	2.74
22	11.00	7.70	5.19

USER INPUT BLANK VALUE
BLANK VALUE = 6.711489 micrograms carbon
BLANK FACTOR = 6.711489 / 11.00244 = +6.1E-01 ug/min Carbon

SAMPLE RESULTS:
(7.7 - 6.708786)(1)/(1) = +9.9E-01 g/L Carbon
(7.7 - 6.708786)(1)/(1)(12) = +8.3E-02 Molar Carbon

Sample Run By: PJ McCowan
PJ MCCOWN 00000

|7.70 - 6.70| = 1

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: BLANK Date: 06/02/96 Time: 02:13:13

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.63 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	0.90	77.78
3	1.50	2.70	66.67
4	2.00	6.70	59.70
5	2.50	11.00	39.09
6	3.00	13.60	19.12
7	3.50	15.20	10.53
8	4.00	16.10	5.59
9	4.50	16.80	4.17
10	5.00	17.20	2.33
11	5.50	17.70	2.82
12	6.00	18.40	3.80
13	6.50	18.90	2.65
14	7.00	19.60	3.57
15	7.50	20.20	2.97
16	8.00	20.70	2.42
17	8.50	21.20	2.36
18	9.00	21.60	1.85
19	9.50	22.10	2.26
20	10.00	22.50	1.78
21	10.50	22.90	1.75
22	11.00	23.20	1.29

USER INPUT BLANK VALUE
BLANK VALUE = 28.93642 micrograms carbon
BLANK FACTOR = 28.93642 / 11.00244 = +2.6E+00 ug/min Carbon

SAMPLE RESULTS:
(23.2 - 28.93397)(1)/(1) = < 5.00 E-3 g/L Carbon
(23.2 - 28.93397)(1)/(1)(12) = < 4.17 E-4 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

|23.20 − 28.90| = 5.7

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. i

Sample: S96T002140 Date: 06/02/96 Time: 02:28:51

Sample Size = 1 uL .100ml
Dil Factor = 1
Blank ID # =
Blank Value = .61 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	7.20	97.22
3	1.50	121.30	94.06
4	2.00	346.10	64.95
5	2.50	531.50	34.88
6	3.01	633.20	16.06
7	3.50	686.00	7.70
8	4.00	713.80	3.89
9	4.50	728.40	2.00
10	5.00	737.20	1.19
11	5.50	743.70	0.87
12	6.00	749.00	0.71
13	6.50	753.50	0.60
14	7.00	757.40	0.51
15	7.50	760.70	0.43
16	8.00	763.40	0.35
17	8.50	765.90	0.33
18	9.00	768.30	0.31
19	9.50	770.20	0.25
20	10.00	772.10	0.25
21	10.50	773.90	0.23
22	11.00	775.40	0.19

USER INPUT BLANK VALUE
BLANK VALUE = 6.711489 micrograms carbon
BLANK FACTOR = 6.711489 / 11.00244 = +6.1E-01 ug/min Carbon

SAMPLE RESULTS:
(775.4 - 6.710401)(1)/(1) = +7.687E+02 g/L Carbon
(775.4 - 6.710401)(1)/(1)(12) = +6.406E+01 Molar Carbon

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1563g
.100ml

$\frac{768.7}{.100ml} = 7.687E3$

974

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T002140 Date: 06/02/96 Time: 02:41:32

Sample Size = 1 uL .100ml
Dil Factor = 1
Blank ID # =
Blank Value = 2.63 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.70	0.00
2	1.01	7.00	75.71
3	1.51	53.80	86.99
4	2.00	198.30	72.87
5	2.50	362.10	45.24
6	3.00	444.80	18.59
7	3.50	483.20	7.95
8	4.00	500.70	3.50
9	4.50	509.00	1.63
10	5.00	513.90	0.95
11	5.50	517.30	0.66
12	6.00	519.70	0.46
13	6.50	521.70	0.38
14	7.00	523.60	0.36
15	7.50	525.40	0.34
16	8.00	527.10	0.32
17	8.50	528.50	0.26
18	9.00	530.00	0.28
19	9.50	531.00	0.19
20	10.00	532.00	0.19
21	10.50	533.10	0.21
22	11.00	534.00	0.17

USER INPUT BLANK VALUE
BLANK VALUE = 28.93642 micrograms carbon
BLANK FACTOR = 28.93642 / 11.00244 = +2.6E+00 ug/min Carbon

SAMPLE RESULTS:
(534 - 28.92695)(1)/(1) = +5.051E+02 g/L Carbon
(534 - 28.92695)(1)/(1)(12) = +4.209E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1563g
.100mL

$\frac{505.10}{.100\,ml} = 5.051^{E3}$

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T002140DUP Date: 06/02/96 Time: 02:56:33

Sample Size = 1 uL .100ml
Dil Factor = 1
Blank ID # =
Blank Value = .61 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.80	0.00
2	1.01	8.40	90.48
3	1.50	118.90	92.94
4	2.00	327.30	63.67
5	2.50	501.70	34.76
6	3.00	600.80	16.49
7	3.50	653.40	8.05
8	4.00	681.80	4.17
9	4.50	697.00	2.18
10	5.00	706.00	1.27
11	5.50	712.90	0.97
12	6.00	718.40	0.77
13	6.50	723.20	0.66
14	7.00	727.20	0.55
15	7.50	730.80	0.49
16	8.00	734.10	0.45
17	8.50	736.80	0.37
18	9.00	739.30	0.34
19	9.50	741.70	0.32
20	10.00	743.70	0.27
21	10.50	745.60	0.25
22	11.00	747.60	0.27

USER INPUT BLANK VALUE
BLANK VALUE = 6.711489 micrograms carbon
BLANK FACTOR = 6.711489 / 11.00244 = +6.1E-01 ug/min Carbon

SAMPLE RESULTS:
(747.6 - 6.709293)(1)/(1) = +7.409E+02 g/L Carbon
(747.6 - 6.709293)(1)/(1)(12) = +6.174E+01 Molar Carbon

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1478 g
.100 mL

$\frac{740.9}{.100ml} = 7.409^{E3}$

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T002140DUP Date: 06/02/96 Time: 03:09:37

Sample Size = 1 uL .100ml
Dil Factor = 1
Blank ID # =
Blank Value = 2.63 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	2.00	0.00
2	1.01	6.50	69.23
3	1.51	41.80	84.45
4	2.01	150.20	72.17
5	2.51	308.30	51.28
6	3.01	399.50	22.83
7	3.51	444.70	10.16
8	4.01	467.60	4.90
9	4.50	478.00	2.18
10	5.00	484.00	1.24
11	5.50	488.10	0.84
12	6.00	491.50	0.69
13	6.50	493.90	0.49
14	7.00	496.10	0.44
15	7.50	497.90	0.36
16	8.00	499.40	0.30
17	8.50	500.90	0.30
18	9.00	502.30	0.28
19	9.50	503.60	0.26
20	10.00	504.70	0.22
21	10.50	505.80	0.22
22	11.00	506.80	0.20

USER INPUT BLANK VALUE
BLANK VALUE = 28.93642 micrograms carbon
BLANK FACTOR = 28.93642 / 11.00244 = +2.6E+00 ug/min Carbon

SAMPLE RESULTS:
(506.8 - 28.93393)(1)/(1) = +4.779E+02 g/L Carbon
(506.8 - 28.93393)(1)/(1)(12) = +3.982E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1478g
.100mL

$\frac{477.9}{.100ml} = 4.779^{E3}$

977

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. |

Sample: S96T002140SPK Date: 06/02/96 Time: 03:24:52

Sample Size = 1 uL .100ml +
Dil Factor = 1
Blank ID # = .500ml 22N12B
Blank Value = .61 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.30	0.00
2	1.01	10.00	87.00
3	1.51	148.40	93.26
4	2.00	428.50	65.37
5	2.50	671.40	36.18
6	3.00	821.50	18.27
7	3.50	898.50	8.57
8	4.01	940.40	4.46
9	4.50	963.20	2.37
10	5.00	975.30	1.24
11	5.50	983.50	0.83
12	6.00	990.10	0.67
13	6.50	995.80	0.57
14	7.00	1000.50	0.47
15	7.50	1004.90	0.44
16	8.00	1008.60	0.37
17	8.50	1012.30	0.37
18	9.00	1015.20	0.29
19	9.50	1018.00	0.28
20	10.00	1020.60	0.25
21	10.50	1023.00	0.23
22	11.00	1025.00	0.20

USER INPUT BLANK VALUE
BLANK VALUE = 6.711489 micrograms carbon
BLANK FACTOR = 6.711489 / 11.00244 = +6.1E-01 ug/min Carbon

SAMPLE RESULTS:
(1025 - 6.709898)(1)/(1) = +1.0183E+03 g/L Carbon
(1025 - 6.709898)(1)/(1)(12) = +8.4858E+01 Molar Carbon

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1425g
.100mL
+ .500mL 22N12B

$$\frac{1025.00}{\frac{775.40}{.100} \times .100 \times 300} = 95.31\%$$

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV.1

Sample: S96T002140SPK Date: 06/02/96 Time: 04:11:28

Sample Size = 1 uL .100ml +
Dil Factor = 1 .100ml 24N12A
Blank ID # =
Blank Value = 2.63 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	2.60	0.00
2	1.01	6.80	61.76
3	1.51	43.60	84.40
4	2.00	176.20	75.26
5	2.50	435.50	59.54
6	3.00	612.40	28.89
7	3.50	690.10	11.26
8	4.00	727.90	5.19
9	4.50	744.90	2.28
10	5.00	752.20	0.97
11	5.50	756.70	0.59
12	6.00	760.10	0.45
13	6.50	763.10	0.39
14	7.00	765.30	0.29
15	7.50	767.40	0.27
16	8.00	769.10	0.22
17	8.50	770.90	0.23
18	9.00	772.40	0.19
19	9.50	773.90	0.19
20	10.00	775.30	0.18
21	10.50	776.40	0.14
22	11.00	777.50	0.14

USER INPUT BLANK VALUE
BLANK VALUE = 28.93642 micrograms carbon
BLANK FACTOR = 28.93642 / 11.00244 = +2.6E+00 ug/min Carbon

SAMPLE RESULTS:
(777.5 - 28.9296)(1)/(1) = +7.486E+02 g/L Carbon
(777.5 - 28.9296)(1)/(1)(12) = +6.238E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1425g
.100mL
+ .100mL 24N12A

$$\frac{777.50}{\frac{534.00}{.100}} \times .100 + 300 = \frac{777.50}{834} = 93.228$$

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T002141 Date: 06/02/96 Time: 04:25:27

Sample Size = 1 uL .100ml
Dil Factor = 1
Blank ID # =
Blank Value = .61 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.50	0.00
2	1.00	8.50	94.12
3	1.50	117.60	92.77
4	2.00	333.20	64.71
5	2.50	505.30	34.06
6	3.00	598.20	15.53
7	3.50	646.00	7.40
8	4.00	672.50	3.94
9	4.50	686.80	2.08
10	5.00	695.60	1.27
11	5.50	702.40	0.97
12	6.00	708.50	0.86
13	6.50	713.60	0.71
14	7.00	717.70	0.57
15	7.50	721.60	0.54
16	8.00	725.00	0.47
17	8.50	728.00	0.41
18	9.00	730.90	0.40
19	9.50	733.30	0.33
20	10.00	735.70	0.33
21	10.50	738.00	0.31
22	11.00	739.90	0.26

USER INPUT BLANK VALUE
BLANK VALUE = 6.711489 micrograms carbon
BLANK FACTOR = 6.711489 / 11.00244 = +6.1E-01 ug/min Carbon

SAMPLE RESULTS:
(739.9 - 6.709274)(1)/(1) = +7.332E+02 g/L Carbon
(739.9 - 6.709274)(1)/(1)(12) = +6.110E+01 Molar Carbon

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1484g
.100ml

$\frac{733.2}{.100ml} = 7.332$

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T002141 Date: 06/02/96 Time: 04:38:14

Sample Size = 1 uL .100ml
Dil Factor = 1
Blank ID # =
Blank Value = 2.63 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.40	0.00
2	1.01	11.20	87.50
3	1.51	74.00	84.86
4	2.00	228.50	67.61
5	2.50	362.70	37.00
6	3.00	426.60	14.98
7	3.50	458.30	6.92
8	4.00	472.70	3.05
9	4.50	479.20	1.36
10	5.00	483.60	0.91
11	5.50	486.50	0.60
12	6.00	489.00	0.51
13	6.50	491.00	0.41
14	7.00	492.80	0.37
15	7.50	494.30	0.30
16	8.00	495.80	0.30
17	8.50	497.00	0.24
18	9.00	498.40	0.28
19	9.50	499.70	0.26
20	10.00	500.80	0.22
21	10.50	501.90	0.22
22	11.00	502.90	0.20

USER INPUT BLANK VALUE
BLANK VALUE = 28.93642 micrograms carbon
BLANK FACTOR = 28.93642 / 11.00244 = +2.6E+00 ug/min Carbon

SAMPLE RESULTS:
(502.9 - 28.92912)(1)/(1) = +4.740E+02 g/L Carbon
(502.9 - 28.92912)(1)/(1)(12) = +3.950E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1484g
.100ml

$\frac{474.0}{.100ml} = 4.740^{E3}$

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T002141DUP Date: 06/02/96 Time: 04:54:38

Sample Size = 1 uL .100ml
Dil Factor = 1
Blank ID # =
Blank Value = .61 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	1.30	0.00
2	1.01	7.90	83.54
3	1.50	117.40	93.27
4	2.00	329.40	64.36
5	2.50	500.10	34.13
6	3.00	595.40	16.01
7	3.50	647.20	8.00
8	4.00	675.60	4.20
9	4.50	691.60	2.31
10	5.00	701.60	1.43
11	5.50	709.50	1.11
12	6.00	716.10	0.92
13	6.50	721.80	0.79
14	7.00	726.80	0.69
15	7.50	731.30	0.62
16	8.00	735.10	0.52
17	8.50	738.60	0.47
18	9.00	741.80	0.43
19	9.50	744.50	0.36
20	10.00	747.20	0.36
21	10.50	749.50	0.31
22	11.00	751.80	0.31

USER INPUT BLANK VALUE
BLANK VALUE = 6.711489 micrograms carbon
BLANK FACTOR = 6.711489 / 11.00244 = +6.1E-01 ug/min Carbon

SAMPLE RESULTS:
(751.8 - 6.710391)(1)/(1) = +7.451E+02 g/L Carbon
(751.8 - 6.710391)(1)/(1)(12) = +6.209E+01 Molar Carbon

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1488 g
.100 mL

$\frac{745.1}{.100ml} = 7.451^{E3}$

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
WHC-SD-WM-DP-184, REV. 1

Sample: S96T002141DUP Date: 06/02/96 Time: 05:07:50

Sample Size = 1 uL .100ml
Dil Factor = 1
Blank ID # =
Blank Value = 2.63 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	2.70	0.00
2	1.01	6.30	57.14
3	1.50	38.10	83.46
4	2.00	166.70	77.14
5	2.50	329.10	49.35
6	3.00	412.50	20.22
7	3.50	452.90	8.92
8	4.00	471.80	4.01
9	4.50	479.70	1.65
10	5.00	484.00	0.89
11	5.50	487.30	0.68
12	6.00	489.70	0.49
13	6.50	492.00	0.47
14	7.00	494.10	0.43
15	7.50	495.70	0.32
16	8.00	497.30	0.32
17	8.50	498.80	0.30
18	9.00	500.20	0.28
19	9.50	501.50	0.26
20	10.00	502.80	0.26
21	10.50	503.90	0.22
22	11.00	505.00	0.22

USER INPUT BLANK VALUE
BLANK VALUE = 28.93642 micrograms carbon
BLANK FACTOR = 28.93642 / 11.00244 = +2.6E+00 ug/min Carbon

SAMPLE RESULTS:
(505 - 28.93177)(1)/(1) = +4.761E+02 g/L Carbon
(505 - 28.93177)(1)/(1)(12) = +3.967E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.1488g
.100mL

$\frac{476.1}{.100mL} = 4.761^{E3}$
SB3

06/14/96 14:18
A-0004-1

LABCORE Data Entry Template for Worklist# 8950

Analyst: SLH **Instrument:** CARB2 _____ **Book#** _____

Method: LA-342-100 Rev/Mod _____

Worklist Comment: U-107 FOR @TICTOC1 RTS!

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	LIQUID		
2	STD				@TICTOC1	LIQUID		
3	SAMPLE	S96T001121	0		@TICTOC1	LIQUID	96000126	U-107
	Analytes Requested:				TIC-02 , TOC-02			
4	DUP	S96T001121	0		@TICTOC1	LIQUID		
5	TRIPL	S96T001121	0		@TICTOC1	LIQUID		
6	SPK	S96T001121	0		@TICTOC1	LIQUID		
7	SAMPLE	S96T001866	0		@TICTOC1	LIQUID	96000422	U-107
	Analytes Requested:				TIC-02 , TOC-02			
8	DUP	S96T001866	0		@TICTOC1	LIQUID		
9	SAMPLE	S96T003487	0		@TICTOC1	LIQUID	96000085	U-107
	Analytes Requested:				TIC-02 , TOC-02			
10	DUP	S96T003487	0		@TICTOC1	LIQUID		

Final page for worklist # 8950

SEE ATTACHED FOR SIGNATURE
Analyst Signature **Date** 6-14-96

6-14-96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 8950

Analyst: SLH **Instrument:** CARB2 **Book#** TIC 22N12-B
TOC 24N12-A

Method: LA-342-100 Rev/Mod C-0

Worklist Comment: U-107 FOR @TICTOC1 RTS!

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	LIQUID		
2	STD				@TICTOC1	LIQUID		
3	SAMPLE	S96T001121	0		@TICTOC1	LIQUID	96000126	U-107
	Analytes Requested:				TIC-02 , TOC-02			
4	DUP	S96T001121	0		@TICTOC1	LIQUID		
5	SPK	S96T001121	0		@TICTOC1	LIQUID		
6	SAMPLE	S96T001866	0		@TICTOC1	LIQUID	96000422	U-107
	Analytes Requested:				TIC-02 , TOC-02			
7	DUP	S96T001866	0		@TICTOC1	LIQUID		
8	SAMPLE	S96T003487	0		@TICTOC1	LIQUID	96000085	U-107
	Analytes Requested:				TIC-02 , TOC-02			
9	DUP	S96T003487	0		@TICTOC1	LIQUID		

Final page for worklist # 8950

Sandra L Hood Bostrom
Analyst Signature **Date** 6-14-96

Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 8950

Analyst: slh **Instrument:** CARB2 **Book#** _____

Method: LA342-100 Rev/Mod D-0

Worklist Comment: U-107 FOR @TICTOC1 RTS!

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK			0	@TICTOC1 TIC-02	LIQUID	1	6.00E-1	0.600	ug/mL
1	BLNK			0	@TICTOC1 TOC-02	LIQUID	1	7.80E+0	7.800	ug/mL
2	STD			0	@TICTOC1 TIC-02	LIQUID	6.02E+02	6.03E+2	100.166	% Recovery
2	STD			0	@TICTOC1 TOC-02	LIQUID	3.00E+03	2.70E+3	90.000	% Recovery
3	SAMPLE	S96T001121		0	@TICTOC1 TIC-02	LIQUID	N/A	1.96E+02	5.000	ug/mL
3	SAMPLE	S96T001121		0	@TICTOC1 TOC-02	LIQUID	N/A	9.93E+02	40.000	ug/mL
4	DUP	S96T001121		0	@TICTOC1 TIC-02	LIQUID	1.96E+2	2.69E+2	31.398	RPD
4	DUP	S96T001121		0	@TICTOC1 TOC-02	LIQUID	9.93E+2	1.10E+3	10.225	RPD
5	TRIPL	S96T001121		0	@TICTOC1 TIC-02	LIQUID	1.96E+2	2.97E+2	40.974	RPD
5	TRIPL	S96T001121		0	@TICTOC1 TOC-02	LIQUID	9.93E+2	~~<4.00E+1~~ N/A	N/A	RPD RWS 6/17/96
6	SPK	S96T001121		0	@TICTOC1 TIC-02	LIQUID	1.00E+02	1.10E+02	110.000	% Recovery
6	SPK	S96T001121		0	@TICTOC1 TOC-02	LIQUID	1.00E+02	7.00E+01	70.000	% Recovery
7	SAMPLE	S96T001866		0	@TICTOC1 TIC-02	LIQUID	N/A	5.76E+02	5.000	ug/mL
7	SAMPLE	S96T001866		0	@TICTOC1 TOC-02	LIQUID	N/A	8.54E+02	40.000	ug/mL
8	DUP	S96T001866		0	@TICTOC1 TIC-02	LIQUID	5.76E+2	5.82E+2	1.036	RPD
8	DUP	S96T001866		0	@TICTOC1 TOC-02	LIQUID	8.54E+2	1.02E+3	17.716	RPD
9	SAMPLE	S96T003487		0	@TICTOC1 TIC-02	LIQUID	N/A	7.52E+03	5.000	ug/mL
9	SAMPLE	S96T003487		0	@TICTOC1 TOC-02	LIQUID	N/A	4.88E+03	40.000	ug/mL
10	DUP	S96T003487		0	@TICTOC1 TIC-02	LIQUID	7.52E+3	7.19E+3	4.487	RPD
10	DUP	S96T003487		0	@TICTOC1 TOC-02	LIQUID	4.88E+3	4.82E+3	1.237	RPD

Final page for worklist# 8950

6-14-96

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

RW Schroeder 6/17/96

Reviewer Signature **Date**

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

BLANK1	A	B	C	D	E
2	TIC/TOC : LA-342-100 (C-0)	LIQUIDS		TIC	TOC
3		Sample Size in mL	(SS)	0.0000	0.0000
4	BLNK	Dilution Factor	(DF)	1	1
5		µg of Carbon in Sample	(C1)	8	26.2
6	8950	µg of Carbon from Baseline	(C2)	7.4	34
7					
8	@TICTOC1				
9					
10	LIQUID				
11					
12	96004948				
13		µg of Carbon = |C1-C2|			
14	0				
15					
16	N/A				
17					
18	BLANK				
19					
20	CARB2				
21					
22	RCJ				
23					
24	RWS				
25					
26	SLH				
27					
28	06/14/96				
29					
30	06/14/96			TIC	TOC
31		Method Detection Limit in µg/mL		5	40
32	05:00 AM				
33		µg of Carbon		6.00E-01	7.80E+00
34	U-107				
35					
36					
37					
38					
39					
40					
41	Data Entered By:		RCJ	Date:	06/14/96
42	Signature of Chemist:			Date:	
43	BLANK.WB1 REV 1.0	342100ML			
44					
45					
46					

Dan Schmidt 6/17/96

STD2	A	B	C	D	E
2	TIC/TOC : LA-342-100 (C-0)	LIQUIDS		TIC	TOC
3		Sample Size in mL	(SS)	1.0000	0.2000
4	STD	Dilution Factor	(DF)	1	1
5		Final Coulometer Reading in µg	(C1)	610.3	573.7
6	8950	µg of Carbon from Baseline	(C2)	7.4	34
7		Standard Book Number		22N12B	24N12A
8	@TICTOC1	Standard Value (µg/ml)		602	3000
9					
10	LIQUID				
11					
12	96004948				
13					
14	0	QC Actual in µg/mL = Standard Value (µg/mL)			
15		QC Found in µg/mL = (C1 - C2) * DF / SS			
16	N/A	QC Found in µg/mL for TIC = 5 if C1 < C2			
17		QC Found in µg/mL for TOC = 40 if C1 < C2			
18	STANDARD				
19		% Recovery = QC Found / QC Actual * 100			
20	CARB2				
21					
22	RCJ				
23					
24	RWS				
25					
26	SLH				
27					
28	06/14/96				
29					
30	06/14/96			TIC	TOC
31		Method Detection Limit in µg/mL		5	40
32	05:00 AM	QC Actual in µg/mL		6.02E+02	3.00E+03
33		QC Found in µg/mL		6.03E+02	2.70E+03
34	U-107	Percent Standard Recovery		100.1	90.0
35					
36					
37					
38					
39					
40					
41	Data Entered By:		RCJ	Date:	06/14/96
42	Signature of Chemist:			Date:	
43	STANDARD.WB1 REV 1.0	342100ML			
44					
45					
46					

RW Schroeck 6/17/96

SAM3

	A	B	C	D	E
2	TIC/TOC : LA-342-100 (C-0)	LIQUIDS		TIC	TOC
3		Sample Size in mL	(SS)	0.5000	0.5000
4	SAMPLE	Dilution Factor	(DF)	1	1
5		µg of Carbon in Sample	(C1)	105.6	530.7
6	8950	µg of Carbon from Baseline	(C2)	7.4	34
7					
8	@TICTOC1				
9					
10	LIQUID				
11					
12	96004948				
13		µg of Carbon/mL = (C1-C2) * DF / SS			
14	0	µg of Carbon/mL for TIC = 5 if C1 < C2			
15		µg of Carbon/mL for TOC = 40 if C1 < C2			
16	N/A				
17					
18	S96T001121				
19					
20	CARB2				
21					
22	RCJ				
23					
24	RWS				
25					
26	SLH				
27					
28	06/14/96				
29					
30	06/14/96			TIC	TOC
31		Method Detection Limit in µg/mL		5	40
32	05:00 AM				
33		µg of Carbon/mL		1.96E+02	9.93E+02
34	U-107				
35					
36					
37					
38					
39					
40					
41	Data Entered By:		RCJ	Date:	06/14/96
42	Signature of Chemist:			Date:	
43	SAMPLE.WB1 REV 1.0	342100ML			
44					
45					
46					

RW Schmeeh 6/17/96

DUP4	A	B	C	D	E
2	TIC/TOC : LA-342-100 (C-0)	LIQUIDS		TIC	TOC
3		Sample Size in mL	(SS)	0.5000	0.5000
4	DUP	Dilution Factor	(DF)	1	1
5		µg of Carbon in Sample	(C1)	142.1	584.5
6	8950	µg of Carbon from Baseline	(C2)	7.4	34
7		Known µg of C from Original Sample		1.96E+2	9.93E+2
8	@TICTOC1				
9					
10	LIQUID				
11					
12	96004948				
13		µg of Carbon/mL = (C1-C2) * DF / SS			
14	0	µg of Carbon/mL for TIC = 5 if C1 < C2			
15		µg of Carbon/mL for TOC = 40 if C1 < C2			
16	N/A				
17					
18	S96T001121				
19					
20	CARB2				
21					
22	RCJ				
23					
24	RWS				
25					
26	SLH				
27					
28	06/14/96				
29					
30	06/14/96			TIC	TOC
31	Analysis Time	Method Detection Limit in µg/mL		5	40
32	05:00 AM				
33	Sample Prep Time	µg of Carbon/mL		2.69E+02	1.10E+03
34	U-107				
35					
36					
37					
38					
39					
40					
41	Data Entered By:		RCJ	Date:	06/14/96
42	Signature of Chemist:			Date:	
43	SAMPLE.WB1 REV 1.0	342100ML			
44					
45					
46					

RW Schwede 6/17/96

TRIPL5	A	B	C	D	E
2	TIC/TOC : LA-342-100 (C-0)	LIQUIDS		TIC	TOC
3		Sample Size in mL	(SS)	0.5000	N\A
4	TRIPL	Dilution Factor	(DF)	1	1
5		µg of Carbon in Sample	(C1)	156	N\A
6	8950	µg of Carbon from Baseline	(C2)	7.4	34
7		Known µg of C from Original Sample		1.96E+2	9.93E+2
8	@TICTOC1	Duplicate Result		2.69E+2	1.10E+3
9					
10	LIQUID				
11					
12	96004948				
13		µg of Carbon/mL = (C1-C2) * DF / SS			
14	0	µg of Carbon/mL for TIC = 5 if C1 < C2			
15		µg of Carbon/mL for TOC = 40 if C1 < C2			
16	N/A				
17					
18	S96T001121				
19					
20	CARB2				
21					
22	RCJ				
23					
24	RWS				
25					
26	SLH				
27					
28	06/14/96				
29		NOTE: FOR TOC: The Reported Result is	<	40.	
30	06/14/96			TIC	TOC
31		Method Detection Limit in µg/mL		5	40
32	05:00 AM				
33		µg of Carbon/mL Note:	<	2.97E+02	4.00E+01
34	U-107				
35					
36					
37					
38					
39					
40					
41	Data Entered By:		RCJ	Date:	06/14/96
42	Signature of Chemist:			Date:	
43	SAMPLE.WB1 REV 1.0	342100ML			
44					
45					
46					

RW Schmoeckl 6/17/96

SPIKE6

TIC/TOC : LA-342-100 (C-0) LIQUIDS

3		Sample Vial Data		TIC	TOC
4	SPK	Sample Volume in mL	(SS)	0.5000	0.5000
5		Final Coulometer Reading in µg	(C1)	105.6	530.7
6	8950	Spiked Vial Data			
7		Sample Volume in mL	(SPK SS)	0.5000	0.5000
8	@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.200
9		Final Coulometer Reading in µg	(C3)	445.9	791.2
10	LIQUID	Spike Book Number		22N12B	24N12A
11		Spike Standard Value in µg/ml		602	3000
12	96004948	Spike Concentration in µg	(SPK CONC)	301	600

13
14 0
15 Spike Concentration in µg = (Spike Std. Value in µg/mL)*(SPK VOL)
16 N/A
17 Percent Spike Recovery = (C3) / [(C1/SS * SPK SS) + (SPK CONC)] * 100
18 S96T001121
19 QC Actual in µg/mL = Spike Value (µg/mL)
20 CARB2 QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100
21
22 RCJ
23
24 RWS
25
26 SLH
27
28 06/14/96
29
30 06/14/96

			TIC	TOC
31			TIC	TOC
32	05:00 AM	QC Actual in µg/mL	6.02E+02	3.00E+03
33		QC Found in µg/mL	6.60E+02	2.10E+03
34	U-107	Percent Spike Recovery	109.7	70.0

35
36
37
38
39
40

41	Data Entered By:	RCJ	Date:	06/14/96
42	Signature of Chemist:		Date:	

43 SPIKE.WB1 REV 1.0 342100ML

RW Schwedt 6/17/96

44
45
46

SAM7

	A	B	C	D	E
2	TIC/TOC : LA-342-100 (C-0)	LIQUIDS		TIC	TOC
3		Sample Size in mL	(SS)	0.5000	0.5000
4	SAMPLE	Dilution Factor	(DF)	1	1
5		µg of Carbon in Sample	(C1)	295.2	461.1
6	8950	µg of Carbon from Baseline	(C2)	7.4	34
7					
8	@TICTOC1				
9					
10	LIQUID				
11					
12	96004948				
13		µg of Carbon/mL = (C1-C2) * DF / SS			
14	0	µg of Carbon/mL for TIC = 5 if C1 < C2			
15		µg of Carbon/mL for TOC = 40 if C1 < C2			
16	N/A				
17					
18	S96T001866				
19					
20	CARB2				
21					
22	RCJ				
23					
24	RWS				
25					
26	SLH				
27					
28	06/14/96				
29					
30	06/14/96			TIC	TOC
31	Analysis	Method Detection Limit in µg/mL		5	40
32	05:00 AM				
33	Sample Point	µg of Carbon/mL		5.76E+02	8.54E+02
34	U-107				
35					
36					
37					
38					
39					
40					
41	Data Entered By:		RCJ	Date:	06/14/96
42	Signature of Chemist:			Date:	
43	SAMPLE.WB1 REV 1.0	342100ML			
44					
45					
46					

RW Schroeder 6/17/96

DUP8	A	B	C	D	E
2	TIC/TOC : LA-342-100 (C-0)	LIQUIDS		TIC	TOC
3		Sample Size in mL	(SS)	0.5000	0.5000
4	DUP	Dilution Factor	(DF)	1	1
5		µg of Carbon in Sample	(C1)	298.6	541.5
6	8950	µg of Carbon from Baseline	(C2)	7.4	34
7		Known µg of C from Original Sample		5.76E+2	8.54E+2
8	@TICTOC1				
9					
10	LIQUID				
11					
12	96004948				
13		µg of Carbon/mL = (C1-C2) * DF / SS			
14	0	µg of Carbon/mL for TIC = 5 if C1 < C2			
15		µg of Carbon/mL for TOC = 40 if C1 < C2			
16	N/A				
17					
18	S96T001866				
19					
20	CARB2				
21					
22	RCJ				
23					
24	RWS				
25					
26	SLH				
27					
28	06/14/96				
29					
30	06/14/96			TIC	TOC
31	Analysis Time	Method Detection Limit in µg/mL		5	40
32	05:00 AM				
33	Sample Point	µg of Carbon/mL		5.82E+02	1.02E+03
34	U-107				
35					
36					
37					
38					
39					
40					
41	Data Entered By:		RCJ	Date:	06/14/96
42	Signature of Chemist:			Date:	
43	SAMPLE.WB1 REV 1.0	342100ML			
44					
45					
46					

RW Schroeder 6/17/96

SAM9	A	B	C	D	E
2	TIC/TOC : LA-342-100 (C-0)	LIQUIDS		TIC	TOC
3		Sample Size in mL	(SS)	0.1000	0.1000
4	SAMPLE	Dilution Factor	(DF)	1	1
5		µg of Carbon in Sample	(C1)	759.2	522.1
6	8950	µg of Carbon from Baseline	(C2)	7.4	34
7					
8	@TICTOC1				
9					
10	LIQUID				
11					
12	96004948				
13		µg of Carbon/mL = (C1-C2) * DF / SS			
14	0	µg of Carbon/mL for TIC = 5 if C1 < C2			
15		µg of Carbon/mL for TOC = 40 if C1 < C2			
16	N/A				
17					
18	S96T003487				
19					
20	CARB2				
21					
22	RCJ				
23					
24	RWS				
25					
26	SLH				
27					
28	06/14/96				
29					
30	06/14/96			TIC	TOC
31	Analyzed Time	Method Detection Limit in µg/mL		5	40
32	05:00 AM				
33	Sample Point	µg of Carbon/mL		7.52E+03	4.88E+03
34	U-107				
35					
36					
37					
38					
39					
40					
41	Data Entered By:		RCJ	Date:	06/14/96
42	Signature of Chemist:			Date:	
43	SAMPLE.WB1 REV 1.0	342100ML			
44					
45					
46					

DW Schroeder 6/17/96

DUP10	A	B	C	D	E
2	TIC/TOC : LA-342-100 (C-0)	LIQUIDS		TIC	TOC
3		Sample Size in mL	(SS)	0.1000	0.1000
4	DUP	Dilution Factor	(DF)	1	1
5		µg of Carbon in Sample	(C1)	726.2	515.6
6	8950	µg of Carbon from Baseline	(C2)	7.4	34
7		Known µg of C from Original Sample		7.52E+3	4.88E+3
8	@TICTOC1				
9					
10	LIQUID				
11					
12	96004948				
13		µg of Carbon/mL = (C1-C2) * DF / SS			
14	0	µg of Carbon/mL for TIC = 5 if C1 < C2			
15		µg of Carbon/mL for TOC = 40 if C1 < C2			
16	N/A				
17					
18	S96T003487				
19					
20	CARB2				
21					
22	RCJ				
23					
24	RWS				
25					
26	SLH				
27					
28	06/14/96				
29					
30	06/14/96			TIC	TOC
31		Method Detection Limit in µg/mL		5	40
32	05:00 AM				
33		µg of Carbon/mL		7.19E+03	4.82E+03
34	U-107				
35					
36					
37					
38					
39					
40					
41	Data Entered By:		RCJ	Date:	06/14/96
42	Signature of Chemist:			Date:	
43	SAMPLE.WB1 REV 1.0	342100ML			
44					
45					
46					

RW Schroeder 6/17/96

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: STD Date: 06/13/96 Time: 22:02:55

Sample Size = 1 uL 1000
Dil Factor = 1
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	35.20	99.43
3	1.50	189.30	81.41
4	2.00	358.90	47.26
5	2.50	478.00	24.92
6	3.00	548.60	12.87
7	3.50	584.60	6.16
8	4.00	598.70	2.36
9	4.50	603.90	0.86
10	5.00	605.70	0.30
11	5.50	606.60	0.15
12	6.00	607.20	0.10
13	6.50	607.60	0.07
14	7.00	608.00	0.07
15	7.50	608.30	0.05
16	8.00	608.60	0.05
17	8.50	609.00	0.07
18	9.00	609.30	0.05
19	9.50	609.50	0.03
20	10.00	609.80	0.05
21	10.50	610.00	0.03
22	11.00	610.30	0.05

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 997 TO 1017

USER INPUT BLANK VALUE
BLANK VALUE = 7.370409 micrograms carbon
BLANK FACTOR = 7.370409 / 11.00061 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(610.3 - 7.370982)(1)/(1) = +6.029E+02 g/L Carbon
(610.3 - 7.370982)(1)/(1)(12) = +5.024E+01 Molar Carbon

Sample Run By: S L Hood Bartright
SL HOOD 00000
6-14-96

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>> WHC-SD-WM-DP-184, REV.

Sample: BASE Date: 06/13/96 Time: 21:31:40

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

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	1.10	72.73
3	1.50	1.90	42.11
4	2.00	2.50	24.00
5	2.50	2.90	13.79
6	3.00	3.30	12.12
7	3.50	3.60	8.33
8	4.00	3.80	5.26
9	4.50	4.10	7.32
10	5.00	4.40	6.82
11	5.50	4.80	8.33
12	6.00	4.90	2.04
13	6.50	5.20	5.77
14	7.00	5.40	3.70
15	7.50	5.70	5.26
16	8.00	5.90	3.39
17	8.50	6.20	4.84
18	9.00	6.40	3.13
19	9.50	6.70	4.48
20	10.00	7.00	4.29
21	10.50	7.30	4.11
22	11.00	7.40	1.35

BLANK VALUE = 7.4 micrograms carbon
BLANK FACTOR = 7.4 / 10.9978 = +6.7E-01 ug/min Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: BLK Date: 06/13/96 Time: 22:32:09

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	1.90	89.47
3	1.51	2.80	32.14
4	2.00	3.50	20.00
5	2.50	4.00	12.50
6	3.00	4.30	6.98
7	3.50	4.60	6.52
8	4.00	4.80	4.17
9	4.50	5.10	5.88
10	5.00	5.20	1.92
11	5.50	5.50	5.45
12	6.00	5.70	3.51
13	6.50	6.00	5.00
14	7.00	6.20	3.23
15	7.50	6.40	3.13
16	8.00	6.60	3.03
17	8.50	6.90	4.35
18	9.00	7.10	2.82
19	9.50	7.30	2.74
20	10.00	7.50	2.67
21	10.50	7.70	2.60
22	11.00	8.00	3.75

USER INPUT BLANK VALUE
BLANK VALUE = 7.370409 micrograms carbon
BLANK FACTOR = 7.370409 / 11.00061 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(8 - 7.369837)(1)/(1) = +6.3E-01 g/L Carbon
(8 - 7.369837)(1)/(1)(12) = +5.3E-02 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T001121 Date: 06/13/96 Time: 22:57:37

Sample Size = 1 uL .500ml
Dil Factor = 1 .5224g
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	5.70	96.49
3	1.50	27.10	78.97
4	2.00	46.90	42.22
5	2.50	60.40	22.35
6	3.00	68.50	11.82
7	3.50	74.10	7.56
8	4.00	78.50	5.61
9	4.50	82.30	4.62
10	5.00	85.80	4.08
11	5.50	88.80	3.38
12	6.00	91.40	2.84
13	6.50	93.70	2.45
14	7.00	95.70	2.09
15	7.50	97.40	1.75
16	8.00	99.00	1.62
17	8.50	100.30	1.30
18	9.00	101.50	1.18
19	9.50	102.80	1.26
20	10.00	103.80	0.96
21	10.50	104.70	0.86
22	11.00	105.60	0.85

USER INPUT BLANK VALUE
BLANK VALUE = 7.370409 micrograms carbon
BLANK FACTOR = 7.370409 / 11.00061 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(105.6 - 7.369673)(1)/(1) = +9.823E+01 g/L Carbon
(105.6 - 7.369673)(1)/(1)(12) = +8.186E+00 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0 **WHC-SD-WM-DP-184, REV. 1**

Sample: S96T01121 DUP Date: 06/13/96 Time: 23:23:09

Sample Size = 1 uL .500ml
Dil Factor = 1 .5236g
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	2.40	0.00
2	1.01	10.50	77.14
3	1.51	35.90	70.75
4	2.01	60.00	40.17
5	2.51	75.20	20.21
6	3.01	84.70	11.22
7	3.50	91.80	7.73
8	4.01	97.80	6.13
9	4.50	103.20	5.23
10	5.00	108.20	4.62
11	5.50	112.60	3.91
12	6.00	116.60	3.43
13	6.50	120.10	2.91
14	7.00	123.40	2.67
15	7.50	126.40	2.37
16	8.00	129.10	2.09
17	8.50	131.70	1.97
18	9.00	134.10	1.79
19	9.50	136.30	1.61
20	10.00	138.30	1.45
21	10.50	140.20	1.36
22	11.00	142.10	1.34

USER INPUT BLANK VALUE
BLANK VALUE = 7.370409 micrograms carbon
BLANK FACTOR = 7.370409 / 11.00061 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(142.1 - 7.371145)(1)/(1) = +1.347E+02 g/L Carbon
(142.1 - 7.371145)(1)/(1)(12) = +1.123E+01 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0 **WHC-SD-WM-DP-184, REV. 1**

Sample: S96T01121 TRP Date: 06/14/96 Time: 01:29:31

Sample Size = 1 uL .500 ml
Dil Factor = 1 .5184g
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	3.00	0.00
2	1.01	13.90	78.42
3	1.51	43.00	67.67
4	2.00	67.20	36.01
5	2.51	82.20	18.25
6	3.00	91.80	10.46
7	3.50	99.10	7.37
8	4.00	105.30	5.89
9	4.50	111.10	5.22
10	5.00	116.60	4.72
11	5.50	121.50	4.03
12	6.00	125.90	3.49
13	6.50	130.00	3.15
14	7.00	133.80	2.84
15	7.50	137.30	2.55
16	8.00	140.60	2.35
17	8.50	143.50	2.02
18	9.00	146.30	1.91
19	9.50	148.90	1.75
20	10.00	151.40	1.65
21	10.50	153.70	1.50
22	11.00	156.00	1.47

USER INPUT BLANK VALUE
BLANK VALUE = 7.370409 micrograms carbon
BLANK FACTOR = 7.370409 / 11.00061 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(156 - 7.371117)(1)/(1) = +1.486E+02 g/L Carbon
(156 - 7.371117)(1)/(1)(12) = +1.239E+01 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T01221 SPK Date: 06/13/96 Time: 23:50:16

Sample Size = 1 uL .500 ml
Dil Factor = 1 .5215g
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	3.00	0.00
2	1.01	33.40	91.02
3	1.50	152.40	78.08
4	2.00	263.80	42.23
5	2.50	330.30	20.13
6	3.00	368.00	10.24
7	3.50	386.20	4.71
8	4.00	395.30	2.30
9	4.50	401.80	1.62
10	5.00	407.40	1.37
11	5.50	412.30	1.19
12	6.00	416.70	1.06
13	6.50	420.70	0.95
14	7.00	424.50	0.90
15	7.50	427.80	0.77
16	8.00	431.00	0.74
17	8.50	433.90	0.67
18	9.00	436.70	0.64
19	9.50	439.20	0.57
20	10.00	441.50	0.52
21	10.50	443.80	0.52
22	11.00	445.90	0.47

USER INPUT BLANK VALUE
BLANK VALUE = 7.370409 micrograms carbon
BLANK FACTOR = 7.370409 / 11.00061 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(445.9 - 7.370491)(1)/(1) = +4.385E+02 g/L Carbon
(445.9 - 7.370491)(1)/(1)(12) = +3.654E+01 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T001866 Date: 06/14/96 Time: 01:45:19

Sample Size = 1 uL .500 mL
Dil Factor = 1 .51569
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.60	0.00
2	1.01	18.90	96.83
3	1.50	81.50	76.81
4	2.00	152.50	46.56
5	2.50	208.40	26.82
6	3.00	245.40	15.08
7	3.50	265.70	7.64
8	4.00	274.30	3.14
9	4.50	278.30	1.44
10	5.00	280.80	0.89
11	5.50	282.70	0.67
12	6.00	284.40	0.60
13	6.50	285.70	0.46
14	7.00	287.10	0.49
15	7.50	288.30	0.42
16	8.00	289.60	0.45
17	8.50	290.60	0.34
18	9.00	291.60	0.34
19	9.50	292.60	0.34
20	10.00	293.40	0.27
21	10.50	294.30	0.31
22	11.00	295.20	0.30

USER INPUT BLANK VALUE
BLANK VALUE = 7.370409 micrograms carbon
BLANK FACTOR = 7.370409 / 11.00061 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(295.2 - 7.369883)(1)/(1) = +2.878E+02 g/L Carbon
(295.2 - 7.369883)(1)/(1)(12) = +2.399E+01 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T01866 DUP Date: 06/14/96 Time: 02:10:13

Sample Size = 1 uL .500ml
Dil Factor = 1 .5119g
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.70	0.00
2	1.01	16.70	95.81
3	1.51	68.60	75.66
4	2.01	136.70	49.82
5	2.51	197.00	30.61
6	3.01	238.90	17.54
7	3.51	262.70	9.06
8	4.00	274.40	4.26
9	4.50	279.70	1.89
10	5.00	282.80	1.10
11	5.50	285.00	0.77
12	6.00	286.90	0.66
13	6.50	288.40	0.52
14	7.00	289.90	0.52
15	7.50	291.20	0.45
16	8.00	292.40	0.41
17	8.50	293.60	0.41
18	9.00	294.70	0.37
19	9.50	295.70	0.34
20	10.00	296.70	0.34
21	10.50	297.70	0.34
22	11.00	298.60	0.30

USER INPUT BLANK VALUE
BLANK VALUE = 7.370409 micrograms carbon
BLANK FACTOR = 7.370409 / 11.00061 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(298.6 - 7.371007)(1)/(1) = +2.912E+02 g/L Carbon
(298.6 - 7.371007)(1)/(1)(12) = +2.427E+01 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. (

Sample: S96T03487 Date: 06/14/96 Time: 02:55:21

Sample Size = 1 uL .100ml
Dil Factor = 1 .1432g
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	4.10	0.00
2	1.01	46.70	91.22
3	1.50	229.50	79.65
4	2.00	424.40	45.92
5	2.50	544.50	22.06
6	3.00	611.40	10.94
7	3.50	650.30	5.98
8	4.00	673.80	3.49
9	4.50	688.00	2.06
10	5.00	698.70	1.53
11	5.50	707.70	1.27
12	6.00	715.50	1.09
13	6.50	722.20	0.93
14	7.00	728.00	0.80
15	7.50	733.30	0.72
16	8.00	738.00	0.64
17	8.50	742.20	0.57
18	9.00	746.20	0.54
19	9.50	749.80	0.48
20	10.00	753.10	0.44
21	10.50	756.30	0.42
22	11.00	759.20	0.38

USER INPUT BLANK VALUE
BLANK VALUE = 7.370409 micrograms carbon
BLANK FACTOR = 7.370409 / 11.00061 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(759.2 - 7.369223)(1)/(1) = +7.518E+02 g/L Carbon
(759.2 - 7.369223)(1)/(1)(12) = +6.265E+01 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: S96T03487 DUP Date: 06/14/96 Time: 04:39:39

Sample Size = 1 uL .100 ml
Dil Factor = 1 .1429
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.70	0.00
2	1.01	40.60	98.28
3	1.51	217.90	81.37
4	2.00	409.00	46.72
5	2.50	527.20	22.42
6	3.00	591.70	10.90
7	3.50	629.50	6.00
8	4.00	651.20	3.33
9	4.50	663.80	1.90
10	5.00	673.00	1.37
11	5.50	680.90	1.16
12	6.00	687.40	0.95
13	6.50	693.40	0.87
14	7.00	698.60	0.74
15	7.50	703.30	0.67
16	8.00	707.50	0.59
17	8.50	711.30	0.53
18	9.00	714.90	0.50
19	9.50	717.80	0.40
20	10.00	720.80	0.42
21	10.50	723.80	0.41
22	11.00	726.20	0.33

USER INPUT BLANK VALUE
BLANK VALUE = 7.370409 micrograms carbon
BLANK FACTOR = 7.370409 / 11.00061 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(726.2 - 7.369223)(1)/(1) = +7.188E+02 g/L Carbon
(726.2 - 7.369223)(1)/(1)(12) = +5.990E+01 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>> WHC-SD-WM-DP-184, REV. 1

Sample: BASE Date: 06/13/96 Time: 21:45:52

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

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.00	5.30	96.23
3	1.50	15.90	66.67
4	2.00	23.20	31.47
5	2.50	26.30	11.79
6	3.00	27.80	5.40
7	3.50	28.70	3.14
8	4.00	29.30	2.05
9	4.50	29.80	1.68
10	5.00	30.20	1.32
11	5.50	30.60	1.31
12	6.00	31.00	1.29
13	6.50	31.40	1.27
14	7.00	31.70	0.95
15	7.50	31.90	0.63
16	8.00	32.20	0.93
17	8.50	32.60	1.23
18	9.00	32.90	0.91
19	9.50	33.20	0.90
20	10.00	33.50	0.90
21	10.50	33.70	0.59
22	11.00	34.00	0.88

BLANK VALUE = 34 micrograms carbon
BLANK FACTOR = 34 / 11.00061 = +3.09E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: STD Date: 06/13/96 Time: 22:20:17

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.09 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.60	0.00
2	1.00	36.80	98.37
3	1.50	205.80	82.12
4	2.00	415.60	50.48
5	2.50	512.50	18.91
6	3.00	550.60	6.92
7	3.50	562.30	2.08
8	4.00	565.60	0.58
9	4.50	567.10	0.26
10	5.00	568.10	0.18
11	5.50	568.70	0.11
12	6.00	569.30	0.11
13	6.50	569.70	0.07
14	7.00	570.50	0.14
15	7.50	571.10	0.11
16	8.00	571.60	0.09
17	8.50	572.10	0.09
18	9.00	572.40	0.05
19	9.50	572.70	0.05
20	10.00	573.00	0.05
21	10.50	573.30	0.05
22	11.00	573.70	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 33.99189 micrograms carbon
BLANK FACTOR = 33.99189 / 11.00061 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(573.7 - 33.99151)(1)/(200) = +2.699E+00 g/L Carbon
(573.7 - 33.99151)(1)/(200)(12) = +2.249E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: Sylford Bustrgut
SL HOOD 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK Date: 06/13/96 Time: 22:45:36

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.09 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	2.50	92.00
3	1.51	9.30	73.12
4	2.01	15.00	38.00
5	2.50	17.80	15.73
6	3.01	19.30	7.77
7	3.51	20.20	4.46
8	4.00	20.70	2.42
9	4.50	21.30	2.82
10	5.00	21.70	1.84
11	5.50	22.10	1.81
12	6.00	22.50	1.78
13	6.50	22.90	1.75
14	7.00	23.50	2.55
15	7.50	24.10	2.49
16	8.00	24.40	1.23
17	8.50	24.80	1.61
18	9.00	25.00	0.80
19	9.50	25.30	1.19
20	10.00	25.70	1.56
21	10.50	25.90	0.77
22	11.00	26.20	1.15

USER INPUT BLANK VALUE
BLANK VALUE = 33.99189 micrograms carbon
BLANK FACTOR = 33.99189 / 11.00061 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(26.2 - 33.98962)(1)/(1) = < 5.00 E-3 g/L Carbon
(26.2 - 33.98962)(1)/(1)(12) = < 4.17 E-4 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001121 Date: 06/13/96 Time: 23:10:58

Sample Size = 1 uL .500ml
Dil Factor = 1 .5224g
Blank ID # =
Blank Value = 3.09 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.00	0.00
2	1.01	13.10	92.37
3	1.51	74.90	82.51
4	2.00	205.10	63.48
5	2.50	323.20	36.54
6	3.00	382.20	15.44
7	3.50	417.30	8.41
8	4.00	438.70	4.88
9	4.50	453.60	3.28
10	5.00	465.90	2.64
11	5.50	475.30	1.98
12	6.00	483.70	1.74
13	6.50	490.60	1.41
14	7.00	497.00	1.29
15	7.50	502.70	1.13
16	8.00	507.90	1.02
17	8.50	512.50	0.90
18	9.00	516.90	0.85
19	9.50	520.70	0.73
20	10.00	524.50	0.72
21	10.50	527.70	0.61
22	11.00	530.70	0.57

USER INPUT BLANK VALUE
BLANK VALUE = 33.99189 micrograms carbon
BLANK FACTOR = 33.99189 / 11.00061 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(530.7 - 33.98623)(1)/(1) = +4.967E+02 g/L Carbon
(530.7 - 33.98623)(1)/(1)(12) = +4.139E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T01121 DUP Date: 06/13/96 Time: 23:38:33

Sample Size = 1 uL .500 mL
Dil Factor = 1 .5236g
Blank ID # =
Blank Value = 3.09 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.90	0.00
2	1.01	13.80	86.23
3	1.51	67.10	79.43
4	2.00	169.20	60.34
5	2.50	298.30	43.28
6	3.00	378.10	21.11
7	3.50	421.00	10.19
8	4.00	450.70	6.59
9	4.50	473.50	4.82
10	5.00	490.60	3.49
11	5.50	503.70	2.60
12	6.00	516.10	2.40
13	6.50	525.80	1.84
14	7.00	534.80	1.68
15	7.50	543.10	1.53
16	8.00	550.60	1.36
17	8.50	557.80	1.29
18	9.00	564.20	1.13
19	9.50	569.80	0.98
20	10.00	575.50	0.99
21	10.50	580.30	0.83
22	11.00	584.50	0.72

USER INPUT BLANK VALUE
BLANK VALUE = 33.99189 micrograms carbon
BLANK FACTOR = 33.99189 / 11.00061 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(584.5 - 33.98887)(1)/(1) = +5.505E+02 g/L Carbon
(584.5 - 33.98887)(1)/(1)(12) = +4.588E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T01121 SPK Date: 06/14/96 Time: 00:02:35

Sample Size = 1 uL .500
Dil Factor = 1 .5215g
Blank ID # =
Blank Value = 3.09 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	2.10	0.00
2	1.01	13.10	83.97
3	1.51	59.90	78.13
4	2.00	172.30	65.24
5	2.50	399.70	56.89
6	3.00	561.60	28.83
7	3.50	632.20	11.17
8	4.00	671.60	5.87
9	4.50	694.60	3.31
10	5.00	711.20	2.33
11	5.50	723.90	1.75
12	6.00	733.10	1.25
13	6.50	741.80	1.17
14	7.00	749.10	0.97
15	7.50	756.50	0.98
16	8.00	762.90	0.84
17	%-1431.50	769.40	0.84
18	%-1431.00	774.50	0.66
19	%-1430.50	779.20	0.60
20	%-1430.00	783.50	0.55
21	%-1429.50	787.50	0.51
22	%-1429.00	791.20	0.47

USER INPUT BLANK VALUE
BLANK VALUE = 33.99189 micrograms carbon
BLANK FACTOR = 33.99189 / 11.00061 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(791.2 --4415.611)(1)/(1) = +5.207E+03 g/L Carbon
(791.2 --4415.611)(1)/(1)(12) = +4.339E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T01866 Date: 06/14/96 Time: 01:57:53

Sample Size = 1 uL .500ml
Dil Factor = 1 .5156g
Blank ID # =
Blank Value = 3.09 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.80	0.00
2	1.01	57.60	98.61
3	1.50	234.00	75.38
4	2.00	357.50	34.55
5	2.50	409.10	12.61
6	3.00	431.10	5.10
7	3.50	439.10	1.82
8	4.00	443.00	0.88
9	4.50	445.80	0.63
10	5.00	448.00	0.49
11	5.50	449.70	0.38
12	6.00	451.30	0.35
13	6.50	452.60	0.29
14	7.00	453.90	0.29
15	7.50	455.00	0.24
16	8.00	456.10	0.24
17	8.50	457.20	0.24
18	9.00	458.00	0.17
19	9.50	458.90	0.20
20	10.00	459.60	0.15
21	10.50	460.40	0.17
22	11.00	461.10	0.15

USER INPUT BLANK VALUE
BLANK VALUE = 33.99189 micrograms carbon
BLANK FACTOR = 33.99189 / 11.00061 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(461.1 - 33.98639)(1)/(1) = +4.271E+02 g/L Carbon
(461.1 - 33.98639)(1)/(1)(12) = +3.559E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T01866 DUP Date: 06/14/96 Time: 02:24:09

Sample Size = 1 uL .500ml
Dil Factor = 1 .5719
Blank ID # =
Blank Value = 3.09 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.20	0.00
2	1.01	53.70	97.77
3	1.50	207.90	74.17
4	2.00	382.40	45.63
5	2.50	468.00	18.29
6	3.00	503.30	7.01
7	3.51	517.00	2.65
8	4.00	522.30	1.01
9	4.50	525.10	0.53
10	5.00	527.30	0.42
11	5.50	528.90	0.30
12	6.00	530.40	0.28
13	6.50	531.50	0.21
14	7.00	532.50	0.19
15	7.50	533.60	0.21
16	8.00	534.80	0.22
17	8.50	536.80	0.37
18	9.00	538.20	0.26
19	9.50	539.10	0.17
20	10.00	540.00	0.17
21	10.50	540.80	0.15
22	11.00	541.50	0.13

USER INPUT BLANK VALUE
BLANK VALUE = 33.99189 micrograms carbon
BLANK FACTOR = 33.99189 / 11.00061 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(541.5 - 33.99203)(1)/(1) = +5.075E+02 g/L Carbon
(541.5 - 33.99203)(1)/(1)(12) = +4.229E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T003487 Date: 06/14/96 Time: 04:25:45

Sample Size = 1 uL .100 ml
Dil Factor = 1 .1432g
Blank ID # =
Blank Value = 3.09 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	4.20	0.00
2	1.01	43.90	90.43
3	1.50	172.90	74.61
4	2.00	331.60	47.86
5	2.50	408.40	18.81
6	3.00	450.70	9.39
7	3.50	472.20	4.55
8	4.00	482.30	2.09
9	4.50	488.60	1.29
10	5.00	493.60	1.01
11	5.50	497.50	0.78
12	6.00	500.90	0.68
13	6.50	503.90	0.60
14	7.00	506.60	0.53
15	7.50	509.00	0.47
16	8.00	511.10	0.41
17	8.50	513.20	0.41
18	9.00	515.20	0.39
19	9.50	516.90	0.33
20	10.00	518.90	0.39
21	10.50	520.40	0.29
22	11.00	522.10	0.33

USER INPUT BLANK VALUE
BLANK VALUE = 33.99189 micrograms carbon
BLANK FACTOR = 33.99189 / 11.00061 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(522.1 - 33.98646)(1)/(1) = +4.881E+02 g/L Carbon
(522.1 - 33.98646)(1)/(1)(12) = +4.068E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T03487 DUP Date: 06/14/96 Time: 05:01:38

Sample Size = 1 uL .100 ml
Dil Factor = 1
Blank ID # = .1429g
Blank Value = 3.09 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	4.90	0.00
2	1.01	60.00	91.83
3	1.51	188.90	68.24
4	2.00	334.10	43.46
5	2.50	411.50	18.81
6	3.00	452.70	9.10
7	3.50	474.30	4.55
8	4.00	483.60	1.92
9	4.50	488.50	1.00
10	5.00	492.60	0.83
11	5.50	496.30	0.75
12	6.00	499.00	0.54
13	6.50	501.30	0.46
14	7.00	503.40	0.42
15	7.50	505.20	0.36
16	8.00	507.10	0.37
17	8.50	508.70	0.31
18	9.00	510.20	0.29
19	9.50	511.70	0.29
20	10.00	513.00	0.25
21	10.50	514.20	0.23
22	11.00	515.60	0.27

USER INPUT BLANK VALUE
BLANK VALUE = 33.99189 micrograms carbon
BLANK FACTOR = 33.99189 / 11.00061 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(515.6 - 33.98642)(1)/(1) = +4.816E+02 g/L Carbon
(515.6 - 33.98642)(1)/(1)(12) = +4.013E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00000

07/12/96 08:32
A-0004-1

LABCORE Data Entry Template for Worklist# 10747

Analyst: JLS2 **Instrument:** CARB2 #1 **Book#** 22N12C TIC 24N12B TOC

Method: LA-342-100 Rev/Mod D-0

Worklist Comment: U-107. FOR JACKIE. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@TICTOC1	SOLID		
2	BLNK				@TICTOC1	SOLID		
3	SAMPLE	S96T002133	0		@TICTOC1	SOLID	96000422	U-107
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T002133	0		@TICTOC1	SOLID		
5	SPK	S96T002133	0		@TICTOC1	SOLID		

Final page for worklist # 10747

Jackie Steele 7/12/96

Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 10747

Analyst: jls2 **Instrument:** CARB2 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: U-107. FOR JACKIE. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@TICTOC1 TIC-02	SOLID	6.02E+02	5.87E+2	97.508	% Recovery
1	STD			0	@TICTOC1 TOC-02	SOLID	3.00E+03	2.70E+3	90.000	% Recovery
2	BLNK			0	@TICTOC1 TIC-02	SOLID	1	1.70E+0	1.700	ug/g
2	BLNK			0	@TICTOC1 TOC-02	SOLID	1	1.20E+0	1.200	ug/g
3	SAMPLE	S96T002133		0	@TICTOC1 TIC-02	SOLID	N/A	1.43E+03	5.000	ug/g
3	SAMPLE	S96T002133		0	@TICTOC1 TOC-02	SOLID	N/A	1.21E+03	40.000	ug/g
4	DUP	S96T002133		0	@TICTOC1 TIC-02	SOLID	1.43E+3	1.42E+3	0.702	RPD
4	DUP	S96T002133		0	@TICTOC1 TOC-02	SOLID	1.21E+3	1.15E+3	5.085	RPD
5	SPK	S96T002133		0	@TICTOC1 TIC-02	SOLID	1.00E+02	1.09E+02	109.000	% Recovery
5	SPK	S96T002133		0	@TICTOC1 TOC-02	SOLID	1.00E+02	9.31E+01	93.100	% Recovery

Final page for worklist# 10747

7-12-96

Analyst Signature **Date**

Analyst Signature **Date**

Rolf W Schwede 7/12/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: BLANK2

TIC/TOC : LA-342-100 (D-0) SOLIDS

			TIC	TOC
Type	Sample Size in g	(SS)	0.0000	0.0000
BLNK	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	9.7	29.3
10747	µg of Carbon from Baseline	(C2)	11.4	30.5

Test Code: @TICTOC1

Matrix: SOLID

Batch Number: 96007035

Rerun: 0

µg of Carbon = |C1-C2|

Sample Prep: N/A

Sample #: BLNK

Instrument Code: CARB2#1

Prepared By: RTS

Chemist: RWS

Analyst: JLS2

Date Complete: 07/12/96

Analysis Date: 07/12/96

Analysis Time:

Sample Point: U-107

		TIC	TOC
	Method Detection Limit in ug/g	5	40
	µg of Carbon	1.70E+00	1.20E+00

Data Entered By:	RTS	Date:	07/12/96
Signature of Chemist:	RW Schroeder	Date:	7/12/96

BLANK.WB1 REV 1.0 342100ML

WORKBOOK PAGE: STD1

TIC/TOC : LA-342-100 (D-0) LIQUIDS

			TIC	TOC
Type	Sample Size in mL	(SS)	1.0000	0.2000
STD	Dilution Factor	(DF)	1	1
Work List	Final Coulometer Reading in µg	(C1)	598.4	571.2
10747	µg of Carbon from Baseline	(C2)	11.4	30.5
Test Code	Standard Book Number		22N12C	24N12B
@TICTOC1	Standard Value (µg/ml)		602	3001

Matrix: LIQUID

Batch Number: 96007035

Rerun: 0

Sample Prep: N/A

Sample #: STD

Instrument Code: CARB2#1

Prepared By: RTS

Chemist: RWS

Analyst: JLS2

Date Complete: 07/12/96

Analysis Date: 07/12/96

Analysis Time:

Sample Point: U-107

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	5.87E+02	2.70E+03
Percent Standard Recovery	97.5	90.1

Data Entered By:	RTS	Date:	07/12/96
Signature of Chemist:	Rui Schroder	Date:	7/12/96

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (D-0) SOLIDS

			TIC	TOC
Sample Type	Sample Size in g	(SS)	0.1577	0.1577
SAMPLE	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	237.6	221.5
10747	µg of Carbon from Baseline	(C2)	11.4	30.5
Test Code				
@TICTOC1				

Matrix	SOLID
Batch Number	96007035
Rerun	0
Sample Prep	N/A
Sample #	S96T002133
Instrument Code	CARB2#1
Prepared By	RTS
Chemist	RWS
Analyst	JLS2
Date Complete	07/12/96
Analysis Date	07/12/96
Analysis Time	
Sample Point	U-107

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	1.43E+03	1.21E+03

Data Entered By:	RTS	Date:	07/12/96
Signature of Chemist:	RW Schroeder	Date:	7/12/96

SAMPLE.WB1 REV 1.0 342100ML

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WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (D-0) SOLIDS

			TIC	TOC
Type	Sample Size in g	(SS)	0.1837	0.1837
DUP	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	271.9	242.3
10747	µg of Carbon from Baseline	(C2)	11.4	30.5
Test Code	Known µg of C from Original Sample		1.43E+3	1.21E+3
@TICTOC1				

Matrix	SOLID
Batch Number	96007035
Rerun	0
Sample Prep	N/A
Sample #	S96T002133
Instrument Code	CARB2#1
Prepared By	RTS
Chemist	RWS
Analyst	JLS2
Date Complete	07/12/96
Analysis Date	07/12/96
Analysis Time	
Sample Point	U-107

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	1.42E+03	1.15E+03

Data Entered By:	RTS	Date:	07/12/96
Signature of Chemist:	RW Schroeder	Date:	7/12/96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (D-0) SOLIDS

Type	Sample Vial Data		TIC	TOC
SPK	Sample Size in g	(SS)	0.1577	0.1577
Work List	Final Coulometer Reading in µg	(C1)	237.6	221.5
10747	Spiked Vial Data			
Test Code	Sample Size in g	(SPK SS)	0.1288	0.1288
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C3)	540.2	447.9
SOLID	Spike Book Number		22N12C	24N12B
Batch Number	Spike Standard Value in µg/ml		602	3001
96007035	Spike Concentration in µg	(SPK CONC)	301	300.1

Rerun	0
Sample Prep	N/A
Sample #	S96T002133
Instrument Code	CARB2#1
Prepared By	RTS
Chemist	RWS
Analyst	JLS2
Date Complete	07/12/96
Analysis Date	07/12/96
Analysis Time	
Sample Point	U-107

Spike Concentration in µg = (Spike Std. Value in µg/mL)*(SPK VOL)

Percent Spike Recovery = (C3) / [(C1/SS * SPK SS) + (SPK CONC)] * 100

QC Actual in µg/mL = Spike Value (µg/mL)

QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100

	TIC	TOC
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	6.57E+02	2.79E+03
Percent Spike Recovery	109.1	93.1

Data Entered By:	RTS	Date:	07/12/96
Signature of Chemist:	Eric Schroeder	Date:	7/12/96

SPIKE.WB1 REV 1.0 342100ML

I:\342100\OUT\10747.WB1 07/12/96 14:40:50

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

WHC-SD-WM-DP-184, REV. 1

Sample: 1-BASELINE Date: 07/12/96 Time: 10:57:27

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = 1-BASELINE
Blank Value = N/A

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.80	0.00
2	1.01	1.70	52.94
3	1.50	2.40	29.17
4	2.00	3.20	25.00
5	2.50	3.80	15.79
6	3.00	4.30	11.63
7	3.50	4.60	6.52
8	4.00	5.10	9.80
9	4.50	5.60	8.93
10	5.00	6.10	8.20
11	5.50	6.60	7.58
12	6.00	7.10	7.04
13	6.50	7.50	5.33
14	7.00	7.90	5.06
15	7.50	8.30	4.82
16	8.00	8.80	5.68
17	8.50	9.20	4.35
18	9.00	9.60	4.17
19	9.50	10.10	4.95
20	10.00	10.50	3.81
21	10.50	10.90	3.67
22	11.00	11.40	4.39

BLANK VALUE = 11.4 micrograms carbon
BLANK FACTOR = 11.4 / 11.00067 = +1.04E+00 ug/min Carbon

Sample Run By: Jerie Steele 7/12/96
JL STEELE 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>> WHC-SD-WM-DP-184, REV. 1

Sample: 1-BASELINE Date: 07/12/96 Time: 11:24:45

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = 1-BASELINE
Blank Value = N/A

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.40	0.00
2	1.01	2.20	81.82
3	1.50	7.70	71.43
4	2.00	15.40	50.00
5	2.50	19.70	21.83
6	3.00	21.50	8.37
7	3.50	22.60	4.87
8	4.00	23.40	3.42
9	4.50	24.10	2.90
10	5.00	24.80	2.82
11	5.50	25.20	1.59
12	6.00	25.80	2.33
13	6.50	26.30	1.90
14	7.00	26.90	2.23
15	7.50	27.40	1.82
16	8.00	27.90	1.79
17	8.50	28.50	2.11
18	9.00	28.90	1.38
19	9.50	29.30	1.37
20	10.00	29.70	1.35
21	10.50	30.20	1.66
22	11.00	30.50	0.98

BLANK VALUE = 30.5 micrograms carbon
BLANK FACTOR = 30.5 / 10.99872 = +2.77E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: Jackie Steele 7/12/96
JL STEELE 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: 1-STD 22N12C Date: 07/12/96 Time: 12:06:10

Sample Size = 1 uL 1ml
Dil Factor = 1
Blank ID # =
Blank Value = 1.04 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.90	0.00
2	1.01	67.30	98.66
3	1.51	228.20	70.51
4	2.01	392.50	41.86
5	2.51	500.30	21.55
6	3.00	557.50	10.26
7	3.50	579.20	3.75
8	4.00	588.40	1.56
9	4.50	591.90	0.59
10	5.00	593.00	0.19
11	5.50	593.80	0.13
12	6.00	594.40	0.10
13	6.50	595.00	0.10
14	7.00	595.40	0.07
15	7.50	595.70	0.05
16	8.00	596.20	0.08
17	8.50	596.50	0.05
18	9.00	596.90	0.07
19	9.50	597.20	0.05
20	10.00	597.60	0.07
21	10.50	598.20	0.10
22	11.00	598.40	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 11.43867 micrograms carbon
BLANK FACTOR = 11.43867 / 10.99872 = +1.0E+00 ug/min Carbon

SAMPLE RESULTS:
(598.4 - 11.43873)(1)/(1) = +5.870E+02 g/L Carbon
(598.4 - 11.43873)(1)/(1)(12) = +4.891E+01 Molar Carbon

Sample Run By: Jackie Steele 7/12/96
JL STEELE 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. I

Sample: 1-STD 24N12B Date: 07/12/96 Time: 12:18:35

Sample Size = 1 uL .200ml
Dil Factor = 1
Blank ID # =
Blank Value = 2.77 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	33.30	99.70
3	1.51	211.90	84.29
4	2.00	420.90	49.66
5	2.50	523.90	19.66
6	3.00	552.40	5.16
7	3.50	560.20	1.39
8	4.00	562.90	0.48
9	4.50	564.30	0.25
10	5.00	565.30	0.18
11	5.50	566.10	0.14
12	6.00	566.80	0.12
13	6.50	567.40	0.11
14	7.00	567.90	0.09
15	7.50	568.40	0.09
16	8.00	568.80	0.07
17	8.50	569.30	0.09
18	9.00	569.70	0.07
19	9.50	570.10	0.07
20	10.00	570.40	0.05
21	10.50	570.80	0.07
22	11.00	571.20	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 30.46645 micrograms carbon
BLANK FACTOR = 30.46645 / 10.99872 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:
(571.2 - 30.47135)(1)/(1) = +5.407E+02 g/L Carbon
(571.2 - 30.47135)(1)/(1)(12) = +4.506E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: Jackie Steele 7/12/96
JL STEELE 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: 1-BLANK Date: 07/12/96 Time: 12:30:38

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.04 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	1.70	94.12
3	1.51	3.00	43.33
4	2.00	3.80	21.05
5	2.50	4.20	9.52
6	3.00	4.70	10.64
7	3.50	5.10	7.84
8	4.00	5.40	5.56
9	4.50	5.70	5.26
10	5.00	6.00	5.00
11	5.50	6.30	4.76
12	6.00	6.70	5.97
13	6.50	6.90	2.90
14	7.00	7.40	6.76
15	7.50	7.60	2.63
16	8.00	8.00	5.00
17	8.50	8.20	2.44
18	9.00	8.50	3.53
19	9.50	8.80	3.41
20	10.00	9.10	3.30
21	10.50	9.40	3.19
22	11.00	9.70	3.09

USER INPUT BLANK VALUE
BLANK VALUE = 11.43867 micrograms carbon
BLANK FACTOR = 11.43867 / 10.99872 = +1.0E+00 ug/min Carbon

SAMPLE RESULTS:
(9.7 - 11.43968)(1)/(1) = < 5.00 E-3 g/L Carbon
(9.7 - 11.43968)(1)/(1)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: Jackie Steele 7/12/96
JL STEELE 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: 1-BLANK Date: 07/12/96 Time: 12:42:58

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.77 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	2.30	91.30
3	1.51	9.00	74.44
4	2.00	16.00	43.75
5	2.50	20.00	20.00
6	3.00	21.40	6.54
7	3.50	22.40	4.46
8	4.00	23.20	3.45
9	4.50	23.90	2.93
10	5.00	24.60	2.85
11	5.50	25.10	1.99
12	6.00	25.70	2.33
13	6.50	26.10	1.53
14	7.00	26.50	1.51
15	7.50	26.90	1.49
16	8.00	27.40	1.82
17	8.50	27.70	1.08
18	9.00	28.00	1.07
19	9.50	28.40	1.41
20	10.00	28.70	1.05
21	10.50	29.00	1.03
22	11.00	29.30	1.02

USER INPUT BLANK VALUE
BLANK VALUE = 30.46645 micrograms carbon
BLANK FACTOR = 30.46645 / 10.99872 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:
(29.3 - 30.47186)(1)/(1) = < 5.00 E-3 g/L Carbon
(29.3 - 30.47186)(1)/(1)(12) = < 4.17 E-4 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: Jackie Steele 7/12/96
JL STEELE 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: 1-S96T002133 Date: 07/12/96 Time: 12:58:46

Sample Size = 1 uL .1577g
Dil Factor = 1
Blank ID # =
Blank Value = 1.04 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.10	0.00
2	1.01	6.70	98.51
3	1.51	54.90	87.80
4	2.01	118.70	53.75
5	2.50	162.70	27.04
6	3.00	191.10	14.86
7	3.50	204.60	6.60
8	4.00	211.80	3.40
9	4.50	216.30	2.08
10	5.00	219.20	1.32
11	5.50	221.40	0.99
12	6.00	223.40	0.90
13	6.50	225.30	0.84
14	7.00	226.80	0.66
15	7.50	228.30	0.66
16	8.00	229.80	0.65
17	8.50	231.20	0.61
18	9.00	232.40	0.52
19	9.50	233.70	0.56
20	10.00	235.00	0.55
21	10.50	236.10	0.47
22	11.00	237.60	0.63

USER INPUT BLANK VALUE
BLANK VALUE = 11.43867 micrograms carbon
BLANK FACTOR = 11.43867 / 10.99872 = +1.0E+00 ug/min Carbon

SAMPLE RESULTS:
(237.6 - 11.44152)(1)/(1) = +2.262E+02 g/L Carbon
(237.6 - 11.44152)(1)/(1)(12) = +1.885E+01 Molar Carbon

Sample Run By: Jackie Steele 7/12/96
JL STEELE 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: 1-S96T002133 Date: 07/12/96 Time: 13:10:53

Sample Size = 1 uL .1577g
Dil Factor = 1
Blank ID # =
Blank Value = 2.77 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.50	0.00
2	1.01	33.00	95.45
3	1.51	100.10	67.03
4	2.00	152.10	34.19
5	2.50	180.00	15.50
6	3.00	190.90	5.71
7	3.50	197.30	3.24
8	4.00	201.10	1.89
9	4.50	204.10	1.47
10	5.00	206.60	1.21
11	5.50	208.80	1.05
12	6.00	210.60	0.85
13	6.50	212.10	0.71
14	7.00	213.50	0.66
15	7.50	215.00	0.70
16	8.00	216.00	0.46
17	8.50	217.10	0.51
18	9.00	218.10	0.46
19	9.50	219.10	0.46
20	10.00	220.00	0.41
21	10.50	220.80	0.36
22	11.00	221.50	0.32

USER INPUT BLANK VALUE
BLANK VALUE = 30.46645 micrograms carbon
BLANK FACTOR = 30.46645 / 10.99872 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:
(221.5 - 30.46679)(1)/(1) = +1.910E+02 g/L Carbon
(221.5 - 30.46679)(1)/(1)(12) = +1.592E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: Jackie Steele 7/12/96
JL STEELE 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: 1-2133 DUP Date: 07/12/96 Time: 13:22:50

Sample Size = 1 uL ,1837g
Dil Factor = 1
Blank ID # =
Blank Value = 1.04 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.80	0.00
2	1.00	6.20	87.10
3	1.51	49.00	87.35
4	2.01	112.50	56.44
5	2.51	168.90	33.39
6	3.00	204.20	17.29
7	3.50	226.60	9.89
8	4.00	237.90	4.75
9	4.50	245.10	2.94
10	5.00	249.60	1.80
11	5.50	252.90	1.30
12	6.00	255.70	1.10
13	6.50	258.40	1.04
14	7.00	260.20	0.69
15	7.50	262.40	0.84
16	8.00	263.90	0.57
17	8.50	265.50	0.60
18	9.00	267.00	0.56
19	9.50	268.50	0.56
20	10.00	269.70	0.44
21	10.50	270.80	0.41
22	11.00	271.90	0.40

USER INPUT BLANK VALUE
BLANK VALUE = 11.43867 micrograms carbon
BLANK FACTOR = 11.43867 / 10.99872 = +1.0E+00 ug/min Carbon

SAMPLE RESULTS:
(271.9 - 11.43962)(1)/(1) = +2.605E+02 g/L Carbon
(271.9 - 11.43962)(1)/(1)(12) = +2.171E+01 Molar Carbon

Sample Run By: Jackie Steele 7/12/96
JL STEELE 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0 WHC-SD-WM-DP-184, REV. |

Sample: 1-2133 Date: 07/12/96 Time: 13:36:04

Sample Size = 1 uL .1837g
Dil Factor = 1
Blank ID # =
Blank Value = 2.77 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.70	0.00
2	1.01	30.70	94.46
3	1.51	107.50	71.44
4	2.00	177.20	39.33
5	2.50	203.60	12.97
6	3.00	213.70	4.73
7	3.51	218.60	2.24
8	4.01	222.40	1.71
9	4.50	225.10	1.20
10	5.00	227.50	1.05
11	5.50	229.40	0.83
12	6.00	231.00	0.69
13	6.50	232.60	0.69
14	7.00	233.90	0.56
15	7.50	235.20	0.55
16	8.00	236.50	0.55
17	8.50	237.40	0.38
18	9.00	238.50	0.46
19	9.50	239.40	0.38
20	10.00	240.30	0.37
21	10.50	241.40	0.46
22	11.00	242.30	0.37

USER INPUT BLANK VALUE
BLANK VALUE = 30.46645 micrograms carbon
BLANK FACTOR = 30.46645 / 10.99872 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:
(242.3 - 30.46662)(1)/(1) = +2.118E+02 g/L Carbon
(242.3 - 30.46662)(1)/(1)(12) = +1.765E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: Jackie Steele 7/12/96
JL STEELE 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. 1

Sample: 1-2133 SPIKE Date: 07/12/96 Time: 13:53:50

Sample Size = 1 uL .128g+
Dil Factor = 1 .500ml 22N12C
Blank ID # =
Blank Value = 1.04 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.70	0.00
2	1.01	12.50	94.40
3	1.51	116.30	89.25
4	2.01	264.40	56.01
5	2.51	380.30	30.48
6	3.01	452.70	15.99
7	3.51	487.40	7.12
8	4.01	506.10	3.69
9	4.50	514.10	1.56
10	5.00	518.60	0.87
11	5.50	522.00	0.65
12	6.00	524.50	0.48
13	6.50	527.10	0.49
14	7.00	529.00	0.36
15	7.50	530.80	0.34
16	8.00	532.60	0.34
17	8.50	534.10	0.28
18	9.00	535.50	0.26
19	9.50	536.90	0.26
20	10.00	538.10	0.22
21	10.50	539.20	0.20
22	11.00	540.20	0.19

USER INPUT BLANK VALUE
BLANK VALUE = 11.43867 micrograms carbon
BLANK FACTOR = 11.43867 / 10.99872 = +1.0E+00 ug/min Carbon

SAMPLE RESULTS:
(540.2 - 11.44063)(1)/(1) = +5.288E+02 g/L Carbon
(540.2 - 11.44063)(1)/(1)(12) = +4.406E+01 Molar Carbon

Sample Run By: Jackie Steele 7/12/96
JL STEELE 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-184, REV. |

Sample: 1-2133 SPIKE Date: 07/12/96 Time: 14:05:57

Sample Size = 1 uL . 12.8g + 100ml 24N12B
Dil Factor = 1
Blank ID # =
Blank Value = 2.77 ug/minute C

Analyst : JL STEELE
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	5.00	0.00
2	1.01	100.00	95.00
3	1.50	281.50	64.48
4	2.00	375.10	24.95
5	2.50	406.70	7.77
6	3.00	417.90	2.68
7	3.50	422.80	1.16
8	4.00	426.80	0.94
9	4.50	429.80	0.70
10	5.00	432.10	0.53
11	5.50	434.30	0.51
12	6.00	436.20	0.44
13	6.50	437.90	0.39
14	7.00	439.40	0.34
15	7.50	440.60	0.27
16	8.00	441.80	0.27
17	8.50	442.90	0.25
18	9.00	444.10	0.27
19	9.50	445.10	0.22
20	10.00	446.20	0.25
21	10.50	447.00	0.18
22	11.00	447.90	0.20

USER INPUT BLANK VALUE
BLANK VALUE = 30.46645 micrograms carbon
BLANK FACTOR = 30.46645 / 10.99872 = +2.8E+00 ug/min Carbon

SAMPLE RESULTS:
(447.9 - 30.46915)(1)/(1) = +4.174E+02 g/L Carbon
(447.9 - 30.46915)(1)/(1)(12) = +3.479E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: Jackie Steele
JL STEELE 00000

WHC-SD-WM-DP-184, REV. 1

RADIOCHEMICAL ANALYSES

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LABCORE Data Entry Template for Worklist# 6274

Analyst: ABB **Instrument:** AB00 C6 **Book#** 43 B56

Method: LA-508-101 Rev/Mod D-2 "A" spk# 119B43

Worklist Comment: Determine Sample Size using Ludlum.For Spike use:0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T000684	0	F	@ALPHA01	SOLID	96000085	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T000684	0	F	@ALPHA01	SOLID		
6	SPK	S96T000684	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T000687	0	F	@ALPHA01	SOLID	96000085	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T000687	0	F	@ALPHA01	SOLID			

Final page for worklist # 6274

Analyst Signature Date 3-11-96

Analyst Signature Date 3-11-96

3/11/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 6274

Analyst: dgg **Instrument:** AB16 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine Sample Size using Ludlum.For Spike use:0.1ml. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.53E-05	1.60E-5	104.580	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.19E+00	4.190	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	2.05E-3	0.000	uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	1.43E+02	143.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	3.57E+00	3.570	uCi/g
4	SAMPLE	S96T000684	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.43E-03	3.600e-003	uCi/g
4	SAMPLE	S96T000684	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.06E+02	0.000	% Ct. Error
5	DUP	S96T000684	0	F	@ALPHA01	ALPHA01	SOLID	2.43E-3	<5.12E-3		RPD
5	DUP	S96T000684	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.80E+02	180.000	% Ct. Error
6	SPK	S96T000684	0	F	@ALPHA01	ALPHA01	SOLID	3.92E-02	3.63E-02	92.600	% Recovery
7	SAMPLE	S96T000687	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.54E-01	3.600e-003	uCi/g
7	SAMPLE	S96T000687	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.01E+01	0.000	% Ct. Error
8	DUP	S96T000687	0	F	@ALPHA01	ALPHA01	SOLID	1.54E-1	1.70E-1	9.880	RPD
8	DUP	S96T000687	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	8.98E+00	8.980	% Ct. Error

Final page for worklist# 6274

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

3/12/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2191	2289
6274	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	43B56	43B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		72.963	76.230
Batch Number	Standard Value in µCi/mL		1.53E-05	
96001920	Concentration in µCi/L	=	1.56E-02	
Rerun	Replicate Concentration in µCi/L	=	1.63E-02	
0	AVERAGE CONCENTRATION in µCi/L	=	1.5971E-02	

Sample Prep
N/A

Rs (Sample Count Rate) = (TC / CT) - BKG

Sample #

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Instrument Code
WB27806

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

Prepared By
SLH

Chemist
SLF

ALPHA TOTAL CONCENTRATION in µCi/mL		1.60E-05	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.2%	6.77E-08 µCi/mL

Analyst1
DGG

Date Complete
03/11/96

Analysis Date
03/11/96

Analysis Time
01:45 AM

Sample Point
U-107

Analyst:		SLH	Date: 11-Mar-96
Signature of Chemist:		SLF	Date:

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		16	16
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	6	9
6274	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8776	1.8776
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.130	0.230

Batch Number	
96001920	Blank Concentration in µCi/g 1.48E-03
Rerun	Replicate Concentration in µCi/g 2.62E-03
0	Average Concentration in µCi/g 2.0524E-03

Sample Prep: N/A

Sample # WL6274

Instrument Code WB27806

Prepared By SLH

Chemist SLF

Analyst DGG

Date Complete 03/11/96

Analysis Date 03/11/96

Analysis Time 01:45 AM

Sample Point U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	2.05E-03	DETECTION LEVEL
RELATIVE COUNTING ERROR		143.0%	3.60E-03 µCi/g

Analyst:	DGG		Date: 11-Mar-96
Signature of Chemist:		SLF	Date: 3/12/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worklist	GROSS COUNTS	(GC)	9	8
6274	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Task Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8776	1.8776
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.230	0.197
Batch Number				
96001920	Blank Concentration in µCi/g		2.62E-03	
Rerun	Replicate Concentration in µCi/g		2.24E-03	
0	Average Concentration in µCi/g		2.4325E-03	

Sample Prep: FUSION01

Sample #: S96T000684

Instrument Code: WB27806

Prepared By: SLH

Chemist: SLF

Analyst: DGG

Date Complete: 03/11/96

Analysis Date: 03/11/96

Analysis Time: 01:45 AM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	2.43E-03	DETECTION LEVEL
RELATIVE COUNTING ERROR		105.6%	3.60E-03 µCi/g

Analyst:	DGG		Date: 11-Mar-96
Signature of Chemist:		SLF	Date: 3/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	16	5
6274	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.938	1.938
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.463	0.243

Batch Number			
96001920	Blank Concentration in µCi/g		5.12E-03
Rerun	Replicate Concentration in µCi/g	<	2.69E-03
0	Maximum Concentration in µCi/g	<	5.1185E-03

Sample Prep: FUSION01

Sample # : S96T000684

Instrument Code: WB27806

Prepared By: SLH

Chemist: SLF

Analyst: DGG

Date Complete: 03/11/96

Analysis Date: 03/11/96

Analysis Time: 01:45 AM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Maximum)	=	< 5.12E-03		DETECTION LEVEL
LESS THAN Value was Determined from Rs.				3.49E-03 µCi/g
RELATIVE COUNTING ERROR		180.1%		

Analyst:	DGG	Date: 11-Mar-96	
Signature of Chemist:	SLF	Date: 3/12/96	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	52450	49222
6274	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8776	1.8776
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	119B43	119B43
96001920	SPIKE VALUE in µCi/mL	(SVal)	3.9201E-02	3.9201E-02
Param	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/g	(S+S)	1.99E+01	1.87E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.4325E-03	
FUSION01				
Sample #				
S96T000684				
Instrument Code				
WB27806				
Prepared By				
SLH				
Chemist				
SLF				
Analyst				
DGG				
Date Complete				
03/11/96				
Analysis Date				
03/11/96				
Analysis Time				
01:45 AM				
Sample Point				
U-107				

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.92E-02
QC FOUND	=	3.63E-02
AVG. PERCENT SPIKE RECOVERY	=	92.5%

Analyst:		SLH	Date: 11-Mar-96
Signature of Chemist:		SLF	Date: 3/12/96

SPIKE.WB1 Rev. 1.0 508101ML

1045

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worklist	GROSS COUNTS	(GC)	432	382
6274	COUNT TIME in MINUTES	(CT)	30	30
AT or TE ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8816	1.8816
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		14.330	12.663

Batch Number		
96001920	Blank Concentration in µCi/g	1.63E-01
Repl.	Replicate Concentration in µCi/g	1.44E-01
0	Average Concentration in µCi/g	1.5357E-01

Sample Prep
FUSION01

Sample #
S96T000687

Instrument Code
WB27806

Prepared By
SLH

Chemist
SLF

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	1.54E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		10.1%	3.60E-03 µCi/g

Analyst
DGG

Date Complete
03/11/96

Analysis Date
03/11/96

Analysis Time
01:45 AM

Sample Point
U-107

Analyst:	DGG	Date: 11-Mar-96	
Signature of Chemist:	SLF	Date: 3/12/96	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worklist	GROSS COUNTS	(GC)	511	483
6274	COUNT TIME in MINUTES	(CT)	30	30
AT or TB?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Factor	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0716	2.0716
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		16.963	16.030

Batch Number	
96001920	Blank Concentration in µCi/g 1.75E-01
Replicate	Replicate Concentration in µCi/g 1.66E-01
0	Average Concentration in µCi/g 1.7049E-01

Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T000687	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.70E-01
Analyst	
DGG	
Date Complete	
03/11/96	RELATIVE COUNTING ERROR 9.0%
Analysis Date	
03/11/96	
Analysis Time	
01:45 AM	
Sample Point	
U-107	

DETECTION LEVEL
3.27E-03 µCi/g

Analyst:	DGG	Date: 11-Mar-96	
Signature of Chemist:	SLF	Date: 3/12/96	

SAMPLE.WB1 Rev. 1.0 508101ML

03/07/96 10:12
A-0004-1

LABCORE Data Entry Template for Worklist# 6275

Analyst: [illegible] **Instrument:** AB00 14 **Book#** 43B56

Method: LA-508-101 Rev/Mod D-2 "A" spk# 119B43

Worklist Comment: Determine Sample Size using Ludlum.For Spike use:0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T000689	0	F	@ALPHA01	SOLID	96000085	U-107
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T000689	0	F	@ALPHA01	SOLID		
6	SPK	S96T000689	0	F	@ALPHA01	SOLID		

Final page for worklist # 6275

[illegible] 3-10-96
Analyst Signature **Date**

[illegible] 3/11/96
Analyst Signature **Date**

C.J. Opsien 3/11/96

Data Entry Comments:

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

worklistdata Version 0.0 05/16/95
03/12/96 11:48

LABCORE Completed Worklist Report for Worklist# 6275

Analyst: dgg **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine Sample Size using Ludlum.For Spike use:0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01 ALPHA01	SOLID	1.53E-05	1.46E-5	95.420	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	4.19E+00	4.190	% Ct. Error
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<5.23E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01 ALPHA01E	SOLID	1.00	1.92E+02	192.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01 ALPHA01	SOLID	1.00E+00	2.02E+00	2.020	uCi/g
4	SAMPLE	S96T000689	0	F	@ALPHA01 ALPHA01	SOLID	N/A	3.36E-02	6.030e-003	uCi/g
4	SAMPLE	S96T000689	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	2.36E+01	0.000	% Ct. Error
5	DUP	S96T000689	0	F	@ALPHA01 ALPHA01	SOLID	3.36E-2	3.71E-2	9.900	RPD
5	DUP	S96T000689	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	2.10E+01	21.000	% Ct. Error
6	SPK	S96T000689	0	F	@ALPHA01 ALPHA01	SOLID	3.92E-02	3.35E-02	85.460	% Recovery

Final page for worklist# 6275

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

3/12/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2229	2219
6275	COUNT TIME in MINUTES	(CT)	30	30
AT or TD ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	43B56	43B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		73.970	73.637
Batch Number	Standard Value in µCi/mL		1.53E-05	
96001921	Concentration in µCi/L	=	1.47E-02	
Rerun	Replicate Concentration in µCi/L	=	1.46E-02	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4620E-02	

Sample Prep: N/A

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

Sample # WL6275

Instrument Code WB27807

Prepared By MCB

Chemist SLF

Analyst DGG

Date Complete 03/11/96

Analysis Date 03/10/96

Analysis Time 10:30 PM

Sample Point U-107

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL		1.46E-05	
RELATIVE COUNTING ERROR	=	4.2%	1.15E-07 µCi/mL

Analyst:	MCB		Date: 11-Mar-96
Signature of Chemist:	SLF		Date: 3/11/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
DETECTOR NUMBER			14	14
DISH SIZE (1 , 2 , or 5)		(MS)	2	2
GROSS COUNTS		(GC)	15	25
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.33	0.33
SAMPLE SIZE in mL		(SS)	0.100	0.100
DILUTION FACTOR		(DF)	1	1
DIGEST GRAMS of SOLIDS / L		(Dg/L)	1.9072	1.9072
EFFICIENCY FACTOR		(EFF)	0.2274	0.2274
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			0.444	0.503

Blank Concentration in µCi/g	<	4.62E-03
Replicate Concentration in µCi/g		5.23E-03
Maximum Concentration in µCi/g	<	5.2278E-03

Type	BLNK-PREP
Work List	6275
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	SOLID
Batch Number	96001921
Rerun	0
Sample Prep	N/A
Sample #	WL6275
Instrument Code	WB27807
Prepared By	MCB
Chemist	SLF
Analyst	DGG
Date Complete	03/11/96
Analysis Date	03/10/96
Analysis Time	10:30 PM
Sample Point	U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

				DETECTION LEVEL
ALPHA TOTAL in µCi/g (Maximum)	=	< 5.23E-03		
LESS THAN Value was Determined from Rmax.				6.03E-03 µCi/g
RELATIVE COUNTING ERROR			191.8%	

Analyst:		DGG	Date: 11-Mar-96
Signature of Chemist:		SLF	Date: 3/11/96

BLANK.WB1 Rev. 1.0 508101MU

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	119	95
6275	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9072	1.9072
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.637	2.837

Batch Number	
96001921	Blank Concentration in µCi/g 3.78E-02
Rerun	Replicate Concentration in µCi/g 2.95E-02
0	Average Concentration in µCi/g 3.3617E-02
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T000689	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 3.36E-02
Analyst	
DGG	
Date Complete	
03/11/96	RELATIVE COUNTING ERROR 23.6%
Analysis Date	
03/10/96	
Analysis Time	
10:30 PM	
Sample Point	
U-107	

DETECTION LEVEL
6.03E-03 µCi/g

Analyst:		DGG	Date: 11-Mar-96
Signature of Chemist:		SLF	Date: 3/11/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	128	114
6275	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9752	1.9752
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.937	3.470

Batch Number	
96001921	Blank Concentration in µCi/g 3.95E-02
Rerun	Replicate Concentration in µCi/g 3.48E-02
0	Average Concentration in µCi/g 3.7140E-02

Sample Prep: FUSION01

Sample #: S96T000689

Instrument Code: WB27807

Prepared By: MCB

Chemist: SLF

Analyst: DGG

Date Complete: 03/11/96

Analysis Date: 03/10/96

Analysis Time: 10:30 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	3.71E-02	5.82E-03 µCi/g
RELATIVE COUNTING ERROR		21.0%	

Analyst:	DGG		Date: 11-Mar-96
Signature of Chemist:		SLF	Date: 3/11/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
DETECTOR NUMBER			14	14
DISH SIZE 1 , 2 , or 5		(MS)	2	2
TOTAL COUNTS		(TC)	51921	49884
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.33	0.33
SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	0.100	0.100
SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	1	1
DIGEST GRAMS of SOLIDS / L		(Dg/L)	1.9072	1.9072
SPIKE VOLUME in mL		(SVol)	0.100	0.100
SPIKE DILUTION FACTOR		(SDF)	1	1
SPIKE BOOK NUMBER		(Spk BN)	119B43	119B43
SPIKE VALUE in µCi/mL		(SVal)	3.9201E-02	3.9201E-02
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2274	0.2274
SAMPLE + SPIKE µCi/g		(S+S)	1.80E+01	1.73E+01
AVERAGE or MAXIMUM µCi/g in SAMPLE			3.3617E-02	

Type	SPK
Work List	6275
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	SOLID
Batch Number	96001921
Rerun	0
Sample Prep	FUSION01
Sample #	S96T000689
Instrument Code	WB27807
Prepared By	MCB
Chemist	SLF
Analyst	DGG
Date Complete	03/11/96
Analysis Date	03/10/96
Analysis Time	10:30 PM
Sample Point	U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.92E-02
QC FOUND	=	3.35E-02
AVG. PERCENT SPIKE RECOVERY	=	85.6%

Analyst:		MCB	Date: 11-Mar-96
Signature of Chemist:		SLF	Date: 3/11/96

SPIKE.WB1 Rev. 1.0 508101ML

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LABCORE Data Entry Template for Worklist# 6593

Analyst: Sc.L **Instrument:** AB00 14 **Book#** 43856

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	LIQUID		
2	BLNK				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S96T000665	0		@ALPHA01	LIQUID	96000085	U-107
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T000665	0		@ALPHA01	LIQUID		
6	SPK	S96T000665	0		@ALPHA01	LIQUID		
7	SAMPLE	S96T000682	0		@ALPHA01	LIQUID	96000085	U-107
		Analytes Requested: ALPHA01 , ALPHA01E						
8	DUP	S96T000682	0		@ALPHA01	LIQUID		

Final page for worklist # 6593

Sue C Lai 3-19-96
Analyst Signature **Date**

Sue Hogan 3/20/96
Analyst Signature **Date**

MS Sic---- 3/20/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 6593

Analyst: scl **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@ALPHA01	ALPHA01	LIQUID	1.53E-05	1.50E-5	98.040	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	LIQUID	1.00	4.16E+00	4.160	% Ct. Error
2	BLNK		0	@ALPHA01	ALPHA01	LIQUID	1	<1.21E-2		uCi/mL
2	BLNK		0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0	@ALPHA01	ALPHA01	LIQUID	1.00E+00	1.00E+00	1.000	uCi/mL
4	SAMPLE	S96T000665	0	@ALPHA01	ALPHA01	LIQUID	N/A <	1.72E-02	2.540e-002	uCi/mL
4	SAMPLE	S96T000665	0	@ALPHA01	ALPHA01E	LIQUID	N/A	5.00E+02	0.000	% Ct. Error
5	DUP	S96T000665	0	@ALPHA01	ALPHA01	LIQUID	<1.72E-2	<1.72E-2		RPD
5	DUP	S96T000665	0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error
6	SPK	S96T000665	0	@ALPHA01	ALPHA01	LIQUID	3.92E-02	3.74E-02	95.410	% Recovery
7	SAMPLE	S96T000682	0	@ALPHA01	ALPHA01	LIQUID	N/A <	1.09E-02	2.540e-002	uCi/mL
7	SAMPLE	S96T000682	0	@ALPHA01	ALPHA01E	LIQUID	N/A	5.00E+02	0.000	% Ct. Error
8	DUP	S96T000682	0	@ALPHA01	ALPHA01	LIQUID	<1.09E-2	<1.09E-2		RPD
8	DUP	S96T000682	0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error

Final page for worklist# 6593

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

3/25/96

Reviewer Signature **Date**

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

LABCORE Completed Worklist Report for Worklist# 6593

Analyst: scl **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0	@ALPHA01	ALPHA01	LIQUID	1.53E-05		1.50E-5	98.040	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	LIQUID	1.00		4.16E+00	4.160	% Ct. Error
2	BLNK		0	@ALPHA01	ALPHA01	LIQUID	1		<1.21E-2		uCi/mL
2	BLNK		0	@ALPHA01	ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0	@ALPHA01	ALPHA01	LIQUID	0.00E+00		1.00E+00	0.000	uCi/mL
4	SAMPLE	S96T000665	0	@ALPHA01	ALPHA01	LIQUID	N/A	<	1.72E-02	2.540e-002	uCi/mL
4	SAMPLE	S96T000665	0	@ALPHA01	ALPHA01E	LIQUID	N/A		5.00E+02	0.000	% Ct. Error
5	DUP	S96T000665	0	@ALPHA01	ALPHA01	LIQUID	<1.72E-2		<1.72E-2		RPD
5	DUP	S96T000665	0	@ALPHA01	ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Error
6	SPK	S96T000665	0	@ALPHA01	ALPHA01	LIQUID	3.92E-02		3.74E-02	95.410	% Recovery
7	SAMPLE	S96T000682	0	@ALPHA01	ALPHA01	LIQUID	N/A	<	1.09E-02	2.540e-002	uCi/mL
7	SAMPLE	S96T000682	0	@ALPHA01	ALPHA01E	LIQUID	N/A		5.00E+02	0.000	% Ct. Error
8	DUP	S96T000682	0	@ALPHA01	ALPHA01	LIQUID	<1.09E-2		<1.09E-2		RPD
8	DUP	S96T000682	0	@ALPHA01	ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Error

Final page for worklist# 6593

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

Reviewer Signature **Date**

Corrected actual + yield BLNK/BKG values.
[signature] 3/25/96

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2302	2260
6593	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	43B56	43B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		76.333	74.933
Batch Number	Standard Value in µCi/mL		1.53E-05	
96002281	Concentration in µCi/L	=	1.51E-02	
Rerun	Replicate Concentration in µCi/L	=	1.48E-02	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4982E-02	

Sample Prep: N/A

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

Sample #: WL#6593

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 03/20/96

Analysis Date: 03/19/96

Analysis Time: 03:30 PM

Sample Point: U-107

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL		1.50E-05	1.25E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.2%	

Analyst:	SEH	Date: 20-Mar-96	
Signature of Chemist:	SLF	Date: 3/21/96	

STANDARD.WB1 Rev. 1.0 508101M

WORKBOOK PAGE: BLANK2

WHC-SD-WM-DP-184, REV. 1

AT : LA-508-101 (D-2) LIQUIDS

			BLNK	REPLICATE
Type	DETECTOR NUMBER		14	14
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	21	3
6593	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.300	0.269

Batch Number			
96002281	Blank Concentration in µCi/L		1.21E+01
Rerun	Replicate Concentration in µCi/L	<	1.09E+01
0	Maximum Concentration in µCi/L	<	1.2124E+01

Sample Prep: N/A

Sample #: WL#6593

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 03/20/96

Analysis Date: 03/19/96

Analysis Time: 03:30 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum) = < 1.21E-02		DETECTION LEVEL
LESS THAN Value was Determined from Rs.		
RELATIVE COUNTING ERROR	500.0%	2.54E-02 µCi/mL

Analyst:		SCL	Date: 20-Mar-96
Signature of Chemist:		SLF	Date: 3/21/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) LIQUIDS

				SAMPLE	REPLICATE
Type	DETECTOR NUMBER			14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)		2	2
Work List	GROSS COUNTS	(GC)		9	16
6593	COUNT TIME in MINUTES	(CT)		30	30
AT or TS ?	BACKGROUND in cpm	(BKG)		0.4	0.4
AT	SAMPLE SIZE in mL	(SS)		0.500	0.500
Test Code	DILUTION FACTOR	(DF)		10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)		1	1
Matrix	EFFICIENCY FACTOR	(EFF)		0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			0.269	0.424
Batch Number					
96002281	Blank Concentration in µCi/L		<	1.09E+01	
Rerun	Replicate Concentration in µCi/L		<	1.72E+01	
0	Maximum Concentration in µCi/L		<	1.7150E+01	

Sample Prep: N/A

Sample # : S96T000665

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 03/20/96

Analysis Date: 03/19/96

Analysis Time: 03:30 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum)	=	< 1.72E-02		DETECTION LEVEL
LESS Than Value was Determined from Lc.				2.54E-02 µCi/mL
RELATIVE COUNTING ERROR		500.0%		

Analyst:		SCL	Date: 20-Mar-96
Signature of Chemist:		SLF	Date: 3/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

WHC-SD-WM-DP-184, REV. 1

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type:	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	14	16
6593	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.347	0.424

Batch Number			
96002281	Blank Concentration in µCi/L	<	1.40E+01
Rerun	Replicate Concentration in µCi/L	<	1.72E+01
0	Maximum Concentration in µCi/L	<	1.7150E+01

Sample Prep: N/A

Sample #: S96T000665

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 03/20/96

Analysis Date: 03/19/96

Analysis Time: 03:30 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum)	=	< 1.72E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			2.54E-02 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst:		SCL	Date: 20-Mar-96
Signature of Chemist:		SLF	Date: 3/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	57135	56254
6593	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR -	(DDF)	1	1
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
LIQUID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	119B43	119B43
96002281	SPIKE VALUE in µCi/mL	(SVal)	3.9200E-02	3.9200E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/mL	(S+S)	7.70E+01	7.58E+01
Sample Prep	AVERAGE or MAXIMUM µCi/mL in SAMPLE	<	1.7150E-02	
N/A				
Sample #				
S96T000665	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
WB27807	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete	NOTE: Original Sample result was a LESS THAN value. Zero (0) was subtracted from the spiked value for QC found calculation.			
03/20/96				
Analysis Date				
03/19/96	QC ACTUAL	=	3.92E-02	
Analysis Time	QC FOUND	=	3.74E-02	
03:30 PM	AVG. PERCENT SPIKE RECOVERY	=	95.5%	
Sample Point				
U-107				

Analyst:		SEH	Date: 20-Mar-96
Signature of Chemist:		SLF	Date: 3/21/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	4	8
6593	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.269	0.269

Batch Number			
96002281	Blank Concentration in µCi/L	<	1.09E+01
Rerun	Replicate Concentration in µCi/L	<	1.09E+01
0	Maximum Concentration in µCi/L	<	1.0889E+01

Sample Prep
N/A

Sample #
S96T000682

Instrument Code
WB27807

Prepared By
SEH

Chemist
SLF

Analyst
SCL

Date Complete
03/20/96

Analysis Date
03/19/96

Analysis Time
03:30 PM

Sample Point
U-107

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

				DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Maximum)	=	< 1.09E-02		
LESS Than Value was Determined from Lc.				2.54E-02 µCi/mL
RELATIVE COUNTING ERROR			500.0%	

Analyst:		SCL	Date: 20-Mar-96
Signature of Chemist:		SLF	Date: 3/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	9	5
6593	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.269	0.269
Batch Number				
96002281	Blank Concentration in µCi/L	<	1.09E+01	
Rerun	Replicate Concentration in µCi/L	<	1.09E+01	
0	Maximum Concentration in µCi/L	<	1.0889E+01	

Sample Prep: N/A

Sample #: S96T000682

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 03/20/96

Analysis Date: 03/19/96

Analysis Time: 03:30 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum) = < 1.09E-02		DETECTION LEVEL
LESS Than Value was Determined from Lc.		2.54E-02 µCi/mL
RELATIVE COUNTING ERROR	500.0%	

Analyst:		SCL	Date: 20-Mar-96
Signature of Chemist:		SLF	Date: 3/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 7472

Analyst: S.C.L **Instrument:** AB00 14 **Book#** 47856

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001092	0	F	@ALPHA01	SOLID	96000126	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001092	0	F	@ALPHA01	SOLID		
6	SPK	S96T001092	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001093	0	F	@ALPHA01	SOLID	96000126	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T001093	0	F	@ALPHA01	SOLID		
9	SAMPLE	S96T001094	0	F	@ALPHA01	SOLID	96000126	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T001094	0	F	@ALPHA01	SOLID		

Final page for worklist # 7472

Sue C Lai 4-10-97
Analyst Signature **Date**

Thomas L Hatch 4 11 96
Analyst Signature **Date**

M B Sivan 4/11/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7472

Analyst: scl **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.42E-4	110.940	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.32E+00	4.320	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<8.72E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	1.04E+00	1.040	uCi/g
4	SAMPLE	S96T001092	0	F	@ALPHA01	ALPHA01	SOLID	N/A	7.61E-02	1.430e-002	uCi/g
4	SAMPLE	S96T001092	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.21E+01	0.000	% Ct. Error
5	DUP	S96T001092	0	F	@ALPHA01	ALPHA01	SOLID	7.61E-2	7.51E-2	1.320	RPD
5	DUP	S96T001092	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.39E+01	23.900	% Ct. Error
6	SPK	S96T001092	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.40E-02	94.710	% Recovery
7	SAMPLE	S96T001093	0	F	@ALPHA01	ALPHA01	SOLID	N/A	9.65E-02	2.990e-002	uCi/g
7	SAMPLE	S96T001093	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	3.03E+01	0.000	% Ct. Error
8	DUP	S96T001093	0	F	@ALPHA01	ALPHA01	SOLID	9.65E-2	9.80E-2	1.540	RPD
8	DUP	S96T001093	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.87E+01	28.700	% Ct. Error
9	SAMPLE	S96T001094	0	F	@ALPHA01	ALPHA01	SOLID	N/A	4.30E-01	2.940e-002	uCi/g
9	SAMPLE	S96T001094	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.28E+01	0.000	% Ct. Error
10	DUP	S96T001094	0	F	@ALPHA01	ALPHA01	SOLID	4.30E-1	3.82E-1	11.820	RPD
10	DUP	S96T001094	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.34E+01	13.400	% Ct. Error

Final page for worklist# 7472

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

4/17/96

Reviewer Signature **Date**

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

LABCORE Completed Worklist Report for Worklist# 7472

Analyst: scl **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.42E-4	110.940	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.32E+00	4.320	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<8.72E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	0.00E+00	1.04E+00	0.000	uCi/g
4	SAMPLE	S96T001092	0	F	@ALPHA01	ALPHA01	SOLID	N/A	7.61E-02	1.430e-002	uCi/g
4	SAMPLE	S96T001092	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.21E+01	0.000	% Ct. Error
5	DUP	S96T001092	0	F	@ALPHA01	ALPHA01	SOLID	7.61E-2	7.51E-2	1.320	RPD
5	DUP	S96T001092	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.39E+01	23.900	% Ct. Error
6	SPK	S96T001092	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.40E-02	94.710	% Recovery
7	SAMPLE	S96T001093	0	F	@ALPHA01	ALPHA01	SOLID	N/A	9.65E-02	2.990e-002	uCi/g
7	SAMPLE	S96T001093	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	3.03E+01	0.000	% Ct. Error
8	DUP	S96T001093	0	F	@ALPHA01	ALPHA01	SOLID	9.65E-2	9.80E-2	1.540	RPD
8	DUP	S96T001093	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.87E+01	28.700	% Ct. Error
9	SAMPLE	S96T001094	0	F	@ALPHA01	ALPHA01	SOLID	N/A	4.30E-01	2.940e-002	uCi/g
9	SAMPLE	S96T001094	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.28E+01	0.000	% Ct. Error
10	DUP	S96T001094	0	F	@ALPHA01	ALPHA01	SOLID	4.30E-1	3.82E-1	11.820	RPD
10	DUP	S96T001094	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.34E+01	13.400	% Ct. Error

Final page for worklist# 7472

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date

Corrected QC actual + yield for BLNK/BKG.

4/15/96

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2088	2222
7472	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		69.230	73.697
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003250	Concentration in µCi/L	=	1.37E-01	
Rerun	Replicate Concentration in µCi/L	=	1.46E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4156E-01	

Sample Prep
N/A
Sample #
WL7472
Instrument Code
WB27807
Prepared By
SLH
Chemist
SLF
Analyst
SCL
Date Complete
04/11/96
Analysis Date
04/10/96
Analysis Time
03:30 PM
Sample Point
U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.42E-04	
RELATIVE COUNTING ERROR	=	4.3%	1.21E-06 µCi/mL

Analyst:	SLH	Date: 11-Apr-96	
Signature of Chemist:	SLF	Date: 4/15/96	

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		14	14
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	14	9
7472	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8592	1.8592
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.372	0.259

Batch Number			
96003250	Blank Concentration in µCi/g	<	8.72E-03
Rerun	Replicate Concentration in µCi/g	<	6.07E-03
0	Maximum Concentration in µCi/g	<	8.7247E-03

Sample Prep: N/A

Sample #: WL7472

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: SCL

Date Complete: 04/11/96

Analysis Date: 04/10/96

Analysis Time: 03:30 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g	(Maximum)	=	< 8.72E-03	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.				1.43E-02 µCi/g
RELATIVE COUNTING ERROR			500.0%	

Analyst:		SCL	Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	108	109
7472	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8592	1.8592
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.230	3.263

Batch Number	
96003250	Blank Concentration in µCi/g 7.57E-02
Rerun	Replicate Concentration in µCi/g 7.65E-02
0	Average Concentration in µCi/g 7.6101E-02
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T001092	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	
Analyst	
SCL	
Date Complete	
04/11/96	
Analysis Date	
04/10/96	
Analysis Time	
03:30 PM	
Sample Point	
U-107	

ALPHA TOTAL in µCi/g (Average)	=	7.61E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		22.1%	1.43E-02 µCi/g

Analyst:	SCL		Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	103	96
7472	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.7088	1.7088
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.063	2.830
Batch Number				
96003250	Blank Concentration in µCi/g		7.81E-02	
Rerun	Replicate Concentration in µCi/g		7.22E-02	
0	Average Concentration in µCi/g		7.5148E-02	

Sample Prep: FUSION01

Sample #: S96T001092

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: SCL

Date Complete: 04/11/96

Analysis Date: 04/10/96

Analysis Time: 03:30 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	7.51E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		23.9%	1.55E-02 µCi/g

Analyst:		SCL	Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	50784	52488
7472	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8592	1.8592
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96003250	SPIKE VALUE in µCi/mL	(SVal)	3.5897E-02	3.5897E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/g	(S+S)	3.97E+01	4.10E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		7.6101E-02	
FUSION01				
Sample #				
S96T001092				
Instrument Code				
WB27807				
Prepared By				
SLH				
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
04/11/96				
Analysis Date				
04/10/96				
Analysis Time				
03:30 PM				
Sample Point				
U-107				

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.59E-02
QC FOUND	=	3.40E-02
AVG. PERCENT SPIKE RECOVERY	=	94.8%

Analyst:		SLH	Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	69	71
7472	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.7724	1.7724
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.930	1.997

Batch Number	
96003250	Blank Concentration in µCi/g 9.49E-02
Rerun	Replicate Concentration in µCi/g 9.82E-02
0	Average Concentration in µCi/g 9.6548E-02

Sample Prep: FUSION01

Sample #: S96T001093

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: SCL

Date Complete: 04/11/96

Analysis Date: 04/10/96

Analysis Time: 03:30 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	9.65E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		30.3%	2.99E-02 µCi/g

Analyst:		SCL	Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	74	74
7472	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.864	1.864
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.097	2.097

Blank Concentration in µCi/g	9.80E-02
Replicate Concentration in µCi/g	9.80E-02
Average Concentration in µCi/g	9.8038E-02

Batch Number: 96003250
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001093
Instrument Code: WB27807
Prepared By: SLH
Chemist: SLF
Analyst: SCL
Date Complete: 04/11/96
Analysis Date: 04/10/96
Analysis Time: 03:30 PM
Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	9.80E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		28.7%	2.85E-02 µCi/g

Analyst:	SCL		Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM9

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	290	267
7472	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8052	1.8052
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.297	8.530

Batch Number		
96003250	Blank Concentration in µCi/g	4.49E-01
Rerun	Replicate Concentration in µCi/g	4.12E-01
0	Average Concentration in µCi/g	4.3035E-01

Sample Prep: FUSION01

Sample #: S96T001094

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: SCL

Date Complete: 04/11/96

Analysis Date: 04/10/96

Analysis Time: 03:30 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

		DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average) =	4.30E-01	
RELATIVE COUNTING ERROR	12.8%	2.94E-02 µCi/g

Analyst:		SCL	Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

1076

WORKBOOK PAGE: DUP1

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	245	289
7472	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.944	1.944
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7.797	9.263

Batch Number	
96003250	Blank Concentration in µCi/g 3.50E-01
Rerun	Replicate Concentration in µCi/g 4.15E-01
0	Average Concentration in µCi/g 3.8244E-01

Sample Prep: FUSION01

Sample #: S96T001094

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: SCL

Date Complete: 04/11/96

Analysis Date: 04/10/96

Analysis Time: 03:30 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	3.82E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		13.4%	2.73E-02 µCi/g

Analyst:		SCL	Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 7473

Analyst: S. C. L **Instrument:** AB00 16 **Book#** 47B56

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001095	0	F	@ALPHA01	SOLID	96000126	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001095	0	F	@ALPHA01	SOLID		
6	SPK	S96T001095	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001096	0	F	@ALPHA01	SOLID	96000126	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T001096	0	F	@ALPHA01	SOLID		
9	SAMPLE	S96T001097	0	F	@ALPHA01	SOLID	96000126	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T001097	0	F	@ALPHA01	SOLID		
11	SAMPLE	S96T001132	0	F	@ALPHA01	SOLID	96000126	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
12	DUP	S96T001132	0	F	@ALPHA01	SOLID		

Final page for worklist # 7473

Sue C Lai 4-12-96
Analyst Signature **Date**

[illegible] 4/15/96
Analyst Signature **Date**

C. J. Oainen 4/15/96

Data Entry Comments:

Replicate data for 1095 sample + Dup indicate the elevated RPD is due to sample inhomogeneity. RPDs for 1097 + ~~110~~ SLS 1132 are acceptable due to low sample alpha activity. [illegible] 4/16/96

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

LABCORE Completed Worklist Report for Worklist# 7473

Analyst: scl **Instrument:** AB16 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.53E-4	119.530	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.31E+00	4.310	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<7.05E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	9.52E-01	0.950	uCi/g
4	SAMPLE	S96T001095	0	F	@ALPHA01	ALPHA01	SOLID	N/A	9.10E-01	1.450e-002	uCi/g
4	SAMPLE	S96T001095	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	8.08E+00	0.000	% Ct. Error
5	DUP	S96T001095	0	F	@ALPHA01	ALPHA01	SOLID	9.10E-1	6.09E-1	39.630	RPD
5	DUP	S96T001095	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.08E+01	10.800	% Ct. Error
6	SPK	S96T001095	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.13E-02	87.190	% Recovery
7	SAMPLE	S96T001096	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.83E-01	8.550e-003	uCi/g
7	SAMPLE	S96T001096	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.41E+01	0.000	% Ct. Error
8	DUP	S96T001096	0	F	@ALPHA01	ALPHA01	SOLID	1.83E-1	1.83E-1	0.000	RPD
8	DUP	S96T001096	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.42E+01	14.200	% Ct. Error
9	SAMPLE	S96T001097	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.76E-02	3.810e-003	uCi/g
9	SAMPLE	S96T001097	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	3.46E+01	0.000	% Ct. Error
10	DUP	S96T001097	0	F	@ALPHA01	ALPHA01	SOLID	1.76E-2	1.27E-2	32.340	RPD
10	DUP	S96T001097	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	3.76E+01	37.600	% Ct. Error
11	SAMPLE	S96T001132	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.71E-01	7.720e-003	uCi/g
11	SAMPLE	S96T001132	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.39E+01	0.000	% Ct. Error
12	DUP	S96T001132	0	F	@ALPHA01	ALPHA01	SOLID	1.71E-1	1.54E-1	10.460	RPD
12	DUP	S96T001132	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.53E+01	15.300	% Ct. Error

Final page for worklist# 7473

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

4/17/96

Reviewer Signature **Date**

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

LABCORE Completed Worklist Report for Worklist# 7473

Analyst: scl **Instrument:** AB16 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.53E-4	119.530	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.31E+00	4.310	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<7.05E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	0.00E+00	9.52E-01	0.000	uCi/g
4	SAMPLE	S96T001095	0	F	@ALPHA01	ALPHA01	SOLID	N/A	9.10E-01	1.450e-002	uCi/g
4	SAMPLE	S96T001095	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	8.08E+00	0.000	% Ct. Error
5	DUP	S96T001095	0	F	@ALPHA01	ALPHA01	SOLID	9.10E-1	6.09E-1	39.630	RPD
5	DUP	S96T001095	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.08E+01	10.800	% Ct. Error
6	SPK	S96T001095	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.13E-02	87.190	% Recovery
7	SAMPLE	S96T001096	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.83E-01	8.550e-003	uCi/g
7	SAMPLE	S96T001096	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.41E+01	0.000	% Ct. Error
8	DUP	S96T001096	0	F	@ALPHA01	ALPHA01	SOLID	1.83E-1	1.83E-1	0.000	RPD
8	DUP	S96T001096	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.42E+01	14.200	% Ct. Error
9	SAMPLE	S96T001097	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.76E-02	3.810e-003	uCi/g
9	SAMPLE	S96T001097	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	3.46E+01	0.000	% Ct. Error
10	DUP	S96T001097	0	F	@ALPHA01	ALPHA01	SOLID	1.76E-2	1.27E-2	32.340	RPD
10	DUP	S96T001097	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	3.76E+01	37.600	% Ct. Error
11	SAMPLE	S96T001132	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.71E-01	7.720e-003	uCi/g
11	SAMPLE	S96T001132	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.39E+01	0.000	% Ct. Error
12	DUP	S96T001132	0	F	@ALPHA01	ALPHA01	SOLID	1.71E-1	1.54E-1	10.460	RPD
12	DUP	S96T001132	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.53E+01	15.300	% Ct. Error

Final page for worklist# 7473

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date

Corrected QC actual + yield for BLNK/BKG.

2/16/96

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
DETECTOR NUMBER			16	16
DISH SIZE (1 , 2 , or 5)		(MS)	2	2
GROSS COUNTS		(GC)	2075	2204
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.07	0.07
SAMPLE SIZE in mL		(SS)	1.000	1.000
DILUTION FACTOR		(DF)	1	1
STANDARD BOOK NUMBER		(Std BN)	47B56	47B56
EFFICIENCY FACTOR		(EFF)	0.2104	0.2104
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			69.097	73.397
Standard Value in µCi/mL			1.28E-04	
Concentration in µCi/L	=		1.48E-01	
Replicate Concentration in µCi/L	=		1.57E-01	
AVERAGE CONCENTRATION in µCi/L	=		1.5253E-01	

Type	STD
Work List	7473
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	LIQUID
Batch Number	96003251
Rerun	0
Sample Prep	N/A
Sample #	WL7374
Instrument Code	WB27806
Prepared By	MCB
Chemist	SLF
Analyst	SCL
Date Complete	04/15/96
Analysis Date	04/12/96
Analysis Time	03:00 PM
Sample Point	U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.53E-04	6.77E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.3%	

Analyst:		MCB	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		18	18
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	1	3
7473	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.06	2.06
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.113	0.154

Batch Number		
96003251	Blank Concentration in µCi/g	< 5.15E-03
Rerun	Replicate Concentration in µCi/g	< 7.05E-03
0	Maximum Concentration in µCi/g	< 7.0517E-03

Sample Prep: N/A

Sample # WL7473

Instrument Code WB27806

Prepared By MCB

Chemist SLF

Analyst SCL

Date Complete 04/15/96

Analysis Date 04/12/96

Analysis Time 03:00 PM

Sample Point U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Maximum) = < 7.05E-03		DETECTION LEVEL
LESS Than Value was Determined from Lc.		
RELATIVE COUNTING ERROR	500.0%	1.45E-02 µCi/g

Analyst:		SCL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	603	595
7473	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.06	2.06
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		20.030	19.763

Batch Number	
96003251	Blank Concentration in µCi/g 9.16E-01
Rerun	Replicate Concentration in µCi/g 9.04E-01
0	Average Concentration in µCi/g 9.0984E-01

Sample Prep: FUSION01

Sample #: S96T001095

Instrument Code: WB27806

Prepared By: MCB

Chemist: SLF

Analyst: SCL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	9.10E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		8.1%	1.45E-02 µCi/g

Analyst:	SCL		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	405	335
7473	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8972	1.8972
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		13.430	11.097

Batch Number		
96003251	Blank Concentration in µCi/g	6.67E-01
Rerun	Replicate Concentration in µCi/g	5.51E-01
0	Average Concentration in µCi/g	6.0890E-01

Sample Prep: FUSION01

Sample #: S96T001095

Instrument Code: WB27806

Prepared By: MCB

Chemist: SLF

Analyst: SCL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	6.09E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		10.8%	1.57E-02 µCi/g

Analyst:	SCL		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	42919	46119
7473	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.250	0.250
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.06	2.06
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96003251	SPIKE VALUE in µCi/mL	(SVal)	3.5896E-02	3.5896E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/g	(S[illegible])	6.54E+01	7.03E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		9.0984E-01	
FUSION01				
Sample #				
S96T001095	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EF[illegible] * SS * Dg/L *2220000dpm/µCi)			
WB27806	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(S[illegible]*1000))/(DF/SS/Dg/L))))			
MCB	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTU[illegible]) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
04/15/96				
Analysis Date				
04/12/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.13E-02	
03:00 PM	AVG. PERCENT SPIKE RECOVERY	=	87.3%	
Sample Point				
U-107				

Analyst:		MCB	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SPIKE.WB1 Rev. 1.0 508101M[illegible]

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	200	211
7473	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.7412	1.7412
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.597	6.963

Batch Number	
96003251	Blank Concentration in µCi/g 1.78E-01
Rerun	Replicate Concentration in µCi/g 1.88E-01
0	Average Concentration in µCi/g .8340E-01
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T001096	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.83E-01
Analyst	
SCL	
Date Complete	
04/15/96	RELATIVE COUNTING ERROR 14.1%
Analysis Date	
04/12/96	
Analysis Time	
03:00 PM	
Sample Point	
U-107	

DETECTION LEVEL
8.55E-03 µCi/g

Analyst:			Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	214	198
7473	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.7484	1.7484
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7.063	6.530

Blank Concentration in µCi/g	1.90E-01
Replicate Concentration in µCi/g	1.76E-01
Average Concentration in µCi/g	.8310E-01

Batch Number: 96003251
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001096
Instrument Code: WB27806
Prepared By: MCB
Chemist: SLF
Analyst: SCL
Date Complete: 04/15/96
Analysis Date: 04/12/96
Analysis Time: 03:00 PM
Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from F[illegible]re LA-508-002.

ALPHA TOTAL in µCi/g (Average) =	1.83E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR	14.2%	8.52E-03 µCi/g

Analyst: Date: 15-Apr-96

Signature of Chemist: SLF Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM9

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	38	54
7473	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9564	1.9564
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.197	1.730
Batch Number				
96003251	Blank Concentration in µCi/g		1.44E-02	
Rerun	Replicate Concentration in µCi/g		.08E-02	
0	Average Concentration in µCi/g		615E-02	
Sample Prep				
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG			
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * L * 2220000dpm/µCi)			
S96T001097				
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * (TC - BKG * CT)|] * 1.96 * 100			
WB27806	Detection Levels and Less Than Values are determined from e LA-508-002.			
Prepared By				
MCB				
Chemist				
SLF	ALPHA TOTAL in µCi/g (Average) =		1.76E-02	DETECTION LEVEL
Analyst				
SCL				
Date Complete				3.81E-03 µCi/g
04/15/96	RELATIVE COUNTING ERROR		34.6%	
Analysis Date				
04/12/96				
Analysis Time				
03:00 PM				
Sample Point				
U-107				

Analyst: Date: 15-Apr-96

Signature of Chemist: SLF Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP1

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	33	37
7473	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0372	2.0372
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.030	1.163
Batch Number				
96003251	Blank Concentration in µCi/g		.19E-02	
Rerun	Replicate Concentration in µCi/g		.34E-02	
0	Average Concentration in µCi/g		678E-02	

Sample Prep: FUSION01

Sample #: S96T001097

Instrument Code: WB27806

Prepared By: MCB

Chemist: SLF

Analyst: SCL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * [illegible] * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * [illegible] (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from [illegible] LA-508-002.

ALPHA TOTAL in µCi/g (Average)	=	1.27E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		37.6%	3.65E-03 µCi/g

Analyst: Date: 15-Apr-96

Signature of Chemist: SLF Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM1

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	205	218
7473	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.928	1.928
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.763	7.197
Batch Number				
96003251	Blank Concentration in µCi/g		.65E-01	
Rerun	Replicate Concentration in µCi/g		.76E-01	
0	Average Concentration in µCi/g		1.7052E-01	

Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)
S96T001132	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG *) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from LA-508-002.
Prepared By	
MCB	
Chemist	
SLF	
Analyst	
SCL	
Date Complete	
04/15/96	
Analysis Date	
04/12/96	
Analysis Time	
03:00 PM	
Sample Point	
U-107	

ALPHA TOTAL in µCi/g (Average) =	1.71E-01	DETECTION LEVEL	
RELATIVE COUNTING ERROR	13.9%	7.72E-03 µCi/g	

Analyst:

Signature of Chemist:

SAMPLE.WB1 Rev. 1.0 508101ML

Date: 15-Apr-96

SLF Date: 4/16/96

WORKBOOK PAGE: DUP1

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	170	171
7473	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.7196	1.7196
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		5.597	5.630

Batch Number		
96003251	Blank Concentration in µCi/g	53E-01
Rerun	Replicate Concentration in µCi/g	54E-01
0	Average Concentration in µCi/g	75E-01

Sample Prep: FUSION01

Sample #: S96T001132

Instrument Code: WB27806

Prepared By: MCB

Chemist: SLF

Analyst: SCL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * [illegible] * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * [illegible] (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from [illegible] LA-508-002.

ALPHA TOTAL in µCi/g (Average) =	1.54E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR	15.3%	8.66E-03 µCi/g

Analyst: Date: 15-Apr-96

Signature of Chemist: SLF Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

Ref 3 Green

04/09/96 15:11
A-0004-1

LABCORE Data Entry Template for Worklist# 7537

Analyst: AKL **Instrument:** AB00 #16 **Book#** ~~124643~~ 97B56

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: U-107 DETERMIN SS USING LUDLUM (.1ML FOR SPIKE) RTS

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001089	0	F	@ALPHA01	SOLID	96000126	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001089	0	F	@ALPHA01	SOLID		
6	SPK	S96T001089	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001090	0	F	@ALPHA01	SOLID	96000126	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T001090	0	F	@ALPHA01	SOLID		
9	SAMPLE	S96T001091	0	F	@ALPHA01	SOLID	96000126	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T001091	0	F	@ALPHA01	SOLID		

Final page for worklist # 7537

C. Lewis 4/12/96
Analyst Signature **Date**

M S Brennan 4/15/96
Analyst Signature **Date**
C.J. Opinion 4/15/96

Data Entry Comments:
SPK recovery for 1089 + RPD's for 1089 + 1090 are acceptable due to low sample alpha activity. Sample 1091 will be reran due to discrepancy in counts. [illegible] 4/16/96.

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

LABCORE Completed Worklist Report for Worklist# 7537

Analyst: akl **Instrument:** AB16 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: U-107 DETERMIN SS USING LUDLUM (.1ML FOR SPIKE) RTS

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.49E-4	116.410	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.39E+00	4.390	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<3.22E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	1.37E+00	1.370	uCi/g
4	SAMPLE	S96T001089	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.53E-02	5.590e-003	uCi/g
4	SAMPLE	S96T001089	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	3.77E+01	0.000	% Ct. Error
5	DUP	S96T001089	0	F	@ALPHA01	ALPHA01	SOLID	1.53E-2	2.03E-2	28.090	RPD
5	DUP	S96T001089	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	3.16E+01	31.600	% Ct. Error
6	SPK	S96T001089	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	2.56E-02	71.310	% Recovery
7	SAMPLE	S96T001090	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.74E-02	4.130e-003	uCi/g
7	SAMPLE	S96T001090	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.31E+01	0.000	% Ct. Error
8	DUP	S96T001090	0	F	@ALPHA01	ALPHA01	SOLID	2.74E-2	4.03E-2	38.110	RPD
8	DUP	S96T001090	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.97E+01	19.700	% Ct. Error
9	SAMPLE	S96T001091	0	F	@ALPHA01	ALPHA01	SOLID	N/A	5.03E-01	1.200e-002	uCi/g
9	SAMPLE	S96T001091	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	8.49E+00	0.000	% Ct. Error
10	DUP	S96T001091	0	F	@ALPHA01	ALPHA01	SOLID	5.03E-1	<7.34E-3		RPD
10	DUP	S96T001091	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error

Final page for worklist# 7537

Analyst Signature Date

Analyst Signature Date

4/16/96

Reviewer Signature Date

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

LABCORE Completed Worklist Report for Worklist# 7537

Analyst: akl **Instrument:** AB16 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: U-107 DETERMIN SS USING LUDLUM (.1ML FOR SPIKE) RTS

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.49E-4	116.410	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.39E+00	4.390	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<3.22E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	0.00E+00	1.37E+00	0.000	uCi/g
4	SAMPLE	S96T001089	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.53E-02	5.590e-003	uCi/g
4	SAMPLE	S96T001089	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	3.77E+01	0.000	% Ct. Error
5	DUP	S96T001089	0	F	@ALPHA01	ALPHA01	SOLID	1.53E-2	2.03E-2	28.090	RPD
5	DUP	S96T001089	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	3.16E+01	31.600	% Ct. Error
6	SPK	S96T001089	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	2.56E-02	71.310	% Recovery
7	SAMPLE	S96T001090	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.74E-02	4.130e-003	uCi/g
7	SAMPLE	S96T001090	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.31E+01	0.000	% Ct. Error
8	DUP	S96T001090	0	F	@ALPHA01	ALPHA01	SOLID	2.74E-2	4.03E-2	38.110	RPD
8	DUP	S96T001090	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.97E+01	19.700	% Ct. Error
9	SAMPLE	S96T001091	0	F	@ALPHA01	ALPHA01	SOLID	N/A	5.03E-01	1.200e-002	uCi/g
9	SAMPLE	S96T001091	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	8.49E+00	0.000	% Ct. Error
10	DUP	S96T001091	0	F	@ALPHA01	ALPHA01	SOLID	5.03E-1	<7.34E-3		RPD
10	DUP	S96T001091	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error

Final page for worklist# 7537

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date

Corrected QC actual + yield for BLNK/BKG.
4/16/96

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS	2	2
Work List	GROSS COUNTS	(G	2166	2013
7537	COUNT TIME in MINUTES	(C	30	30
AT or TB ?	BACKGROUND in cpm	(BK	0.17	0.17
AT	SAMPLE SIZE in mL	(S	1.000	1.000
Test Code	DILUTION FACTOR	(D	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std B	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EF	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		72.030	66.930
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003320	Concentration in µCi/L	=	1.54E-01	
Rerun	Replicate Concentration in µCi/L	=	1.43E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4875E-01	

Sample Prep: N/A

Rs (Sample Count Rate) = (TC / CT) - BKG

Sample #: WL7537

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1C /L

Instrument Code: WB27806

Relative Counting Error = [|(The Square Root of TC + B CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined fror edure LA-508-002.

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: U-107

ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.49E-04	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.4%	9.46E-07 µCi/mL

Analyst:	MCB		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		16	16
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS	2	2
Work List	GROSS COUNTS	(GC	7	7
7537	COUNT TIME in MINUTES	(CT	30	30
AT or TB ?	BACKGROUND in cpm	(BKG	0.17	0.17
AT	SAMPLE SIZE in mL	(SS	0.100	0.100
Test Code	DILUTION FACTOR	(DF	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L	1.6932	1.6932
Matrix	EFFICIENCY FACTOR	(EFF	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.255	0.255
Batch Number				
96003320	Blank Concentration in µCi/g		3.22E-03	
Rerun	Replicate Concentration in µCi/g		3.22E-03	
0	Maximum Concentration in µCi/g		3.2199E-03	

Sample Prep: N/A

Rs (Sample Count Rate) = (TC / CT) - BKG

Sample #: WL7537

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * S[illegible] * Dg/L * 2220000dpm/µCi)

Instrument Code: WB27806

Relative Counting Error = [|(The Square Root of TC + BK[illegible] CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from [illegible]edure LA-508-002.

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: U-107

ALPHA TOTAL in µCi/g (Maximum)	< 3.22E-03	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.		5.59E-03 µCi/g
RELATIVE COUNTING ERROR	500.0%	

Analyst:		KL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	43	40
7537	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(S)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.6932	1.6932
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.263	1.163

Batch Number		
96003320	Blank Concentration in µCi/g	1.60E-02
Rerun	Replicate Concentration in µCi/g	1.47E-02
0	Average Concentration in µCi/g	1.5342E-02

Sample Prep: FUSION01

Sample #: S96T001089

Instrument Code: WB27806

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * S * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	1.53E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR	37.7%	5.59E-03 µCi/g

Analyst:		KL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	64	52
7537	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8636	1.8636
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.963	1.563

Batch Number	
96003320	Blank Concentration in µCi/g 2.26E-02
Rerun	Replicate Concentration in µCi/g 1.80E-02
0	Average Concentration in µCi/g 2.0257E-02
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T001089	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) 2.03E-02
Analyst	
AKL	
Date Complete	
04/15/96	RELATIVE COUNTING ERROR 31.6%
Analysis Date	
04/12/96	
Analysis Time	
03:00 PM	
Sample Point	
U-107	

DETECTION LEVEL
5.08E-03 µCi/g

Analyst:		AKL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	35341	36537
7537	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.6932	1.6932
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(S k BN)	123B43	123B43
96003320	SPIKE VALUE in µCi/mL	(Val)	3.5896E-02	3.5896E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/g	+S)	1.49E+01	1.54E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.5342E-02	
FUSION01				
Sample #				
S96T001089				
Instrument Code				
WB27806				
Prepared By				
MCB				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/15/96				
Analysis Date				
04/12/96				
Analysis Time				
03:00 PM				
Sample Point				
U-107				

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (F * SS * Dg/L *2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SD Vol*1000))/(DF/SS/Dg/L))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC A AL) *100

QC ACTUAL	=	3.59E-02
QC FOUND	=	2.56E-02
AVG. PERCENT SPIKE RECOVERY	=	71.4%

Analyst:		MCB	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS	2	2
Work List	GROSS COUNTS	(G	86	100
7537	COUNT TIME in MINUTES	(CT	30	30
AT or TB ?	BACKGROUND in cpm	(BK	0.17	0.17
AT	SAMPLE SIZE in mL	(S	0.100	0.100
Test Code	DILUTION FACTOR	(D	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2932	2.2932
Matrix	EFFICIENCY FACTOR	(EF	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.697	3.163
Batch Number				
96003320	Blank Concentration in µCi/g		2.52E-02	
Rerun	Replicate Concentration in µCi/g		2.95E-02	
0	Average Concentration in µCi/g		2.7354E-02	

Sample Prep: FUSION01

Rs (Sample Count Rate) = (TC / CT) - BKG

Sample #: S96T001090

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * S * Dg/L * 2220000dpm/µCi)

Instrument Code: WB27806

Relative Counting Error = [|(The Square Root of TC + BK CT) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined fro cedure LA-508-002.

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: U-107

ALPHA TOTAL in µCi/g (Average)	2.74E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR	23.1%	4.13E-03 µCi/g

Analyst: L Date: 15-Apr-96

Signature of Chemist: SLF Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	113	149
7537	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2316	2.2316
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.597	4.797
Batch Number				
96003320	Blank Concentration in µCi/g		3.45E-02	
Rerun	Replicate Concentration in µCi/g		4.60E-02	
0	Average Concentration in µCi/g		4.0261E-02	

Sample Prep: FUSION01

Sample #: S96T001090

Instrument Code: WB27806

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	4.03E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR	19.7%	4.24E-03 µCi/g

Analyst:	AKL		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM9

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	548	577
7537	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.7412	1.7412
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		18.097	19.063
Batch Number				
96003320	Blank Concentration in µCi/g		4.90E-01	
Rerun	Replicate Concentration in µCi/g		5.16E-01	
0	Average Concentration in µCi/g		5.0260E-01	

Sample Prep: FUSION01

Sample #: S96T001091

Instrument Code: WB27806

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	5.03E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		8.5%	1.20E-02 µCi/g

Analyst:		L	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP1

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	7	7
7537	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.6344	1.6344
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.255	0.255
Batch Number				
96003320	Blank Concentration in µCi/g	<	7.34E-03	
Rerun	Replicate Concentration in µCi/g	<	7.34E-03	
0	Maximum Concentration in µCi/g	<	7.3386E-03	

Sample Prep: FUSION01

Sample #: S96T001091

Instrument Code: WB27806

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * S[illegible] Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG [illegible]T) / (TC - BKG * CT)|] * 1.96 * 100

Detection Levels and Less Than Values are determined from [illegible]edure LA-508-002.

ALPHA TOTAL in µCi/g (Maximum)	=	< 7.34E-03	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			
RELATIVE COUNTING ERROR		500.0%	1.27E-02 µCi/g

Analyst:	L		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 7538

Analyst: KNT **Instrument:** AB00 15 **Book#** 47B 56

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: U-107 DETERMIN SS USING LUDLUM (.1ML FOR SPIKE) RTS

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001153	0		@ALPHA01	SOLID	96000085	U-107
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T001153	0		@ALPHA01	SOLID		
6	SPK	S96T001153	0		@ALPHA01	SOLID		
7	SAMPLE	S96T001162	0	F	@ALPHA01	SOLID	96000085	U-107
		Analytes Requested: ALPHA01 , ALPHA01E						
8	DUP	S96T001162	0	F	@ALPHA01	SOLID		

Final page for worklist # 7538

Kim Thomas 4-11-96
Analyst Signature **Date**

Sharon L Hall 4-12-96
Analyst Signature **Date**

C.J. Openen 4/12/96

Data Entry Comments: SPK recovery is acceptable due to low sample alpha activity.

4/15/96

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

LABCORE Completed Worklist Report for Worklist# 7538

Analyst: knt **Instrument:** AB15 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: U-107 DETERMIN SS USING LUDLUM (.1ML FOR SPIKE) RTS

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.26E-4	98.440	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.42E+00	4.420	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<1.45E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	7.69E-01	0.770	uCi/g
4	SAMPLE	S96T001153	0		@ALPHA01	ALPHA01	SOLID	N/A	4.64E-02	3.770e-003	uCi/g
4	SAMPLE	S96T001153	0		@ALPHA01	ALPHA01E	SOLID	N/A	1.75E+01	0.000	% Ct. Error
5	DUP	S96T001153	0		@ALPHA01	ALPHA01	SOLID	4.64E-2	3.22E-2	36.130	RPD
5	DUP	S96T001153	0		@ALPHA01	ALPHA01E	SOLID	1.00	2.01E+01	20.100	% Ct. Error
6	SPK	S96T001153	0		@ALPHA01	ALPHA01	SOLID	3.59E-02	2.65E-02	73.820	% Recovery
7	SAMPLE	S96T001162	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.87E-02	1.730e-003	uCi/g
7	SAMPLE	S96T001162	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.22E+01	0.000	% Ct. Error
8	DUP	S96T001162	0	F	@ALPHA01	ALPHA01	SOLID	3.87E-2	3.60E-2	7.230	RPD
8	DUP	S96T001162	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.28E+01	12.800	% Ct. Error

Final page for worklist# 7538

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

4/16/96

Reviewer Signature **Date**

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

LABCORE Completed Worklist Report for Worklist# 7538

Analyst: knt **Instrument:** AB15 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: U-107 DETERMIN SS USING LUDLUM (.1ML FOR SPIKE) RTS

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.26E-4	98.440	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.42E+00	4.420	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<1.45E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	0.00E+00	7.69E-01	0.000	uCi/g
4	SAMPLE	S96T001153	0		@ALPHA01	ALPHA01	SOLID	N/A	4.64E-02	3.770e-003	uCi/g
4	SAMPLE	S96T001153	0		@ALPHA01	ALPHA01E	SOLID	N/A	1.75E+01	0.000	% Ct. Error
5	DUP	S96T001153	0		@ALPHA01	ALPHA01	SOLID	4.64E-2	3.22E-2	36.130	RPD
5	DUP	S96T001153	0		@ALPHA01	ALPHA01E	SOLID	1.00	2.01E+01	20.100	% Ct. Error
6	SPK	S96T001153	0		@ALPHA01	ALPHA01	SOLID	3.59E-02	2.65E-02	73.820	% Recovery
7	SAMPLE	S96T001162	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.87E-02	1.730e-003	uCi/g
7	SAMPLE	S96T001162	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.22E+01	0.000	% Ct. Error
8	DUP	S96T001162	0	F	@ALPHA01	ALPHA01	SOLID	3.87E-2	3.60E-2	7.230	RPD
8	DUP	S96T001162	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.28E+01	12.800	% Ct. Error

Final page for worklist# 7538

Analyst Signature **Date**

Analyst Signature **Date**

Reviewer Signature **Date**

Corrected QC actual + yield for BLNK/BKG.
4/15/96

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2015	1976
7538	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		67.037	65.737
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003324	Concentration in µCi/L	=	1.27E-01	
Rerun	Replicate Concentration in µCi/L	=	1.24E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.2565E-01	

Sample Prep: N/A

Sample#: WL7538

Instrument Code: WB26872

Prepared By: SLH

Chemist: SLF

Analyst: KNT

Date Complete: 04/12/96

Analysis Date: 04/11/96

Analysis Time: 10:35 AM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.26E-04	7.53E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.4%	

Analyst:		SLH	Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	3	3
7538	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.154	0.154
Batch Number				
96003324	Blank Concentration in µCi/g	<	1.45E-03	
Rerun	Replicate Concentration in µCi/g	<	1.45E-03	
0	Maximum Concentration in µCi/g	<	1.4536E-03	

Sample Prep: N/A

Sample #: WL7538

Instrument Code: WB26872

Prepared By: SLH

Chemist: SLF

Analyst: KNT

Date Complete: 04/12/96

Analysis Date: 04/11/96

Analysis Time: 10:35 AM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Maximum)	=	< 1.45E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			3.77E-03 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst:	KNT		Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	136	166
7538	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4.403	5.403

Blank Concentration in µCi/g	4.17E-02
Replicate Concentration in µCi/g	5.11E-02
Average Concentration in µCi/g	4.6401E-02

Batch Number: 96003324
Rerun: 0
Sample Prep: N/A
Sample #: S96T001153
Instrument Code: WB26872
Prepared By: SLH
Chemist: SLF
Analyst: KNT
Date Complete: 04/12/96
Analysis Date: 04/11/96
Analysis Time: 10:35 AM
Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	4.64E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		17.5%	3.77E-03 µCi/g

Analyst:		KNT	Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	106	106
7538	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.403	3.403

Batch Number	
96003324	Blank Concentration in µCi/g 3.22E-02
Rerun	Replicate Concentration in µCi/g 3.22E-02
0	Average Concentration in µCi/g 3.2207E-02
Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T001153	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 3.22E-02
Analyst	
KNT	
Date Complete	
04/12/96	RELATIVE COUNTING ERROR 20.1%
Analysis Date	
04/11/96	
Analysis Time	
10:35 AM	
Sample Point	
U-107	

DETECTION LEVEL
3.77E-03 µCi/g

Analyst:		KNT	Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

1110

WORKBOOK PAGE: SPIKE6

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	35227	49017
7538	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.200	0.200
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1	1
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96003324	SPIKE VALUE in µCi/mL	(SVal)	3.5896E-02	3.5896E-02
Rerun ?	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
0	SAMPLE + SPIKE µCi/g	(S+S)	1.11E+01	1.55E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		4.6401E-02	
N/A				
Sample #				
S96T001153				
Instrument Code				
WB26872				
Prepared By				
SLH				
Chemist				
SLF				
Analyst				
KNT				
Date Complete				
04/12/96				
Analysis Date				
04/11/96				
Analysis Time				
10:35 AM				
Sample Point				
U-107				

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.59E-02
QC FOUND	=	2.65E-02
AVG. PERCENT SPIKE RECOVERY	=	73.8%

Analyst:		SLH	Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SPIKE.WB1 Rev. 1.0 508101ML

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WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	270	271
7538	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1712	2.1712
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8.870	8.903

Blank Concentration in µCi/g	3.87E-02
Replicate Concentration in µCi/g	3.88E-02
Average Concentration in µCi/g	3.8733E-02

Batch Number: 96003324
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001162
Instrument Code: WB26872
Prepared By: SLH
Chemist: SLF
Analyst: KNT
Date Complete: 04/12/96
Analysis Date: 04/11/96
Analysis Time: 10:35 AM
Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	3.87E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		12.2%	1.73E-03 µCi/g

Analyst:	KNT	Date: 12-Apr-96	
Signature of Chemist:	SLF	Date: 4/15/96	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	247	253
7538	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1548	2.1548
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8.103	8.303

Batch Number	
96003324	Blank Concentration in µCi/g 3.56E-02
Rerun	Replicate Concentration in µCi/g 3.65E-02
0	Average Concentration in µCi/g 3.6027E-02
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T001162	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 3.60E-02
Analyst	
KNT	
Date Complete	
04/12/96	RELATIVE COUNTING ERROR 12.8%
Analysis Date	
04/11/96	
Analysis Time	
10:35 AM	
Sample Point	
U-107	

DETECTION LEVEL
1.75E-03 µCi/g

Analyst:		KNT	Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101M

LABCORE Data Entry Template for Worklist# 7586

Analyst: WGB **Instrument:** AB00 14 **Book#** 47356

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using ludlum.For spike use:0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	LIQUID		
2	BLNK				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S96T001110	0		@ALPHA01	LIQUID	96000126	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001110	0		@ALPHA01	LIQUID		
6	SPK	S96T001110	0		@ALPHA01	LIQUID		
7	SAMPLE	S96T001119	0		@ALPHA01	LIQUID	96000126	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T001119	0		@ALPHA01	LIQUID		
9	SAMPLE	S96T001120	0		@ALPHA01	LIQUID	96000126	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T001120	0		@ALPHA01	LIQUID		
11	SAMPLE	S96T001121	0		@ALPHA01	LIQUID	96000126	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
12	DUP	S96T001121	0		@ALPHA01	LIQUID		

Final page for worklist # 7586

Margaret Burkhardt 4-12-96
Analyst Signature **Date**

Leo Hogan 4/15/96
Analyst Signature **Date**

4/15/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7586

Analyst: wgb **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use:0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@ALPHA01	ALPHA01	LIQUID	1.28E-04	1.44E-4	112.500	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	LIQUID	1.00	4.25E+00	4.250	% Ct. Error
2	BLNK		0	@ALPHA01	ALPHA01	LIQUID	1	<4.45E-5		uCi/mL
2	BLNK		0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0	@ALPHA01	ALPHA01	LIQUID	1.00E+00	7.97E-01	0.800	uCi/mL
4	SAMPLE	S96T001110	0	@ALPHA01	ALPHA01	LIQUID	N/A <	6.30E-05	1.090e-004	uCi/mL
4	SAMPLE	S96T001110	0	@ALPHA01	ALPHA01E	LIQUID	N/A	5.00E+02	0.000	% Ct. Error
5	DUP	S96T001110	0	@ALPHA01	ALPHA01	LIQUID	<6.30E-5	<4.54E-5		RPD
5	DUP	S96T001110	0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error
6	SPK	S96T001110	0	@ALPHA01	ALPHA01	LIQUID	3.59E-02	3.52E-02	98.050	% Recovery
7	SAMPLE	S96T001119	0	@ALPHA01	ALPHA01	LIQUID	N/A	5.36E-03	5.490e-003	uCi/mL
7	SAMPLE	S96T001119	0	@ALPHA01	ALPHA01E	LIQUID	N/A	7.34E+01	0.000	% Ct. Error
8	DUP	S96T001119	0	@ALPHA01	ALPHA01	LIQUID	5.36E-3	<4.94E-3		RPD
8	DUP	S96T001119	0	@ALPHA01	ALPHA01E	LIQUID	1.00	1.43E+02	143.000	% Ct. Error
9	SAMPLE	S96T001120	0	@ALPHA01	ALPHA01	LIQUID	N/A <	2.25E-03	5.490e-003	uCi/mL
9	SAMPLE	S96T001120	0	@ALPHA01	ALPHA01E	LIQUID	N/A	5.00E+02	0.000	% Ct. Error
10	DUP	S96T001120	0	@ALPHA01	ALPHA01	LIQUID	<2.25E-3	<2.29E-3		RPD
10	DUP	S96T001120	0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error
11	SAMPLE	S96T001121	0	@ALPHA01	ALPHA01	LIQUID	N/A <	2.25E-03	5.490e-003	uCi/mL
11	SAMPLE	S96T001121	0	@ALPHA01	ALPHA01E	LIQUID	N/A	5.00E+02	0.000	% Ct. Error
12	DUP	S96T001121	0	@ALPHA01	ALPHA01	LIQUID	<2.25E-3	<2.29E-3		RPD
12	DUP	S96T001121	0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error

Final page for worklist# 7586

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

4/17/96

Reviewer Signature **Date**

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

LABCORE Completed Worklist Report for Worklist# 7586

Analyst: wgb **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use:0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0	@ALPHA01	ALPHA01	LIQUID	1.28E-04		1.44E-4	112.500	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	LIQUID	1.00		4.25E+00	4.250	% Ct. Error
2	BLNK		0	@ALPHA01	ALPHA01	LIQUID	1		<4.45E-5		uCi/mL
2	BLNK		0	@ALPHA01	ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0	@ALPHA01	ALPHA01	LIQUID	0.00E+00		7.97E-01	0.000	uCi/mL
4	SAMPLE	S96T001110.	0	@ALPHA01	ALPHA01	LIQUID	N/A	<	6.30E-05	1.090e-004	uCi/mL
4	SAMPLE	S96T001110	0	@ALPHA01	ALPHA01E	LIQUID	N/A		5.00E+02	0.000	% Ct. Error
5	DUP	S96T001110	0	@ALPHA01	ALPHA01	LIQUID	<6.30E-5		<4.54E-5		RPD
5	DUP	S96T001110	0	@ALPHA01	ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Error
6	SPK	S96T001110	0	@ALPHA01	ALPHA01	LIQUID	3.59E-02		3.52E-02	98.050	% Recovery
7	SAMPLE	S96T001119	0	@ALPHA01	ALPHA01	LIQUID	N/A		5.36E-03	5.490e-003	uCi/mL
7	SAMPLE	S96T001119	0	@ALPHA01	ALPHA01E	LIQUID	N/A		7.34E+01	0.000	% Ct. Error
8	DUP	S96T001119	0	@ALPHA01	ALPHA01	LIQUID	5.36E-3		<4.94E-3		RPD
8	DUP	S96T001119	0	@ALPHA01	ALPHA01E	LIQUID	1.00		1.43E+02	143.000	% Ct. Error
9	SAMPLE	S96T001120	0	@ALPHA01	ALPHA01	LIQUID	N/A	<	2.25E-03	5.490e-003	uCi/mL
9	SAMPLE	S96T001120	0	@ALPHA01	ALPHA01E	LIQUID	N/A		5.00E+02	0.000	% Ct. Error
10	DUP	S96T001120	0	@ALPHA01	ALPHA01	LIQUID	<2.25E-3		<2.29E-3		RPD
10	DUP	S96T001120	0	@ALPHA01	ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Error
11	SAMPLE	S96T001121	0	@ALPHA01	ALPHA01	LIQUID	N/A	<	2.25E-03	5.490e-003	uCi/mL
11	SAMPLE	S96T001121	0	@ALPHA01	ALPHA01E	LIQUID	N/A		5.00E+02	0.000	% Ct. Error
12	DUP	S96T001121	0	@ALPHA01	ALPHA01	LIQUID	<2.25E-3		<2.29E-3		RPD
12	DUP	S96T001121	0	@ALPHA01	ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Error

Final page for worklist# 7586

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date

Corrected QC actual + yield for BLNK/BKG.
4/16/96

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2237	2150
7586	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		74.337	71.437
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003391	Concentration in µCi/L	=	1.47E-01	
Rerun	Replicate Concentration in µCi/L	=	1.42E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4438E-01	

Sample Prep
N/A

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)
ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Sample #: WL7586
Instrument Code: WB27807
Prepared By: SEH
Chemist: SLF
Analyst: WGB
Date Complete: 04/15/96
Analysis Date: 04/12/96
Analysis Time: 05:30 AM
Sample Point: U-107

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.44E-04	9.89E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.2%	

Analyst:	SEH	Date: 15-Apr-96	
Signature of Chemist:	SLF	Date: 4/16/96	

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) LIQUIDS

			BLNK	REPLICATE
Type	DETECTOR NUMBER		14	14
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	5	6
7586	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.204	0.204
Batch Number				
96003391	Blank Concentration in µCi/L	<	4.45E-02	
Rerun	Replicate Concentration in µCi/L	<	4.45E-02	
0	Maximum Concentration in µCi/L	<	4.4520E-02	

Sample Prep: N/A

Sample #: WL7586

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: WGB

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 05:30 AM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum)	=	< 4.45E-05	DETECTION LEVEL
LESS Than Value was Determined from Lc.			
RELATIVE COUNTING ERROR		500.0%	1.09E-04 µCi/mL

Analyst:	WGB		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

BLANK.WB1 Rev. 1.0 508101MU

1113

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	9	7
7586	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.289	0.208

Batch Number			
96003391	Blank Concentration in µCi/L	<	6.30E-02
Rerun	Replicate Concentration in µCi/L	<	4.54E-02
0	Maximum Concentration in µCi/L	<	6.3040E-02

Sample Prep: N/A

Sample # : S96T001110

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: WGB

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 05:30 AM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum) =	< 6.30E-05	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.		1.09E-04 µCi/mL
RELATIVE COUNTING ERROR	500.0%	

Analyst:		WGB	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	7	5
7586	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.208	0.204

Blank Concentration in µCi/L	<	4.54E-02
Replicate Concentration in µCi/L	<	4.45E-02
Maximum Concentration in µCi/L	<	4.5407E-02

Batch Number: 96003391
Rerun: 0
Sample Prep: N/A
Sample # : S96T001110
Instrument Code: WB27807
Prepared By: SEH
Chemist: SLF
Analyst: WGB
Date Complete: 04/15/96
Analysis Date: 04/12/96
Analysis Time: 05:30 AM
Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/mL (Maximum) =	< 4.54E-05	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.		1.09E-04 µCi/mL
RELATIVE COUNTING ERROR	500.0%	

Analyst:		WGB	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101MU

WORKBOOK PAGE: SPIKE6

AT : LA-508-101 (D-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	53526	53078
7586	COUNT TIME in MINUTES	(CT)	30	30
AT or 15 ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
LIQUID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96003391	SPIKE VALUE in µCi/mL	(SVal)	3.5896E-02	3.5896E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/mL	(S+S)	3.89E-01	3.85E-01
Sample Prep	AVERAGE or MAXIMUM µCi/mL in SAMPLE	<	6.3040E-05	
N/A				

Sample #: S96T001110

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: WGB

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 05:30 AM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

NOTE: **Original Sample result was a LESS THAN value. Zero (0) was subtracted from the spiked value for QC found calculation.**

QC ACTUAL	=	3.59E-02
QC FOUND	=	3.52E-02
AVG. PERCENT SPIKE RECOVERY	=	98.0%

Analyst:		SEH	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
Type?	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	21	22
7586	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1111	1111
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.470	0.503

Batch Number	
96003391	Blank Concentration in µCi/L 5.17E+00
Rerun	Replicate Concentration in µCi/L 5.54E+00
0	Average Concentration in µCi/L 5.3552E+00
Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
S96T001119	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SEH	
Chemist	
SLF	
Analyst	
WGB	
Date Complete	
04/15/96	
Analysis Date	
04/12/96	
Analysis Time	
05:30 AM	
Sample Point	
U-107	

		DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Average) =	5.36E-03	5.49E-03 µCi/mL
RELATIVE COUNTING ERROR	73.4%	

Analyst:		WGB	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	19	13
7586	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1111	1111
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.403	0.449
Batch Number				
96003391	Blank Concentration in µCi/L		4.44E+00	
Rerun	Replicate Concentration in µCi/L	<	4.94E+00	
0	Maximum Concentration in µCi/L	<	4.9372E+00	

Sample Prep: N/A

Sample #: S96T001119

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: WGB

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 05:30 AM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum) =	< 4.94E-03	DETECTION LEVEL
LESS THAN Value was Determined from Rs.		5.49E-03 µCi/mL
RELATIVE COUNTING ERROR	143.3%	

Analyst:		WGB	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM9

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	5	6
7586	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1111	1111
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.204	0.204
Batch Number				
96003391	Blank Concentration in µCi/L	<	2.25E+00	
Rerun	Replicate Concentration in µCi/L	<	2.25E+00	
0	Maximum Concentration in µCi/L	<	2.2482E+00	
Sample Prep				
N/A				
Sample #				
S96T001120				
Instrument Code				
WB27807				
Prepared By				
SEH				
Chemist				
SLF				
Analyst				
WGB				
Date Complete				
04/15/96				
Analysis Date				
04/12/96				
Analysis Time				
05:30 AM				
Sample Point				
U-107				

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum)	=	< 2.25E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			5.49E-03 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst:		WGB	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP1

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	7	6
7586	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1111	1111
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.208	0.204

Batch Number		
96003391	Blank Concentration in µCi/L	< 2.29E+00
Rerun	Replicate Concentration in µCi/L	< 2.25E+00
0	Maximum Concentration in µCi/L	< 2.2931E+00

Sample Prep: N/A

Sample #: S96T001120

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: WGB

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 05:30 AM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum) =	< 2.29E-03	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.		5.49E-03 µCi/mL
RELATIVE COUNTING ERROR	500.0%	

Analyst:		WGB	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM1

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	6	3
7586	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1111	1111
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.204	0.204

Batch Number			
96003391	Blank Concentration in µCi/L	<	2.25E+00
Rerun	Replicate Concentration in µCi/L	<	2.25E+00
0	Maximum Concentration in µCi/L	<	2.2482E+00

Sample Prep: N/A

Sample # S96T001121

Instrument Code WB27807

Prepared By SEH

Chemist SLF

Analyst WGB

Date Complete 04/15/96

Analysis Date 04/12/96

Analysis Time 05:30 AM

Sample Point U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum)	=	< 2.25E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			5.49E-03 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst:		WGB	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP1

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	7	7
7586	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	1111	1111
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.208	0.208
Batch Number				
96003391	Blank Concentration in µCi/L	<	2.29E+00	
Rerun	Replicate Concentration in µCi/L	<	2.29E+00	
0	Maximum Concentration in µCi/L	<	2.2931E+00	
Sample Prep				
N/A				
Sample #				
S96T001121				
Instrument Code				
WB27807				
Prepared By				
SEH				
Chemist				
SLF				
Analyst				
WGB				
Date Complete				
04/15/96				
Analysis Date				
04/12/96				
Analysis Time				
05:30 AM				
Sample Point				
U-107				

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum)	=	< 2.29E-03		DETECTION LEVEL
LESS THAN Value was Determined from Rmax.				5.49E-03 µCi/mL
RELATIVE COUNTING ERROR		500.0%		

Analyst:		WGB	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101MU

LABCORE Data Entry Template for Worklist# 7721

Analyst: [illegible] **Instrument:** AB00 14 **Book#** 47856

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Use 1-10-.5 mL sample size. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001091	0	F	@ALPHA01	SOLID	96000126	U-107
		Analytes Requested:			ALPHA01 , ALPHA01E			
5	DUP	S96T001091	0	F	@ALPHA01	SOLID		

Final page for worklist # 7721

[illegible] 4-17-96
Analyst Signature **Date**

[illegible] 4/19/96
Analyst Signature **Date**

Sylvia Z Cohen

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 7721

Analyst: adp **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Use 1-10-.5 mL sample size. SLF

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.39E-4	108.594	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.28E+00	4.280	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<1.18E-2		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	3.08E+00	3.080	uCi/g
4	SAMPLE	S96T001091	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.85E-01	199.0e-004	uCi/g
4	SAMPLE	S96T001091	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.08E+01	0.0e+000	% Ct. Error
5	DUP	S96T001091	0	F	@ALPHA01	ALPHA01	SOLID	2.85E-1	3.19E-1	11.260	RPD
5	DUP	S96T001091	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.05E+01	10.500	% Ct. Error

Final page for worklist# 7721

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

4/30/96

Reviewer Signature **Date**

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

LABCORE Completed RadChem Report for Worklist#: 7721

Analyst: adp **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Use 1-10-.5 mL sample size. SLF

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.39E-4	108.590	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.28E+00	4.280	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<2.35E-2		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	3.08E+00	3.080	uCi/g
4	SAMPLE	S96T001091	0	F	@ALPHA01	ALPHA01	SOLID	N/A	5.70E-01	199.0e-004	uCi/g
4	SAMPLE	S96T001091	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.08E+01	0.0e+000	% Ct. Error
5	DUP	S96T001091	0	F	@ALPHA01	ALPHA01	SOLID	5.70E-1	6.37E-1	11.100	RPD
5	DUP	S96T001091	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.05E+01	10.500	% Ct. Error

Final page for worklist# 7721

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

Reviewer Signature **Date**

Corrected Values.
4/30/96

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) LA-508-113 (A-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2118	2104
7721	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		70.470	70.003
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003540	Concentration in µCi/L	=	1.40E-01	
Rerun	Replicate Concentration in µCi/L	=	1.39E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3913E-01	

Sample Prep: N/A

Sample #: WL7721

Instrument Code: WB27807

Prepared By: CJO

Chemist: SLF

Analyst: ADP

Date Complete: 04/19/96

Analysis Date: 04/17/96

Analysis Time: 12:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

				DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.39E-04		7.88E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.3%		

Analyst:		CJO	Date: 19-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		14	14
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	6	18
7721	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.7412	1.7412
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.243	0.470

Batch Number			
96003540	Blank Concentration in µCi/g	<	6.08E-03
Rerun	Replicate Concentration in µCi/g		1.18E-02
0	Maximum Concentration in µCi/g	<	1.1763E-02

Sample Prep: N/A

Sample #: WL7721

Instrument Code: WB27807

Prepared By: CJO

Chemist: SLF

Analyst: ADP

Date Complete: 04/19/96

Analysis Date: 04/17/96

Analysis Time: 12:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Maximum)	=	< 1.18E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			9.96E-03 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst:	ADP	Date: 19-Apr-96	
Signature of Chemist:	SLF	Date:	

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	349	342
7721	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.7412	1.7412
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11.503	11.270

Batch Number	
96003540	Blank Concentration in µCi/g 2.88E-01
Rerun	Replicate Concentration in µCi/g 2.82E-01
1	Average Concentration in µCi/g 2.8499E-01
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T001091	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
CJO	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 2.85E-01
Analyst	
ADP	
Date Complete	
04/19/96	RELATIVE COUNTING ERROR 10.8%
Analysis Date	
04/17/96	
Analysis Time	
12:00 PM	
Sample Point	
U-107	

DETECTION LEVEL
9.96E-03 µCi/g

Analyst:	ADP	Date: 19-Apr-96
Signature of Chemist:	SLF	Date:

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	367	358
7721	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.6344	1.6344
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12.103	11.803

Blank Concentration in µCi/g	3.23E-01
Replicate Concentration in µCi/g	3.15E-01
Average Concentration in µCi/g	3.1872E-01

Batch Number: 96003540
Rerun: 1
Sample Prep: FUSION01
Sample # : S96T001091
Instrument Code: WB27807
Prepared By: CJO
Chemist: SLF
Analyst: ADP
Date Complete: 04/19/96
Analysis Date: 04/17/96
Analysis Time: 12:00 PM
Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	3.19E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		10.5%	1.06E-02 µCi/g

Analyst:	ADP	Date: 19-Apr-96
Signature of Chemist:	SLF	Date:

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 8416

Analyst: S.C. **Instrument:** AB00 14 **Book#** 47856

Method: LA-508-101 Rev/Mod P-2

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	LIQUID		
2	BLNK				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S96T002140	0		@ALPHA01	LIQUID	96000422	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T002140	0		@ALPHA01	LIQUID		
6	SPK	S96T002140	0		@ALPHA01	LIQUID		
7	SAMPLE	S96T002141	0		@ALPHA01	LIQUID	96000422	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T002141	0		@ALPHA01	LIQUID		
9	SAMPLE	S96T002142	0		@ALPHA01	LIQUID	96000422	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T002142	0		@ALPHA01	LIQUID		

Final page for worklist # 8416

Sue C Fan 5-8-96
Analyst Signature **Date**

Sharon L Uhlik 5-9-96
Analyst Signature **Date**

Sue E. Hogan 5-9-96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8416

Analyst: scl **Instrument:** AB14 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0	@ALPHA01	ALPHA01	LIQUID	1.28E-04		1.40E-4	109.375	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	LIQUID	1.00		4.28E+00	4.280	% Ct. Erro
2	BLNK		0	@ALPHA01	ALPHA01	LIQUID	1		<1.33E-2		uCi/mL
2	BLNK		0	@ALPHA01	ALPHA01E	LIQUID	1.00		5.00E+02	500.000	uCi/mL
3	BLNK/BKG		0	@ALPHA01	ALPHA01	LIQUID	1.00E+00		1.38E+00	1.380	BLNK/BKG
4	SAMPLE	S96T002140	0	@ALPHA01	ALPHA01	LIQUID	N/A	<	1.33E-02	202.0e-004	uCi/mL
4	SAMPLE	S96T002140	0	@ALPHA01	ALPHA01E	LIQUID	N/A		5.00E+02	0.0e+000	% Ct. Error
5	DUP	S96T002140	0	@ALPHA01	ALPHA01	LIQUID	<1.33E-2		<1.33E-2		RPD
5	DUP	S96T002140	0	@ALPHA01	ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Erro
6	SPK	S96T002140	0	@ALPHA01	ALPHA01	LIQUID	3.59E-02		3.57E-02	99.443	% Recovery
7	SAMPLE	S96T002141	0	@ALPHA01	ALPHA01	LIQUID	N/A	<	1.65E-02	202.0e-004	uCi/mL
7	SAMPLE	S96T002141	0	@ALPHA01	ALPHA01E	LIQUID	N/A		1.67E+02	0.0e+000	% Ct. Error
8	DUP	S96T002141	0	@ALPHA01	ALPHA01	LIQUID	<1.65E-2		<1.65E-2		RPD
8	DUP	S96T002141	0	@ALPHA01	ALPHA01E	LIQUID	1.00		2.60E+02	260.000	% Ct. Erro
9	SAMPLE	S96T002142	0	@ALPHA01	ALPHA01	LIQUID	N/A	<	1.17E-02	202.0e-004	uCi/mL
9	SAMPLE	S96T002142	0	@ALPHA01	ALPHA01E	LIQUID	N/A		5.00E+02	0.0e+000	% Ct. Error
10	DUP	S96T002142	0	@ALPHA01	ALPHA01	LIQUID	<1.17E-2		<1.17E-2		RPD
10	DUP	S96T002142	0	@ALPHA01	ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Erro

Final page for worklist# 8416

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

5/13/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) **LA-508-113 (A-2) STANDARD**

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2126	2119
8416	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		70.637	70.403
Batch Number	Standard Value in µCi/mL		1.28E-04	
96004332	Concentration in µCi/L	=	1.40E-01	
Rerun	Replicate Concentration in µCi/L	=	1.39E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3969E-01	

Sample Prep: N/A
Sample #: WL8416
Instrument Code: WB27807
Prepared By: SLH2
Chemist: SLF
Analyst: SCL
Date Complete: 05/09/96
Analysis Date: 05/08/96
Analysis Time: 01:00 PM
Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)
ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.40E-04	
RELATIVE COUNTING ERROR	=	4.3%	9.89E-07 µCi/mL

Analyst:		SLH2	Date: 09-May-96
Signature of Chemist:		SLF	Date: 5/13/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) LIQUIDS

			BLNK	REPLICATE
Type	DETECTOR NUMBER		14	14
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	10	9
8416	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.329	0.289
Batch Number				
96004332	Blank Concentration in µCi/L	<	1.33E+01	
Rerun	Replicate Concentration in µCi/L	<	1.17E+01	
0	Maximum Concentration in µCi/L	<	1.3314E+01	
Sample Prep				
N/A				
Sample #				
WL8416				
Instrument Code				
WB27807				
Prepared By				
SLH2				
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
05/09/96				
Analysis Date				
05/08/96				
Analysis Time				
01:00 PM				
Sample Point				
U-107				

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum)	=	< 1.33E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			2.02E-02 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst:		SCL	Date: 09-May-96
Signature of Chemist:		SLF	Date: 5/13/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	10	8
8416	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.329	0.249

Batch Number			
96004332	Blank Concentration in µCi/L	<	1.33E+01
Rerun	Replicate Concentration in µCi/L	<	1.01E+01
0	Maximum Concentration in µCi/L	<	1.3314E+01

Sample Prep: N/A

Sample #: S96T002140

Instrument Code: WB27807

Prepared By: SLH2

Chemist: SLF

Analyst: SCL

Date Complete: 05/09/96

Analysis Date: 05/08/96

Analysis Time: 01:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L.* DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum)	=	< 1.33E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			2.02E-02 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst:		SCL	Date: 09-May-96
Signature of Chemist:		SLF	Date: 5/13/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	10	1
8416	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.329	0.204

Blank Concentration in µCi/L	<	1.33E+01
Replicate Concentration in µCi/L	<	8.26E+00
Maximum Concentration in µCi/L	<	1.3314E+01

Batch Number: 96004332
Rerun: 0
Sample Prep: N/A
Sample #: S96T002140
Instrument Code: WB27807
Prepared By: SLH2
Chemist: SLF
Analyst: SCL
Date Complete: 05/09/96
Analysis Date: 05/08/96
Analysis Time: 01:00 PM
Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/mL (Maximum)	=	< 1.33E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			
RELATIVE COUNTING ERROR		500.0%	2.02E-02 µCi/mL

Analyst:		SCL	Date: 09-May-96
Signature of Chemist:		SLF	Date: 5/13/96

SAMPLE.WB1 Rev. 1.0 508101ML

1140

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	54234	54023
8416	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
LIQUID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96004332	SPIKE VALUE in µCi/mL	(SVal)	3.5892E-02	3.5892E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/mL	(S+S)	7.31E+01	7.28E+01
Sample Prep	AVERAGE or MAXIMUM µCi/mL in SAMPLE	<	1.3314E-02	
N/A				
Sample #				
S96T002140				
Instrument Code				
WB27807				
Prepared By				
SLH2				
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
05/09/96				
Analysis Date				
05/08/96				
Analysis Time				
01:00 PM				
Sample Point				
U-107				

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

NOTE: **Original Sample result was a LESS THAN value. Zero (0) was subtracted from the spiked value for QC found calculation.**

QC ACTUAL	=	3.59E-02
QC FOUND	=	3.57E-02
AVG. PERCENT SPIKE RECOVERY	=	99.6%

Analyst:		SLH2	Date: 09-May-96
Signature of Chemist:		SLF	Date: 5/13/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	14	12
8416	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.237	0.409

Blank Concentration in µCi/L		9.56E+00
Replicate Concentration in µCi/L	<	1.65E+01
Maximum Concentration in µCi/L	<	1.6534E+01

Batch Number	96004332
Rerun	0
Sample Prep	N/A
Sample #	S96T002141
Instrument Code	WB27807
Prepared By	SLH2
Chemist	SLF
Analyst	SCL
Date Complete	05/09/96
Analysis Date	05/08/96
Analysis Time	01:00 PM
Sample Point	U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum)	=	< 1.65E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rs.			2.02E-02 µCi/mL
RELATIVE COUNTING ERROR		167.1%	

Analyst:		SCL	Date: 09-May-96
Signature of Chemist:		SLF	Date: 5/13/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	12	10
8416	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.409	0.329

Batch Number			
96004332	Blank Concentration in µCi/L	<	1.65E+01
Rerun	Replicate Concentration in µCi/L	<	1.33E+01
0	Maximum Concentration in µCi/L	<	1.6534E+01

Sample Prep: N/A

Sample #: S96T002141

Instrument Code: WB27807

Prepared By: SLH2

Chemist: SLF

Analyst: SCL

Date Complete: 05/09/96

Analysis Date: 05/08/96

Analysis Time: 01:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum)	=	< 1.65E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			
RELATIVE COUNTING ERROR		259.9%	2.02E-02 µCi/mL

Analyst:		SCL	Date: 09-May-96
Signature of Chemist:		SLF	Date: 5/13/96

SAMPLE.WB1 Rev. 1.0 508101MU

WORKBOOK PAGE: SAM9

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	9	8
8416	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.289	0.249

Blank Concentration in µCi/L	<	1.17E+01
Replicate Concentration in µCi/L	<	1.01E+01
Maximum Concentration in µCi/L	<	1.1692E+01

Batch Number: 96004332
Rerun: 0
Sample Prep: N/A
Sample #: S96T002142
Instrument Code: WB27807
Prepared By: SLH2
Chemist: SLF
Analyst: SCL
Date Complete: 05/09/96
Analysis Date: 05/08/96
Analysis Time: 01:00 PM
Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/mL (Maximum) =	< 1.17E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.		
RELATIVE COUNTING ERROR	500.0%	2.02E-02 µCi/mL

Analyst:	SCL		Date: 09-May-96
Signature of Chemist:		SLF	Date: 5/13/96

SAMPLE.WB1 Rev. 1.0 508101ML

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WORKBOOK PAGE: DUP1

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	8	9
8416	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.249	0.289
Batch Number				
96004332	Blank Concentration in µCi/L	<	1.01E+01	
Rerun	Replicate Concentration in µCi/L	<	1.17E+01	
0	Maximum Concentration in µCi/L	<	1.1692E+01	

Sample Prep: N/A

Sample #: S96T002142

Instrument Code: WB27807

Prepared By: SLH2

Chemist: SLF

Analyst: SCL

Date Complete: 05/09/96

Analysis Date: 05/08/96

Analysis Time: 01:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum) =	< 1.17E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.		2.02E-02 µCi/mL
RELATIVE COUNTING ERROR	500.0%	

Analyst:		SCL	Date: 09-May-96
Signature of Chemist:		SLF	Date: 5/13/96

SAMPLE.WB1 Rev. 1.0 508101ML

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(32)

05/14/96 10:24
A-0004-1

LABCORE Data Entry Template for Worklist# 8653

Analyst: AKL **Instrument:** AB00 15 **Book#** 47656

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine Sample size using ludlum.For spike use: 0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001868	0		@ALPHA01	SOLID	96000422	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001868	0		@ALPHA01	SOLID		
6	SAMPLE	S96T002134	0	F	@ALPHA01	SOLID	96000422	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
7	DUP	S96T002134	0	F	@ALPHA01	SOLID		
8	SPK	S96T002134	0	F	@ALPHA01	SOLID		
9	SAMPLE	S96T002135	0	F	@ALPHA01	SOLID	96000422	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T002135	0	F	@ALPHA01	SOLID		

Final page for worklist # 8653

C. Lewis 5/14/96
Analyst Signature **Date**

Sue E. Hogan 5/15/96
Analyst Signature **Date**

C.J. Opsen 5/15/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8653

Analyst: akl **Instrument:** AB15 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine Sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.26E-4	98.438	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.49E+00	4.490	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<1.75E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	2.50E-01	0.250	BLNK/BKG
4	SAMPLE	S96T001868	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.29E-01	433.0e-005	uCi/g
4	SAMPLE	S96T001868	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	6.07E+00	0.0e+000	% Ct. Error
5	DUP	S96T001868	0		@ALPHA01	ALPHA01	SOLID	3.29E-1	3.48E-1	5.613	RPD
5	DUP	S96T001868	0		@ALPHA01	ALPHA01E	SOLID	1.00	6.06E+00	6.060	% Ct. Erro
6	SAMPLE	S96T002134	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.03E-01	742.0e-005	uCi/g
6	SAMPLE	S96T002134	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.50E+01	0.0e+000	% Ct. Error
7	DUP	S96T002134	0	F	@ALPHA01	ALPHA01	SOLID	1.03E-1	9.84E-2	4.568	RPD
7	DUP	S96T002134	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.51E+01	15.100	% Ct. Erro
8	SPK	S96T002134	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	2.84E-02	79.109	% Recovery
9	SAMPLE	S96T002135	0	F	@ALPHA01	ALPHA01	SOLID	N/A <	2.88E-03	433.0e-005	uCi/g
9	SAMPLE	S96T002135	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.53E+02	0.0e+000	% Ct. Error
10	DUP	S96T002135	0	F	@ALPHA01	ALPHA01	SOLID	<2.88E-3	<2.76E-3		RPD
10	DUP	S96T002135	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Erro

Final page for worklist# 8653

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

5/21/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2)	LA-508-113 (A-2) STANDARD		STANDARD	REPLICATE
	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	1825	2072
8653	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		63.967	68.867
Batch Number	Standard Value in µCi/mL		1.28E-04	
96004622	Concentration in µCi/L	=	1.21E-01	
Rerun	Replicate Concentration in µCi/L	=	1.30E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.2570E-01	
Sample Point				
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG			
Sample	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)			
WL8653	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
Instrument code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
Prepared By				
SEH				
Chemist				
SLF	ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.26E-04	DETECTION LEVEL
Analyst				
AKL				
Date Complete				8.93E-07 µCi/mL
05/15/96	RELATIVE COUNTING ERROR	=	4.5%	
Analysis Date				
05/14/96				
Analysis Time				
03:00 PM				
Sample Point				
U-107				

Analyst:		SEH	Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/21/96

STANDARD.WB1 Rev. 1.0 508101ML

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WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Workbook	GROSS COUNTS	(GC)	1	2
8653	COUNT TIME in MINUTES	(CT)	30	30
AT or TB	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0604	2.0604
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.191	0.191

Batch Number			
96004622	Blank Concentration in µCi/g	<	1.75E-03
Rerun	Replicate Concentration in µCi/g	<	1.75E-03
0	Maximum Concentration in µCi/g	<	1.7501E-03

Sample Prep: N/A

Sample #: WL8653

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: AKL

Date Complete: 05/15/96

Analysis Date: 05/14/96

Analysis Time: 03:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Maximum)	=	< 1.75E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			4.33E-03 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst:		AKL	Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/21/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work Batch	GROSS COUNTS	(GC)	1100	1062
8653	COUNT TIME in MINUTES	(CT)	30	30
AT or LE	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0604	2.0604
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		36.467	35.200

Batch Number		
96004622	Blank Concentration in µCi/g	3.35E-01
Replicate	Replicate Concentration in µCi/g	3.23E-01
0	Average Concentration in µCi/g	3.2916E-01

Sample Prep
N/A

Sample #
S96T001868

Instrument Code
WB26872

Prepared By
SEH

Chemist
SLF

Analyst
AKL

Date Complete
05/15/96

Analysis Date
05/14/96

Analysis Time
03:00 PM

Sample Point
U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average) =	3.29E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR	6.1%	4.33E-03 µCi/g

Analyst:	AKL		Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP5

WHC-SD-WM-DP-184, REV. [

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Vial Number	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worksheet	GROSS COUNTS	(GC)	1064	1239
8653	COUNT TIME in MINUTES	(CT)	30	30
Analyst Initials	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Dilution Factor	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0784	2.0784
Instrument	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		35.267	41.100

Batch Number	
96004622	Blank Concentration in µCi/g 3.21E-01
Replicate	Replicate Concentration in µCi/g 3.74E-01
0	Average Concentration in µCi/g 3.4771E-01

Sample Prep
N/A

Sample #
S96T001868

Instrument Code
WB26872

Prepared By
SEH

Chemist
SLF

Analyst
AKL

Date Complete
05/15/96

Analysis Date
05/14/96

Analysis Time
03:00 PM

Sample Point
U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	3.48E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		6.1%	4.30E-03 µCi/g

Analyst:	AKL		Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: SAM6

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	189	215
8653	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.2028	1.2028
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.100	6.967

Batch Number	
96004622	Blank Concentration in µCi/g 9.60E-02
Rerun	Replicate Concentration in µCi/g 1.10E-01
0	Average Concentration in µCi/g 1.0280E-01

Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T002134	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SEH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.03E-01
Analyst	
AKL	
Date Complete	
05/15/96	RELATIVE COUNTING ERROR 15.0%
Analysis Date	
05/14/96	
Analysis Time	
03:00 PM	
Sample Point	
U-107	

DETECTION LEVEL
7.42E-03 µCi/g

Analyst		AKL	Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP7

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	186	190
8653	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.1668	1.1668
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.000	6.133

Blank Concentration in µCi/g	9.73E-02
Replicate Concentration in µCi/g	9.95E-02
Average Concentration in µCi/g	9.8406E-02

Batch Number: 96004622
Return: 0
Sample Prep: FUSION01
Sample: S96T002134
Instrument Code: WB26872
Prepared By: SEH
Chemist: SLF
Analyst: AKL
Date Complete: 05/15/96
Analysis Date: 05/14/96
Analysis Time: 03:00 PM
Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	9.84E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		15.1%	7.65E-03 µCi/g

Analyst:		AKL	Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK8

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	47533	43573
8653	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.2028	1.2028
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96004622	SPIKE VALUE in µCi/mL	(SVal)	3.5891E-02	3.5891E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
0	SAMPLE + SPIKE µCi/g	(S+S)	2.49E+01	2.29E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		3.0841E-01	
FUSION01				
Sample #				
S96T002134				
Instrument Code				
WB26872				
Prepared By				
SEH				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
05/15/96				
Analysis Date				
05/14/96				
Analysis Time				
03:00 PM				
Sample Point				
U-107				

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.59E-02
QC FOUND	=	2.84E-02
AVG. PERCENT SPIKE RECOVERY	=	79.0%

Analyst:		SEH	Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM9

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	9	15
8653	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0604	2.0604
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.313	0.300

Batch Number			
96004622	Blank Concentration in µCi/g	<	2.88E-03
Rerun	Replicate Concentration in µCi/g		2.76E-03
0	Maximum Concentration in µCi/g	<	2.8753E-03

Sample Prep
FUSION01

Sample
S96T002135

Instrument Used
WB26872

Prepared By
SEH

Chemist
SLF

Analyst
AKL

Date Complete
05/15/96

Analysis Date
05/14/96

Analysis Time
03:00 PM

Sample Point
U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Maximum)	=	< 2.88E-03	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			
RELATIVE COUNTING ERROR		253.0%	4.33E-03 µCi/g

Analyst:	AKL		Date: 15-May-96
Signature of Chemist:		SLF	Date:

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP1

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	15	3
8653	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.054	2.054
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.300	0.191

Batch Number			
96004622	Blank Concentration in µCi/g		2.76E-03
Rerun	Replicate Concentration in µCi/g	<	1.76E-03
0	Maximum Concentration in µCi/g	<	2.7643E-03

Sample Prep: FUSION01

Sample: S96T002135

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: AKL

Date Complete: 05/15/96

Analysis Date: 05/14/96

Analysis Time: 03:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g	(Maximum)	=	< 2.76E-03	DETECTION LEVEL
LESS THAN Value was Determined from Rs.				4.35E-03 µCi/g
RELATIVE COUNTING ERROR			500.0%	

Analyst:	AKL		Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

1156

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LABCORE Data Entry Template for Worklist# 8654

Analyst: ARL **Instrument:** AB00 16 **Book#** 47656

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001879	0		@ALPHA01	SOLID	96000422	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001879	0		@ALPHA01	SOLID		
6	SPK	S96T001879	0		@ALPHA01	SOLID		
7	SAMPLE	S96T001880	0		@ALPHA01	SOLID	96000422	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T001880	0		@ALPHA01	SOLID		
9	SAMPLE	S96T002136	0	F	@ALPHA01	SOLID	96000422	U-107
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T002136	0	F	@ALPHA01	SOLID		

Final page for worklist # 8654

ARLewis 5/14/96
Analyst Signature **Date**

C.J. Owen 5/15/96
Analyst Signature **Date**

Sue E. Hogan 5-15-96

Data Entry Comments:

Low SPK recovery for 1879 is acceptable due to the low sample alpha results.

5/21/96

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

LABCORE Completed RadChem Report for Worklist#: 8654

Analyst: akl **Instrument:** AB16 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.48E-4	115.625	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.34E+00	4.340	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<1.73E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	5.88E-01	0.588	BLNK/BKG
4	SAMPLE	S96T001879	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.47E-02	435.0e-005	uCi/g
4	SAMPLE	S96T001879	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	3.33E+01	0.0e+000	% Ct. Error
5	DUP	S96T001879	0		@ALPHA01	ALPHA01	SOLID	1.47E-2	1.51E-2	2.685	RPD
5	DUP	S96T001879	0		@ALPHA01	ALPHA01E	SOLID	1.00	3.59E+01	35.900	% Ct. Erro
6	SPK	S96T001879	0		@ALPHA01	ALPHA01	SOLID	3.59E-02	2.37E-02	66.017	% Recovery
7	SAMPLE	S96T001880	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.02E-02	423.0e-005	uCi/g
7	SAMPLE	S96T001880	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	4.92E+01	0.0e+000	% Ct. Error
8	DUP	S96T001880	0		@ALPHA01	ALPHA01	SOLID	1.02E-2	1.22E-2	17.857	RPD
8	DUP	S96T001880	0		@ALPHA01	ALPHA01E	SOLID	1.00	4.55E+01	45.500	% Ct. Erro
9	SAMPLE	S96T002136	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.09E-02	447.0e-005	uCi/g
9	SAMPLE	S96T002136	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	4.07E+01	0.0e+000	% Ct. Error
10	DUP	S96T002136	0	F	@ALPHA01	ALPHA01	SOLID	1.09E-2	1.94E-2	56.106	RPD
10	DUP	S96T002136	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	3.05E+01	30.500	% Ct. Erro

Final page for worklist# 8654

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

5/21/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) LA-508-113 (A-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2052	2096
8654	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		68.230	69.697
Batch Number	Standard Value in µCi/mL		1.28E-04	
96004623	Concentration in µCi/L	=	1.46E-01	
Rerun	Replicate Concentration in µCi/L	=	1.49E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4765E-01	

Sample Prep
N/A
Sample #
WL8654
Instrument Code
WB27806
Prepared By
CJO
Chemist
SLF
Analyst
AKL
Date Complete
05/15/96
Analysis Date
05/14/96
Analysis Time
03:00 PM
Sample Point
U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.48E-04	
RELATIVE COUNTING ERROR	=	4.3%	9.46E-07 µCi/mL

Analyst		CJO	Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/17/96

STANDARD.WB1 Rev 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		16	16
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work Bench	GROSS COUNTS	(GC)	4	2
8654	COUNT TIME in MINUTES	(CT)	30	30
Alpha Blk	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1728	2.1728
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.176	0.176

Blank Concentration in µCi/g	<	1.73E-03
Replicate Concentration in µCi/g	<	1.73E-03
Maximum Concentration in µCi/g	<	1.7308E-03

Batch Number: 96004623
Rerun #: 0
Sample Prep: N/A
Sample #: WL8654
Instrument Code: WB27806
Prepared By: CJO
Chemist: SLF
Analyst: AKL
Date Complete: 05/15/96
Analysis Date: 05/14/96
Analysis Time: 03:00 PM
Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Maximum)	=	< 1.73E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			4.35E-03 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst:		AKL	Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/21/96

BLANK.WB1 Rev. 1.0 508101MLI

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WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	52	48
8654	COUNT TIME in MINUTES	(CT)	30	30
Alpha/Beta	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1728	2.1728
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.563	1.430

Batch Number	
96004623	Blank Concentration in µCi/g 1.54E-02
Rerun	Replicate Concentration in µCi/g 1.41E-02
0	Average Concentration in µCi/g 1.4747E-02

Sample Prep
N/A

Sample #
S96T001879

Instrument Code
WB27806

Prepared By
CJO

Chemist
SLF

Analyst
AKL

Date Complete
05/15/96

Analysis Date
05/14/96

Analysis Time
03:00 PM

Sample Point
U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	1.47E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		33.3%	4.35E-03 µCi/g

Analyst:	AKL		Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	56	43
8654	COUNT TIME in MINUTES	(CT)	30	30
AT or LB	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Task Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1028	2.1028
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.697	1.263

Batch Number	
96004623	Blank Concentration in µCi/g 1.73E-02
Rerun	Replicate Concentration in µCi/g 1.29E-02
0	Average Concentration in µCi/g 1.5068E-02

Sample Prep
N/A

Sample #
S96T001879

Instrument Code
WB27806

Prepared By
CJO

Chemist
SLF

Analyst
AKL

Date Complete
05/15/96

Analysis Date
05/14/96

Analysis Time
03:00 PM

Sample Point
U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average) =	1.51E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR	35.9%	4.50E-03 µCi/g

Analyst:	AKL		Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	34732	31740
8654	COUNT TIME in MINUTES	(CT)	30	30
AT or TB?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1728	2.1728
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96004623	SPIKE VALUE in µCi/mL	(SVal)	3.5891E-02	3.5891E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/g	(S+S)	1.14E+01	1.04E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.4747E-02	
N/A				
Sample #				
S96T001879				
Instrument Code				
WB27806				
Prepared By				
CJO				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
05/15/96				
Analysis Date				
05/14/96				
Analysis Time				
03:00 PM				
Sample Point				
U-107				

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.59E-02
QC FOUND	=	2.37E-02
AVG. PERCENT SPIKE RECOVERY	=	66.0%

Analyst:		CJO	Date: 15-May-96
Signature of Chemist:		SLF	Date: ~~5/21~~ 5/21/96 SLF

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worklist	GROSS COUNTS	(GC)	46	28
8654	COUNT TIME in MINUTES	(CT)	30	30
AT Code	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2372	2.2372
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.363	0.763

Blank Concentration in µCi/g	1.30E-02
Replicate Concentration in µCi/g	7.30E-03
Average Concentration in µCi/g	1.0176E-02

Batch Number: 96004623
Rerun #: 0
Sample Prep: N/A
Sample #: S96T001880
Instrument Code: WB27806
Prepared By: CJO
Chemist: SLF
Analyst: AKL
Date Complete: 05/15/96
Analysis Date: 05/14/96
Analysis Time: 03:00 PM
Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	1.02E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		49.2%	4.23E-03 µCi/g

Analyst:	AKL		Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1. 508101ML

1164

WORKBOOK PAGE: DUP8

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work Unit	GROSS COUNTS	(GC)	31	51
8654	COUNT TIME in MINUTES	(CT)	30	30
Analysis Type	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1076	2.1076
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.863	1.530

Batch Number		
96004623	Blank Concentration in µCi/g	8.77E-03
Replicate	Replicate Concentration in µCi/g	1.55E-02
0	Average Concentration in µCi/g	1.2156E-02

Sample Prep
N/A

Sample #
S96T001880

Instrument Code
WB27806

Prepared By
CJO

Chemist
SLF

Analyst
AKL

Date Complete
05/15/96

Analysis Date
05/14/96

Analysis Time
03:00 PM

Sample Point
U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	1.22E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		45.5%	4.49E-03 µCi/g

Analyst:	AKL		Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: SAM9

AT : LA-508-101 (D-2) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	39	36
8654	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1176	2.1176
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.130	1.030

Batch Number		
96004623	Blank Concentration in µCi/g	1.14E-02
Rerun	Replicate Concentration in µCi/g	1.04E-02
0	Average Concentration in µCi/g	1.0919E-02

Sample Prep: FUSION01

Sample #: S96T002136

Instrument Code: WB27806

Prepared By: CJO

Chemist: SLF

Analyst: AKL

Date Complete: 05/15/96

Analysis Date: 05/14/96

Analysis Time: 03:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/g (Average)	=	1.09E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		40.7%	4.47E-03 µCi/g

Analyst		AKL	Date: 15-May-96
Signature of Chemist		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

1165

WORKBOOK PAGE: DUP1

AT : LA-508-101 (D-2) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	65	55
8654	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.024	2.024
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.997	1.663

Batch Number		
96004623	Blank Concentration in µCi/g	2.11E-02
Rerun	Replicate Concentration in µCi/g	1.76E-02
0	Average Concentration in µCi/g	1.9357E-02

Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T002136	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
CJO	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.94E-02
Analyst	
AKL	
Date Complete	
05/15/96	RELATIVE COUNTING ERROR 30.5%
Analysis Date	
05/14/96	
Analysis Time	
03:00 PM	
Sample Point	
U-107	

DETECTION LEVEL
4.68E-03 µCi/g

Analyst		AKL	Date: 15-May-96
Signature of Chemist:		SLF	Date: 5/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

05/20/96 09:38
A-0004-1

LABCORE Data Entry Template for Worklist# 8936

Analyst: HKL **Instrument:** AB00 #16 **Book#** 47856

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	LIQUID		
2	BLNK				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S96T001866	0		@ALPHA01	LIQUID	96000422	U-107
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T001866	0		@ALPHA01	LIQUID		
6	SPK	S96T001866	0		@ALPHA01	LIQUID		

Final page for worklist # 8936

A Lewis 5/21/96
Analyst Signature **Date**

5/22/96
Analyst Signature **Date**

Sue E. Hogan 5-22-96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8936

Analyst: akl **Instrument:** AB16 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0	@ALPHA01	ALPHA01	LIQUID	1.28E-04		1.44E-4	112.500	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	LIQUID	1.00		4.42E+00	4.420	% Ct. Erro
2	BLNK		0	@ALPHA01	ALPHA01	LIQUID	1		<7.28E-4		uCi/mL
2	BLNK		0	@ALPHA01	ALPHA01E	LIQUID	1.00		1.89E+02	189.000	uCi/mL
3	BLNK/BKG		0	@ALPHA01	ALPHA01	LIQUID	1.00E+00		2.06E+00	2.060	BLNK/BKG
4	SAMPLE	S96T001866	0	@ALPHA01	ALPHA01	LIQUID	N/A	<	5.51E-04	956.0e-006	uCi/mL
4	SAMPLE	S96T001866	0	@ALPHA01	ALPHA01E	LIQUID	N/A		5.00E+02	0.0e+000	% Ct. Error
5	DUP	S96T001866	0	@ALPHA01	ALPHA01	LIQUID	<5.51E-4		<6.41E-4		RPD
5	DUP	S96T001866	0	@ALPHA01	ALPHA01E	LIQUID	1.00		3.59E+02	359.000	% Ct. Erro
6	SPK	S96T001866	0	@ALPHA01	ALPHA01	LIQUID	3.59E-02		4.12E-02	114.763	% Recovery

Final page for worklist# 8936

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

5/28/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (D-2) LA-508-113 (A-2) STANDARD

			STANDARD	REPLICATE
	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	1980	2053
8936	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		65.830	68.263
	Standard Value in µCi/mL		1.28E-04	
96004950	Concentration in µCi/L	=	1.41E-01	
	Replicate Concentration in µCi/L	=	1.46E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4354E-01	

Sample Prep:
N/A

Sample:
WL8936

Instrument Used:
WB27806

Prepared By:
MCB

Chemist:
SLF

Analyst:
AKL

Date Complete:
05/22/96

Analysis Date:
05/21/96

Analysis Time:
12:00 PM

Sample Point:
U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.44E-04		DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.4%		9.46E-07 µCi/mL

Analyst:		MCB	Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/28/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) LIQUIDS

			BLNK	REPLICATE
Type	DETECTOR NUMBER		16	16
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Count	GROSS COUNTS	(GC)	12	9
8936	COUNT TIME in MINUTES	(CT)	30	30
Bkg	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Dilution Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Efficiency	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.230	0.337

Batch Number			
96004950	Blank Concentration in µCi/L		4.97E-01
Remarks	Replicate Concentration in µCi/L	<	7.28E-01
0	Maximum Concentration in µCi/L	<	7.2768E-01

Sample Prep
N/A

Sample
WL8936

Instrument Code
WB27806

Prepared By
MCB

Chemist
SLF

Analyst
AKL

Date Complete
05/22/96

Analysis Date
05/21/96

Analysis Time
12:00 PM

Sample Point
U-107

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/mL (Maximum)	=	< 7.28E-04	DETECTION LEVEL
LESS THAN Value was Determined from Rs.			9.56E-04 µCi/mL
RELATIVE COUNTING ERROR		188.7%	

Analyst:	AKL		Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/28/96

BLANK.WB1 Rev. 1.0 508101ML

1171

WORKBOOK PAGE: SAM4

AT : LA-508-101 (D-2) LIQUIDS

			SAMPLE	REPLICATE
Sample Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work Lot #	GROSS COUNTS	(GC)	3	7
8936	COUNT TIME in MINUTES	(CT)	30	30
AT or TB	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Process Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.176	0.255

Batch Number			
96004950	Blank Concentration in µCi/L	<	3.80E-01
Rerun	Replicate Concentration in µCi/L	<	5.51E-01
0	Maximum Concentration in µCi/L	<	5.5064E-01

Sample Prep: N/A

Sample #: S96T001866

Instrument Code: WB27806

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 05/22/96

Analysis Date: 05/21/96

Analysis Time: 12:00 PM

Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG

ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)

ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100

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

ALPHA TOTAL in µCi/mL (Maximum)	=	< 5.51E-04	DETECTION LEVEL
LESS Than Value was Determined from Lc.			9.56E-04 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst:	AKL		Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/28/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (D-2) LIQUIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work Batch	GROSS COUNTS	(GC)	14	7
8936	COUNT TIME in MINUTES	(CT)	30	30
Analyte	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Calcode	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.297	0.255

Blank Concentration in µCi/L		6.41E-01
Replicate Concentration in µCi/L	<	5.51E-01
Maximum Concentration in µCi/L	<	6.4149E-01

Batch Number: 96004950
Rerun: 0
Sample Prep: N/A
Sample #: S96T001866
Instrument Code: WB27806
Prepared By: MCB
Chemist: SLF
Analyst: AKL
Date Complete: 05/22/96
Analysis Date: 05/21/96
Analysis Time: 12:00 PM
Sample Point: U-107

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/mL (Maximum)	=	< 6.41E-04	DETECTION LEVEL
LESS THAN Value was Determined from Rs.			9.56E-04 µCi/mL
RELATIVE COUNTING ERROR		358.8%	

Analyst:		AKL	Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/28/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Sample Type	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Workbook	TOTAL COUNTS	(TC)	57046	58321
8936	COUNT TIME in MINUTES	(CT)	30	30
A101 or 102	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Cam-Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
LIQUID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96004950	SPIKE VALUE in µCi/mL	(SVal)	3.5890E-02	3.5890E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/mL	(S+S)	4.11E+00	4.20E+00
Sample Prep	AVERAGE or MAXIMUM µCi/mL in SAMPLE	<	5.5064E-04	
N/A				
Sample #				
S96T001866				
Instrument Code				
WB27806				
Prepared By				
MCB				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
05/22/96				
Analysis Date				
05/21/96				
Analysis Time				
12:00 PM				
Sample Point				
U-107				

Rs (Sample Count Rate) = (TC / CT) - BKG

SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))

PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

NOTE: Original Sample result was a LESS THAN value. Zero (0) was subtracted from the spiked value for QC found calculation.

QC ACTUAL	=	3.59E-02
QC FOUND	=	4.12E-02
AVG. PERCENT SPIKE RECOVERY	=	114.7%

Analyst:		MCB	Date: 22-May-96
Signature of Chemist:		SLF	Date: 5/28/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 8418

Analyst: CRY **Instrument:** GEA00 2 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-D

Worklist Comment: U-107. Sample size is one traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-02	LIQUID		
2	BLNK				@GEA-02	LIQUID		
3	SAMPLE	S96T002140	0		@GEA-02	LIQUID	96000422	U-107
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T002140	0		@GEA-02	LIQUID		
5	SAMPLE	S96T002141	0		@GEA-02	LIQUID	96000422	U-107
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T002141	0		@GEA-02	LIQUID		
7	SAMPLE	S96T002142	0		@GEA-02	LIQUID	96000422	U-107
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
8	DUP	S96T002142	0		@GEA-02	LIQUID		

Final page for worklist # 8418

5/10/96
Analyst Signature **Date**

5/13/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8418

Analyst: crj **Instrument:** GEA02 **Book#** 12852

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-107. Sample size is one traveler. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0	@GEA-02	CO60-02	LIQUID	2.545e-02		2.43e-02	95.481	% Recovery
1	STD		0	@GEA-02	CO60-02E	LIQUID	1		1.40	1.400	% Ct Error
1	STD		0	@GEA-02	CS13702	LIQUID	2.706e-02		2.63e-02	97.191	% Recovery
1	STD		0	@GEA-02	CS13702E	LIQUID	1		1.60	1.600	% Ct Error
2	BLNK		0	@GEA-02	CO60-02	LIQUID	1		<1.66e-3		uCi/mL
2	BLNK		0	@GEA-02	CS13702	LIQUID	1		<4.92e-3		uCi/mL
2	BLNK		0	@GEA-02	EU15402	LIQUID	1		<4.02e-3		uCi/mL
2	BLNK		0	@GEA-02	EU15502	LIQUID	1		<7.42e-3		uCi/mL
2	BLNK		0	@GEA-02	AM24102	LIQUID	1		<1.41e-2		uCi/mL
3	SAMPLE	S96T002140	0	@GEA-02	CO60-02	LIQUID	N/A	<	1.323e-02	132.3e-004	uCi/mL
3	SAMPLE	S96T002140	0	@GEA-02	CO60-02E	LIQUID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002140	0	@GEA-02	CS13702	LIQUID	N/A		2.800e+02	0.0e+000	uCi/mL
3	SAMPLE	S96T002140	0	@GEA-02	CS13702E	LIQUID	N/A		0.250	0.0e+000	% Ct. Error
3	SAMPLE	S96T002140	0	@GEA-02	EU15402	LIQUID	N/A	<	5.613e-02	561.3e-004	uCi/mL
3	SAMPLE	S96T002140	0	@GEA-02	EU15402E	LIQUID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002140	0	@GEA-02	EU15502	LIQUID	N/A	<	5.131e-01	513.0e-003	uCi/mL
3	SAMPLE	S96T002140	0	@GEA-02	EU15502E	LIQUID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002140	0	@GEA-02	AM24102	LIQUID	N/A	<	1.032e+00	103.2e-002	uCi/mL
3	SAMPLE	S96T002140	0	@GEA-02	AM24102E	LIQUID	N/A		n/a	0.0e+000	% Ct. Error
4	DUP	S96T002140	0	@GEA-02	CO60-02	LIQUID	<1.32e-2		<1.56e-2		RPD
4	DUP	S96T002140	0	@GEA-02	CO60-02E	LIQUID	1		n/a		% Ct Error
4	DUP	S96T002140	0	@GEA-02	CS13702	LIQUID	2.80e+02		2.83e+02	1.066	RPD
4	DUP	S96T002140	0	@GEA-02	CS13702E	LIQUID	1		0.250	0.250	% Ct Error
4	DUP	S96T002140	0	@GEA-02	EU15402	LIQUID	<5.61e-2		<5.66e-2		RPD
4	DUP	S96T002140	0	@GEA-02	EU15402E	LIQUID	1		n/a		% Ct Error
4	DUP	S96T002140	0	@GEA-02	EU15502	LIQUID	<5.13e-1		<5.14e-1		RPD
4	DUP	S96T002140	0	@GEA-02	EU15502E	LIQUID	1		n/a		% Ct Error
4	DUP	S96T002140	0	@GEA-02	AM24102	LIQUID	<1.03e0		<1.04e0		RPD
4	DUP	S96T002140	0	@GEA-02	AM24102E	LIQUID	1		n/a		% Ct Error
5	SAMPLE	S96T002141	0	@GEA-02	CO60-02	LIQUID	N/A	<	3.285e-02	328.5e-004	uCi/mL
5	SAMPLE	S96T002141	0	@GEA-02	CO60-02E	LIQUID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002141	0	@GEA-02	CS13702	LIQUID	N/A		5.650e+02	0.0e+000	uCi/mL
5	SAMPLE	S96T002141	0	@GEA-02	CS13702E	LIQUID	N/A		0.250	0.0e+000	% Ct. Error
5	SAMPLE	S96T002141	0	@GEA-02	EU15402	LIQUID	N/A	<	1.263e-01	126.0e-003	uCi/mL
5	SAMPLE	S96T002141	0	@GEA-02	EU15402E	LIQUID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002141	0	@GEA-02	EU15502	LIQUID	N/A	<	1.030e+00	103.0e-002	uCi/mL
5	SAMPLE	S96T002141	0	@GEA-02	EU15502E	LIQUID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002141	0	@GEA-02	AM24102	LIQUID	N/A	<	2.072e+00	207.2e-002	uCi/mL
5	SAMPLE	S96T002141	0	@GEA-02	AM24102E	LIQUID	N/A		n/a	0.0e+000	% Ct. Error
6	DUP	S96T002141	0	@GEA-02	CO60-02	LIQUID	<3.28e-2		<2.93e-2		RPD
6	DUP	S96T002141	0	@GEA-02	CO60-02E	LIQUID	1		n/a		% Ct Error

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

LABCORE Completed RadChem Report for Worklist#: 8418

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
6	DUP	S96T002141	0	@GEA-02	CS13702	LIQUID	5.65e+02	5.71e+02	1.056	RPD
6	DUP	S96T002141	0	@GEA-02	CS13702E	LIQUID	1	0.250	0.250	% Ct Error
6	DUP	S96T002141	0	@GEA-02	EU15402	LIQUID	<1.26e-1	<9.91e-2		RPD
6	DUP	S96T002141	0	@GEA-02	EU15402E	LIQUID	1	n/a		% Ct Error
6	DUP	S96T002141	0	@GEA-02	EU15502	LIQUID	<1.03e0	<1.03e0		RPD
6	DUP	S96T002141	0	@GEA-02	EU15502E	LIQUID	1	n/a		% Ct Error
6	DUP	S96T002141	0	@GEA-02	AM24102	LIQUID	<2.07e0	<2.07e0		RPD
6	DUP	S96T002141	0	@GEA-02	AM24102E	LIQUID	1	n/a		% Ct Error
7	SAMPLE	S96T002142	0	@GEA-02	CO60-02	LIQUID	N/A	< 1.659e-02	165.9e-004	uCi/mL
7	SAMPLE	S96T002142	0	@GEA-02	CO60-02E	LIQUID	N/A	n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002142	0	@GEA-02	CS13702	LIQUID	N/A	2.870e+02	0.0e+000	uCi/mL
7	SAMPLE	S96T002142	0	@GEA-02	CS13702E	LIQUID	N/A	0.280	0.0e+000	% Ct. Error
7	SAMPLE	S96T002142	0	@GEA-02	EU15402	LIQUID	N/A	< 6.441e-02	644.1e-004	uCi/mL
7	SAMPLE	S96T002142	0	@GEA-02	EU15402E	LIQUID	N/A	n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002142	0	@GEA-02	EU15502	LIQUID	N/A	< 5.834e-01	583.0e-003	uCi/mL
7	SAMPLE	S96T002142	0	@GEA-02	EU15502E	LIQUID	N/A	n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002142	0	@GEA-02	AM24102	LIQUID	N/A	< 1.169e+00	116.9e-002	uCi/mL
7	SAMPLE	S96T002142	0	@GEA-02	AM24102E	LIQUID	N/A	n/a	0.0e+000	% Ct. Error
8	DUP	S96T002142	0	@GEA-02	CO60-02	LIQUID	<1.66e-2	<1.63e-2		RPD
8	DUP	S96T002142	0	@GEA-02	CO60-02E	LIQUID	1	n/a		% Ct Error
8	DUP	S96T002142	0	@GEA-02	CS13702	LIQUID	2.87e+02	2.76e+02	3.908	RPD
8	DUP	S96T002142	0	@GEA-02	CS13702E	LIQUID	1	0.290	0.290	% Ct Error
8	DUP	S96T002142	0	@GEA-02	EU15402	LIQUID	<6.44e-2	<5.78e-2		RPD
8	DUP	S96T002142	0	@GEA-02	EU15402E	LIQUID	1	n/a		% Ct Error
8	DUP	S96T002142	0	@GEA-02	EU15502	LIQUID	<5.83e-1	<5.74e-1		RPD
8	DUP	S96T002142	0	@GEA-02	EU15502E	LIQUID	1	n/a		% Ct Error
8	DUP	S96T002142	0	@GEA-02	AM24102	LIQUID	<1.17e0	<1.16e0		RPD
8	DUP	S96T002142	0	@GEA-02	AM24102E	LIQUID	1	n/a		% Ct Error

Comments Section:

Comments for sample# S96T002140 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002141 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002142 **and test** @GEA-02 .
DL=0 => n/a.

Final page for worklist# 8418

Analyst Signature **Date**

Analyst Signature **Date**

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

LABCORE Completed RadChem Report for Worklist#: 8418

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit

Reviewer Signature Date 5/13/96

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

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAY-1996 14:38:07.41                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8418
Sample ID:               WL8418-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2702.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.35 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAY-1996 13:47:16.74
Decayed to:              10-MAY-1996 13:47:16.74
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 CJO
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-184, REV. 1

Removed by: C.J. Quinn 5/10/96

Verified by: B Bachelor 5/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.40*	18968	1.53	1322.83	1316	15	1.6		CS-137	26.3
0	1172.80	12322	1.87	2345.65	2336	18	2.0		CO-60	24.2
0	1332.01	11183	2.01	2664.17	2654	21	2.0		CO-60	24.3

Sample ID : WL8418-STD Acquisition date : 10-MAY-1996 13:47:16

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	2.427E+01	2.427E+01	0.034E+01	1.40	
CS-137	30.00Y	1.000	2.632E+01	2.632E+01	0.042E+01	1.60	
		Total Activity :	5.060E+01	5.060E+01			
		Grand Total Activity :	5.060E+01	5.060E+01			

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

Sample ID : WL8418-STD Acquisition date : 10-MAY-1996 13:47:16

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1066.	477.59	1.3244E+00
NA-22	85.	1274.53	8.9933E-02
NA-24	24.	1368.55	5.1111E-02
K-40	116.	1460.75	1.0992E+00
CR-51	1078.	320.08	9.9363E-01
MN-54	591.	834.83	1.6284E-01
CO-56	680.	846.76	1.7688E-01
CO-57	1180.	122.06	7.6821E-02
CO-58	607.	810.78	1.6189E-01
FE-59	624.	1099.25	3.7990E-01
SE-75	1306.	264.66	1.6509E-01
SR-85	784.	514.01	1.3049E-01
Y-88	9.	1836.06	3.9169E-02
NB-94	730.	871.09	1.8772E-01
ZRNB-95	501.	724.18	3.0409E-01
RU-103	801.	497.08	1.3524E-01
RURH-106	621.	621.93	2.6250E+00
AG-108m	482.	722.94	1.4328E-01
CD-109	1083.	88.03	2.5268E+00
AG-110M	1193.	657.76	1.9975E-01
SN-113	1021.	391.69	1.7581E-01
TE-123m	1221.	159.00	7.8194E-02
SB-124	578.	602.73	1.2523E-01
SB-125	1044.	427.89	4.1729E-01
TE-125m	1128.	109.27	2.4893E+01
I-131	1046.	364.48	1.3330E-01
CS-134	568.	604.70	1.2469E-01
BA-140	669.	537.31	4.9256E-01
LA-140	15.	1596.21	4.7883E-02
CEPR-144	1244.	133.51	1.1786E+00
EU-152	23.	1408.01	2.4149E-01
EU-154	85.	1274.51	2.6091E-01
EU-155	1136.	105.31	3.3554E-01
HG-203	1249.	279.20	1.2014E-01
TL-208	1253.	277.36	1.5459E+00
BI-212	506.	727.18	2.0143E+00
PB-212	1362.	238.63	2.1056E-01
BI-214	645.	609.31	2.9137E-01
PB-214	1011.	351.92	5.1705E-01
RA-224	1346.	240.99	2.3238E+00
RA-226	1338.	186.10	2.1336E+00
AC-228	791.	911.21	7.6285E-01
TH-228	1084.	84.37	7.7616E+00
TH-229	1089.	88.47	3.6728E-01
PA-233	1041.	312.17	2.5043E-01
UTH-233	1416.	245.34	8.9278E+01
PA-234M	639.	1001.03	3.3747E-01
TH-234	1051.	63.29	4.4529E+00
U-235	1337.	185.71	1.2966E-01
NP-237	1068.	86.48	7.5297E-01
NP-239	1079.	106.12	3.1027E-01

Sample ID : WL8418-STD Acquisition date : 10-MAY-1996 13:47:16

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1327.	129.30	1.0635E+03
AM-241	1016.	59.54	6.9700E-01
AM-243	981.	74.67	2.0068E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAY-1996 15:50:10.46                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8418
Sample ID:               WL8418-BLANK                          Removed by:
Sample Size:             5.00000E-04 L
Dilution Factor:         4.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                                   Verified by:
File Number:             dka300:[spec.GEA2]2g2703.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.48 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAY-1996 14:59:32.85
Decayed to:              10-MAY-1996 14:59:32.85
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 CJO
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

WHC-SD-WM-DP-184, REV. 1

Gm Barelli

Bachelor 5/15/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	510.79*	31	2.09	1021.67	1015	14	101.6			
0	661.55*	43	1.50	1323.11	1317	14	84.1		CS-137	4.92
0	1029.36	11	1.48	2058.73	2056	6	60.3			

Sample ID : WL8418-BLANK
Acquisition date : 10-MAY-1996 14:59:32

Total number of lines in spectrum	3	WHC-SD-WM-DP-184, REV. I
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
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~4.917E+00~~	~~4.917E+00~~	~~4.136E+00~~	~~84.11~~	Blg
		Total Activity :	4.917E+00	4.917E+00			
		Grand Total Activity :	4.917E+00	4.917E+00			

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

Sample ID : WL8418-BLANK Acquisition date : 10-MAY-1996 14:59:32

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	36.	477.59	1.9969E+01
NA-22	3.	1274.53	1.3540E+00
NA-24	5.	1368.55	1.9255E+00
K-40	119.	1460.75	9.1394E+01
CR-51	53.	320.08	1.8102E+01
MN-54	21.	834.83	2.5149E+00
CO-56	16.	846.76	2.2255E+00
CO-57	85.	122.06	1.6887E+00
CO-58	20.	810.78	2.3943E+00
FE-59	8.	1099.25	3.5692E+00
CO-60	4.	1332.50	1.6594E+00
SE-75	60.	264.66	2.8936E+00
SR-85	46.	514.01	2.5887E+00
Y-88	4.	1836.06	2.1604E+00
NB-94	12.	871.09	1.9800E+00
ZRNB-95	24.	724.18	5.4183E+00
RU-103	28.	497.08	2.0807E+00
RURH-106	20.	621.93	3.9043E+01
AG-108m	22.	722.94	2.5159E+00
CD-109	69.	88.03	5.2434E+01
AG-110M	30.	657.76	2.5999E+00
SN-113	40.	391.69	2.8520E+00
TE-123m	67.	159.00	1.4982E+00
SB-124	25.	602.73	2.1536E+00
SB-125	40.	427.89	6.6967E+00
TE-125m	84.	109.27	5.5774E+02
I-131	43.	364.48	2.2220E+00
CS-134	24.	604.70	2.0851E+00
BA-140	23.	537.31	7.5298E+00
LA-140	0.	1596.21	0.0000E+00
CEPR-144	78.	133.51	2.4235E+01
EU-152	8.	1408.01	1.1748E+01
EU-154	3.	1274.51	4.0156E+00
EU-155	83.	105.31	7.4218E+00
HG-203	58.	279.20	2.1142E+00
TL-208	62.	277.36	2.8229E+01
BI-212	22.	727.18	3.4267E+01
PB-212	72.	238.63	3.9741E+00
BI-214	62.	609.31	7.4066E+00
PB-214	68.	351.92	1.1015E+01
RA-224	70.	240.99	4.3549E+01
RA-226	82.	186.10	4.3249E+01
AC-228	29.	911.21	1.2068E+01
TH-228	70.	84.37	1.6119E+02
TH-229	66.	88.47	7.4223E+00
PA-233	54.	312.17	4.6748E+00
UTH-233	72.	245.34	1.6538E+03
PA-234M	15.	1001.03	4.2129E+00
TH-234	71.	63.29	9.4885E+01
U-235	77.	185.71	2.5489E+00
NP-237	69.	86.48	1.5642E+01

Sample ID : WL8418-BLANK Acquisition date : 10-MAY-1996 14:59:32

WHC-SD-WM-DP-184, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	80.	106.12	6.9481E+00
PU-239	73.	129.30	2.0451E+04
AM-241	62.	59.54	1.4079E+01
AM-243	56.	74.67	3.9458E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAY-1996 18:54:43.94                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8418
Sample ID:               S96T2140-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         8.20000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2705.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:35.43 sec
Dead Time:               3.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAY-1996 18:02:27.97
Decayed to:              10-MAY-1996 18:02:27.97
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:54:47.36
*****************************************************************************
```

WHC-SD-WM-DP-184, REV. 1

Removed by:

Verified by: 5/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.40*	660090	1.52	1322.82	1314	18	0.3		CS-137	2.805E+05

Sample ID : S96T2140-SAM
Acquisition date : 10-MAY-1996 18:02:27

WHC-SD-WM-DP-184, REV. 1

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	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
CS-137	30.00Y	1.000	2.805E+05	2.805E+05	0.007E+05	0.25	
		Total Activity :	2.805E+05	2.805E+05			
		Grand Total Activity :	2.805E+05	2.805E+05			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	20866.	477.59	1.8673E+03
NA-22	43.	1274.53	1.9319E+01
NA-24	11.	1368.55	1.0307E+01
K-40	108.	1460.75	3.1907E+02
CR-51	19382.	320.08	1.3227E+03
MN-54	362.	834.83	3.8102E+01
CO-56	279.	846.76	3.3823E+01
CO-57	21672.	122.06	1.2469E+02
CO-58	319.	810.78	3.5210E+01
FE-59	112.	1099.25	4.8160E+01
CO-60	19.	1332.50	1.3231E+01
SE-75	21755.	264.66	2.1617E+02
SR-85	10964.	514.01	1.5667E+02
Y-88	4.	1836.06	7.4657E+00
NB-94	303.	871.09	3.5983E+01
ZRNB-95	518.	724.18	9.3803E+01
RU-103	13409.	497.08	1.7736E+02
RURH-106	4914.	621.93	2.2834E+03
AG-108m	519.	722.94	4.5111E+01
CD-109	18210.	88.03	3.6551E+03
AG-110M	26266.	657.76	2.8728E+02
SN-113	19614.	391.69	2.3756E+02
TE-123m	22256.	159.00	1.1384E+02
SB-124	4966.	602.73	1.1424E+02
SB-125	22457.	427.89	6.0210E+02
TE-125m	19817.	109.27	3.9017E+04
I-131	19097.	364.48	1.7650E+02
CS-134	4987.	604.70	1.1492E+02
BA-140	8060.	537.31	5.4695E+02
LA-140	3.	1596.21	6.4014E+00
CEPR-144	22601.	133.51	1.8681E+03
EU-152	13.	1408.01	5.3959E+01
EU-154	43.	1274.51	5.6126E+01
EU-155	19364.	105.31	5.1313E+02
HG-203	21062.	279.20	1.5693E+02
TL-208	21007.	277.36	2.0158E+03
BI-212	541.	727.18	6.3167E+02
PB-212	23110.	238.63	2.8183E+02
BI-214	4990.	609.31	2.5154E+02
PB-214	19027.	351.92	7.0822E+02
RA-224	23004.	240.99	3.1189E+03
RA-226	28413.	186.10	3.1831E+03
AC-228	196.	911.21	1.1254E+02
TH-228	17902.	84.37	1.1045E+04
TH-229	18170.	88.47	5.2982E+02
PA-233	19479.	312.17	3.4065E+02
UTH-233	22958.	245.34	1.1651E+05
PA-234M	136.	1001.03	4.6432E+01
TH-234	16586.	63.29	6.3078E+03
U-235	28080.	185.71	1.9239E+02
NP-237	18207.	86.48	1.0929E+03

Sample ID : S96T2140-SAM Acquisition date : 10-MAY-1996 18:02:27

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	19435.	106.12	4.8894E+02
PU-239	22217.	129.30	1.6339E+06
AM-241	16476.	59.54	1.0323E+03
AM-243	17323.	74.67	2.9280E+02

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAY-1996 19:58:44.72                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-184, REV. 1

```
Worklist #:              8418
Sample ID:               S96T2140-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         8.20000E+01
```

Removed by: [signature]

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2706.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:36.19 sec
Dead Time:               3.1%
```

Verified by: [signature] 5/13/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAY-1996 19:06:26.26
Decayed to:              10-MAY-1996 19:06:26.26
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:54:47.36
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.40*	665313	1.52	1322.82	1314	18	0.3		CS-137	2.827E+05
0	1321.74	92	1.34	2643.62	2637	14	45.7			

Sample ID : S96T2140-DUP
Acquisition date : 10-MAY-1996 19:06:26

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

WHC-SD-WM-DP-184, REV. 1

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	2.827E+05	2.827E+05	0.007E+05	0.25	
		Total Activity :	2.827E+05	2.827E+05			
		Grand Total Activity :	2.827E+05	2.827E+05			

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

Sample ID : S96T2140-DUP Acquisition date : 10-MAY-1996 19:06:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	21060.	477.59	1.8759E+03
NA-22	44.	1274.53	1.9494E+01
NA-24	5.	1368.55	6.7626E+00
K-40	102.	1460.75	3.0959E+02
CR-51	19572.	320.08	1.3292E+03
MN-54	335.	834.83	3.6647E+01
CO-56	313.	846.76	3.5815E+01
CO-57	21918.	122.06	1.2539E+02
CO-58	328.	810.78	3.5684E+01
FE-59	93.	1099.25	4.3684E+01
CO-60	26.	1332.50	1.5578E+01
SE-75	21838.	264.66	2.1658E+02
SR-85	11252.	514.01	1.5871E+02
Y-88	3.	1836.06	6.8008E+00
NB-94	254.	871.09	3.2929E+01
ZRNB-95	499.	724.18	9.2031E+01
RU-103	13641.	497.08	1.7889E+02
RURH-106	4871.	621.93	2.2732E+03
AG-108m	493.	722.94	4.3990E+01
CD-109	18388.	88.03	3.6730E+03
AG-110M	26355.	657.76	2.8776E+02
SN-113	19832.	391.69	2.3888E+02
TE-123m	22166.	159.00	1.1361E+02
SB-124	5103.	602.73	1.1581E+02
SB-125	22717.	427.89	6.0558E+02
TE-125m	19971.	109.27	3.9168E+04
I-131	19401.	364.48	1.7789E+02
CS-134	5022.	604.70	1.1532E+02
BA-140	8238.	537.31	5.5295E+02
LA-140	6.	1596.21	9.3566E+00
CEPR-144	22464.	133.51	1.8625E+03
EU-152	8.	1408.01	4.1842E+01
EU-154	44.	1274.51	5.6609E+01
EU-155	19459.	105.31	5.1439E+02
HG-203	21401.	279.20	1.5819E+02
TL-208	21297.	277.36	2.0297E+03
BI-212	516.	727.18	6.1717E+02
PB-212	23728.	238.63	2.8557E+02
BI-214	5200.	609.31	2.5680E+02
PB-214	19066.	351.92	7.0904E+02
RA-224	23449.	240.99	3.1489E+03
RA-226	28492.	186.10	3.1875E+03
AC-228	218.	911.21	1.1894E+02
TH-228	18003.	84.37	1.1076E+04
TH-229	18432.	88.47	5.3362E+02
PA-233	19602.	312.17	3.4172E+02
UTH-233	23390.	245.34	1.1761E+05
PA-234M	158.	1001.03	4.9970E+01
TH-234	16743.	63.29	6.3374E+03
U-235	28200.	185.71	1.9280E+02
NP-237	18156.	86.48	1.0914E+03

Sample ID : S96T2140-DUP Acquisition date : 10-MAY-1996 19:06:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	19673.	106.12	4.9193E+02
PU-239	22316.	129.30	1.6375E+06
AM-241	16588.	59.54	1.0358E+03
AM-243	17480.	74.67	2.9412E+02

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAY-1996 21:24:16.69                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8418
Sample ID:               S96T2141-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.64000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2707.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:36.10 sec
Dead Time:               3.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAY-1996 20:32:02.84
Decayed to:              10-MAY-1996 20:32:02.84
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:54:47.36
*****************************************************************************
```

WHC-SD-WM-DP-184, REV. 1

Removed by: [signature]

Verified by: [signature] 5/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.40*	665128	1.52	1322.83	1314	18	0.3		CS-137	5.653E+05
0	1321.58	134	2.23	2643.31	2635	20	37.0			
0	1331.53	15	1.13	2663.21	2660	14	131.7			

Sample ID : S96T2141-SAM
Acquisition date : 10-MAY-1996 20:32:02

WHC-SD-WM-DP-184, REV. 1

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
CS-137	30.00Y	1.000	5.653E+05	5.653E+05	0.014E+05	0.25	
		Total Activity :	5.653E+05	5.653E+05			
		Grand Total Activity :	5.653E+05	5.653E+05			

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

Sample ID : S96T2141-SAM Acquisition date : 10-MAY-1996 20:32:02

WHC-SD-WM-DP-184, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	20960.	477.59	3.7429E+03
NA-22	55.	1274.53	4.3584E+01
NA-24	5.	1368.55	1.4155E+01
K-40	105.	1460.75	6.2845E+02
CR-51	19479.	320.08	2.6520E+03
MN-54	328.	834.83	7.2523E+01
CO-56	286.	846.76	6.8475E+01
CO-57	21750.	122.06	2.4982E+02
CO-58	329.	810.78	7.1476E+01
FE-59	100.	1099.25	9.0874E+01
CO-60	29.	1332.50	3.2847E+01
SE-75	21796.	264.66	4.3275E+02
SR-85	11128.	514.01	3.1567E+02
Y-88	3.	1836.06	1.2828E+01
NB-94	253.	871.09	6.5663E+01
ZRNB-95	544.	724.18	1.9225E+02
RU-103	13557.	497.08	3.5666E+02
RURH-106	4898.	621.93	4.5592E+03
AG-108m	534.	722.94	9.1573E+01
CD-109	18118.	88.03	7.2918E+03
AG-110M	26185.	657.76	5.7368E+02
SN-113	20042.	391.69	4.8029E+02
TE-123m	22512.	159.00	2.2898E+02
SB-124	5017.	602.73	2.2965E+02
SB-125	22753.	427.89	1.2121E+03
TE-125m	19923.	109.27	7.8240E+04
I-131	19200.	364.48	3.5395E+02
CS-134	5065.	604.70	2.3162E+02
BA-140	8116.	537.31	1.0977E+03
LA-140	4.	1596.21	1.4260E+01
CEPR-144	22660.	133.51	3.7411E+03
EU-152	15.	1408.01	1.1852E+02
EU-154	55.	1274.51	1.2635E+02
EU-155	19495.	105.31	1.0297E+03
HG-203	21231.	279.20	3.1512E+02
TL-208	21187.	277.36	4.0489E+03
BI-212	534.	727.18	1.2558E+03
PB-212	23391.	238.63	5.6708E+02
BI-214	5030.	609.31	5.0510E+02
PB-214	19249.	351.92	1.4249E+03
RA-224	23314.	240.99	6.2797E+03
RA-226	28375.	186.10	6.3620E+03
AC-228	208.	911.21	2.3218E+02
TH-228	18135.	84.37	2.2232E+04
TH-229	18093.	88.47	1.0574E+03
PA-233	19662.	312.17	6.8448E+02
UTH-233	23035.	245.34	2.3342E+05
PA-234M	127.	1001.03	8.9596E+01
TH-234	16649.	63.29	1.2639E+04
U-235	28046.	185.71	3.8455E+02
NP-237	18177.	86.48	2.1841E+03

Sample ID : S96T2141-SAM Acquisition date : 10-MAY-1996 20:32:02

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	19538.	106.12	9.8049E+02
PU-239	22216.	129.30	3.2678E+06
AM-241	16589.	59.54	2.0717E+03
AM-243	17407.	74.67	5.8702E+02

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAY-1996 22:43:50.03                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8418
Sample ID:               S96T2141-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.64000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2708.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:37.08 sec
Dead Time:               3.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAY-1996 21:51:33.55
Decayed to:              10-MAY-1996 21:51:33.55
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:54:47.36
*****************************************************************************
```

WHC-SD-WM-DP-184, REV. 1

Removed by: MB

Verified by: BJ Machelor 5/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.41*	671609	1.52	1322.83	1314	18	0.3		CS-137	5.708E+05
0	1322.26	87	2.47	2644.67	2639	14	49.4			

Sample ID : S96T2141-DUP Acquisition date : 10-MAY-1996 21:51:33

WHC-SD-WM-DP-184, REV. 1

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	5.708E+05	5.708E+05	0.014E+05	0.25	
		Total Activity :	5.708E+05	5.708E+05			
		Grand Total Activity :	5.708E+05	5.708E+05			

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

Sample ID : S96T2141-DUP
Acquisition date : 10-MAY-1996 21:51:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	21454.	477.59	3.7868E+03
NA-22	34.	1274.53	3.4080E+01
NA-24	8.	1368.55	1.7926E+01
K-40	109.	1460.75	6.3892E+02
CR-51	19409.	320.08	2.6472E+03
MN-54	331.	834.83	7.2894E+01
CO-56	326.	846.76	7.3106E+01
CO-57	21761.	122.06	2.4989E+02
CO-58	336.	810.78	7.2199E+01
FE-59	114.	1099.25	9.7157E+01
CO-60	23.	1332.50	2.9253E+01
SE-75	21906.	264.66	4.3384E+02
SR-85	11113.	514.01	3.1546E+02
Y-88	4.	1836.06	1.5706E+01
NB-94	290.	871.09	7.0387E+01
ZRNB-95	521.	724.18	1.8816E+02
RU-103	13531.	497.08	3.5632E+02
RURH-106	4991.	621.93	4.6022E+03
AG-108m	534.	722.94	9.1560E+01
CD-109	18347.	88.03	7.3378E+03
AG-110M	26179.	657.76	5.7361E+02
SN-113	20061.	391.69	4.8051E+02
TE-123m	22511.	159.00	2.2897E+02
SB-124	5147.	602.73	2.3261E+02
SB-125	22898.	427.89	1.2160E+03
TE-125m	20162.	109.27	7.8710E+04
I-131	19447.	364.48	3.5621E+02
CS-134	5011.	604.70	2.3037E+02
BA-140	8275.	537.31	1.1084E+03
LA-140	3.	1596.21	1.3551E+01
CEPR-144	22841.	133.51	3.7560E+03
EU-152	11.	1408.01	9.9235E+01
EU-154	34.	1274.51	9.9131E+01
EU-155	19697.	105.31	1.0350E+03
HG-203	21304.	279.20	3.1565E+02
TL-208	21476.	277.36	4.0763E+03
BI-212	572.	727.18	1.2988E+03
PB-212	23862.	238.63	5.7276E+02
BI-214	5067.	609.31	5.0695E+02
PB-214	19171.	351.92	1.4222E+03
RA-224	23684.	240.99	6.3293E+03
RA-226	28917.	186.10	6.4224E+03
AC-228	227.	911.21	2.4251E+02
TH-228	18241.	84.37	2.2297E+04
TH-229	18361.	88.47	1.0652E+03
PA-233	19941.	312.17	6.8932E+02
UTH-233	23235.	245.34	2.3443E+05
PA-234M	134.	1001.03	9.2172E+01
TH-234	16832.	63.29	1.2709E+04
U-235	28494.	185.71	3.8761E+02
NP-237	18409.	86.48	2.1980E+03

Sample ID : S96T2141-DUP Acquisition date : 10-MAY-1996 21:51:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	19735.	106.12	9.8541E+02
PU-239	22583.	129.30	3.2947E+06
AM-241	16606.	59.54	2.0727E+03
AM-243	17612.	74.67	5.9045E+02

```
*****************************************************************************
* 222-S Laboratory Counting Room   10-MAY-1996 23:46:39.02                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8418
Sample ID:               S96T2142-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.05000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2709.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:15.68 sec
Dead Time:               2.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAY-1996 22:54:39.96
Decayed to:              10-MAY-1996 22:54:39.96
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:54:47.36
*****************************************************************************
```

WHC-SD-WM-DP-184, REV. 1

Removed by: [signature]

Verified by: [signature] 5/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.41*	527418	1.52	1322.83	1314	17	0.3		CS-137	2.870E+05

Sample ID : S96T2142-SAM
Acquisition date : 10-MAY-1996 22:54:39

WHC-SD-WM-DP-184, REV. 1

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	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
CS-137	30.00Y	1.000	2.870E+05	2.870E+05	0.008E+05	0.28	
		Total Activity :	2.870E+05	2.870E+05			
		Grand Total Activity :	2.870E+05	2.870E+05			

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

Sample ID : S96T2142-SAM
Acquisition date : 10-MAY-1996 22:54:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	16530.	477.59	2.1281E+03
NA-22	35.	1274.53	2.2156E+01
NA-24	9.	1368.55	1.1877E+01
K-40	102.	1460.75	3.9735E+02
CR-51	15446.	320.08	1.5119E+03
MN-54	196.	834.83	3.5909E+01
CO-56	175.	846.76	3.4303E+01
CO-57	17277.	122.06	1.4255E+02
CO-58	221.	810.78	3.7506E+01
FE-59	73.	1099.25	4.9637E+01
CO-60	18.	1332.50	1.6590E+01
SE-75	17482.	264.66	2.4814E+02
SR-85	8936.	514.01	1.8111E+02
Y-88	3.	1836.06	8.2127E+00
NB-94	164.	871.09	3.3899E+01
ZRNB-95	322.	724.18	9.4701E+01
RU-103	10688.	497.08	2.0275E+02
RURH-106	3904.	621.93	2.6061E+03
AG-108m	323.	722.94	4.5569E+01
CD-109	14519.	88.03	4.1793E+03
AG-110M	20643.	657.76	3.2612E+02
SN-113	15859.	391.69	2.7354E+02
TE-123m	17597.	159.00	1.2961E+02
SB-124	4061.	602.73	1.3228E+02
SB-125	17875.	427.89	6.8785E+02
TE-125m	15581.	109.27	4.4300E+04
I-131	15126.	364.48	2.0113E+02
CS-134	3950.	604.70	1.3095E+02
BA-140	6470.	537.31	6.2750E+02
LA-140	3.	1596.21	8.6755E+00
CEPR-144	17846.	133.51	2.1257E+03
EU-152	10.	1408.01	6.1893E+01
EU-154	35.	1274.51	6.4407E+01
EU-155	15265.	105.31	5.8338E+02
HG-203	16644.	279.20	1.7863E+02
TL-208	16697.	277.36	2.3012E+03
BI-212	306.	727.18	6.0840E+02
PB-212	18685.	238.63	3.2450E+02
BI-214	3890.	609.31	2.8439E+02
PB-214	15310.	351.92	8.1078E+02
RA-224	18323.	240.99	3.5642E+03
RA-226	22953.	186.10	3.6635E+03
AC-228	160.	911.21	1.3032E+02
TH-228	14258.	84.37	1.2621E+04
TH-229	14629.	88.47	6.0874E+02
PA-233	15712.	312.17	3.9175E+02
UTH-233	18217.	245.34	1.3290E+05
PA-234M	100.	1001.03	5.0981E+01
TH-234	13171.	63.29	7.1975E+03
U-235	22686.	185.71	2.2143E+02
NP-237	14570.	86.48	1.2519E+03

Sample ID : S96T2142-SAM Acquisition date : 10-MAY-1996 22:54:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/
NP-239	15409.	106.12	5.5746E+02
PU-239	17680.	129.30	1.8664E+06
AM-241	12883.	59.54	1.1689E+03
AM-243	13872.	74.67	3.3550E+02

```
*****************************************************************************
* 222-S Laboratory Counting Room   11-MAY-1996 00:41:41.22                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8418
Sample ID:               S96T2142-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.05000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2710.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:12.50 sec
Dead Time:               2.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-MAY-1996 23:49:48.48
Decayed to:              10-MAY-1996 23:49:48.48
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:54:47.36
*****************************************************************************
```

WHC-SD-WM-DP-184, REV. 1

Removed by: MCB

Verified by: BMachelor 5/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.41*	506464	1.52	1322.84	1314	17	0.3		CS-137	2.756E+05
0	1321.60	78	3.05	2643.35	2636	15	39.3			

Sample ID : S96T2142-DUP
Acquisition date : 10-MAY-1996 23:49:48

WHC-SD-WM-DP-184, REV. 1

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	2.756E+05	2.756E+05	0.008E+05	0.29	
		Total Activity :	2.756E+05	2.756E+05			
		Grand Total Activity :	2.756E+05	2.756E+05			

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

Sample ID : S96T2142-DUP
Acquisition date : 10-MAY-1996 23:49:48

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	15923.	477.59	2.0887E+03
NA-22	28.	1274.53	1.9878E+01
NA-24	7.	1368.55	1.0393E+01
K-40	109.	1460.75	4.1006E+02
CR-51	14985.	320.08	1.4892E+03
MN-54	180.	834.83	3.4433E+01
CO-56	180.	846.76	3.4784E+01
CO-57	16572.	122.06	1.3962E+02
CO-58	173.	810.78	3.3192E+01
FE-59	84.	1099.25	5.3193E+01
CO-60	17.	1332.50	1.6273E+01
SE-75	16605.	264.66	2.4183E+02
SR-85	8282.	514.01	1.7435E+02
Y-88	4.	1836.06	9.9888E+00
NB-94	159.	871.09	3.3321E+01
ZRNB-95	333.	724.18	9.6302E+01
RU-103	10112.	497.08	1.9721E+02
RURH-106	3729.	621.93	2.5470E+03
AG-108m	324.	722.94	4.5628E+01
CD-109	13790.	88.03	4.0730E+03
AG-110M	19458.	657.76	3.1661E+02
SN-113	15194.	391.69	2.6774E+02
TE-123m	16971.	159.00	1.2729E+02
SB-124	3741.	602.73	1.2696E+02
SB-125	17180.	427.89	6.7434E+02
TE-125m	15167.	109.27	4.3708E+04
I-131	14554.	364.48	1.9730E+02
CS-134	3779.	604.70	1.2809E+02
BA-140	6187.	537.31	6.1363E+02
LA-140	0.	1596.21	0.0000E+00
CEPR-144	17105.	133.51	2.0811E+03
EU-152	7.	1408.01	5.1853E+01
EU-154	28.	1274.51	5.7792E+01
EU-155	14795.	105.31	5.7432E+02
HG-203	15962.	279.20	1.7493E+02
TL-208	16038.	277.36	2.2554E+03
BI-212	308.	727.18	6.1039E+02
PB-212	17885.	238.63	3.1747E+02
BI-214	3835.	609.31	2.8239E+02
PB-214	14436.	351.92	7.8686E+02
RA-224	17681.	240.99	3.5012E+03
RA-226	21768.	186.10	3.5676E+03
AC-228	163.	911.21	1.3173E+02
TH-228	13675.	84.37	1.2360E+04
TH-229	13815.	88.47	5.9156E+02
PA-233	15084.	312.17	3.8385E+02
UTH-233	17517.	245.34	1.3032E+05
PA-234M	106.	1001.03	5.2520E+01
TH-234	12599.	63.29	7.0397E+03
U-235	21537.	185.71	2.1575E+02
NP-237	13764.	86.48	1.2168E+03

Sample ID : S96T2142-DUP Acquisition date : 10-MAY-1996 23:49:48

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	14847.	106.12	5.4720E+02
PU-239	17067.	129.30	1.8338E+06
AM-241	12620.	59.54	1.1569E+03
AM-243	13394.	74.67	3.2968E+02

LABCORE Data Entry Template for Worklist# 8657

Analyst: CRG **Instrument:** GEA00 3 **Book#** 12356

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-107. Sample size is on traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-02	SOLID		
2	BLNK-PREP				@GEA-02	SOLID		
3	SAMPLE	S96T002134	0	F	@GEA-02	SOLID	96000422	U-107
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T002134	0	F	@GEA-02	SOLID		
5	SAMPLE	S96T002135	0	F	@GEA-02	SOLID	96000422	U-107
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T002135	0	F	@GEA-02	SOLID		
7	SAMPLE	S96T002136	0	F	@GEA-02	SOLID	96000422	U-107
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
8	DUP	S96T002136	0	F	@GEA-02	SOLID		

Final page for worklist # 8657

5/21/96

Analyst Signature Date 5/16/96 5/21/96 Analyst Signature Date 5/23/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8657

Analyst: crj **Instrument:** GEA03 **Book#** 12852

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-107. Sample size is on traveler. new

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-02	CO60-02	SOLID	2.534e-02		2.50e-02	98.658	% Recovery
1	STD		0		@GEA-02	CO60-02E	SOLID	1		1.23	1.230	% Ct Error
1	STD		0		@GEA-02	CS13702	SOLID	2.704e-02		2.68e-02	99.112	% Recovery
1	STD		0		@GEA-02	CS13702E	SOLID	1		1.41	1.410	% Ct Error
2	BLNK-PREP		0		@GEA-02	CO60-02	SOLID	1		<1.35e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	CS13702	SOLID	1		<5.01e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15402	SOLID	1		<5.49e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15502	SOLID	1		<5.05e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	AM24102	SOLID	1		<1.31e-1		uCi/g
3	SAMPLE	S96T002134	0	F	@GEA-02	CO60-02	SOLID	N/A	<	2.532e-02	253.2e-004	uCi/g
3	SAMPLE	S96T002134	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002134	0	F	@GEA-02	CS13702	SOLID	N/A		1.222e+02	0.0e+000	uCi/g
3	SAMPLE	S96T002134	0	F	@GEA-02	CS13702E	SOLID	N/A		0.560	0.0e+000	% Ct. Error
3	SAMPLE	S96T002134	0	F	@GEA-02	EU15402	SOLID	N/A	<	1.104e-01	110.0e-003	uCi/g
3	SAMPLE	S96T002134	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002134	0	F	@GEA-02	EU15502	SOLID	N/A	<	3.458e-01	346.0e-003	uCi/g
3	SAMPLE	S96T002134	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002134	0	F	@GEA-02	AM24102	SOLID	N/A	<	9.120e-01	912.0e-003	uCi/g
3	SAMPLE	S96T002134	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
4	DUP	S96T002134	0	F	@GEA-02	CO60-02	SOLID	<2.53e-2		<3.21e-2		RPD
4	DUP	S96T002134	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002134	0	F	@GEA-02	CS13702	SOLID	1.22e+02		1.04e+02	15.929	RPD
4	DUP	S96T002134	0	F	@GEA-02	CS13702E	SOLID	1		0.620	0.620	% Ct Error
4	DUP	S96T002134	0	F	@GEA-02	EU15402	SOLID	<1.10e-1		<1.17e-1		RPD
4	DUP	S96T002134	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002134	0	F	@GEA-02	EU15502	SOLID	<3.46e-1		<3.27e-1		RPD
4	DUP	S96T002134	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002134	0	F	@GEA-02	AM24102	SOLID	<9.12e-1		<8.46e-1		RPD
4	DUP	S96T002134	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
5	SAMPLE	S96T002135	0	F	@GEA-02	CO60-02	SOLID	N/A	<	1.298e-02	129.8e-004	uCi/g
5	SAMPLE	S96T002135	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002135	0	F	@GEA-02	CS13702	SOLID	N/A		7.232e+01	0.0e+000	uCi/g
5	SAMPLE	S96T002135	0	F	@GEA-02	CS13702E	SOLID	N/A		0.560	0.0e+000	% Ct. Error
5	SAMPLE	S96T002135	0	F	@GEA-02	EU15402	SOLID	N/A	<	3.472e-02	347.2e-004	uCi/g
5	SAMPLE	S96T002135	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002135	0	F	@GEA-02	EU15502	SOLID	N/A	<	2.001e-01	200.0e-003	uCi/g
5	SAMPLE	S96T002135	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002135	0	F	@GEA-02	AM24102	SOLID	N/A	<	5.131e-01	513.0e-003	uCi/g
5	SAMPLE	S96T002135	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
6	DUP	S96T002135	0	F	@GEA-02	CO60-02	SOLID	<1.30e-2		<1.37e-2		RPD
6	DUP	S96T002135	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error

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

LABCORE Completed RadChem Report for Worklist#: 8657

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
6	DUP	S96T002135	0	F	@GEA-02	CS13702	SOLID	7.23e+01		6.77e+01	6.571	RPD
6	DUP	S96T002135	0	F	@GEA-02	CS13702E	SOLID	1		0.580	0.580	% Ct Error
6	DUP	S96T002135	0	F	@GEA-02	EU15402	SOLID	<3.47e-2		<4.36e-2		RPD
6	DUP	S96T002135	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002135	0	F	@GEA-02	EU15502	SOLID	<2.00e-1		<1.93e-1		RPD
6	DUP	S96T002135	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002135	0	F	@GEA-02	AM24102	SOLID	<5.13e-1		<5.09e-1		RPD
6	DUP	S96T002135	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
7	SAMPLE	S96T002136	0	F	@GEA-02	CO60-02	SOLID	N/A	<	1.420e-02	142.0e-004	uCi/g
7	SAMPLE	S96T002136	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002136	0	F	@GEA-02	CS13702	SOLID	N/A		6.233e+01	0.0e+000	uCi/g
7	SAMPLE	S96T002136	0	F	@GEA-02	CS13702E	SOLID	N/A		0.600	0.0e+000	% Ct. Error
7	SAMPLE	S96T002136	0	F	@GEA-02	EU15402	SOLID	N/A	<	4.359e-02	435.9e-004	uCi/g
7	SAMPLE	S96T002136	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002136	0	F	@GEA-02	EU15502	SOLID	N/A	<	1.823e-01	182.0e-003	uCi/g
7	SAMPLE	S96T002136	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002136	0	F	@GEA-02	AM24102	SOLID	N/A	<	4.837e-01	484.0e-003	uCi/g
7	SAMPLE	S96T002136	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
8	DUP	S96T002136	0	F	@GEA-02	CO60-02	SOLID	<1.42e-2		<1.65e-2		RPD
8	DUP	S96T002136	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002136	0	F	@GEA-02	CS13702	SOLID	6.23e+01		6.18e+01	0.806	RPD
8	DUP	S96T002136	0	F	@GEA-02	CS13702E	SOLID	1		0.610	0.610	% Ct Error
8	DUP	S96T002136	0	F	@GEA-02	EU15402	SOLID	<4.36e-2		<5.60e-2		RPD
8	DUP	S96T002136	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002136	0	F	@GEA-02	EU15502	SOLID	<1.82e-1		<1.89e-1		RPD
8	DUP	S96T002136	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002136	0	F	@GEA-02	AM24102	SOLID	<4.84e-1		<4.91e-1		RPD
8	DUP	S96T002136	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error

Comments Section:

Comments for sample# S96T002134 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002135 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002136 **and test** @GEA-02 .
DL=0 => n/a.

Final page for worklist# 8657

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

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

LABCORE Completed RadChem Report for Worklist#: 8657

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit

Reviewer Signature 5/30/96 Date

```
*****************************************************************************
* 222-S Laboratory Counting Room   22-MAY-1996 16:51:47.42                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8657
Sample ID:               WL8657-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3494.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:09.53 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       22-MAY-1996 16:00:55.29
Decayed to:              22-MAY-1996 16:00:55.29
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
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
*****************************************************************************
```

WHC-SD-WM-DP-184, REV. 1

Removed by: Eric Baeler

Verified by: R Machelor 5/23/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	56.65	141	1.23	113.84	111	7	82.0			
0	661.54*	23748	1.59	1323.26	1316	14	1.4		CS-137	26.8
0	1173.10	15759	1.89	2346.46	2337	19	1.8		CO-60	24.9
0	1332.35	14334	2.03	2665.07	2655	21	1.7		CO-60	25.1
0	1460.95*	31	2.34	2922.39	2914	19	111.1		K-40	0.545

Sample ID : WL8657-STD
Acquisition date : 22-MAY-1996 16:00:55

Total number of lines in spectrum	5	WHC-SD-WM-DP-184, REV. 1
Number of unidentified lines	1	
Number of lines tentatively identified by NID	4	80.00%

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
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~5.453E-01~~	~~5.453E-01~~	~~6.057E-01~~	~~111.06~~	~~BKG~~
CO-60	5.27Y	1.000	2.497E+01	2.497E+01	0.031E+01	1.23	
CS-137	30.00Y	1.000	2.684E+01	2.684E+01	0.038E+01	1.41	
		Total Activity :	5.236E+01	5.236E+01			
		Grand Total Activity :	5.236E+01	5.236E+01			

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

Sample ID : WL8657-STD Acquisition date : 22-MAY-1996 16:00:55

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1284.	477.59	1.1807E+00
NA-22	82.	1274.53	7.1131E-02
NA-24	30.	1368.55	4.6194E-02
CR-51	1204.	320.08	8.6013E-01
MN-54	716.	834.83	1.4627E-01
CO-56	747.	846.76	1.5138E-01
CO-57	1323.	122.06	6.2950E-02
CO-58	676.	810.78	1.3943E-01
FE-59	769.	1099.25	3.4008E-01
SE-75	1443.	264.66	1.4107E-01
SR-85	936.	514.01	1.1527E-01
Y-88	15.	1836.06	4.0574E-02
NB-94	779.	871.09	1.5841E-01
ZRNB-95	600.	724.18	2.7130E-01
RU-103	955.	497.08	1.1951E-01
RURH-106	654.	621.93	2.1915E+00
AG-108m	608.	722.94	1.3122E-01
CD-109	1096.	88.03	1.8969E+00
AG-110M	1130.	657.76	1.5833E-01
SN-113	1172.	391.69	1.5564E-01
TE-123m	1338.	159.00	6.5113E-02
SB-124	629.	602.73	1.0618E-01
SB-125	1268.	427.89	3.7796E-01
TE-125m	1151.	109.27	1.9114E+01
I-131	1109.	364.48	1.1319E-01
CS-134	634.	604.70	1.0707E-01
BA-140	765.	537.31	4.2568E-01
LA-140	19.	1596.21	4.2633E-02
CEPR-144	1336.	133.51	9.5673E-01
EU-152	23.	1408.01	1.9681E-01
EU-154	82.	1274.51	2.0671E-01
EU-155	1172.	105.31	2.5764E-01
HG-203	1413.	279.20	1.0412E-01
TL-208	1366.	277.36	1.3150E+00
BI-212	598.	727.18	1.7851E+00
PB-212	1586.	238.63	1.8395E-01
BI-214	619.	609.31	2.3204E-01
PB-214	1189.	351.92	4.6167E-01
RA-224	1530.	240.99	2.0060E+00
RA-226	1547.	186.10	1.8419E+00
AC-228	966.	911.21	6.8844E-01
TH-228	1121.	84.37	5.9084E+00
TH-229	1093.	88.47	2.7459E-01
PA-233	1254.	312.17	2.2488E-01
UTH-233	1527.	245.34	7.5116E+01
PA-234M	789.	1001.03	3.0415E-01
TH-234	1026.	63.29	3.8076E+00
U-235	1514.	185.71	1.1075E-01
NP-237	1090.	86.48	5.6830E-01
NP-239	1181.	106.12	2.4571E-01
PU-239	1352.	129.30	8.3770E+02

Minimum Detectable Activity Report (continued)
Sample ID : WL8657-STD Acquisition date : 22-MAY-1996 16:00:55

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	1025.	59.54	6.7164E-01
AM-243	1137.	74.67	1.6628E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   22-MAY-1996 17:47:41.18                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8657
Sample ID:               WL8657-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3495.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.44 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       22-MAY-1996 16:56:59.88
Decayed to:              22-MAY-1996 16:56:59.88
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
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 *****
```

WHC-SD-WM-DP-184, REV. 1

Removed by: Raymond

Verified by: Bachelor 5/23/96

Sample ID : WL8657-BLK
Acquisition date : 22-MAY-1996 16:56:59

**** There are no nuclides meeting summary criteria **WHC-SD-WM-DP-184, REV.

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

Sample ID : WL8657-BLK
Acquisition date : 22-MAY-1996 16:56:59

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	28.	477.59	1.7557E-01
NA-22	8.	1274.53	2.2732E-02
NA-24	5.	1368.55	1.8601E-02
K-40	133.	1460.75	9.4344E-01
CR-51	56.	320.08	1.8488E-01
MN-54	12.	834.83	1.8714E-02
CO-56	18.	846.76	2.3196E-02
CO-57	85.	122.06	1.5937E-02
CO-58	14.	810.78	2.0133E-02
FE-59	12.	1099.25	4.1899E-02
CO-60	4.	1332.50	1.6277E-02
SE-75	56.	264.66	2.7693E-02
SR-85	47.	514.01	2.5760E-02
Y-88	1.	1836.06	1.0492E-02
NB-94	11.	871.09	1.9016E-02
ZRNB-95	20.	724.18	4.9820E-02
RU-103	20.	497.08	1.7444E-02
RURH-106	25.	621.93	4.2421E-01
AG-108m	20.	722.94	2.3699E-02
CD-109	67.	88.03	4.6911E-01
AG-110M	24.	657.76	2.2930E-02
SN-113	50.	391.69	3.2078E-02
TE-123m	88.	159.00	1.6749E-02
SB-124	27.	602.73	2.2065E-02
SB-125	43.	427.89	6.9968E-02
TE-125m	86.	109.27	5.2168E+00
I-131	34.	364.48	1.9697E-02
CS-134	13.	604.70	1.5447E-02
CS-137	132.	661.66	6.0274E-02
BA-140	26.	537.31	7.8607E-02
LA-140	3.	1596.21	1.6109E-02
CEPR-144	77.	133.51	2.2904E-01
EU-152	6.	1408.01	9.9625E-02
EU-154	8.	1274.51	6.6042E-02
EU-155	65.	105.31	6.0698E-02
HG-203	49.	279.20	1.9318E-02
TL-208	40.	277.36	2.2453E-01
BI-212	18.	727.18	3.1203E-01
PB-212	87.	238.63	4.3082E-02
BI-214	47.	609.31	6.3940E-02
PB-214	53.	351.92	9.7069E-02
RA-224	80.	240.99	4.5894E-01
RA-226	82.	186.10	4.2484E-01
AC-228	24.	911.21	1.0787E-01
TH-228	66.	84.37	1.4370E+00
TH-229	54.	88.47	6.1140E-02
PA-233	48.	312.17	4.3808E-02
UTH-233	64.	245.34	1.5369E+01
PA-234M	15.	1001.03	4.1290E-02
TH-234	47.	63.29	8.1510E-01
U-235	85.	185.71	2.6188E-02

Sample ID : WL8657-BLK Acquisition date : 22-MAY-1996 16:56:59

WHC-SD-WM-DP-184, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	69.	86.48	1.4327E-01
NP-239	68.	106.12	5.9022E-02
PU-239	78.	129.30	2.0129E+02
AM-241	56.	59.54	1.5754E-01
AM-243	68.	74.67	4.0529E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   22-MAY-1996 22:50:23.33                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8657
Sample ID:               S96T2134-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3496.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:16.12 sec
Dead Time:               0.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       22-MAY-1996 21:59:26.84
Decayed to:              22-MAY-1996 21:59:26.84
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
*****************************************************************************
```

WHC-SD-WM-DP-184, REV. 1
Removed by:
Verified by: 5/23/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.81	205	1.14	246.09	243	6	86.0		CO-57	7.643E-02
0	661.54*	129972	1.55	1323.25	1316	16	0.6		CS-137	147.
0	1274.04	26	2.37	2548.41	2540	17	73.3			
0	1460.81*	14	2.40	2922.10	2913	20	186.7		K-40	0.250

Sample ID : S96T2134-SAM
Acquisition date : 22-MAY-1996 21:59:26

WHC-SD-WM-DP-184, REV. 1

Total number of lines in spectrum	4	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	4	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
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~2.503E-01~~	~~2.503E-01~~	~~4.673E-01~~	~~186.68~~	BKG
~~CO-57~~	~~271.80D~~	~~1.000~~	~~7.642E-02~~	~~7.643E-02~~	~~6.571E-02~~	~~85.98~~	BKG
CS-137	30.00Y	1.000	1.469E+02	1.469E+02	0.008E+02	0.56	
		Total Activity :	1.472E+02	1.472E+02			
		Grand Total Activity :	1.472E+02	1.472E+02			

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

Sample ID : S96T2134-SAM
Acquisition date : 22-MAY-1996 21:59:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3865.	477.59	2.0480E+00
NA-22	34.	1274.53	4.5750E-02
NA-24	9.	1368.55	2.5147E-02
CR-51	3020.	320.08	1.3624E+00
MN-54	28.	834.83	2.8765E-02
CO-56	26.	846.76	2.7988E-02
CO-58	22.	810.78	2.5423E-02
FE-59	16.	1099.25	4.8366E-02
CO-60	14.	1332.50	3.0451E-02
SE-75	3433.	264.66	2.1763E-01
SR-85	1915.	514.01	1.6481E-01
Y-88	3.	1836.06	1.7641E-02
NB-94	42.	871.09	3.6676E-02
ZRNB-95	51.	724.18	7.8723E-02
RU-103	2409.	497.08	1.8988E-01
RURH-106	684.	621.93	2.2417E+00
AG-108m	51.	722.94	3.8014E-02
CD-109	2878.	88.03	3.0741E+00
AG-110M	3339.	657.76	2.7220E-01
SN-113	3282.	391.69	2.6045E-01
TE-123m	3309.	159.00	1.0242E-01
SB-124	714.	602.73	1.1312E-01
SB-125	3930.	427.89	6.6537E-01
TE-125m	3008.	109.27	3.0902E+01
I-131	3196.	364.48	1.9218E-01
CS-134	729.	604.70	1.1481E-01
BA-140	1345.	537.31	5.6454E-01
LA-140	5.	1596.21	2.2568E-02
CEPR-144	3375.	133.51	1.5207E+00
EU-152	7.	1408.01	1.0695E-01
EU-154	34.	1274.51	1.3284E-01
EU-155	3055.	105.31	4.1592E-01
HG-203	3302.	279.20	1.5914E-01
TL-208	3210.	277.36	2.0158E+00
BI-212	45.	727.18	4.8811E-01
PB-212	3801.	238.63	2.8479E-01
BI-214	727.	609.31	2.5142E-01
PB-214	3151.	351.92	7.5231E-01
RA-224	3688.	240.99	3.1148E+00
RA-226	4494.	186.10	3.1390E+00
AC-228	42.	911.21	1.4304E-01
TH-228	2861.	84.37	9.4404E+00
TH-229	2857.	88.47	4.4393E-01
PA-233	3122.	312.17	3.5486E-01
UTH-233	3771.	245.34	1.1805E+02
PA-234M	15.	1001.03	4.2273E-02
TH-234	2626.	63.29	6.0918E+00
U-235	4444.	185.71	1.8971E-01
NP-237	2937.	86.48	9.3270E-01
NP-239	3077.	106.12	3.9662E-01
PU-239	3325.	129.30	1.3135E+03

Sample ID : S96T2134-SAM Acquisition date : 22-MAY-1996 21:59:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	2734.	59.54	1.0969E+00
AM-243	2711.	74.67	2.5670E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   22-MAY-1996 23:52:51.92                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8657
Sample ID:               S96T2134-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3497.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:13.39 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       22-MAY-1996 23:01:46.74
Decayed to:              22-MAY-1996 23:01:46.74
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
*****************************************************************************
```

WHC-SD-WM-DP-184, REV. 1

Removed by: [signature]

Verified by: [signature] 5/23/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.53*	106932	1.57	1323.24	1315	17	0.6		CS-137	121.
0	723.61	55	1.62	1447.39	1443	12	38.9			
0	1120.77*	12	1.44	2241.78	2238	11	96.5			
0	1273.93	33	1.63	2548.20	2542	12	40.4			
0	1460.51*	22	2.19	2921.50	2912	19	114.5		K-40	0.382

Summary of Nuclide Activity
Sample ID : S96T2134-DUP

Acquisition date : 22-MAY-1996 23:01:46

WHC-SD-WM-DP-184, REV. 1

Total number of lines in spectrum	5	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	5	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
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~3.819E-01~~	~~3.819E-01~~	~~4.372E-01~~	~~114.48~~	~~BKG~~
CS-137	30.00Y	1.000	1.209E+02	1.209E+02	0.008E+02	0.62	
		Total Activity :	1.212E+02	1.212E+02			
		Grand Total Activity :	1.212E+02	1.212E+02			

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

Sample ID : S96T2134-DUP
Acquisition date : 22-MAY-1996 23:01:46

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3296.	477.59	1.8915E+00
NA-22	36.	1274.53	4.6834E-02
NA-24	4.	1368.55	1.6564E-02
CR-51	2457.	320.08	1.2290E+00
MN-54	19.	834.83	2.3881E-02
CO-56	32.	846.76	3.1440E-02
CO-57	2895.	122.06	9.3120E-02
CO-58	23.	810.78	2.5716E-02
FE-59	17.	1099.25	5.0383E-02
CO-60	21.	1332.50	3.7469E-02
SE-75	2782.	264.66	1.9589E-01
SR-85	1647.	514.01	1.5286E-01
Y-88	6.	1836.06	2.5700E-02
NB-94	37.	871.09	3.4647E-02
ZRNB-95	67.	724.18	9.0934E-02
RU-103	2010.	497.08	1.7344E-01
RURH-106	626.	621.93	2.1444E+00
AG-108m	65.	722.94	4.2997E-02
CD-109	2408.	88.03	2.8120E+00
AG-110M	2771.	657.76	2.4798E-01
SN-113	2823.	391.69	2.4156E-01
TE-123m	2801.	159.00	9.4230E-02
SB-124	582.	602.73	1.0208E-01
SB-125	3317.	427.89	6.1124E-01
TE-125m	2504.	109.27	2.8196E+01
I-131	2647.	364.48	1.7490E-01
CS-134	565.	604.70	1.0110E-01
BA-140	1106.	537.31	5.1184E-01
LA-140	5.	1596.21	2.1084E-02
CEPR-144	2805.	133.51	1.3863E+00
EU-152	9.	1408.01	1.2201E-01
EU-154	36.	1274.51	1.3622E-01
EU-155	2564.	105.31	3.8107E-01
HG-203	2698.	279.20	1.4386E-01
TL-208	2739.	277.36	1.8621E+00
BI-212	28.	727.18	3.8660E-01
PB-212	3301.	238.63	2.6541E-01
BI-214	574.	609.31	2.2341E-01
PB-214	2604.	351.92	6.8359E-01
RA-224	3148.	240.99	2.8777E+00
RA-226	3712.	186.10	2.8527E+00
AC-228	29.	911.21	1.1905E-01
TH-228	2358.	84.37	8.5711E+00
TH-229	2374.	88.47	4.0473E-01
PA-233	2634.	312.17	3.2592E-01
UTH-233	3054.	245.34	1.0623E+02
PA-234M	21.	1001.03	4.9907E-02
TH-234	2216.	63.29	5.5954E+00
U-235	3664.	185.71	1.7225E-01
NP-237	2462.	86.48	8.5400E-01
NP-239	2545.	106.12	3.6066E-01

Sample ID : S96T2134-DUP Acquisition date : 22-MAY-1996 23:01:46

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	2785.	129.30	1.2020E+03
AM-241	2215.	59.54	9.8721E-01
AM-243	2265.	74.67	2.3465E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   23-MAY-1996 01:20:32.07                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8657
Sample ID:               S96T2135-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3498.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:16.33 sec
Dead Time:               0.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       23-MAY-1996 00:29:34.38
Decayed to:              23-MAY-1996 00:29:34.38
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
*****************************************************************************
```

WHC-SD-WM-DP-184, REV. 1

Removed by: URaymond

Verified by: BMachelor 5/23/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.53*	132131	1.57	1323.24	1315	17	0.6		CS-137	149.
0	799.34	34	5.49	1598.85	1591	22	85.8			

Sample ID : S96T2135-SAM
Acquisition date : 23-MAY-1996 00:29:34

WHC-SD-WM-DP-184, REV. 1

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	1.493E+02	1.493E+02	0.008E+02	0.56	
		Total Activity :	1.493E+02	1.493E+02			
		Grand Total Activity :	1.493E+02	1.493E+02			

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

Sample ID : S96T2135-SAM
Acquisition date : 23-MAY-1996 00:29:34

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3998.	477.59	2.0830E+00
NA-22	10.	1274.53	2.4573E-02
NA-24	9.	1368.55	2.4886E-02
K-40	128.	1460.75	9.2749E-01
CR-51	3110.	320.08	1.3826E+00
MN-54	23.	834.83	2.6265E-02
CO-56	29.	846.76	2.9862E-02
CO-57	3279.	122.06	9.9101E-02
CO-58	21.	810.78	2.4681E-02
FE-59	16.	1099.25	4.9364E-02
CO-60	11.	1332.50	2.6736E-02
SE-75	3446.	264.66	2.1804E-01
SR-85	2054.	514.01	1.7069E-01
Y-88	2.	1836.06	1.4838E-02
NB-94	26.	871.09	2.8685E-02
ZRNB-95	34.	724.18	6.4659E-02
RU-103	2329.	497.08	1.8670E-01
RURH-106	686.	621.93	2.2449E+00
AG-108m	35.	722.94	3.1692E-02
CD-109	2813.	88.03	3.0395E+00
AG-110M	3232.	657.76	2.6781E-01
SN-113	3507.	391.69	2.6922E-01
TE-123m	3429.	159.00	1.0426E-01
SB-124	715.	602.73	1.1321E-01
SB-125	4025.	427.89	6.7335E-01
TE-125m	2985.	109.27	3.0784E+01
I-131	3296.	364.48	1.9515E-01
CS-134	699.	604.70	1.1244E-01
BA-140	1412.	537.31	5.7838E-01
LA-140	3.	1596.21	1.7092E-02
CEPR-144	3394.	133.51	1.5249E+00
EU-152	12.	1408.01	1.3794E-01
EU-154	10.	1274.51	7.1538E-02
EU-155	3001.	105.31	4.1222E-01
HG-203	3299.	279.20	1.5908E-01
TL-208	3374.	277.36	2.0668E+00
BI-212	27.	727.18	3.7885E-01
PB-212	3967.	238.63	2.9092E-01
BI-214	717.	609.31	2.4958E-01
PB-214	3204.	351.92	7.5872E-01
RA-224	3938.	240.99	3.2186E+00
RA-226	4622.	186.10	3.1832E+00
AC-228	48.	911.21	1.5281E-01
TH-228	2898.	84.37	9.5010E+00
TH-229	2806.	88.47	4.3995E-01
PA-233	3220.	312.17	3.6036E-01
UTH-233	3738.	245.34	1.1755E+02
PA-234M	23.	1001.03	5.2072E-02
TH-234	2722.	63.29	6.2021E+00
U-235	4592.	185.71	1.9284E-01
NP-237	2819.	86.48	9.1385E-01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2956.	106.12	3.8870E-01
PU-239	3371.	129.30	1.3227E+03
AM-241	2540.	59.54	1.0572E+00
AM-243	2749.	74.67	2.5852E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   23-MAY-1996 02:14:22.67                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8657
Sample ID:               S96T2135-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3499.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:15.19 sec
Dead Time:               0.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       23-MAY-1996 01:23:26.04
Decayed to:              23-MAY-1996 01:23:26.04
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
*****************************************************************************
```

WHC-SD-WM-DP-184, REV. 1

Removed by: Raymond

Verified by: Bachelor 5/23/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.54*	122622	1.57	1323.26	1315	17	0.6		CS-137	139.
0	725.17	18	1.03	1450.51	1448	8	88.4			

Sample ID : S96T2135-DUP
Acquisition date : 23-MAY-1996 01:23:26

Total number of lines in spectrum	2	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	2	100.00%

WHC-SD-WM-DP-184, REV.

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	1.386E+02	1.386E+02	0.008E+02	0.58	
		Total Activity :	1.386E+02	1.386E+02			
		Grand Total Activity :	1.386E+02	1.386E+02			

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

Sample ID : S96T2135-DUP
Acquisition date : 23-MAY-1996 01:23:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3699.	477.59	2.0036E+00
NA-22	15.	1274.53	3.0789E-02
NA-24	6.	1368.55	2.0440E-02
K-40	120.	1460.75	8.9814E-01
CR-51	2905.	320.08	1.3362E+00
MN-54	37.	834.83	3.3290E-02
CO-56	29.	846.76	2.9586E-02
CO-57	3064.	122.06	9.5799E-02
CO-58	26.	810.78	2.7191E-02
FE-59	12.	1099.25	4.2428E-02
CO-60	12.	1332.50	2.8070E-02
SE-75	3212.	264.66	2.1052E-01
SR-85	1846.	514.01	1.6185E-01
Y-88	3.	1836.06	1.8173E-02
NB-94	16.	871.09	2.2878E-02
ZRNB-95	40.	724.18	6.9988E-02
RU-103	2237.	497.08	1.8294E-01
RURH-106	713.	621.93	2.2881E+00
AG-108m	42.	722.94	3.4450E-02
CD-109	2700.	88.03	2.9776E+00
AG-110M	2910.	657.76	2.5410E-01
SN-113	3177.	391.69	2.5626E-01
TE-123m	3256.	159.00	1.0159E-01
SB-124	746.	602.73	1.1564E-01
SB-125	3801.	427.89	6.5431E-01
TE-125m	2818.	109.27	2.9912E+01
I-131	3055.	364.48	1.8788E-01
CS-134	737.	604.70	1.1542E-01
BA-140	1306.	537.31	5.5628E-01
LA-140	4.	1596.21	1.9736E-02
CEPR-144	3105.	133.51	1.4585E+00
EU-152	11.	1408.01	1.3387E-01
EU-154	15.	1274.51	8.9452E-02
EU-155	2777.	105.31	3.9654E-01
HG-203	3116.	279.20	1.5460E-01
TL-208	3063.	277.36	1.9692E+00
BI-212	45.	727.18	4.8755E-01
PB-212	3547.	238.63	2.7512E-01
BI-214	688.	609.31	2.4447E-01
PB-214	2991.	351.92	7.3283E-01
RA-224	3590.	240.99	3.0730E+00
RA-226	4189.	186.10	3.0305E+00
AC-228	31.	911.21	1.2358E-01
TH-228	2690.	84.37	9.1537E+00
TH-229	2700.	88.47	4.3161E-01
PA-233	2940.	312.17	3.4436E-01
UTH-233	3465.	245.34	1.1317E+02
PA-234M	17.	1001.03	4.4808E-02
TH-234	2403.	63.29	5.8267E+00
U-235	4145.	185.71	1.8322E-01
NP-237	2728.	86.48	8.9890E-01

Sample ID : S96T2135-DUP Acquisition date : 23-MAY-1996 01:23:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2768.	106.12	3.7613E-01
PU-239	3130.	129.30	1.2744E+03
AM-241	2488.	59.54	1.0465E+00
AM-243	2566.	74.67	2.4974E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   23-MAY-1996 04:54:00.86                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8657
Sample ID:               S96T2136-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3502.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:14.50 sec
Dead Time:               0.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       23-MAY-1996 04:02:50.05
Decayed to:              23-MAY-1996 04:02:50.05
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
*****************************************************************************
```

WHC-SD-WM-DP-184, REV. 1

Removed by: C Raymond

Verified by: B Bachelor 5/23/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.55*	116763	1.60	1323.27	1315	17	0.6		CS-137	132.
0	1120.37*	11	1.52	2240.99	2236	10	124.1			

Sample ID : S96T2136-SAM
Acquisition date : 23-MAY-1996 04:02:50

Total number of lines in spectrum	2	
Number of unidentified lines	0	WHC-SD-WM-DP-184, REV.
Number of lines tentatively identified by NID	2	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
CS-137	30.00Y	1.000	1.320E+02	1.320E+02	0.008E+02	0.60	
		Total Activity :	1.320E+02	1.320E+02			
		Grand Total Activity :	1.320E+02	1.320E+02			

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

Sample ID : S96T2136-SAM
Acquisition date : 23-MAY-1996 04:02:50

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3598.	477.59	1.9761E+00
NA-22	16.	1274.53	3.1774E-02
NA-24	10.	1368.55	2.6288E-02
K-40	118.	1460.75	8.8894E-01
CR-51	2795.	320.08	1.3107E+00
MN-54	30.	834.83	2.9816E-02
CO-56	34.	846.76	3.2326E-02
CO-57	3072.	122.06	9.5915E-02
CO-58	30.	810.78	2.9321E-02
FE-59	21.	1099.25	5.6034E-02
CO-60	14.	1332.50	3.0068E-02
SE-75	3073.	264.66	2.0590E-01
SR-85	1778.	514.01	1.5883E-01
Y-88	1.	1836.06	1.0492E-02
NB-94	20.	871.09	2.5203E-02
ZRNB-95	47.	724.18	7.6185E-02
RU-103	2167.	497.08	1.8006E-01
RURH-106	590.	621.93	2.0819E+00
AG-108m	43.	722.94	3.4941E-02
CD-109	2589.	88.03	2.9158E+00
AG-110M	2816.	657.76	2.4998E-01
SN-113	3091.	391.69	2.5278E-01
TE-123m	3141.	159.00	9.9781E-02
SB-124	635.	602.73	1.0667E-01
SB-125	3579.	427.89	6.3494E-01
TE-125m	2722.	109.27	2.9397E+01
I-131	2759.	364.48	1.7854E-01
CS-134	649.	604.70	1.0831E-01
BA-140	1255.	537.31	5.4531E-01
LA-140	4.	1596.21	1.8632E-02
CEPR-144	3005.	133.51	1.4349E+00
EU-152	7.	1408.01	1.0502E-01
EU-154	16.	1274.51	9.2313E-02
EU-155	2631.	105.31	3.8599E-01
HG-203	3047.	279.20	1.5289E-01
TL-208	2981.	277.36	1.9426E+00
BI-212	38.	727.18	4.4847E-01
PB-212	3468.	238.63	2.7201E-01
BI-214	639.	609.31	2.3562E-01
PB-214	2842.	351.92	7.1425E-01
RA-224	3399.	240.99	2.9899E+00
RA-226	4041.	186.10	2.9764E+00
AC-228	38.	911.21	1.3634E-01
TH-228	2497.	84.37	8.8199E+00
TH-229	2611.	88.47	4.2441E-01
PA-233	2788.	312.17	3.3537E-01
UTH-233	3341.	245.34	1.1112E+02
PA-234M	19.	1001.03	4.6951E-02
TH-234	2348.	63.29	5.7599E+00
U-235	4023.	185.71	1.8049E-01
NP-237	2609.	86.48	8.7916E-01

Sample ID : S96T2136-SAM Acquisition date : 23-MAY-1996 04:02:50

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2620.	106.12	3.6597E-01
PU-239	2984.	129.30	1.2443E+03
AM-241	2384.	59.54	1.0243E+00
AM-243	2479.	74.67	2.4550E-01

WHC-SD-WM-DP-184, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   23-MAY-1996 05:55:02.59                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8657
Sample ID:               S96T2136-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3503.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:13.74 sec
Dead Time:               0.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       23-MAY-1996 05:04:05.21
Decayed to:              23-MAY-1996 05:04:05.21
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
*****************************************************************************
```

WHC-SD-WM-DP-184, REV. 1

Removed by:

Verified by: 5/23/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.54*	110225	1.58	1323.26	1315	17	0.6		CS-137	125.

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

WHC-SD-WM-DP-184, REV. 1

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	1.246E+02	1.246E+02	0.008E+02	0.61	
		Total Activity :	1.246E+02	1.246E+02			
		Grand Total Activity :	1.246E+02	1.246E+02			

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

Sample ID : S96T2136-DUP
Acquisition date : 23-MAY-1996 05:04:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3336.	477.59	1.9029E+00
NA-22	25.	1274.53	3.8932E-02
NA-24	5.	1368.55	1.8936E-02
K-40	130.	1460.75	9.3427E-01
CR-51	2613.	320.08	1.2672E+00
MN-54	20.	834.83	2.4314E-02
CO-56	31.	846.76	3.1025E-02
CO-57	2761.	122.06	9.0943E-02
CO-58	18.	810.78	2.2839E-02
FE-59	17.	1099.25	5.0691E-02
CO-60	17.	1332.50	3.3404E-02
SE-75	2969.	264.66	2.0237E-01
SR-85	1675.	514.01	1.5414E-01
Y-88	3.	1836.06	1.7641E-02
NB-94	25.	871.09	2.8478E-02
ZRNB-95	38.	724.18	6.8473E-02
RU-103	2009.	497.08	1.7338E-01
RURH-106	581.	621.93	2.0649E+00
AG-108m	37.	722.94	3.2334E-02
CD-109	2355.	88.03	2.7808E+00
AG-110M	2687.	657.76	2.4417E-01
SN-113	2868.	391.69	2.4347E-01
TE-123m	2983.	159.00	9.7239E-02
SB-124	601.	602.73	1.0374E-01
SB-125	3427.	427.89	6.2131E-01
TE-125m	2570.	109.27	2.8565E+01
I-131	2681.	364.48	1.7601E-01
CS-134	613.	604.70	1.0530E-01
BA-140	1164.	537.31	5.2523E-01
LA-140	1.	1596.21	7.4171E-03
CEPR-144	2895.	133.51	1.4084E+00
EU-152	7.	1408.01	1.0632E-01
EU-154	25.	1274.51	1.1329E-01
EU-155	2580.	105.31	3.8225E-01
HG-203	2791.	279.20	1.4632E-01
TL-208	2721.	277.36	1.8558E+00
BI-212	31.	727.18	4.0937E-01
PB-212	3287.	238.63	2.6485E-01
BI-214	635.	609.31	2.3493E-01
PB-214	2645.	351.92	6.8903E-01
RA-224	3288.	240.99	2.9410E+00
RA-226	3794.	186.10	2.8842E+00
AC-228	40.	911.21	1.3927E-01
TH-228	2422.	84.37	8.6855E+00
TH-229	2307.	88.47	3.9896E-01
PA-233	2652.	312.17	3.2708E-01
UTH-233	3151.	245.34	1.0792E+02
PA-234M	23.	1001.03	5.2152E-02
TH-234	2192.	63.29	5.5650E+00
U-235	3722.	185.71	1.7361E-01
NP-237	2427.	86.48	8.4790E-01

Sample ID : S96T2136-DUP Acquisition date : 23-MAY-1996 05:04:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2605.	106.12	3.6491E-01
PU-239	2738.	129.30	1.1920E+03
AM-241	2248.	59.54	9.9463E-01
AM-243	2298.	74.67	2.3637E-01

LABCORE Data Entry Template for Worklist# 6901

Analyst: NBS **Instrument:** AB00 #10 **Book#** 9B56

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

Worklist Comment: Use .100 mL sample size. Rerun #1. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T000665	0		@SR90-01	LIQUID	96000085	U-107
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5	DUP	S96T000665	0		@SR90-01	LIQUID		
6	SAMPLE	S96T000682	0		@SR90-01	LIQUID	96000085	U-107
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
7	DUP	S96T000682	0		@SR90-01	LIQUID		

Final page for worklist # 6901

NB Bryfin 3-26-96
Analyst Signature **Date**

Shirley Wells 3-27-96
Analyst Signature **Date**

Sue Hogan 3/27/96

Data Entry Comments:

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

worklistdata Version 0.0 05/16/95
03/27/96 09:24

LABCORE Completed Worklist Report for Worklist# 6901

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

Method: _____ Rev/Mod _____

Worklist Comment: Use .100 mL sample size. Rerun #1. SLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@SR90-01 SR90-01	LIQUID	1.23E-03	1.22E-3	99.190	% Recovery
1	STD			0	@SR90-01 SR90-01C	LIQUID	100	9.17E+01	91.700	% Recovery
1	STD			0	@SR90-01 SR90-01E	LIQUID	1.00	1.92E+00	1.920	% Ct. Error
2	BLNK			0	@SR90-01 SR90-01	LIQUID	1	<2.67E-5		uCi/mL
2	BLNK			0	@SR90-01 SR90-01C	LIQUID	100	9.17E+01	91.700	% Recovery
2	BLNK			0	@SR90-01 SR90-01E	LIQUID	1.00	7.00E+02	700.000	% Ct. Error
3	BLNK/BKG			0	@SR90-01 SR90-01	LIQUID	1	1.04E+00	1.040	uCi/mL
4	SAMPLE	S96T000665		0	@SR90-01 SR90-01	LIQUID	N/A	4.57E-01	4.470e-005	uCi/mL
4	SAMPLE	S96T000665		0	@SR90-01 SR90-01C	LIQUID	N/A	9.11E+01	1.000e-004	% Recovery
4	SAMPLE	S96T000665		0	@SR90-01 SR90-01E	LIQUID	N/A	3.11E-01	0.000	% Ct. Error
5	DUP	S96T000665		0	@SR90-01 SR90-01	LIQUID	4.57E-1	4.57E-1	0.000	RPD
5	DUP	S96T000665		0	@SR90-01 SR90-01C	LIQUID	100	8.99E+01	89.900	% Recovery
5	DUP	S96T000665		0	@SR90-01 SR90-01E	LIQUID	1.00	3.11E-01	0.310	% Ct. Error
6	SAMPLE	S96T000682		0	@SR90-01 SR90-01	LIQUID	N/A	4.08E-01	4.480e-005	uCi/mL
6	SAMPLE	S96T000682		0	@SR90-01 SR90-01C	LIQUID	N/A	8.99E+01	1.000e-004	% Recovery
6	SAMPLE	S96T000682		0	@SR90-01 SR90-01E	LIQUID	N/A	3.29E-01	0.000	% Ct. Error
7	DUP	S96T000682		0	@SR90-01 SR90-01	LIQUID	4.08E-1	3.86E-1	5.540	RPD
7	DUP	S96T000682		0	@SR90-01 SR90-01C	LIQUID	100	9.15E+01	91.500	% Recovery
7	DUP	S96T000682		0	@SR90-01 SR90-01E	LIQUID	1.00	3.35E-01	0.340	% Ct. Error

Final page for worklist# 6901

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

3/27/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

							STANDARD
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	10741	GROSS WEIGHT	(W2)		7.2886
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1969
6901	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)		0.0917
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		4.78
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1064.10	SR-90 EFFICIENCY FACTO	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96002608	TIME OF SEPARATION	(ST)	14:40	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	03/26/96	DETECTION LIMIT	(Ld)		3.90
0	TIME OF COUNT	(TOC)	19:27	Sr-89/90 CONC. in µCi/L			1.2220E+00
Sample Prep	DATE OF COUNT	(DOC)	03/26/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2309E-03				
WL6901							
Instrument Code							
WB26870							
Prepared By							
SLH							
Chemist							
SLF							
Analyst							
DGG							
Date Complete							
03/27/96							
Analysis Date							
03/26/96							
Analysis Time							
02:00 PM							
Sample Point							
U-107							

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.22E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.9%		4.48E-06 µCi/L
PERCENT CARRIER RECOVERY	91.7%		

Analyst:	DGG	Date:	27-Mar-96
Signature of Chemist:	SLF	Date:	3/27/96

STANDARD.WB1 REV 1 2 22010NML

WORKBOOK PAGE: BLANK2

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

						BLNK
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	104	GROSS WEIGHT	(W2)	7.3200
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2283
6901	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)	0.0917
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	5.05
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	0.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96002608	TIME OF SEPARATION	(ST)	14:40	Rmax		2.33
Rerun	DATE OF SEPARATION	(SD)	03/26/96	DETECTION LIMIT	(Ld)	3.90
0	TIME OF COUNT	(TOC)	19:43	Sr-89/90 CONC in µCi/L	<	2.6721E-02
Sample Prep	DATE OF COUNT	(DOC)	03/26/96			
N/A						
Sample #						
WL6901						

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)
SLH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
DGG	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
03/27/96	
Analysis Date	
03/26/96	
Analysis Time	
02:00 PM	
Sample Point	
U-107	

Sr-89/90 CONCENTRATION	< 2.67E-05	µCi/mL	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			
RELATIVE COUNTING ERROR	699.9%		4.47E-05 µCi/mL
PERCENT CARRIER RECOVERY	91.7%		

Analyst:	DGG	Date:	27-Mar-96
Signature of Chemist:	SLF	Date:	3/27/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

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

						SAMPLE
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	398300	GROSS WEIGHT	(W2)	7.2891
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1980
6901	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)	0.0911
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	5.50
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	39820.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96002608	TIME OF SEPARATION	(ST)	14:40	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	03/26/96	DETECTION LIMIT	(Ld)	3.90
0	TIME OF COUNT	(TOC)	20:10	Sr-89/90 CONC in µCi/L		4.5676E+02
Sample Prep	DATE OF COUNT	(DOC)	03/26/96			
N/A						
Sample #						
S96T000665						
Instrument Code						
WB26870						
Prepared By						
SLH						
Chemist						
SLF						
Analyst						
DGG						
Date Complete						
03/27/96						
Analysis Date						
03/26/96						
Analysis Time						
02:00 PM						
Sample Point						
U-107						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	4.57E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.3%		4.47E-05 µCi/mL
PERCENT CARRIER RECOVERY	91.1%		

Analyst:		DGG	Date:	27-Mar-96
Signature of Chemist:		SLF	Date:	3/27/96

SAMPLE.WB1 REV 1.2 22010NML

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WORKBOOK PAGE: DUP5

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

							DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	397385	GROSS WEIGHT	(W2)		7.3085
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2186
6901	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)		0.0899
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		6.55
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	39728.50	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96002608	TIME OF SEPARATION	(ST)	14:40	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	03/26/96	DETECTION LIMIT	(Ld)		3.90
0	TIME OF COUNT	(TOC)	21:13	Sr-89/90 CONC in µCi/L			4.5673E+02
Sample Prep	DATE OF COUNT	(DOC)	03/26/96				
N/A							
Sample #							
S96T000665							
Instrument Code							
WB26870							
Prepared By							
SLH							
Chemist							
SLF							
Analyst							
DGG							
Date Complete							
03/27/96							
Analysis Date							
03/26/96							
Analysis Time							
02:00 PM							
Sample Point							
U-107							

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	4.57E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.3%		4.48E-05 µCi/mL
PERCENT CARRIER RECOVERY	89.9%		

Analyst:		DGG	Date:	27-Mar-96
Signature of Chemist:		SLF	Date:	3/27/96

SAMPLE.WB1 REV 1.2 22010NML

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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)	355390	GROSS WEIGHT	(W2)	7.3118
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2219
6901	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)	0.0899
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	6.75
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	35529.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96002608	TIME OF SEPARATION	(ST)	14:40	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	03/26/96	DETECTION LIMIT	(Ld)	3.90
0	TIME OF COUNT	(TOC)	21:25	Sr-89/90 CONC in µCi/L		4.0760E+02
Sample Prep	DATE OF COUNT	(DOC)	03/26/96			
N/A						
Sample #						
S96T000682						
Instrument Code						
WB26870						
Prepared By						
SLH						
Chemist						
SLF						
Analyst						
DGG						
Date Complete						
03/27/96						
Analysis Date						
03/26/96						
Analysis Time						
02:00 PM						
Sample Point						
U-107						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	4.08E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.3%		4.48E-05 µCi/mL
PERCENT CARRIER RECOVERY	89.9%		

Analyst:		DGG	Date:	27-Mar-96
Signature of Chemist:		SLF	Date:	3/27/96

SAMPLE.WB1 REV 1.2 22010NML

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WORKBOOK PAGE: DUP7

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

						DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	343568	GROSS WEIGHT	(W2)	7.3187
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2272
6901	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)	0.0915
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	7.00
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	34346.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96002608	TIME OF SEPARATION	(ST)	14:40	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	03/26/96	DETECTION LIMIT	(Ld)	3.90
0	TIME OF COUNT	(TOC)	21:40	Sr-89/90 CONC in µCi/L		3.8615E+02
Sample Prep	DATE OF COUNT	(DOC)	03/26/96			
N/A						
Sample #						
S96T000682						
Instrument Code						
WB26870						
Prepared By						
SLH						
Chemist						
SLF						
Analyst						
DGG						
Date Complete						
03/27/96						
Analysis Date						
03/26/96						
Analysis Time						
02:00 PM						
Sample Point						
U-107						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	3.86E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.3%		4.39E-05 µCi/mL
PERCENT CARRIER RECOVERY	91.5%		

Analyst:	DGG	Date:	27-Mar-96
Signature of Chemist:	SLF	Date:	3/27/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 7795

Analyst: SLH **Instrument:** AB00 12 **Book#** 9B54

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

Worklist Comment: Use 1-10-~~.5~~ SLHB 4-22-96 mL sample size. Rerun #1. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T001119	0		@SR90-01	LIQUID	96000126	U-107
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S96T001119	0		@SR90-01	LIQUID		
6	SAMPLE	S96T001120	0		@SR90-01	LIQUID	96000126	U-107
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
7	DUP	S96T001120	0		@SR90-01	LIQUID		
8	SAMPLE	S96T001121	0		@SR90-01	LIQUID	96000126	U-107
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
9	DUP	S96T001121	0		@SR90-01	LIQUID		

Final page for worklist # 7795

Sandra Hood Boatright
Analyst Signature **Date**

Sylvia Z Cahson 4/23/95
Analyst Signature **Date**

C.J. Opinen 4/24/96

Data Entry Comments:

all sample ~~100~~ SLHB 4-22-96 1-10-100

RPD for 1120 is consistent with the 1st run no rerun requested. 5/1/96

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

worklistrad Version 0.0 04/18/96
04/25/96 10:08

LABCORE Completed RadChem Report for Worklist#: 7795

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

Method: _____ Rev/Mod _____

Worklist Comment: Use 1-10-.5 mL sample size. Rerun #1. SLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@SR90-01	SR90-01	LIQUID	1.23E-03	1.26E-3	102.440	% Recovery
1	STD		0	@SR90-01	SR90-01C	LIQUID	100	9.28E+01	92.800	% Recovery
1	STD		0	@SR90-01	SR90-01E	LIQUID	1.00	1.78E+00	1.780	% Ct. Error
2	BLNK		0	@SR90-01	SR90-01	LIQUID	1	8.59E-4	0.000	uCi/mL
2	BLNK		0	@SR90-01	SR90-01C	LIQUID	100	9.38E+01	93.800	% Recovery
2	BLNK		0	@SR90-01	SR90-01E	LIQUID	1.00	3.20E+01	32.000	% Ct. Error
3	BLNK/BKG		0	@SR90-01	SR90-01	LIQUID	1	2.95	2.950	uCi/mL
4	SAMPLE	S96T001119	0	@SR90-01	SR90-01	LIQUID	N/A	7.51E-01	282.0e-006	uCi/mL
4	SAMPLE	S96T001119	0	@SR90-01	SR90-01C	LIQUID	N/A	9.26E+01	0.0e+000	% Recovery
4	SAMPLE	S96T001119	0	@SR90-01	SR90-01E	LIQUID	N/A	7.65E-01	0.0e+000	% Ct. Error
5	DUP	S96T001119	0	@SR90-01	SR90-01	LIQUID	7.51E-1	7.53E-1	0.270	RPD
5	DUP	S96T001119	0	@SR90-01	SR90-01C	LIQUID	100	9.22E+01	92.200	% Recovery
5	DUP	S96T001119	0	@SR90-01	SR90-01E	LIQUID	1.00	7.64E-01	0.760	% Ct. Error
6	SAMPLE	S96T001120	0	@SR90-01	SR90-01	LIQUID	N/A	2.60E-03	275.0e-006	uCi/mL
6	SAMPLE	S96T001120	0	@SR90-01	SR90-01C	LIQUID	N/A	9.43E+01	0.0e+000	% Recovery
6	SAMPLE	S96T001120	0	@SR90-01	SR90-01E	LIQUID	N/A	1.48E+01	0.0e+000	% Ct. Error
7	DUP	S96T001120	0	@SR90-01	SR90-01	LIQUID	2.60E-3	5.14E-3	65.630	RPD
7	DUP	S96T001120	0	@SR90-01	SR90-01C	LIQUID	100	9.25E+01	92.500	% Recovery
7	DUP	S96T001120	0	@SR90-01	SR90-01E	LIQUID	1.00	9.96E+00	9.960	% Ct. Error
8	SAMPLE	S96T001121	0	@SR90-01	SR90-01	LIQUID	N/A	1.33E-02	276.0e-006	uCi/mL
8	SAMPLE	S96T001121	0	@SR90-01	SR90-01C	LIQUID	N/A	9.33E+01	0.0e+000	% Recovery
8	SAMPLE	S96T001121	0	@SR90-01	SR90-01E	LIQUID	N/A	5.87E+00	0.0e+000	% Ct. Error
9	DUP	S96T001121	0	@SR90-01	SR90-01	LIQUID	1.33E-2	1.35E-2	1.490	RPD
9	DUP	S96T001121	0	@SR90-01	SR90-01C	LIQUID	100	9.75E+01	97.500	% Recovery
9	DUP	S96T001121	0	@SR90-01	SR90-01E	LIQUID	1.00	5.69E+00	5.690	% Ct. Error

Final page for worklist# 7795

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

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	12191	GROSS WEIGHT	(W2)		7.2806
Worklist	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1878
7795	BACKGROUND in cpm	(BKG)	3.9	NET WEIGHT	(W3)		0.0928
Batch Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		10.17
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1215.20	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.19	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003628	TIME OF SEPARATION	(ST)	16:20	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/22/96	DETECTION LIMIT	(Ld)		2.47
0	TIME OF COUNT	(TOC)	02:30	Sr-89/90 CONC. in µCi/L			1.2646E+00
Sample Prep	DATE OF COUNT	(DOC)	04/23/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2288E-03				
WL7795							
Instrument Code							
WB27811							
Prepared By							
SZC							
Chemist							
SLF							
Analyst							
SLH							
Date Complete							
04/23/95							
Analysis Date							
04/22/96							
Analysis Time							
04:20 PM							
Sample Point							
U-107							

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.26E-03	µCi/mL
RELATIVE COUNTING ERROR	1.8%	
PERCENT CARRIER RECOVERY	92.8%	

DETECTION LEVEL

2.57E-06 µCi/L

Analyst:	SLH	Date:	23-Apr-95
Signature of Chemist:	SLF	Date:	4/25/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

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

						BLNK
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	115	GROSS WEIGHT	(W2)	7.2874
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1936
7795	BACKGROUND in cpm	(BKG)	3.9	NET WEIGHT	(W3)	0.0938
	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	10.42
@SR90-01	DILUTION FACTOR	(DF)	11			
	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	7.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
	CRITICAL LEVEL	(Lc)	1.19	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003628	TIME OF SEPARATION	(ST)	16:20	Rmax		N/A
	DATE OF SEPARATION	(SD)	04/22/96	DETECTION LIMIT	(Ld)	2.47
0	TIME OF COUNT	(TOC)	02:45	Sr-89/90 CONC in µCi/L		8.5863E-01
	DATE OF COUNT	(DOC)	04/23/96			

N/A

WL7795

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)

SZC — 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

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

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

04/23/95

04/22/96	Sr-89/90 CONCENTRATION	8.59E-04	µCi/mL	DETECTION LEVEL
04:20 PM	RELATIVE COUNTING ERROR	32.0%		2.79E-04 µCi/mL
U-107	PERCENT CARRIER RECOVERY	93.8%		

Analyst:		SLH	Date:	23-Apr-95
Signature of Chemist:		SLF	Date:	4/24/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

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

							SAMPLE
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	65802	GROSS WEIGHT	(W2)	7.3290
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2364
7795	BACKGROUND in cpm	(BKG)	3.9	NET WEIGHT	(W3)	0.0926
	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	10.67
@SR90-01	DILUTION FACTOR	(DF)	11			
	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	6576.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
	CRITICAL LEVEL	(Lc)	1.19	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003628	TIME OF SEPARATION	(ST)	16:20	Rmax		N/A
	DATE OF SEPARATION	(SD)	04/22/96	DETECTION LIMIT	(Ld)	2.47
0	TIME OF COUNT	(TOC)	03:00	Sr-89/90 CONC in µCi/L		7.5080E+02
	DATE OF COUNT	(DOC)	04/23/96			

Sample Prep
N/A

S96T001119

Treatment Code
WB27811

Prepared By
SZC

Chemist
SLF

Analyst
SLH

Date Complete
04/23/95

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

Analysis Date
04/22/96

Analysis Time
04:20 PM

Sample Point
U-107

Sr-89/90 CONCENTRATION	7.51E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.8%		2.82E-04 µCi/mL
PERCENT CARRIER RECOVERY	92.6%		

Analyst:	SLH	Date:	23-Apr-95
Signature of Chemist:	SLF	Date:	4/24/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

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

						DUP
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	65893	GROSS WEIGHT	(W2)	7.3148
Work Id	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2226
7795	BACKGROUND in cpm	(BKG)	3.9	NET WEIGHT	(W3)	0.0922
Protocol	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	11.00
@SR90-01	DILUTION FACTOR	(DF)	11			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	6585.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.19	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003628	TIME OF SEPARATION	(ST)	16:20	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/22/96	DETECTION LIMIT	(Ld)	2.47
0	TIME OF COUNT	(TOC)	03:20	Sr-89/90 CONC in µCi/L		7.5270E+02
Sample Prep	DATE OF COUNT	(DOC)	04/23/96			
N/A						
Sample						
S96T001119						

Instrument Code: WB27811

Prepared By: SZC

Chemist: SLF

Analyst: SLH

Date Complete: 04/23/95

Analysis Date: 04/22/96

Analysis Time: 04:20 PM

Sample Point: U-107

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	7.53E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.8%		2.82E-04 µCi/mL
PERCENT CARRIER RECOVERY	92.2%		

Analyst:	SLH	Date:	23-Apr-95
Signature of Chemist:	SLF	Date:	4/24/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM6

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

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	273	GROSS WEIGHT	(W2)	7.2839
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1896
7795	BACKGROUND in cpm	(BKG)	3.9	NET WEIGHT	(W3)	0.0943
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	11.42
@SR90-01	DILUTION FACTOR	(DF)	11			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	23.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.19	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003628	TIME OF SEPARATION	(ST)	16:25	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/22/96	DETECTION LIMIT	(Ld)	2.47
0	TIME OF COUNT	(TOC)	03:50	Sr-89/90 CONC in µCi/L		2.6047E+00
Sample Prep	DATE OF COUNT	(DOC)	04/23/96			
N/A						
Sample #						
S96T001120						
Instrument Code						
WB27811						
Prepared By						
SZC						
Chemist						
SLF						
Analyst						
SLH						
Date Complete						
04/23/95						
Analysis Date						
04/22/96						
Analysis Time						
04:20 PM						
Sample Point						
U-107						

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

Sr-89/90 CONCENTRATION	2.60E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	14.8%		2.75E-04 µCi/mL
PERCENT CARRIER RECOVERY	94.3%		

Analyst:	SLH	Date:	23-Apr-95
Signature of Chemist:	SLF	Date:	4/24/96

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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)	493	GROSS WEIGHT	(W2)		7.2533
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1608
7795	BACKGROUND in cpm	(BKG)	3.9	NET WEIGHT	(W3)		0.0925
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		11.67
@SR90-01	DILUTION FACTOR	(DF)	11				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	45.40	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.19	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003628	TIME OF SEPARATION	(ST)	16:25	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/22/96	DETECTION LIMIT	(Ld)		2.47
0	TIME OF COUNT	(TOC)	04:05	Sr-89/90 CONC in µCi/L			5.1399E+00
Sample Prep	DATE OF COUNT	(DOC)	04/23/96				
N/A							
Sample #							
S96T001120							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
SZC	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
SLH	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
04/23/95							
Analysis Date							DETECTION LEVEL
04/22/96	Sr-89/90 CONCENTRATION		5.14E-03		µCi/mL		
Analysis Time							
04:20 PM	RELATIVE COUNTING ERROR		10.0%				2.80E-04 µCi/mL
Sample Point							
U-107	PERCENT CARRIER RECOVERY		92.5%				

Analyst:		SLH	Date:	23-Apr-95
Signature of Chemist:		SLF	Date:	4/24/96

SAMPLE.WB1 REV 1.2 22010NML

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WORKBOOK PAGE: SAM8

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)	1227	GROSS WEIGHT	(W2)		7.3253
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2320
7795	BACKGROUND in cpm	(BKG)	3.9	NET WEIGHT	(W3)		0.0933
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		12.00
@SR90-01	DILUTION FACTOR	(DF)	11				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	118.80	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.19	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003628	TIME OF SEPARATION	(ST)	16:25	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/22/96	DETECTION LIMIT	(Ld)		2.47
0	TIME OF COUNT	(TOC)	04:25	Sr-89/90 CONC in µCi/L			1.3293E+01
Sample Prep	DATE OF COUNT	(DOC)	04/23/96				
N/A							
Sample #							
S96T001121							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
SZC	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
SLH	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
04/23/95							
Analysis Date							DETECTION LEVEL
04/22/96	Sr-89/90 CONCENTRATION			1.33E-02	µCi/mL		
Analysis Time							
04:20 PM	RELATIVE COUNTING ERROR			5.9%			2.76E-04 µCi/mL
Sample Point							
U-107	PERCENT CARRIER RECOVERY			93.3%			

Analyst:	SLH	Date:	23-Apr-95
Signature of Chemist:	SLF	Date:	4/25/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP9

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)	1300	GROSS WEIGHT	(W2)	7.3475
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2500
7795	BACKGROUND in cpm	(BKG)	3.9	NET WEIGHT	(W3)	0.0975
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	12.25
@SR90-01	DILUTION FACTOR	(DF)	11			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	126.10	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.19	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003628	TIME OF SEPARATION	(ST)	16:25	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/22/96	DETECTION LIMIT	(Ld)	2.47
0	TIME OF COUNT	(TOC)	04:40	Sr-89/90 CONC in µCi/L		1.3471E+01
Sample Prep	DATE OF COUNT	(DOC)	04/23/96			
N/A						
Sample #						
S96T001121						
Instrument Code						
WB27811						
Prepared By						
SZC						
Chemist						
SLF						
Analyst						
SLH						
Date Complete						
04/23/95						
Analysis Date						
04/22/96						
Analysis Time						
04:20 PM						
Sample Point						
U-107						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.35E-02	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	5.7%		2.64E-04 µCi/mL
PERCENT CARRIER RECOVERY	97.5%		

Analyst:		SLH	Date:	23-Apr-95
Signature of Chemist:		SLF	Date:	4/25/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 8417

Analyst: S.C.L **Instrument:** AB00 10 **Book#** 9856

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

Worklist Comment: U-107. Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T002140	0		@SR90-01	LIQUID	96000422	U-107
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S96T002140	0		@SR90-01	LIQUID		
6	SAMPLE	S96T002141	0		@SR90-01	LIQUID	96000422	U-107
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
7	DUP	S96T002141	0		@SR90-01	LIQUID		
8	SAMPLE	S96T002142	0		@SR90-01	LIQUID	96000422	U-107
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
9	DUP	S96T002142	0		@SR90-01	LIQUID		

Final page for worklist # 8417

Sue C Lai 5-9-96
Analyst Signature **Date**

Sue E. Horgan 5/10/96
Analyst Signature **Date**
C.J. Openen 5/10/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8417

Analyst: scl **Instrument:** AB10 **Book#** 9856

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

Worklist Comment: U-107. Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01 SR90-01	LIQUID	1.23E-03	1.26E-3	102.439	% Recovery
1	STD		0		@SR90-01 SR90-01C	LIQUID	100	8.72E+01	87.200	% Recovery
1	STD		0		@SR90-01 SR90-01E	LIQUID	1.00	1.87E+00	1.870	% Ct. Erro
2	BLNK		0		@SR90-01 SR90-01	LIQUID	1	6.41E-2	64.100e-003	uCi/mL
2	BLNK		0		@SR90-01 SR90-01C	LIQUID	100	8.64E+01	86.400	% Recovery
2	BLNK		0		@SR90-01 SR90-01E	LIQUID	1.00	4.52E+01	45.200	uCi/mL
3	BLNK/BKG		0		@SR90-01 SR90-01	LIQUID	1	2.04E+00	2.040	BLNK/BKG
4	SAMPLE	S96T002140	0		@SR90-01 SR90-01	LIQUID	N/A	1.08E-01	334.0e-004	uCi/mL
4	SAMPLE	S96T002140	0		@SR90-01 SR90-01C	LIQUID	N/A	8.61E+01	0.0e+000	% Recovery
4	SAMPLE	S96T002140	0		@SR90-01 SR90-01E	LIQUID	N/A	2.97E+01	0.0e+000	% Ct. Error
5	DUP	S96T002140	0		@SR90-01 SR90-01	LIQUID	1.08E-1	1.40E-1	25.806	RPD
5	DUP	S96T002140	0		@SR90-01 SR90-01C	LIQUID	100	8.57E+01	85.700	% Recovery
5	DUP	S96T002140	0		@SR90-01 SR90-01E	LIQUID	1.00	2.46E+01	24.600	% Cnt Err
6	SAMPLE	S96T002141	0		@SR90-01 SR90-01	LIQUID	N/A	1.24E-01	329.0e-004	uCi/mL
6	SAMPLE	S96T002141	0		@SR90-01 SR90-01C	LIQUID	N/A	8.69E+01	0.0e+000	% Recovery
6	SAMPLE	S96T002141	0		@SR90-01 SR90-01E	LIQUID	N/A	2.65E+01	0.0e+000	% Ct. Error
7	DUP	S96T002141	0		@SR90-01 SR90-01	LIQUID	1.24E-1	1.12E-1	10.169	RPD
7	DUP	S96T002141	0		@SR90-01 SR90-01C	LIQUID	100	8.67E+01	86.700	% Recovery
7	DUP	S96T002141	0		@SR90-01 SR90-01E	LIQUID	1.00	2.88E+01	28.800	% Cnt Err
8	SAMPLE	S96T002142	0		@SR90-01 SR90-01	LIQUID	N/A	1.04E-01	324.0e-004	uCi/mL
8	SAMPLE	S96T002142	0		@SR90-01 SR90-01C	LIQUID	N/A	8.80E+01	0.0e+000	% Recovery
8	SAMPLE	S96T002142	0		@SR90-01 SR90-01E	LIQUID	N/A	3.00E+01	0.0e+000	% Ct. Error
9	DUP	S96T002142	0		@SR90-01 SR90-01	LIQUID	1.04E-1	1.16E-1	10.909	RPD
9	DUP	S96T002142	0		@SR90-01 SR90-01C	LIQUID	100	8.83E+01	88.300	% Recovery
9	DUP	S96T002142	0		@SR90-01 SR90-01E	LIQUID	1.00	2.75E+01	27.500	% Cnt Err

Final page for worklist# 8417

Analyst Signature Date

Analyst Signature Date

[signature] 5/15/96
Reviewer Signature Date

Sample S96T002140 will be rerun due to high RPD between sample and duplicate.

WORKBOOK PAGE: STD1

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

							STANDARD
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
STD	TOTAL COUNTS	(TC)	11141	GROSS WEIGHT	(W2)	7.2958
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2086
8417	BACKGROUND in cpm	(BKG)	5.3	NET WEIGHT	(W3)	0.0872
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	11.00
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	DDF	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1108.80	SR-90 EFFICIENCY FACTO	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.39	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96004336	TIME OF SEPARATION	(ST)	10:45	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/09/96	DETECTION LIMIT	(Ld)	2.86
0	TIME OF COUNT	(TOC)	21:45	Sr-89/90 CONC. in µCi/L		1.2574E+00
Sample Prep	DATE OF COUNT	(DOC)	05/09/96			
N/A	STANDARD BOOK #		9B56			
Sample #	STANDARD VALUE in µCi/mL		1.2274E-03			
WL8417						
Instrument Code						
WB26870						
Prepared By						
SEH						
Chemist						
JLS						
Analyst						
SCL						
Date Complete						
05/10/96						
Analysis Date						
05/09/96						
Analysis Time						
10:45 AM						
Sample Point						
U-107						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.26E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.9%		3.25E-06 µCi/L
PERCENT CARRIER RECOVERY	87.2%		

Analyst:	SCL	Date:	10-May-96
Signature of Chemist:	JLS	Date:	

STANDARD.WB1 REV 1.2 22010NML

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WORKBOOK PAGE: BLANK2

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

							BLNK
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
BLNK	TOTAL COUNTS	(TC)	108	GROSS WEIGHT	(W2)		7.3312
Work Code	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2448
8417	BACKGROUND in cpm	(BKG)	5.3	NET WEIGHT	(W3)		0.0864
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		11.25
@SR90-01	DILUTION FACTOR	(DF)	10201				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	5.50	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.39	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96004336	TIME OF SEPARATION	(ST)	10:45	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/09/96	DETECTION LIMIT	(Ld)		2.86
0	TIME OF COUNT	(TOC)	22:00	Sr-89/90 CONC in µCi/L			6.4062E+01
Sample Prep	DATE OF COUNT	(DOC)	05/09/96				
N/A							
Sample #							
WL8417							
Instrument Code							
WB26870							
Prepared By							
SEH							
Chemist							
JLS							
Analyst							
SCL							
Date Complete							
05/10/96							
Analysis Date							
05/09/96							
Analysis Time							
10:45 AM							
Sample Point							
U-107							

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	6.41E-02	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	45.2%		3.34E-02 µCi/mL
PERCENT CARRIER RECOVERY	86.4%		

Analyst:	SCL	Date:	10-May-96
Signature of Chemist:	JLS	Date:	

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
	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	146	GROSS WEIGHT	(W2)		7.2889
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2028
8417	BACKGROUND in cpm	(BKG)	5.3	NET WEIGHT	(W3)		0.0861
	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		11.50
@SR90-01	DILUTION FACTOR	(DF)	10201				
	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	9.30	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
	CRITICAL LEVEL	(Lc)	1.39	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96004336	TIME OF SEPARATION	(ST)	10:45	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/09/96	DETECTION LIMIT	(Ld)		2.86
0	TIME OF COUNT	(TOC)	22:15	Sr-89/90 CONC in µCi/L			1.0844E+02
Sample Prep	DATE OF COUNT	(DOC)	05/09/96				
N/A							
Sample #							
S96T002140							
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)						
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
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						
05/10/96							
Analysis Date							DETECTION LEVEL
05/09/96	Sr-89/90 CONCENTRATION			1.08E-01		µCi/mL	
Analysis Time							
10:45 AM	RELATIVE COUNTING ERROR			29.7%			3.34E-02 µCi/mL
Sample Point							
U-107	PERCENT CARRIER RECOVERY			86.1%			

Analyst:	SCL	Date:	10-May-96
Signature of Chemist:	JLS	Date:	

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
Sample #	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	173	GROSS WEIGHT	(W2)	7.3131
Workbook	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2274
8417	BACKGROUND in cpm	(BKG)	5.3	NET WEIGHT	(W3)	0.0857
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	11.83
@SR90-01	DILUTION FACTOR	(DF)	10201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	12.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.39	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96004336	TIME OF SEPARATION	(ST)	10:45	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/09/96	DETECTION LIMIT	(Ld)	2.86
0	TIME OF COUNT	(TOC)	22:35	Sr-89/90 CONC in µCi/L		1.4014E+02
Sample Prep	DATE OF COUNT	(DOC)	05/09/96			
N/A						
Sample #						
S96T002140						

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)
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
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
05/10/96	
Analysis Date	
05/09/96	
Analysis Time	
10:45 AM	
Sample Point	
U-107	

Sr-89/90 CONCENTRATION	1.40E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	24.6%		3.35E-02 µCi/mL
PERCENT CARRIER RECOVERY	85.7%		

Analyst:	SCL	Date:	10-May-96
Signature of Chemist:	JLS	Date:	

SAMPLE.WB1 REV 1.2 22010NML

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WORKBOOK PAGE: SAM6

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

							SAMPLE
Instrument	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	161	GROSS WEIGHT	(W2)		7.3166
Worksheet	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2297
8417	BACKGROUND in cpm	(BKG)	5.3	NET WEIGHT	(W3)		0.0869
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		12.08
@SR90-01	DILUTION FACTOR	(DF)	10201				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	10.80	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.39	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96004336	TIME OF SEPARATION	(ST)	10:45	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/09/96	DETECTION LIMIT	(Ld)		2.86
0	TIME OF COUNT	(TOC)	22:50	Sr-89/90 CONC in µCi/L			1.2410E+02
Sample Prep	DATE OF COUNT	(DOC)	05/09/96				
N/A							
Sample #							
S96T002141							
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)						
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
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						
05/10/96							
Analysis Date							DETECTION LEVEL
05/09/96	Sr-89/90 CONCENTRATION			1.24E-01		µCi/mL	
Analysis Time							
10:45 AM	RELATIVE COUNTING ERROR			26.5%			3.29E-02 µCi/mL
Sample Point							
U-107	PERCENT CARRIER RECOVERY			86.9%			

Analyst:	SCL	Date:	10-May-96
Signature of Chemist:	JLS	Date:	

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP7

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

							DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	150	GROSS WEIGHT	(W2)		7.3164
Worksheet	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2297
8417	BACKGROUND in cpm	(BKG)	5.3	NET WEIGHT	(W3)		0.0867
Sample	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		12.25
@SR90-01	DILUTION FACTOR	(DF)	10201				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	9.70	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch	CRITICAL LEVEL	(Lc)	1.39	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96004336	TIME OF SEPARATION	(ST)	10:45	Rmax			N/A
Reruns	DATE OF SEPARATION	(SD)	05/09/96	DETECTION LIMIT	(Ld)		2.86
0	TIME OF COUNT	(TOC)	23:00	Sr-89/90 CONC in µCi/L			1.1154E+02
Sample Prep	DATE OF COUNT	(DOC)	05/09/96				
N/A							
Sample #							
S96T002141							

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)
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Completed	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
05/10/96	
Analysis Date	
05/09/96	
Analysis Time	
10:45 AM	
Sample Point	
U-107	

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	1.12E-01	µCi/mL	3.29E-02 µCi/mL
RELATIVE COUNTING ERROR	28.8%		
PERCENT CARRIER RECOVERY	86.7%		

Analyst:	SCL	Date:	10-May-96
Signature of Chemist:	JLS	Date:	

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM8

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

							SAMPLE
	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	145	GROSS WEIGHT	(W2)		7.3306
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2426
8417	BACKGROUND in cpm	(BKG)	5.3	NET WEIGHT	(W3)		0.0880
	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		12.45
@SR90-01	DILUTION FACTOR	(DF)	10201				
	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	9.20	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
	CRITICAL LEVEL	(Lc)	1.39	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96004336	TIME OF SEPARATION	(ST)	10:45	Rmax			N/A
	DATE OF SEPARATION	(SD)	05/09/96	DETECTION LIMIT	(Ld)		2.86
0	TIME OF COUNT	(TOC)	23:12	Sr-89/90 CONC in µCi/L			1.0404E+02
	DATE OF COUNT	(DOC)	05/09/96				

N/A

Sample #

S96T002142

Instrument Code

WB26870

Prepared By

SEH

Chemist

JLS

Analyst

SCL

Date Complete

05/10/96

Analysis Date

05/09/96

Analysis Time

10:45 AM

Sample Point

U-107

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	1.04E-01	µCi/mL	3.24E-02 µCi/mL
RELATIVE COUNTING ERROR	30.0%		
PERCENT CARRIER RECOVERY	88.0%		

Analyst:	SCL	Date:	10-May-96
Signature of Chemist:	JLS	Date:	

SAMPLE.WB1 REV 1.2 22010NML

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WORKBOOK PAGE: DUP9

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

							DUP
	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	156	GROSS WEIGHT	(W2)		7.2976
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2093
8417	BACKGROUND in cpm	(BKG)	5.3	NET WEIGHT	(W3)		0.0883
	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		12.67
@SR90-01	DILUTION FACTOR	(DF)	10201				
	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	10.30	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
	CRITICAL LEVEL	(Lc)	1.39	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96004336	TIME OF SEPARATION	(ST)	10:45	Rmax			N/A
	DATE OF SEPARATION	(SD)	05/09/96	DETECTION LIMIT	(Ld)		2.86
0	TIME OF COUNT	(TOC)	23:25	Sr-89/90 CONC in µCi/L			1.1585E+02
	DATE OF COUNT	(DOC)	05/09/96				

N/A

S96T002142

WB26870

SEH

JLS

SCL

05/10/96

05/09/96

10:45 AM

U-107

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.16E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	27.5%		3.22E-02 µCi/mL
PERCENT CARRIER RECOVERY	88.3%		

Analyst:	SCL	Date:	10-May-96
Signature of Chemist:	JLS	Date:	

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 8611

Analyst: S.C.L **Instrument:** AB00 12 **Book#** 9856

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

Worklist Comment: 0.5 mL sample size / rerun / jls

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T002034	0		@SR90-01	LIQUID	96000126	U-107
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5	DUP	S96T002034	0		@SR90-01	LIQUID		

Final page for worklist # 8611

Sue C Lai 5-14-96
Analyst Signature **Date**

Sharon L Hall 5-15-96
Analyst Signature **Date**
C.J. Opsen 5/15/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 8611

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

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

Worklist Comment: 0.5 mL sample size / rerun / jls

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01 SR90-01	LIQUID	1.23E-03	1.18E-3	95.935	% Recovery
1	STD		0		@SR90-01 SR90-01C	LIQUID	100	9.06E+01	90.600	% Recovery
1	STD		0		@SR90-01 SR90-01E	LIQUID	1.00	1.85E+00	1.850	% Ct. Erro
2	BLNK		0		@SR90-01 SR90-01	LIQUID	1	4.89E-4	4.890e-004	uCi/mL
2	BLNK		0		@SR90-01 SR90-01C	LIQUID	100	9.01E+01	90.100	% Recovery
2	BLNK		0		@SR90-01 SR90-01E	LIQUID	1.00	5.01E+01	50.100	uCi/mL
3	BLNK/BKG		0		@SR90-01 SR90-01	LIQUID	1	2.00E+00	2.000	BLNK/BKG
4	SAMPLE	S96T002034	0		@SR90-01 SR90-01C	LIQUID	N/A	9.06E+01		% Recovery
4	SAMPLE	S96T002034	0		@SR90-01 SR90-01E	LIQUID	N/A	3.18E+01		% Ct. Error
5	DUP	S96T002034	0		@SR90-01 SR90-01	LIQUID	8.54E-4	8.99E-4	5.134	RPD
5	DUP	S96T002034	0		@SR90-01 SR90-01C	LIQUID	100	9.13E+01	91.300	% Recovery
5	DUP	S96T002034	0		@SR90-01 SR90-01E	LIQUID	1.00	3.04E+01	30.400	% Cnt Err

Final page for worklist# 8611

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

J. L. Shuppe 5/16/96
Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	11309	GROSS WEIGHT	(W2)		7.2122
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1216
8611	BACKGROUND in cpm	(BKG)	4.6	NET WEIGHT	(W3)		0.0906
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		11.92
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1126.30	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.29	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96004564	TIME OF SEPARATION	(ST)	11:15	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/14/96	DETECTION LIMIT	(Ld)		2.68
0	TIME OF COUNT	(TOC)	23:10	Sr-89/90 CONC. in µCi/L			1.1807E+00
Sample Prep	DATE OF COUNT	(DOC)	05/14/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2270E-03				
WL8611							
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						
SLH2	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))						
JLS	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
Analyst	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
SCL	NOTE: Expected weight = CVA * 0.1						
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
05/15/96	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
Analysis Date							DETECTION LEVEL
05/14/96	Sr-89/90 CONCENTRATION			1.18E-03		µCi/mL	
Analysis Time							
11:15 AM	RELATIVE COUNTING ERROR			1.9%			2.80E-06 µCi/L
Sample Point							
U-107	PERCENT CARRIER RECOVERY			90.6%			

Analyst:	SCL	Date:	15-May-96
Signature of Chemist:	JLS	Date:	5/16/96

STANDARD WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

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

							BLNK
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
BLNK	TOTAL COUNTS	(TC)	92	GROSS WEIGHT	(W2)		7.1067
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0166
8611	BACKGROUND in cpm	(BKG)	4.6	NET WEIGHT	(W3)		0.0901
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		12.17
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	4.60	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.29	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96004564	TIME OF SEPARATION	(ST)	11:15	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/14/96	DETECTION LIMIT	(Ld)		2.68
0	TIME OF COUNT	(TOC)	23:25	Sr-89/90 CONC in µCi/L			4.8862E-01
Sample Prep	DATE OF COUNT	(DOC)	05/14/96				
N/A							
Sample #							
WL8611							
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)						
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE Expected weight = CVA * 0.1						
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						
05/15/96							
Analysis Date							DETECTION LEVEL
05/14/96	Sr-89/90 CONCENTRATION			4.89E-04		µCi/mL	
Analysis Time							
11:15 AM	RELATIVE COUNTING ERROR			50.1%			2.84E-04 µCi/mL
Sample Point							
U-107	PERCENT CARRIER RECOVERY			90.1%			

Analyst:		SCL	Date:	15-May-96
Signature of Chemist:		JLS	Date:	5/16/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

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

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	127	GROSS WEIGHT	(W2)	7.4451
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.3545
8611	BACKGROUND in cpm	(BKG)	4.6	NET WEIGHT	(W3)	0.0906
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	12.33
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	8.10	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.29	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96004564	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/14/96	DETECTION LIMIT	(Ld)	2.68
0	TIME OF COUNT	(TOC)	23:35	Sr-89/90 CONC in µCi/L		8.5434E-01
Sample Prep	DATE OF COUNT	(DOC)	05/14/96			
N/A						
Sample #						
S96T002034						
Instrument Code						
WB27811						
Prepared By						
SLH2						
Chemist						
JLS						
Analyst						
SCL						
Date Complete						
05/15/96						
Analysis Date						
05/14/96						
Analysis Time						
11:15 AM						
Sample Point						
U-107						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	8.54E-04	µCi/mL
RELATIVE COUNTING ERROR	31.8%	
PERCENT CARRIER RECOVERY	90.6%	

DETECTION LEVEL 2.82E-04 µCi/mL

Analyst:	SCL	Date:	15-May-96
Signature of Chemist:	JLS	Date:	5/16/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

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

						DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	132	GROSS WEIGHT	(W2)	7.0283
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9370
8611	BACKGROUND in cpm	(BKG)	4.6	NET WEIGHT	(W3)	0.0913
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	12.50
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	8.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.29	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96004564	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/14/96	DETECTION LIMIT	(Ld)	2.68
0	TIME OF COUNT	(TOC)	23:45	Sr-89/90 CONC in µCi/L		8.9873E-01
Sample Prep	DATE OF COUNT	(DOC)	05/14/96			
N/A						
Sample #						
S96T002034						
Instrument Code						
WB27811						
Prepared By						
SLH2						
Chemist						
JLS						
Analyst						
SCL						
Date Complete						
05/15/96						
Analysis Date						
05/14/96						
Analysis Time						
11:15 AM						
Sample Point						
U-107						

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	8.99E-04	µCi/mL	2.80E-04 µCi/mL
RELATIVE COUNTING ERROR	30.4%		
PERCENT CARRIER RECOVERY	91.3%		

Analyst:	SCL	Date:	15-May-96
Signature of Chemist:	JLS	Date:	5/16/96

SAMPLE WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 8712

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

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

Worklist Comment: 0.1 mL sample size / rerun / jls

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T002140	0		@SR90-01	LIQUID	96000422	U-107
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5	DUP	S96T002140	0		@SR90-01	LIQUID		

Final page for worklist # 8712

Sandra Hood Bootright
Analyst Signature **Date** 5-16-96

M G Bu... 5/16/96
Analyst Signature **Date**
C.J. Opinen 5/16/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8712

Analyst: slh **Instrument:** AB12 **Book#** 9B56

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

Worklist Comment: 0.1 mL sample size / rerun / jls

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01	SR90-01	LIQUID	1.23E-03	1.22E-3	99.187	% Recovery
1	STD		0		@SR90-01	SR90-01C	LIQUID	100	8.74E+01	87.400	% Recovery
1	STD		0		@SR90-01	SR90-01E	LIQUID	1.00	1.94E+00	1.940	% Ct. Erro
2	BLNK		0		@SR90-01	SR90-01	LIQUID	1	<2.18E-5		uCi/mL
2	BLNK		0		@SR90-01	SR90-01C	LIQUID	100	8.98E+01	89.800	% Recovery
2	BLNK		0		@SR90-01	SR90-01E	LIQUID	1.00	7.76E+02	776.000	uCi/mL
3	BLNK/BKG		0		@SR90-01	SR90-01	LIQUID	1	1.04E+00	1.040	BLNK/BKG
4	SAMPLE	S96T002140	0		@SR90-01	SR90-01	LIQUID	N/A	4.89E-01	375.0e-007	uCi/mL
4	SAMPLE	S96T002140	0		@SR90-01	SR90-01C	LIQUID	N/A	8.90E+01	0.0e+000	% Recovery
4	SAMPLE	S96T002140	0		@SR90-01	SR90-01E	LIQUID	N/A	3.01E-01	0.0e+000	% Ct. Error
5	DUP	S96T002140	0		@SR90-01	SR90-01	LIQUID	4.89E-1	4.77E-1	2.484	RPD
5	DUP	S96T002140	0		@SR90-01	SR90-01C	LIQUID	100	8.31E+01	83.100	% Recovery
5	DUP	S96T002140	0		@SR90-01	SR90-01E	LIQUID	1.00	3.15E-01	0.315	% Cnt Err

Final page for worklist# 8712

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

J. J. Slipper 5/20/96
Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

						STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
STD	TOTAL COUNTS	(TC)	10447	GROSS WEIGHT	(W2)	7.3154
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2280
8712	BACKGROUND in cpm	(BKG)	6.9	NET WEIGHT	(W3)	0.0874
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	4.00
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	DDF	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1037.80	SR-90 EFFICIENCY FACTO	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.58	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96004716	TIME OF SEPARATION	(ST)	22:55	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/15/96	DETECTION LIMIT	(Ld)	3.26
0	TIME OF COUNT	(TOC)	02:55	Sr-89/90 CONC. in µCi/L		1.2220E+00
Sample Prep	DATE OF COUNT	(DOC)	05/16/96			
N/A	STANDARD BOOK #		9B56			
Sample #	STANDARD VALUE in µCi/mL		1.2269E-03			
WL8712-STD						
Instrument Code						
WB27811						
Prepared By						
MCB						
Chemist						
JLS						
Analyst						
SLH						
Date Complete						
05/16/96						
Analysis Date						
05/15/96						
Analysis Time						
10:55 PM						
Sample Point						
U-107						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.22E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.9%		3.83E-06 µCi/L
PERCENT CARRIER RECOVERY	87.4%		

Analyst:	SLH	Date:	16-May-96
Signature of Chemist:	JLS	Date:	5/20/96

STANDARD.WB1 REV 1.2 2201DNML

WORKBOOK PAGE: BLANK2

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

						BLNK
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	72	GROSS WEIGHT	(W2)	7.3172
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2274
8712	BACKGROUND in cpm	(BKG)	6.9	NET WEIGHT	(W3)	0.0898
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	4.17
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	0.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.58	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96004716	TIME OF SEPARATION	(ST)	22:55	Rmax		1.91
Rerun	DATE OF SEPARATION	(SD)	05/15/96	DETECTION LIMIT	(Ld)	3.26
0	TIME OF COUNT	(TOC)	03:05	Sr-89/90 CONC in µCi/L	<	2.1829E-02
Sample Prep	DATE OF COUNT	(DOC)	05/16/96			
N/A						
Sample #						
WL8712						
Instrument Code						
WB27811						
Prepared By						
MCB						
Chemist						
JLS						
Analyst						
SLH						
Date Complete						
05/16/96						
Analysis Date						
05/15/96						
Analysis Time						
10:55 PM						
Sample Point						
U-107						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	< 2.18E-05	µCi/mL	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			
RELATIVE COUNTING ERROR	775.8%		3.72E-05 µCi/mL
PERCENT CARRIER RECOVERY	89.8%		

Analyst:	SLH	Date:	16-May-96
Signature of Chemist:	JLS	Date:	5/20/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

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

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	424245	GROSS WEIGHT	(W2)	7.1589
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0699
8712	BACKGROUND in cpm	(BKG)	6.9	NET WEIGHT	(W3)	0.0890
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	4.33
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	42417.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.58	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96004716	TIME OF SEPARATION	(ST)	22:55	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/15/96	DETECTION LIMIT	(Ld)	3.26
0	TIME OF COUNT	(TOC)	03:15	Sr-89/90 CONC in µCi/L		4.8870E+02
Sample Prep	DATE OF COUNT	(DOC)	05/16/96			
N/A						
Sample #						
S96T002140						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
SLH	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/16/96						
Analysis Date						
05/15/96	Sr-89/90 CONCENTRATION		4.89E-01	µCi/mL		DETECTION LEVEL
Analysis Time						
10:55 PM	RELATIVE COUNTING ERROR		0.3%			3.75E-05 µCi/mL
Sample Point						
U-107	PERCENT CARRIER RECOVERY		89.0%			

Analyst:	SLH	Date:	16-May-96
Signature of Chemist:	JLS	Date:	5/20/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

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

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	387914	GROSS WEIGHT	(W2)		7.3141
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2310
8712	BACKGROUND in cpm	(BKG)	6.9	NET WEIGHT	(W3)		0.0831
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		4.58
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	38784.50	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.58	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96004716	TIME OF SEPARATION	(ST)	22:55	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/15/96	DETECTION LIMIT	(Ld)		3.26
0	TIME OF COUNT	(TOC)	03:30	Sr-89/90 CONC in µCi/L			4.7727E+02
Sample Prep	DATE OF COUNT	(DOC)	05/16/96				
N/A							
Sample #							
S96T002140							
Instrument Code							
WB27811							
Prepared By							
MCB							
Chemist							
JLS							
Analyst							
SLH							
Date Complete							
05/16/96							
Analysis Date							
05/15/96							
Analysis Time							
10:55 PM							
Sample Point							
U-107							

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	4.77E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.3%		4.01E-05 µCi/mL
PERCENT CARRIER RECOVERY	83.1%		

Analyst:	SLH	Date:	16-May-96
Signature of Chemist:	JLS	Date:	5/20/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 9300

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

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

Worklist Comment: U-107 SR DETERMINE SS USIN LUDLUM. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T001866	0		@SR90-01	LIQUID	96000422	U-107
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5	DUP	S96T001866	0		@SR90-01	LIQUID		

Final page for worklist # 9300

Analyst Signature **Date**

Analyst Signature **Date** 5/30/96

Sue Hogan 5/30/96

worklist# 8941 corrected as worklist 9300.
See attached WL # 8941 for analyst signature and
Pertinent information. 5/31/96

Data Entry Comments:

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

worklistrad Version 0.0 04/18/96
05/30/96 14:54

LABCORE Completed RadChem Report for Worklist#: 9300

Analyst: knt **Instrument:** AB12 **Book#** 9B56

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

Worklist Comment: U-107 SR DETERMINE SS USIN LUDLUM. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@SR90-01	SR90-01	LIQUID	1.23E-03	1.22E-3	99.187	% Recovery
1	STD		0	@SR90-01	SR90-01C	LIQUID	100	8.99E+01	89.900	% Recovery
1	STD		0	@SR90-01	SR90-01E	LIQUID	1.00	1.88E+00	1.880	% Ct. Erro
2	BLNK		0	@SR90-01	SR90-01	LIQUID	1	8.09E-4	80.900e-005	uCi/mL
2	BLNK		0	@SR90-01	SR90-01C	LIQUID	100	8.97E+01	89.700	% Recovery
2	BLNK		0	@SR90-01	SR90-01E	LIQUID	1.00	6.89E+01	68.900	uCi/mL
3	BLNK/BKG		0	@SR90-01	SR90-01	LIQUID	1	2.64E+00	2.640	BLNK/BKG
4	SAMPLE	S96T001866	0	@SR90-01	SR90-01	LIQUID	N/A	3.54E-03	607.0e-006	uCi/mL
4	SAMPLE	S96T001866	0	@SR90-01	SR90-01C	LIQUID	N/A	8.98E+01	0.0e+000	% Recovery
4	SAMPLE	S96T001866	0	@SR90-01	SR90-01E	LIQUID	N/A	2.49E+01	0.0e+000	% Ct. Error
5	DUP	S96T001866	0	@SR90-01	SR90-01	LIQUID	3.54E-3	3.82E-3	7.609	RPD
5	DUP	S96T001866	0	@SR90-01	SR90-01C	LIQUID	100	8.92E+01	89.200	% Recovery
5	DUP	S96T001866	0	@SR90-01	SR90-01E	LIQUID	1.00	2.39E+01	23.900	% Cnt Err

Final page for worklist# 9300

Analyst Signature **Date**

Analyst Signature **Date**

5/31/96

Reviewer Signature **Date**

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

LABCORE Data Entry Template for Worklist# 8941

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

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

Worklist Comment: U-107. Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				SR90-01	LIQUID		
2	BLNK				SR90-01	LIQUID		
3	BLNK/BKG				SR90-01	LIQUID		
4	SAMPLE	S96T001866	0		SR90-01	LIQUID	96000422	U-107
		Analytes Requested:			SR90-01			
5	DUP	S96T001866	0		SR90-01	LIQUID		

Final page for worklist # 8941

Kim Thomas 5-29-96
Analyst Signature **Date**

[illegible] 5/30/96
Analyst Signature **Date**

Data Entry Comments:

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

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	10924	GROSS WEIGHT	(W2)		7.1319
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0420
9300	BACKGROUND in cpm	(BKG)	1.1	NET WEIGHT	(W3)		0.0899
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		6.25
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1091.30	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.63	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96005449	TIME OF SEPARATION	(ST)	00:45	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/29/96	DETECTION LIMIT	(Ld)		1.35
0	TIME OF COUNT	(TOC)	07:00	Sr-89/90 CONC. in µCi/L			1.2194E+00
Sample Prep	DATE OF COUNT	(DOC)	05/29/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2258E-03				
WL9300							
Instrument Code							
WB27811							
Prepared By							
MCB							
Chemist							
JLS							
Analyst							
KNT							
Data Complete							
05/30/96							
Analysis Date							
05/29/96							
Analysis Time							
12:45 AM							
Sample Point							
U-107							

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.22E-03	µCi/mL
RELATIVE COUNTING ERROR	1.9%	
PERCENT CARRIER RECOVERY	89.9%	

DETECTION LEVEL

1.51E-06 µCi/L

Analyst:	KNT	Date:	30-May-96
Signature of Chemist:	JLS	Date:	5/31/96

STANDARD.WB1 REV 1.2 22010NML

1230

WORKBOOK PAGE: BLANK2

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

						BLNK
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	29	GROSS WEIGHT	(W2)	7.3507
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2610
9300	BACKGROUND in cpm	(BKG)	1.1	NET WEIGHT	(W3)	0.0897
Test Code	SAMPLE VOLUME in mL	(SS)	0.250	DELTA TIME (HOURS)	(DT)	6.83
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.63	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96005449	TIME OF SEPARATION	(ST)	00:45	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/29/96	DETECTION LIMIT	(Ld)	1.35
0	TIME OF COUNT	(TOC)	07:35	Sr-89/90 CONC in µCi/L		8.0946E-01
Sample Prep	DATE OF COUNT	(DOC)	05/29/96			
N/A						
Sample #						
WL9300						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/30/96						
Analysis Date						DETECTION LEVEL
05/29/96	Sr-89/90 CONCENTRATION		8.09E-04		µCi/mL	
Analysis Time						
12:45 AM	RELATIVE COUNTING ERROR		68.9%			6.09E-04 µCi/mL
Sample Point						
U-107	PERCENT CARRIER RECOVERY		89.7%			

Analyst:		KNT	Date:	30-May-96
Signature of Chemist:		JLS	Date:	~~5/30~~ SLF 5/31/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

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

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	90	GROSS WEIGHT	(W2)	7.1206
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0308
9300	BACKGROUND in cpm	(BKG)	1.1	NET WEIGHT	(W3)	0.0898
Test Code	SAMPLE VOLUME in mL	(SS)	0.250	DELTA TIME (HOURS)	(DT)	7.08
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	7.90	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.63	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96005449	TIME OF SEPARATION	(ST)	00:45	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/29/96	DETECTION LIMIT	(Ld)	1.35
0	TIME OF COUNT	(TOC)	07:50	Sr-89/90 CONC in µCi/L		3.5395E+00
Sample Prep	DATE OF COUNT	(DOC)	05/29/96			
N/A						
Sample #						
S96T001866						
Instrument Code						
WB27811						
Prepared By						
MCB						
Chemist						
JLS						
Analyst						
KNT						
Date Complete						
05/30/96						
Analysis Date						
05/29/96						
Analysis Time						
12:45 AM						
Sample Point						
U-107						

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	3.54E-03	µCi/mL	6.07E-04 µCi/mL
RELATIVE COUNTING ERROR	24.9%		
PERCENT CARRIER RECOVERY	89.8%		

Analyst:	KNT	Date:	30-May-96
Signature of Chemist:	JLS	Date:	5/31/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

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

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	96	GROSS WEIGHT	(W2)		7.0622
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		6.9730
9300	BACKGROUND in cpm	(BKG)	1.1	NET WEIGHT	(W3)		0.0892
Test Code	SAMPLE VOLUME in mL	(SS)	0.250	DELTA TIME (HOURS)	(DT)		7.37
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	8.50	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.63	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96005449	TIME OF SEPARATION	(ST)	00:45	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/29/96	DETECTION LIMIT	(Ld)		1.35
0	TIME OF COUNT	(TOC)	08:07	Sr-89/90 CONC in µCi/L			3.8228E+00
Sample Prep	DATE OF COUNT	(DOC)	05/29/96				
N/A							
Sample #							
S96T001866							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
JLS	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/30/96							
Analysis Date							DETECTION LEVEL
05/29/96	Sr-89/90 CONCENTRATION			3.82E-03	µCi/mL		
Analysis Time							
12:45 AM	RELATIVE COUNTING ERROR			23.9%			6.09E-04 µCi/mL
Sample Point							
U-107	PERCENT CARRIER RECOVERY			89.2%			

Analyst:	KNT	Date:	30-May-96
Signature of Chemist:	JLS	Date:	5/31/96

SAMPLE.WB1 REV 1.2 22010NML

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

LABCORE Data Entry Template for Worklist# 7589

Analyst: S.C.L **Instrument:** AB00 12 **Book#** 9856

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

Worklist Comment: U-107, Determine sample size using ludlum. new U-107

DATA NOT USED IN PACKAGE

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T001110	0		@SR90-01	LIQUID	96000126	U-107
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S96T001110	0		@SR90-01	LIQUID		
6	SAMPLE	S96T001119	0		@SR90-01	LIQUID	96000126	U-107
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
7	DUP	S96T001119	0		@SR90-01	LIQUID		
8	SAMPLE	S96T001120	0		@SR90-01	LIQUID	96000126	U-107
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
9	DUP	S96T001120	0		@SR90-01	LIQUID		
10	SAMPLE	S96T001121	0		@SR90-01	LIQUID	96000126	U-107
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
11	DUP	S96T001121	0		@SR90-01	LIQUID		

Final page for worklist # 7589

Sue C Fai 4-16-96
Analyst Signature **Date**

Sylvia Z Cohrane 4/17/96
Analyst Signature **Date**

C.J. Opinen 4/18/96

Data Entry Comments:

Sample size to small ~~refurnish~~ rerun batch.

4/18/96

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

worklistdata Version 0.1 04/18/96
04/18/96 15:26

LABCORE Completed Worklist Report for Worklist# 7589

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

Method: _____ Rev/Mod _____

Worklist Comment: U-107, Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@SR90-01	SR90-01	LIQUID	1.23E-03	1.16E-3	94.309	% Recovery
1	STD		0	@SR90-01	SR90-01C	LIQUID	100	8.96E+01	89.600	% Recovery
1	STD		0	@SR90-01	SR90-01E	LIQUID	1.00	1.92E+00	1.920	% Ct. Error
2	BLNK		0	@SR90-01	SR90-01	LIQUID	1	7.67E-2	0.077	uCi/mL
2	BLNK		0	@SR90-01	SR90-01C	LIQUID	100	8.86E+01	88.600	% Recovery
2	BLNK		0	@SR90-01	SR90-01E	LIQUID	1.00	6.47E+01	64.700	% Ct. Error
3	BLNK/BKG		0	@SR90-01	SR90-01	LIQUID	1	1.74E+00	1.740	uCi/mL
4	SAMPLE	S96T001110	0	@SR90-01	SR90-01	LIQUID	N/A	INS	0.000	uCi/mL
4	SAMPLE	S96T001110	0	@SR90-01	SR90-01C	LIQUID	N/A	INS	0.000	% Recovery
4	SAMPLE	S96T001110	0	@SR90-01	SR90-01E	LIQUID	N/A	INS	0.000	% Ct. Error
5	DUP	S96T001110	0	@SR90-01	SR90-01	LIQUID	INS	INS		RPD
5	DUP	S96T001110	0	@SR90-01	SR90-01C	LIQUID	100	INS		% Recovery
5	DUP	S96T001110	0	@SR90-01	SR90-01E	LIQUID	1.00	INS		% Ct. Error
6	SAMPLE	S96T001119	0	@SR90-01	SR90-01	LIQUID	N/A	5.22E-01	0.058	uCi/mL
6	SAMPLE	S96T001119	0	@SR90-01	SR90-01C	LIQUID	N/A	9.15E+01	0.000	% Recovery
6	SAMPLE	S96T001119	0	@SR90-01	SR90-01E	LIQUID	N/A	1.49E+01	0.000	% Ct. Error
7	DUP	S96T001119	0	@SR90-01	SR90-01	LIQUID	5.22E-1	4.79E-1	8.591	RPD
7	DUP	S96T001119	0	@SR90-01	SR90-01C	LIQUID	100	9.05E+01	90.500	% Recovery
7	DUP	S96T001119	0	@SR90-01	SR90-01E	LIQUID	1.00	1.58E+01	15.800	% Ct. Error
8	SAMPLE	S96T001120	0	@SR90-01	SR90-01	LIQUID	N/A	1.63E-03	0.003	uCi/mL
8	SAMPLE	S96T001120	0	@SR90-01	SR90-01C	LIQUID	N/A	9.05E+01	0.000	% Recovery
8	SAMPLE	S96T001120	0	@SR90-01	SR90-01E	LIQUID	N/A	1.35E+02	0.000	% Ct. Error
9	DUP	S96T001120	0	@SR90-01	SR90-01	LIQUID	1.63E-3	2.65E-3	47.664	RPD
9	DUP	S96T001120	0	@SR90-01	SR90-01C	LIQUID	100	8.88E+01	88.800	% Recovery
9	DUP	S96T001120	0	@SR90-01	SR90-01E	LIQUID	1.00	8.80E+01	88.000	% Ct. Error
10	SAMPLE	S96T001121	0	@SR90-01	SR90-01	LIQUID	N/A	5.14E-03	0.003	uCi/mL
10	SAMPLE	S96T001121	0	@SR90-01	SR90-01C	LIQUID	N/A	8.94E+01	0.000	% Recovery
10	SAMPLE	S96T001121	0	@SR90-01	SR90-01E	LIQUID	N/A	4.92E+01	0.000	% Ct. Error
11	DUP	S96T001121	0	@SR90-01	SR90-01	LIQUID	5.14E-3	5.32E-3	3.442	RPD
11	DUP	S96T001121	0	@SR90-01	SR90-01C	LIQUID	100	9.00E+01	90.000	% Recovery
11	DUP	S96T001121	0	@SR90-01	SR90-01E	LIQUID	1.00	4.75E+01	47.500	% Ct. Error

Final page for worklist# 7589

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

4/18/96

Reviewer Signature **Date**

DATA NOT USED IN PACKAGE

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

LABCORE Completed Worklist Report for Worklist# 7589

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit

DATA NOT USED IN PACKAGE

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

LABCORE Completed Worklist Report for Worklist# 7589

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

Method: _____ Rev/Mod _____

Worklist Comment: U-107, Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@SR90-01 SR90-01	LIQUID	1.23E-03	1.16E-3	94.3100	% Recovery
1	STD			0	@SR90-01 SR90-01C	LIQUID	100	8.96E+01	89.6000	% Recovery
1	STD			0	@SR90-01 SR90-01E	LIQUID	1.00	1.92E+00	1.9200	% Ct. Error
2	BLNK			0	@SR90-01 SR90-01	LIQUID	1	7.67E-2	0.0800	uCi/mL
2	BLNK			0	@SR90-01 SR90-01C	LIQUID	100	8.86E+01	88.6000	% Recovery
2	BLNK			0	@SR90-01 SR90-01E	LIQUID	1.00	6.47E+01	64.7000	% Ct. Error
3	BLNK/BKG			0	@SR90-01 SR90-01	LIQUID	1	1.74E+00	1.7400	uCi/mL
4	SAMPLE	S96T001110		0	@SR90-01 SR90-01	LIQUID	N/A ER	ERR	0.000	uCi/mL
4	SAMPLE	S96T001110		0	@SR90-01 SR90-01C	LIQUID	N/A	ERR	0.000	% Recovery
4	SAMPLE	S96T001110		0	@SR90-01 SR90-01E	LIQUID	N/A	ERR	0.000	% Ct. Error
5	DUP	S96T001110		0	@SR90-01 SR90-01	LIQUID	ERR	ERR		RPD
5	DUP	S96T001110		0	@SR90-01 SR90-01C	LIQUID	100	ERR		% Recovery
5	DUP	S96T001110		0	@SR90-01 SR90-01E	LIQUID	1.00	ERR		% Ct. Error
6	SAMPLE	S96T001119		0	@SR90-01 SR90-01	LIQUID	N/A	5.22E-01	0.058	uCi/mL
6	SAMPLE	S96T001119		0	@SR90-01 SR90-01C	LIQUID	N/A	9.15E+01	0.000	% Recovery
6	SAMPLE	S96T001119		0	@SR90-01 SR90-01E	LIQUID	N/A	1.49E+01	0.000	% Ct. Error
7	DUP	S96T001119		0	@SR90-01 SR90-01	LIQUID	5.22E-1	4.79E-1	8.5900	RPD
7	DUP	S96T001119		0	@SR90-01 SR90-01C	LIQUID	100	9.05E+01	90.5000	% Recovery
7	DUP	S96T001119		0	@SR90-01 SR90-01E	LIQUID	1.00	1.58E+01	15.8000	% Ct. Error
8	SAMPLE	S96T001120		0	@SR90-01 SR90-01	LIQUID	N/A	1.63E-03	0.003	uCi/mL
8	SAMPLE	S96T001120		0	@SR90-01 SR90-01C	LIQUID	N/A	9.05E+01	0.000	% Recovery
8	SAMPLE	S96T001120		0	@SR90-01 SR90-01E	LIQUID	N/A	1.35E+02	0.000	% Ct. Error
9	DUP	S96T001120		0	@SR90-01 SR90-01	LIQUID	1.63E-3	2.65E-3	47.6600	RPD
9	DUP	S96T001120		0	@SR90-01 SR90-01C	LIQUID	100	8.88E+01	88.8000	% Recovery
9	DUP	S96T001120		0	@SR90-01 SR90-01E	LIQUID	1.00	8.80E+01	88.0000	% Ct. Error
10	SAMPLE	S96T001121		0	@SR90-01 SR90-01	LIQUID	N/A	5.14E-03	0.003	uCi/mL
10	SAMPLE	S96T001121		0	@SR90-01 SR90-01C	LIQUID	N/A	8.94E+01	0.000	% Recovery
10	SAMPLE	S96T001121		0	@SR90-01 SR90-01E	LIQUID	N/A	4.92E+01	0.000	% Ct. Error
11	DUP	S96T001121		0	@SR90-01 SR90-01	LIQUID	5.14E-3	5.32E-3	3.4400	RPD
11	DUP	S96T001121		0	@SR90-01 SR90-01C	LIQUID	100	9.00E+01	90.0000	% Recovery
11	DUP	S96T001121		0	@SR90-01 SR90-01E	LIQUID	1.00	4.75E+01	47.5000	% Ct. Error

Final page for worklist# 7589

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

Reviewer Signature **Date**

DATA NOT USED IN PACKAGE

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

Corrected sample + Dup 1110 Err to INS (ins. sample).

4/18/96

1298

LABCORE Completed Worklist Report for Worklist# 7589

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit

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

						STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
STD	TOTAL COUNTS	(TC)	10607	GROSS WEIGHT	(W2)	7.3096
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2200
7589	BACKGROUND in cpm	(BKG)	4.6	NET WEIGHT	(W3)	0.0896
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	8.33
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	DDF	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1056.10	SR-90 EFFICIENCY FACTO	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.29	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003393	TIME OF SEPARATION	(ST)	13:00	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/16/96	DETECTION LIMIT	(Ld)	2.68
0	TIME OF COUNT	(TOC)	21:20	Sr-89/90 CONC. in µCi/L		1.1590E+00
Sample Prep	DATE OF COUNT	(DOC)	04/16/96			
N/A	STANDARD BOOK #		9B56			
Sample #	STANDARD VALUE in µCi/mL		1.2292E-03			
WL 7589						
Instrument Code						
WB27811						
Prepared By						
SZC						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
04/17/96						
Analysis Date						
04/16/96						
Analysis Time						
01:00 PM						
Sample Point						
U-107						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.16E-03	µCi/mL
RELATIVE COUNTING ERROR	1.9%	
PERCENT CARRIER RECOVERY	89.6%	

DETECTION LEVEL

2.94E-06 µCi/L

Analyst:	SCL	Date:	17-Apr-96
Signature of Chemist:	SLF	Date:	4/18/96

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		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	80	GROSS WEIGHT	(W2)	7.3088
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2202
7589	BACKGROUND in cpm	(BKG)	4.6	NET WEIGHT	(W3)	0.0886
Test Code	SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	8.75
@SR90-01	DILUTION FACTOR	(DF)	10201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	3.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.29	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003393	TIME OF SEPARATION	(ST)	13:00	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/16/96	DETECTION LIMIT	(Ld)	2.68
0	TIME OF COUNT	(TOC)	21:45	Sr-89/90 CONC in µCi/L		7.6665E+01
Sample Prep	DATE OF COUNT	(DOC)	04/16/96			
N/A						
Sample #						
WL7589						
Instrument Code						
WB27811						
Prepared By						
SZC						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
04/17/96						
Analysis Date						
04/16/96						
Analysis Time						
01:00 PM						
Sample Point						
U-107						

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	7.67E-02	µCi/mL		
RELATIVE COUNTING ERROR	64.7%			6.03E-02 µCi/mL
PERCENT CARRIER RECOVERY	88.6%			

Analyst:	SCL	Date:	17-Apr-96
Signature of Chemist:	SLF	Date:	4/18/96

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)	N/A
SAMPLE	TOTAL COUNTS	(TC)	N/A	GROSS WEIGHT	(W2)	N/A
Work List	COUNT TIME in MINUTES	(CT)	N/A	TARE WEIGHT	(W1)	N/A
7589	BACKGROUND in cpm	(BKG)	N/A	NET WEIGHT	(W3)	0.0000
Test Code	SAMPLE VOLUME in mL	(SS)	N/A	DELTA TIME (HOURS)	(DT)	8.75
@SR90-01	DILUTION FACTOR	(DF)	N/A			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	ERR	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	ERR	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003393	TIME OF SEPARATION	(ST)	13:00	Rmax		ERR
Rerun	DATE OF SEPARATION	(SD)	04/16/96	DETECTION LIMIT	(Ld)	ERR
0	TIME OF COUNT	(TOC)	21:45	Sr-89/90 CONC in µCi/L	ERR	ERR
Sample Prep	DATE OF COUNT	(DOC)	04/16/96			
N/A						
Sample #						
S96T001110						
Instrument Code						
WB27811						
Prepared By						
SZC						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
04/17/96						
Analysis Date						
04/16/96						
Analysis Time						
01:00 PM						
Sample Point						
U-107						

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	ERR	ERR	µCi/mL		
ERR					
RELATIVE COUNTING ERROR		ERR			ERR µCi/mL
PERCENT CARRIER RECOVERY		ERR			

Analyst:		SCL	Date:	17-Apr-96
Signature of Chemist:		SLF	Date:	4/18/96

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)

Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	DUP N/A
DUP	TOTAL COUNTS	(TC)	N/A	GROSS WEIGHT	(W2)	N/A
Work List	COUNT TIME in MINUTES	(CT)	N/A	TARE WEIGHT	(W1)	N/A
7589	BACKGROUND in cpm	(BKG)	N/A	NET WEIGHT	(W3)	0.0000
Test Code	SAMPLE VOLUME in mL	(SS)	N/A	DELTA TIME (HOURS)	(DT)	8.75
@SR90-01	DILUTION FACTOR	(DF)	N/A			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	ERR	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	ERR	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003393	TIME OF SEPARATION	(ST)	13:00	Rmax		ERR
Rerun	DATE OF SEPARATION	(SD)	04/16/96	DETECTION LIMIT	(Ld)	ERR
0	TIME OF COUNT	(TOC)	21:45	Sr-89/90 CONC in µCi/L	ERR	ERR
Sample Prep	DATE OF COUNT	(DOC)	04/16/96			
N/A						
Sample #						
S96T001110						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
SZC	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
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					
04/17/96						
Analysis Date						DETECTION LEVEL
04/16/96	Sr-89/90 CONCENTRATION		ERR	ERR	µCi/mL	
Analysis Time	ERR					
01:00 PM	RELATIVE COUNTING ERROR			ERR		ERR µCi/mL
Sample Point						
U-107	PERCENT CARRIER RECOVERY			ERR		

Analyst:		SCL	Date:	17-Apr-96
Signature of Chemist:		SLF	Date:	4/18/96

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		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	286	GROSS WEIGHT	(W2)		7.2932
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2017
7589	BACKGROUND in cpm	(BKG)	4.6	NET WEIGHT	(W3)		0.0915
Test Code	SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)		9.08
@SR90-01	DILUTION FACTOR	(DF)	10201				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	24.00	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.29	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003393	TIME OF SEPARATION	(ST)	13:00	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/16/96	DETECTION LIMIT	(Ld)		2.68
0	TIME OF COUNT	(TOC)	22:05	Sr-89/90 CONC in µCi/L			5.2229E+02
Sample Prep	DATE OF COUNT	(DOC)	04/16/96				
N/A							
Sample #							
S96T001119							
Instrument Code							
WB27811							
Prepared By							
SZC							
Chemist							
SLF							
Analyst							
SCL							
Date Complete							
04/17/96							
Analysis Date							
04/16/96							
Analysis Time							
01:00 PM							
Sample Point							
U-107							

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	5.22E-01	µCi/mL		
RELATIVE COUNTING ERROR	14.9%			5.82E-02 µCi/mL
PERCENT CARRIER RECOVERY	91.5%			

Analyst:	SCL	Date:	17-Apr-96
Signature of Chemist:	SLF	Date:	4/18/96

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)	264	GROSS WEIGHT	(W2)	7.2865
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1960
7589	BACKGROUND in cpm	(BKG)	4.6	NET WEIGHT	(W3)	0.0905
Test Code	SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	9.25
@SR90-01	DILUTION FACTOR	(DF)	10201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	21.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.29	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003393	TIME OF SEPARATION	(ST)	13:00	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/16/96	DETECTION LIMIT	(Ld)	2.68
0	TIME OF COUNT	(TOC)	22:15	Sr-89/90 CONC in µCi/L		4.7886E+02
Sample Prep	DATE OF COUNT	(DOC)	04/16/96			
N/A						
Sample #						
S96T001119						
Instrument Code						
WB27811						
Prepared By						
SZC						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
04/17/96						
Analysis Date						
04/16/96						
Analysis Time						
01:00 PM						
Sample Point						
U-107						

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	4.79E-01	µCi/mL		
RELATIVE COUNTING ERROR	15.8%			5.88E-02 µCi/mL
PERCENT CARRIER RECOVERY	90.5%			

Analyst:	SCL	Date:	17-Apr-96
Signature of Chemist:	SLF	Date:	4/18/96

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM8

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)	61	GROSS WEIGHT	(W2)	7.2916
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2011
7589	BACKGROUND in cpm	(BKG)	4.6	NET WEIGHT	(W3)	0.0905
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	9.37
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1.50	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.29	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003393	TIME OF SEPARATION	(ST)	13:03	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/16/96	DETECTION LIMIT	(Ld)	2.68
0	TIME OF COUNT	(TOC)	22:25	Sr-89/90 CONC in µCi/L		1.6293E+00
Sample Prep	DATE OF COUNT	(DOC)	04/16/96			
N/A						
Sample #						
S96T001120						
Instrument Code						
WB27811						
Prepared By						
SZC						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
04/17/96						
Analysis Date						
04/16/96						
Analysis Time						
01:00 PM						
Sample Point						
U-107						

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

				DETECTION LEVEL
	Sr-89/90 CONCENTRATION	1.63E-03	µCi/mL	2.91E-03 µCi/mL
	RELATIVE COUNTING ERROR	135.2%		
	PERCENT CARRIER RECOVERY	90.5%		

Analyst:		SCL	Date:	17-Apr-96
Signature of Chemist:		SLF	Date:	4/18/96

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP9

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)	70	GROSS WEIGHT	(W2)		7.3014
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2126
7589	BACKGROUND in cpm	(BKG)	4.6	NET WEIGHT	(W3)		0.0888
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		9.62
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	2.40	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.29	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003393	TIME OF SEPARATION	(ST)	13:03	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/16/96	DETECTION LIMIT	(Ld)		2.68
0	TIME OF COUNT	(TOC)	22:40	Sr-89/90 CONC in µCi/L			2.6503E+00
Sample Prep	DATE OF COUNT	(DOC)	04/16/96				
N/A							
Sample #							
S96T001120							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
SZC	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
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						
04/17/96							
Analysis Date							DETECTION LEVEL
04/16/96	Sr-89/90 CONCENTRATION			2.65E-03		µCi/mL	
Analysis Time							
01:00 PM	RELATIVE COUNTING ERROR			88.0%			2.95E-03 µCi/mL
Sample Point							
U-107	PERCENT CARRIER RECOVERY			88.8%			

Analyst:		SCL	Date:	17-Apr-96
Signature of Chemist:		SLF	Date:	4/18/96

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM10

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)	93	GROSS WEIGHT	(W2)		7.3073
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2179
7589	BACKGROUND in cpm	(BKG)	4.6	NET WEIGHT	(W3)		0.0894
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		9.87
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	4.70	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.29	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003393	TIME OF SEPARATION	(ST)	13:03	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/16/96	DETECTION LIMIT	(Ld)		2.68
0	TIME OF COUNT	(TOC)	22:55	Sr-89/90 CONC in µCi/L			5.1427E+00
Sample Prep	DATE OF COUNT	(DOC)	04/16/96				
N/A							
Sample #							
S96T001121							
Instrument Code							
WB27811							
Prepared By							
SZC							
Chemist							
SLF							
Analyst							
SCL							
Date Complete							
04/17/96							
Analysis Date							
04/16/96							
Analysis Time							
01:00 PM							
Sample Point							
U-107							

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	5.14E-03	µCi/mL		
RELATIVE COUNTING ERROR	49.2%			2.93E-03 µCi/mL
PERCENT CARRIER RECOVERY	89.4%			

Analyst:		SCL	Date:	17-Apr-96
Signature of Chemist:		SLF	Date:	4/18/96

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP11

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)	95	GROSS WEIGHT	(W2)	7.2959
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2059
7589	BACKGROUND in cpm	(BKG)	4.6	NET WEIGHT	(W3)	0.0900
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	10.03
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	4.90	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.29	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003393	TIME OF SEPARATION	(ST)	13:03	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/16/96	DETECTION LIMIT	(Ld)	2.68
0	TIME OF COUNT	(TOC)	23:05	Sr-89/90 CONC in µCi/L		5.3172E+00
Sample Prep	DATE OF COUNT	(DOC)	04/16/96			
N/A						
Sample #						
S96T001121						
Instrument Code						
WB27811						
Prepared By						
SZC						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
04/17/96						
Analysis Date						
04/16/96						
Analysis Time						
01:00 PM						
Sample Point						
U-107						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	5.32E-03	µCi/mL	DETECTION LEVEL	
RELATIVE COUNTING ERROR	47.5%		2.90E-03 µCi/mL	
PERCENT CARRIER RECOVERY	90.0%			

Analyst:		SCL	Date:	17-Apr-96
Signature of Chemist:		SLF	Date:	4/18/96

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

LABCORE Data Entry Template for Worklist# 8215

Analyst: S.C.L **Instrument:** AB00 10 **Book#** 9856

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

Worklist Comment: U-107. Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T002034	0		@SR90-01	LIQUID	96000126	U-107
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5	DUP	S96T002034	0		@SR90-01	LIQUID		

Final page for worklist # 8215

S.C. Lai 5-6-96
Analyst Signature **Date**

Sue E. Hogan 5/7/96
Analyst Signature **Date**
C.J. Opinen 5/9/96

DATA NOT USED IN PACKAGE

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 8215

Analyst: cjo **Instrument:** AB10 **Book#** 9B5C

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

Worklist Comment: U-107. Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@SR90-01	SR90-01	LIQUID	1.23E-03	1.21E-3	98.374	% Recovery
1	STD		0	@SR90-01	SR90-01C	LIQUID	100	8.90E+01	89.000	% Recovery
1	STD		0	@SR90-01	SR90-01E	LIQUID	1.00	1.94E+00	1.940	% Ct. Error
2	BLNK		0	@SR90-01	SR90-01	LIQUID	1	2.39E-4	2.390e-004	uCi/mL
2	BLNK		0	@SR90-01	SR90-01C	LIQUID	100	9.10E+01	91.000	% Recovery
2	BLNK		0	@SR90-01	SR90-01E	LIQUID	1.00	1.37E+02	137.000	% Ct. Error
3	BLNK/BKG		0	@SR90-01	SR90-01	LIQUID	1	1.21E+00	1.210	uCi/mL
4	SAMPLE	S96T002034	0	@SR90-01	SR90-01	LIQUID	N/A	3.81E-04	0.000	uCi/mL
4	SAMPLE	S96T002034	0	@SR90-01	SR90-01C	LIQUID	N/A	8.92E+01	0.000	% Recovery
4	SAMPLE	S96T002034	0	@SR90-01	SR90-01E	LIQUID	N/A	8.99E+01	0.000	% Ct. Error
5	DUP	S96T002034	0	@SR90-01	SR90-01	LIQUID	3.81E-4	5.04E-4	27.797	RPD
5	DUP	S96T002034	0	@SR90-01	SR90-01C	LIQUID	100	9.17E+01	91.700	% Recovery
5	DUP	S96T002034	0	@SR90-01	SR90-01E	LIQUID	1.00	6.76E+01	67.600	% Ct. Error

Final page for worklist# 8215

Analyst Signature Date

Analyst Signature Date

5/9/96

Reviewer Signature Date

Sample will be rerun with larger sample size.

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

							STANDARD
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	10539	GROSS WEIGHT	(W2)		7.3063
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2173
8215	BACKGROUND in cpm	(BKG)	9.8	NET WEIGHT	(W3)		0.0890
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		6.50
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1044.10	SR-90 EFFICIENCY FACTO	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.89	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96004095	TIME OF SEPARATION	(ST)	10:45	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/06/96	DETECTION LIMIT	(Ld)		3.86
0	TIME OF COUNT	(TOC)	17:15	Sr-89/90 CONC. in µCi/L			1.2131E+00
Sample Prep	DATE OF COUNT	(DOC)	05/06/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2276E-03				
WL8215							
Instrument Code							
WB26870							
Prepared By							
SEH							
Chemist							
SLF							
Analyst							
SCL							
Date Complete							
05/07/96							
Analysis Date							
05/06/96							
Analysis Time							
10:45 AM							
Sample Point							
U-107							

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.21E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.9%		4.49E-06 µCi/L
PERCENT CARRIER RECOVERY	89.0%		

Analyst:	SCL	Date:	07-May-96
Signature of Chemist:	SLF	Date:	5/9/96

STANDARD.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

1312

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)	119	GROSS WEIGHT	(W2)	7.1075
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0165
8215	BACKGROUND in cpm	(BKG)	9.8	NET WEIGHT	(W3)	0.0910
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	7.42
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	2.10	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.89	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96004095	TIME OF SEPARATION	(ST)	10:45	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/06/96	DETECTION LIMIT	(Ld)	3.86
0	TIME OF COUNT	(TOC)	18:10	Sr-89/90 CONC in µCi/L		2.3875E-01
Sample Prep	DATE OF COUNT	(DOC)	05/06/96			
N/A						
Sample #						
WL8215						

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)
SEH	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
05/07/96	

Analysis Date				DETECTION LEVEL
05/06/96	Sr-89/90 CONCENTRATION	2.39E-04	µCi/mL	
Analysis Time				
10:45 AM	RELATIVE COUNTING ERROR	137.5%		4.39E-04 µCi/mL
Sample Point				
U-107	PERCENT CARRIER RECOVERY	91.0%		

Analyst:	SCL	Date:	07-May-96
Signature of Chemist:	SLF	Date:	5/9/96

BLANK.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

1313

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)	131	GROSS WEIGHT	(W2)	7.2994
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2102
8215	BACKGROUND in cpm	(BKG)	9.8	NET WEIGHT	(W3)	0.0892
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	7.75
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	3.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.89	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96004095	TIME OF SEPARATION	(ST)	10:45	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	05/06/96	DETECTION LIMIT	(Ld)	3.86
0	TIME OF COUNT	(TOC)	18:30	Sr-89/90 CONC in µCi/L		3.8145E-01
Sample Prep	DATE OF COUNT	(DOC)	05/06/96			
N/A						
Sample #						
S96T002034						
Instrument Code						
WB26870						
Prepared By						
SEH						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
05/07/96						
Analysis Date						
05/06/96						
Analysis Time						
10:45 AM						
Sample Point						
U-107						

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

Sr-89/90 CONCENTRATION	3.81E-04	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	89.9%		4.47E-04 µCi/mL
PERCENT CARRIER RECOVERY	89.2%		

Analyst:		SCL	Date:	07-May-96
Signature of Chemist:		SLF	Date:	5/9/96

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

1314

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)	143	GROSS WEIGHT	(W2)		7.1564
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0647
8215	BACKGROUND in cpm	(BKG)	9.8	NET WEIGHT	(W3)		0.0917
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		8.08
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	4.50	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.89	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96004095	TIME OF SEPARATION	(ST)	10:45	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	05/06/96	DETECTION LIMIT	(Ld)		3.86
0	TIME OF COUNT	(TOC)	18:50	Sr-89/90 CONC in µCi/L			5.0428E-01
Sample Prep	DATE OF COUNT	(DOC)	05/06/96				
N/A							
Sample #							
S96T002034							
Instrument Code							
WB26870							
Prepared By							
SEH							
Chemist							
SLF							
Analyst							
SCL							
Date Complete							
05/07/96							
Analysis Date							
05/06/96							
Analysis Time							
10:45 AM							
Sample Point							
U-107							

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

Sr-89/90 CONCENTRATION	5.04E-04	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	67.6%		4.33E-04 µCi/mL
PERCENT CARRIER RECOVERY	91.7%		

Analyst:	SCL	Date:	07-May-96
Signature of Chemist:	SLF	Date:	5/9/96

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

1215

LABCORE Data Entry Template for Worklist# 6671

Analyst: S.C.L **Instrument:** AB00 12 **Book#** 9B56

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

Worklist Comment: Determine Sample Size using Ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T000665	0		@SR90-01	LIQUID	96000085	U-107
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5	DUP	S96T000665	0		@SR90-01	LIQUID		
6	SAMPLE	S96T000682	0		@SR90-01	LIQUID	96000085	U-107
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
7	DUP	S96T000682	0		@SR90-01	LIQUID		

Final page for worklist # 6671

Sue C Lai 3-21-96
Analyst Signature **Date**

C.J. Qian 3/21/96
Analyst Signature **Date**

M R Brown 3/21/96

DATA NOT USED IN PACKAGE

Data Entry Comments:

Sample size too small. Batch will be rerun. 3/22/96

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

LABCORE Completed Worklist Report for Worklist# 6671

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

Method: _____ Rev/Mod _____

Worklist Comment: Determine Sample Size using Ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@SR90-01	SR90-01	LIQUID	1.23E-03	1.21E-3	98.370	% Recovery
1	STD		0	@SR90-01	SR90-01C	LIQUID	100	8.97E+01	89.700	% Recovery
1	STD		0	@SR90-01	SR90-01E	LIQUID	1.00	1.85E+00	1.850	% Ct. Error
2	BLNK		0	@SR90-01	SR90-01	LIQUID	1	<1.34E-2		uCi/mL
2	BLNK		0	@SR90-01	SR90-01C	LIQUID	100	9.06E+01	90.600	% Recovery
2	BLNK		0	@SR90-01	SR90-01E	LIQUID	1.00	8.98E+02	898.000	% Ct. Error
3	BLNK/BKG		0	@SR90-01	SR90-01	LIQUID	1	9.53E-01	0.950	uCi/mL
4	SAMPLE	S96T000665	0	@SR90-01	SR90-01	LIQUID	N/A	3.14E-02	2.800e-002	uCi/mL
4	SAMPLE	S96T000665	0	@SR90-01	SR90-01C	LIQUID	N/A	8.98E+01	1.000e-004	% Recovery
4	SAMPLE	S96T000665	0	@SR90-01	SR90-01E	LIQUID	N/A	7.25E+01	0.000	% Ct. Error
5	DUP	S96T000665	0	@SR90-01	SR90-01	LIQUID	3.14E-2	2.70E-2	15.070	RPD
5	DUP	S96T000665	0	@SR90-01	SR90-01C	LIQUID	100	8.97E+01	89.700	% Recovery
5	DUP	S96T000665	0	@SR90-01	SR90-01E	LIQUID	1.00	8.26E+01	82.600	% Ct. Error
6	SAMPLE	S96T000682	0	@SR90-01	SR90-01	LIQUID	N/A	3.04E-02	2.810e-002	uCi/mL
6	SAMPLE	S96T000682	0	@SR90-01	SR90-01C	LIQUID	N/A	8.93E+01	1.000e-004	% Recovery
6	SAMPLE	S96T000682	0	@SR90-01	SR90-01E	LIQUID	N/A	7.47E+01	0.000	% Ct. Error
7	DUP	S96T000682	0	@SR90-01	SR90-01	LIQUID	3.04E-2	1.63E-2	60.390	RPD
7	DUP	S96T000682	0	@SR90-01	SR90-01C	LIQUID	100	8.90E+01	89.000	% Recovery
7	DUP	S96T000682	0	@SR90-01	SR90-01E	LIQUID	1.00	1.31E+02	131.000	% Ct. Error

Final page for worklist# 6671

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

3/21/96

Reviewer Signature **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

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	11406	GROSS WEIGHT	(W2)		7.2954
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2057
6671	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)		0.0897
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		11.08
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1136.30	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96002355	TIME OF SEPARATION	(ST)	11:15	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	03/20/96	DETECTION LIMIT	(Ld)		2.59
0	TIME OF COUNT	(TOC)	22:20	Sr-89/90 CONC. in µCi/L			1.2127E+00
Sample Prep	DATE OF COUNT	(DOC)	03/20/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2314E-03				
WL#6671							
Instrument Code							
WB27811							
Prepared By							
CJO							
Chemist							
SLF							
Analyst							
SCL							
Date Complete							
03/21/96							
Analysis Date							
03/20/96							
Analysis Time							
11:15 AM							
Sample Point							
U-107							

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.21E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.8%		2.76E-06 µCi/L
PERCENT CARRIER RECOVERY	89.7%		

Analyst:	SCL	Date:	21-Mar-96
Signature of Chemist:	SLF	Date:	3/21/96

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		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	41	GROSS WEIGHT	(W2)	7.3143
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2237
6671	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0906
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	11.25
@SR90-01	DILUTION FACTOR	(DF)	10201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	-0.20	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96002355	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	03/20/96	DETECTION LIMIT	(Ld)	2.59
0	TIME OF COUNT	(TOC)	22:30	Sr-89/90 CONC in µCi/L	<	1.3445E+01
Sample Prep	DATE OF COUNT	(DOC)	03/20/96			
N/A						
Sample #						
WL#6671-BLNK						
Instrument Code						
WB27811						
Prepared By						
CJO						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
03/21/96						
Analysis Date						
03/20/96						
Analysis Time						
11:15 AM						
Sample Point						
U-107						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	< 1.34E-02	µCi/m	DETECTION LEVEL
LESS THAN Value was Determined from Lc.			
RELATIVE COUNTING ERROR	898.2%		2.79E-02 µCi/mL
PERCENT CARRIER RECOVERY	90.6%		

Analyst:	SCL	Date:	21-Mar-96
Signature of Chemist:	SLF	Date:	3/21/96

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)	72	GROSS WEIGHT	(W2)	7.3057
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2159
6671	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0898
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	11.58
@SR90-01	DILUTION FACTOR	(DF)	10201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	2.90	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96002355	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	03/20/96	DETECTION LIMIT	(Ld)	2.59
0	TIME OF COUNT	(TOC)	22:50	Sr-89/90 CONC in µCi/L		3.1387E+01
Sample Prep	DATE OF COUNT	(DOC)	03/20/96			
N/A						
Sample #						
S96T000665						
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)					
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					
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					
03/21/96						
Analysis Date						DETECTION LEVEL
03/20/96	Sr-89/90 CONCENTRATION		3.14E-02		µCi/mL	
Analysis Time						
11:15 AM	RELATIVE COUNTING ERROR		72.5%			2.80E-02 µCi/mL
Sample Point						
U-107	PERCENT CARRIER RECOVERY		89.8%			

Analyst:		SCL	Date:	21-Mar-96
Signature of Chemist:		SLF	Date:	3/21/96

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

1320

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)	88	GROSS WEIGHT	(W2)		7.2753
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1856
6671	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)		0.0897
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		11.75
@SR90-01	DILUTION FACTOR	(DF)	10201				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	2.50	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96002355	TIME OF SEPARATION	(ST)	11:15	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	03/20/96	DETECTION LIMIT	(Ld)		2.59
0	TIME OF COUNT	(TOC)	23:00	Sr-89/90 CONC in µCi/L			2.7046E+01
Sample Prep	DATE OF COUNT	(DOC)	03/20/96				
N/A							
Sample #							
S96T000665							
Instrument Code							
WB27811							
Prepared By							
CJO							
Chemist							
SLF							
Analyst							
SCL							
Date Complete							
03/21/96							
Analysis Date							
03/20/96							
Analysis Time							
11:15 AM							
Sample Point							
U-107							

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-02	µCi/mL		
RELATIVE COUNTING ERROR	82.6%			2.80E-02 µCi/mL
PERCENT CARRIER RECOVERY	89.7%			

Analyst:		SCL	Date:	21-Mar-96
Signature of Chemist:		SLF	Date:	3/21/96

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

1321

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		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	71	GROSS WEIGHT	(W2)	7.2785
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1892
6671	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0893
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	11.92
@SR90-01	DILUTION FACTOR	(DF)	10201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	2.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96002355	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	03/20/96	DETECTION LIMIT	(Ld)	2.59
0	TIME OF COUNT	(TOC)	23:10	Sr-89/90 CONC in µCi/L		3.0380E+01
Sample Prep	DATE OF COUNT	(DOC)	03/20/96			
N/A						
Sample #						
S96T000682						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Instrument Code: WB27811				
Prepared By: CJO				
Chemist: SLF				
Analyst: SCL				
Date Complete: 03/21/96				
Analysis Date: 03/20/96	Sr-89/90 CONCENTRATION	3.04E-02	µCi/mL	DETECTION LEVEL
Analysis Time: 11:15 AM	RELATIVE COUNTING ERROR	74.7%		2.81E-02 µCi/mL
Sample Point: U-107	PERCENT CARRIER RECOVERY	89.3%		

Analyst:		SCL	Date:	21-Mar-96
Signature of Chemist:		SLF	Date:	3/21/96

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)	58	GROSS WEIGHT	(W2)	7.3190
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2300
6671	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0890
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	12.42
@SR90-01	DILUTION FACTOR	(DF)	10201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1.50	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96002355	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	03/20/96	DETECTION LIMIT	(Ld)	2.59
0	TIME OF COUNT	(TOC)	23:40	Sr-89/90 CONC in µCi/L		1.6254E+01
Sample Prep	DATE OF COUNT	(DOC)	03/20/96			
N/A						
Sample #						
S96T000682						
Instrument Code						
WB27811						
Prepared By						
CJO						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
03/21/96						
Analysis Date						
03/20/96						
Analysis Time						
11:15 AM						
Sample Point						
U-107						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.63E-02	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	131.3%		2.81E-02 µCi/mL
PERCENT CARRIER RECOVERY	89.0%		

Analyst:	SCL	Date:	21-Mar-96
Signature of Chemist:	SLF	Date:	3/21/96

SAMPLE.WB1 REV 1.2 22010NML

DATA NOT USED IN PACKAGE

1323

LABCORE Data Entry Template for Worklist# 8424

Analyst: AKL **Instrument:** PU01 16 **Book#** 124643

Method: LA-943-128 Rev/Mod BO

Worklist Comment: U-107. Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				PU23901	LIQUID		
2	BLNK				PU23901	LIQUID		
3	SAMPLE	S96T002140	0		PU23901	LIQUID	96000422	U-107
	Analytes Requested: PU23901							
4	DUP	S96T002140	0		PU23901	LIQUID		
5	SAMPLE	S96T002141	0		PU23901	LIQUID	96000422	U-107
	Analytes Requested: PU23901							
6	DUP	S96T002141	0		PU23901	LIQUID		
7	SAMPLE	S96T002142	0		PU23901	LIQUID	96000422	U-107
	Analytes Requested: PU23901							
8	DUP	S96T002142	0		PU23901	LIQUID		

Final page for worklist # 8424

C J Lewis 5/8/96
Analyst Signature **Date**

Sue E Hogan 5-10-96
Analyst Signature **Date**

C.J. Opinion 5/13/96

Data Entry Comments:

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

1324 1/16/96

LABCORE Completed RadChem Report for Worklist#: 8424

Analyst: akl **Instrument:** PU01 #16 **Book#** 124B43

Method: LA-943-128 Rev/Mod B-0

Worklist Comment: U-107. Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@PU23901 PU23901	LIQUID	3.81E-02	3.58E-2	93.963	% Recovery
1	STD			0	@PU23901 PU23901E	LIQUID	1.00	2.87E+00	2.870	% Ct Error
1	STD			0	@PU23901 PU23901T	LIQUID	100	1.07E+02	107.000	% Recovery
2	BLNK			0	@PU23901 PU23901	LIQUID	1	<3.04E-5		uCi/mL
2	BLNK			0	@PU23901 PU23901T	LIQUID	100	1.02E+02	102.000	% Recovery
2	BLNK			0	@PU23901 PU23901E	LIQUID	1.00	1.00E+02	100.000	uCi/mL
3	SAMPLE	S96T002140		0	@PU23901 PU23901	LIQUID	N/A	4.28E-05	321.0e-007	uCi/mL
3	SAMPLE	S96T002140		0	@PU23901 PU23901T	LIQUID	N/A	1.04E+02	0.0e+000	% Recovery
3	SAMPLE	S96T002140		0	@PU23901 PU23901E	LIQUID	N/A	7.44E+00	0.0e+000	% Ct. Error
4	DUP	S96T002140		0	@PU23901 PU23901	LIQUID	4.28E-5	5.89E-5	31.662	RPD
4	DUP	S96T002140		0	@PU23901 PU23901T	LIQUID	100	1.05E+02	105.000	% Recovery
4	DUP	S96T002140		0	@PU23901 PU23901E	LIQUID	1.00	6.19E+00	6.190	% Ct Error
5	SAMPLE	S96T002141		0	@PU23901 PU23901	LIQUID	N/A	3.84E-05	320.0e-007	uCi/mL
5	SAMPLE	S96T002141		0	@PU23901 PU23901T	LIQUID	N/A	1.04E+02	0.0e+000	% Recovery
5	SAMPLE	S96T002141		0	@PU23901 PU23901E	LIQUID	N/A	7.60E+00	0.0e+000	% Ct. Error
6	DUP	S96T002141		0	@PU23901 PU23901	LIQUID	3.84E-5	4.10E-5	6.549	RPD
6	DUP	S96T002141		0	@PU23901 PU23901T	LIQUID	100	1.04E+02	104.000	% Recovery
6	DUP	S96T002141		0	@PU23901 PU23901E	LIQUID	1.00	7.41E+00	7.410	% Ct Error
7	SAMPLE	S96T002142		0	@PU23901 PU23901	LIQUID	N/A	5.49E-05	323.0e-007	uCi/mL
7	SAMPLE	S96T002142		0	@PU23901 PU23901T	LIQUID	N/A	1.07E+02	0.0e+000	% Recovery
7	SAMPLE	S96T002142		0	@PU23901 PU23901E	LIQUID	N/A	6.45E+00	0.0e+000	% Ct. Error
8	DUP	S96T002142		0	@PU23901 PU23901	LIQUID	5.49E-5	5.61E-5	2.162	RPD
8	DUP	S96T002142		0	@PU23901 PU23901T	LIQUID	100	1.05E+02	105.000	% Recovery
8	DUP	S96T002142		0	@PU23901 PU23901E	LIQUID	1.00	6.35E+00	6.350	% Ct Error

Final page for worklist# 8424

Analyst Signature Date

Analyst Signature Date

John Relyea 15May96
Reviewer Signature Date

Validated

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

WORKBOOK PAGE: STD1

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

						STD
	DATE COUNTED		MAY-09-96	PU 236 AEA FRAC	(C236)	0.708
STD	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC	(C238)	0.000
	SAMPLE DILUTION FACTOR	DF	101.000	PU 239 AEA FRAC	(C239)	0.255
8424	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		2698
	DIGEST DILUTION FACTOR	DDF	1.000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm	(Bkg)	0.130
	DETECTOR NUMBER		16	PU 236 cpm		36.580
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm		0.000
	TRACER PREPARATION DATE		12/27/95	PU 239 cpm		13.170
96004570	TRACER PREPARATION VALUE (dpm/mL)		2390.000	AEA COUNT TIME		480
	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2185.983	Pu 239/240 µCi/L		3.5820E+01
0	PU-238 TRACER VALUE	(dpm/mL	0.000			
	STANDARD BOOK NO		124B43			
N/A	STANDARD VALUE in µCi/mL		0.038			

Sample #
WL8424
Instrument Code
WB27806
Prepared By
SEH
Chemist
JFR
Analyst
AKL
Date Completed
05/13/96
Analysis Date
05/08/96
Analysis Time
03:30 PM
Sample Point
U-107

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

Pu 239/240 µCi/mL		3.58E-02	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	2.9%	
			Pu 239/240 4.21E-03
Pu 236 Tracer Recovery	=	107.1%	

Analyst:		AKL	Date:	13-May-96
Signature of Chemist:	John Relyea	JFR	Date:	15May96

STANDARD.WB1 REV 1.0 943128ML

WORKBOOK PAGE: BLANK2

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

Type	DATE COUNTED		MAY-09-96	PU 236 AEA FRAC	(C236)	BLNK 0.973
BLNK	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC	(C238)	0.000
Work Unit	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.000
8424	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		1878
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm (Bkg)		0.130
Matrix	DETECTOR NUMBER		16	PU 236 cpm		35.690
LIQUID	EFFICIENCY FACTOR	EFF	0.2717	PU 238 cpm		0.000
Batch Number	TRACER PREPARATION DATE		12/27/95	PU 239 cpm		0.000
96004570	TRACER PREPARATION VALUE (dpm/mL)		2390.00	AEA COUNT TIME		480
Rerun	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2185.98	Pu 239/240 µCi/L =	<	3.036E-02
0	PU-238 TRACER VALUE	(dpm/mL)	0.00			

Sample Prep	
N/A	
Sample #	Decay Time = Date Counted - Tracer Preparation Date
WL8424	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg)*C236*100/(Pu-236 Decay Corr'd Value * SPKV*EFF)
WB27806	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
SEH	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
JFR	
Analyst	
AKL	
Date Complete	

05/13/96	Pu 239/240 µCi/mL	<	3.04E-05	DETECTION LEVELS in µCi/mL
Analysis Date	Relative Counting Error	=	100.0%	
05/08/96				
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.			Pu 239/240
03:30 PM	Pu 238 µCimL	<	3.04E-05	3.04E-05
Sample Point	Relative Counting Error	=	100.0%	Pu 238
U-107	Pu 236 Tracer Recovery	=	102.3%	3.04E-05

Analyst:		AKL	Date:	13-May-96
Signature of Chemist:	John Rehyes	JFR	Date:	15 May 96

BLANK.WB1 REV 1.0 943128ML

WORKBOOK PAGE: SAM3

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

							SAMPLE
	DATE COUNTED		MAY-09-96	PU 236 AEA FRAC		(C236)	0.920
SAMPLE	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC		(C238)	0.032
	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC		(C239)	0.040
8424	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			2024
	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm		(Bkg)	0.130
	DETECTOR NUMBER		16	PU 236 cpm			34.870
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm			1.240
	TRACER PREPARATION DATE		12/27/95	PU 239 cpm			1.510
96004570	TRACER PREPARATION VALUE (dpm/mL)		2390.000	AEA COUNT TIME			480
	PU-236 DECAY CORR'D VALUE	(dpm/mL)	2185.983	Pu 239/240 µCi/L =			4.2812E-02
0	PU-238 TRACER VALUE	(dpm/mL)	0.000				

Sample Prep	
N/A	
Sample ID	Decay Time = Date Counted - Tracer Preparation Date
S96T002140	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)
WB27806	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
SEH	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
JFR	
Analyst	
AKL	
Date Composite	
05/13/96	
Analysis Date	
06/08/96	
Analysis Time	
03:30 PM	
Sample Point	
U-107	

Pu 239/240 µCi/mL		4.28E-05	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	7.4%	
			Pu 239/240
Pu 238 µCimL		3.42E-05	3.21E-05
Relative Counting Error	=	8.2%	Pu 238
Pu 236 Tracer Recovery	=	104.3%	3.21E-05

Analyst:		AKL	Date:	13-May-96
Signature of Chemist:	John Relyea	JFR	Date:	15 May 96

SAMPLE.WB1 REV 1.0 943128ML

1338

WORKBOOK PAGE: DUP4

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

						DUP
	DATE COUNTED		MAY-09-96	PU 236 AEA FRAC	(C236)	0.919
DUP	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC	(C238)	0.035
	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.056
8424	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		2039
	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm	(Bkg)	0.130
	DETECTOR NUMBER		18	PU 236 cpm		37.170
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm		1.410
	TRACER PREPARATION DATE		12/27/95	PU 239 cpm		2.210
96004570	TRACER PREPARATION VALUE (dpm/mL)		2390.000	AEA COUNT TIME		480
	PU-236 DECAY CORR'D VALUE (dpm/mL)		2185.983	Pu 239/240 µCi/L		5.8931E-02
0	PU-238 TRACER VALUE (dpm/mL)		0.000			

Sample Prep
N/A

Sample #
S96T002140

Instrument Code
WB27806

Prepared By
SEH

Chemist
JFR

Analyst
AKL

Date Complete
06/13/96

Analysis Date
05/08/96

Analysis Time
03:30 PM

Sample Point
U-107

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

Pu 239/240 µCi/mL		5.89E-05	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	6.2%	
			Pu 239/240
Pu 238 µCimL		3.75E-05	3.21E-05
Relative Counting Error	=	7.7%	Pu 238
Pu 236 Tracer Recovery	=	105.0%	3.21E-05

Analyst:	AKL	Date:	13-May-96
Signature of Chemist: Jeffrey Rohrer	JFR	Date:	15 May 96

SAMPLE.WB1 REV 1.0 943128ML

WORKBOOK PAGE: SAM5

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

							SAMPLE
	DATE COUNTED		MAY-09-96	PU 236 AEA FRAC		(C236)	0.922
SAMPLE	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC		(C238)	0.037
	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC		(C239)	0.036
8424	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			2015
	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm		(Bkg)	0.130
	DETECTOR NUMBER		16	PU 236 cpm			36.900
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm			1.480
	TRACER PREPARATION DATE		12/27/95	PU 239 cpm			1.440
96004570	TRACER PREPARATION VALUE (dpm/mL)		2390.000	AEA COUNT TIME			480
	PU-236 DECAY CORR'D VALUE (dpm/mL)		2185.983	Pu 239/240 µCi/L =			3.8447E-02
0	PU-238 TRACER VALUE (dpm/mL)		0.000				

Sample Prep	
N/A	
Sample #	Decay Time = Date Counted - Tracer Preparation Date
S96T002141	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)
WB27806	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
SEH	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
JFR	
Analyst	
AKL	
Date Complete	
05/13/96	
Analysis Date	
05/08/96	
Analysis Time	
03:30 PM	
Sample Point	
U-107	

Pu 239/240 µCi/mL		3.84E-05	DETECTION LEVELS in µCi/mL	
Relative Counting Error	=	7.6%		
			Pu 239/240	
Pu 238 µCimL		3.95E-05	3.20E-05	
Relative Counting Error	=	7.5%	Pu 238	
Pu 236 Tracer Recovery	=	104.1%	3.20E-05	

Analyst:		AKL	Date:	13-May-96
Signature of Chemist:	John Rehyea	JFR	Date:	15 May 96

SAMPLE.WB1 REV 1.0 943128ML

WORKBOOK PAGE: DUP6

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

Type						DUP
	DATE COUNTED		MAY-09-96	PU 236 AEA FRAC	(C236)	0.912
DUP	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC	(C238)	0.030
Work List #	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.038
8424	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		2041
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm	(Bkg)	0.130
Matrix	DETECTOR NUMBER		18	PU 236 cpm		36.580
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm		1.200
Batch Number	TRACER PREPARATION DATE		12/27/95	PU 239 cpm		1.520
96004570	TRACER PREPARATION VALUE (dpm/mL)		2390.000	AEA COUNT TIME		480
Rerun #	PU-236 DECAY CORR'D VALUE (dpm/mL)		2185.983	Pu 239/240 µCi/L =		4.1028E-02
0	PU-238 TRACER VALUE (dpm/mL)		0.000			

Sample Prep	
N/A	
Sample #	Decay Time = Date Counted - Tracer Preparation Date
S96T002141	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)
WB27806	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
SEH	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
JFR	
Analyst	
AKL	
Date Complete	
05/13/96	
Analysis Date	
05/08/96	
Analysis Time	
03:30 PM	
Sample Point	
U-107	

Pu 239/240 µCi/mL		4.10E-05	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	7.4%	
			Pu 239/240
Pu 238 µCimL		3.24E-05	3.24E-05
Relative Counting Error	=	8.3%	Pu 238
Pu 236 Tracer Recovery	=	104.3%	3.24E-05

Analyst:		AKL	Date:	13-May-96
Signature of Chemist:	John Relyea	JFR	Date:	15 May 96

SAMPLE.WB1 REV 1.0 943128ML

1331

WORKBOOK PAGE: SAM7

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

							SAMPLE
Type	DATE COUNTED		MAY-09-96	PU 236 AEA FRAC		(C236)	0.914
SAMPLE	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC		(C238)	0.036
Work List #	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC		(C239)	0.051
8424	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			2085
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm		(Bkg)	0.130
Matrix	DETECTOR NUMBER		18	PU 236 cpm			36.360
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm			1.420
Batch Number	TRACER PREPARATION DATE		12/27/95	PU 239 cpm			2.030
96004570	TRACER PREPARATION VALUE (dpm/mL)		2390.000	AEA COUNT TIME			480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		2185.983	Pu 239/240 µCi/L			5.4944E-02
0	PU-238 TRACER VALUE (dpm/mL)		0.000				

Sample Prep
N/A
Sample #
S96T002142
Instrument Code
WB27806
Prepared By
SEH
Chemist
JFR
Analyst
AKL
Date Complete
05/13/96
Analysis Date
05/08/96
Analysis Time
03:30 PM
Sample Point
U-107

Decay Time = Date Counted - Tracer Preparation Date

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

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

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

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

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

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

Pu 239/240 µCi/mL		5.49E-05	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	6.5%	
			Pu 239/240
Pu 238 µCimL		3.88E-05	3.23E-05
Relative Counting Error	=	7.7%	Pu 238
Pu 236 Tracer Recovery	=	106.8%	3.23E-05

Analyst:	AKL	Date:	13-May-96
Signature of Chemist: John Relyea	JFR	Date:	15 May 96

SAMPLE.WB1 REV 1.0 943128ML

1332

WORKBOOK PAGE: DUP8

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

							DUP
Type	DATE COUNTED		MAY-09-96	PU 236 AEA FRAC		(C236)	0.913
DUP	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC		(C238)	0.034
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC		(C239)	0.052
8424	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS			2044
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)			30
@PU23901	TRACER BOOK NO		120B43	BACKGROUND in cpm		(Bkg)	0.130
Matrix	DETECTOR NUMBER		16	PU 236 cpm			36.630
LIQUID	EFFICIENCY FACTOR	EFF	0.272	PU 238 cpm			1.350
Batch/Run	TRACER PREPARATION DATE		12/27/95	PU 239 cpm			2.100
96004570	TRACER PREPARATION VALUE (dpm/mL)		2390.000	AEA COUNT TIME			480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		2185.983	Pu 239/240 µCi/L			5.6082E-02
0	PU-238 TRACER VALUE (dpm/mL)		0.000				

Sample Prep	
N/A	
Sample #	Decay Time = Date Counted - Tracer Preparation Date
S96T002142	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)}]
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)
WB27806	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
SEH	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
JFR	
Analyst	
AKL	
Date Complete	

05/13/96	Pu 239/240 µCi/mL		5.61E-05	DETECTION LEVELS in µCi/mL
Analysis Date	Relative Counting Error	=	6.3%	
05/08/96				Pu 239/240
Analysis Time				3.24E-05
03:30 PM	Pu 238 µCimL		3.67E-05	Pu 238
Sample Point	Relative Counting Error	=	7.8%	3.24E-05
U-107	Pu 236 Tracer Recovery	=	104.5%	

Analyst:		AKL	Date:	13-May-96
Signature of Chemist:	Joshua Reikyea	JFR	Date:	15 May 96

SAMPLE.WB1 REV 1.0 943128ML

1333

D. H. Milicia
5-9-96

Westinghouse Hanford Co.

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

Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
WL8424-STD
File ID: 17a1734.CNF

Counted on: 5/ 9/96 @11: 5
Detector: AEA17
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1287.9	1287.9	359.463	359.463	8.000	2.595	4.000	1.012
2?	11.3	11.3	309.005	307.771	24.000	1.901	12.000	11.870
3?	11.6	11.6	299.591	298.785	32.000	5.387	16.000	16.007
4	20.6	20.6	285.115	285.024	12.000	3.757	6.000	1.474
5	534.3	534.3	226.972	226.972	10.000	3.255	5.000	1.770

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.708	5.755	5.755	0.000	0.01	36.58	1.5	232.9	0.105E-03
2		????		5.517			0.16	37.1		
3		????		5.475			0.27	26.1		
4	Th228	0.012	5.400	5.412	-.012	0.02	0.63	12.5	5.5	0.248E-05
5	Pu239	0.255	5.147	5.145	0.002	0.01	13.17	2.5	82.2	0.370E-04
	Pu240		5.144	5.145	-.001				82.2	0.370E-04
		---					---			
Totals:		0.975	<--valid peaks only-->				50.38			

DETECTOR CALIBRATION

Energy(MEV) = 4.101 + (0.0046)*Channel
Energy range (MeV): 4.101 TO 6.456
Efficiency = 0.1603 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	24800.0	100.000
Smoothed	24799.9	100.000
Composite fit	24387.6	98.337
Residuals	412.4	1.663

Analyzed by: _____
ALJ

Spectrum 17a1734.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 7311.0


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Raw Data Dump for AEA Spectrum: 17a1734.CNF

1	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.
11	0.	0.	3.	2.	0.	0.	0.	0.	1.	1.
21	1.	0.	0.	2.	1.	1.	0.	0.	0.	0.
31	0.	4.	2.	0.	1.	0.	2.	1.	0.	0.
41	0.	0.	0.	3.	0.	1.	2.	0.	0.	0.
51	0.	0.	0.	0.	4.	1.	0.	0.	2.	1.
61	0.	1.	1.	0.	0.	2.	1.	0.	1.	1.
71	1.	0.	1.	1.	0.	0.	3.	0.	1.	0.
81	0.	1.	1.	0.	1.	0.	0.	1.	0.	2.
91	0.	1.	1.	0.	1.	3.	1.	0.	2.	3.
101	1.	0.	2.	1.	0.	1.	1.	1.	0.	0.
111	1.	2.	1.	2.	2.	0.	0.	2.	1.	0.
121	0.	1.	0.	1.	3.	0.	2.	2.	0.	3.
131	0.	0.	2.	0.	2.	2.	3.	1.	1.	2.
141	2.	3.	5.	1.	2.	3.	1.	3.	0.	4.
151	0.	2.	2.	0.	1.	4.	2.	2.	1.	2.
161	3.	5.	3.	5.	5.	0.	5.	2.	0.	7.
171	8.	4.	4.	4.	4.	4.	1.	7.	5.	11.
181	4.	4.	14.	7.	6.	5.	4.	8.	11.	9.
191	15.	11.	16.	19.	14.	18.	12.	22.	21.	12.
201	24.	26.	27.	33.	31.	39.	48.	34.	62.	61.
211	65.	77.	94.	108.	113.	146.	165.	170.	188.	216.
221	220.	277.	331.	429.	535.	556.	643.	649.	482.	301.
231	152.	62.	26.	7.	3.	0.	1.	0.	0.	2.
241	3.	2.	4.	0.	0.	2.	2.	0.	6.	1.
251	2.	7.	0.	5.	4.	3.	0.	2.	6.	5.
261	0.	2.	4.	4.	7.	7.	7.	10.	13.	5.
271	4.	2.	8.	3.	8.	6.	5.	6.	9.	14.
281	13.	6.	24.	20.	27.	27.	18.	12.	11.	3.
291	8.	11.	11.	9.	9.	5.	17.	13.	16.	12.
301	17.	10.	9.	18.	7.	8.	11.	10.	19.	12.
311	11.	10.	9.	10.	15.	15.	21.	17.	16.	26.
321	24.	27.	21.	38.	24.	51.	39.	45.	36.	43.
331	56.	57.	63.	61.	92.	91.	108.	118.	137.	121.
341	149.	195.	205.	227.	302.	364.	450.	523.	663.	773.
351	742.	628.	537.	564.	637.	754.	1032.	1302.	1441.	1643.
361	1477.	852.	332.	68.	8.	1.	0.	2.	0.	0.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
391	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
401	0.	0.	0.	1.	0.	1.	2.	0.	1.	0.
411	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
421	0.	1.	0.	0.	0.	1.	0.	1.	2.	0.
431	2.	1.	0.	0.	1.	0.	1.	1.	0.	0.
441	0.	0.	0.	1.	0.	2.	0.	0.	0.	2.
451	0.	2.	0.	0.	0.	0.	0.	1.	2.	1.
461	3.	3.	1.	0.	0.	2.	1.	0.	0.	0.
471	4.	4.	2.	5.	5.	2.	3.	3.	0.	0.
481	0.	0.	0.	0.	0.	0.	1.	1.	1.	0.
491	0.	0.	1.	0.	0.	0.	0.	1.	0.	0.
511	0.	0.								

D. H. Milicia
5-9-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
WL8424-BLK
File ID: 18a1812.CNF

Counted on: 5/ 9/96 @11: 6
Detector: AEA18
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1294.7	1294.7	362.314	362.314	10.000	2.623	5.000	1.075
2	17.4	17.4	287.529	287.505	14.000	7.792	7.000	3.149

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.973	5.755	5.757	-.0020	.01	35.69	1.5	1222.1	0.550E-03
2	Th228	0.017	5.400	5.413	-.0130	.04	0.62	11.7	29.3	0.132E-04
Totals:		0.990	<--valid peaks only-->				36.31			

DETECTOR CALIBRATION
Energy(MEV) = 4.090 + (0.0046)*Channel
Energy range (MeV): 4.090 TO 6.446
Efficiency = 0.0298 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	17600.0	100.000
Smoothed	17599.8	99.999
Composite fit	17430.6	99.037
Residuals	169.4	0.963

Analyzed by: _____
ALJ

Spectrum 18a1812.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 6960.4


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Raw Data Dump for AEA Spectrum: 18a1812.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
11	0.	0.	1.	1.	0.	0.	0.	1.	0.	1.
21	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	1.	2.	0.	0.
41	0.	1.	0.	0.	1.	0.	0.	0.	0.	0.
51	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	2.	0.	0.	1.	0.	0.	1.
101	0.	1.	2.	1.	1.	0.	0.	1.	0.	0.
111	1.	0.	1.	1.	0.	0.	0.	1.	0.	0.
121	0.	0.	0.	0.	1.	0.	1.	0.	1.	1.
131	0.	1.	0.	0.	0.	0.	0.	1.	0.	0.
141	1.	1.	0.	0.	0.	0.	1.	0.	0.	1.
151	0.	0.	0.	0.	1.	0.	1.	1.	0.	1.
161	0.	1.	0.	0.	0.	0.	1.	1.	2.	1.
171	0.	2.	0.	0.	0.	0.	0.	2.	0.	0.
181	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
191	2.	0.	0.	0.	1.	0.	0.	1.	0.	0.
201	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
211	0.	1.	2.	2.	0.	1.	0.	1.	1.	0.
221	1.	2.	2.	1.	1.	1.	0.	0.	0.	0.
231	1.	0.	0.	2.	3.	1.	1.	1.	1.	0.
241	2.	0.	0.	1.	2.	2.	0.	1.	4.	3.
251	1.	2.	0.	1.	2.	0.	0.	7.	2.	2.
261	1.	2.	2.	2.	2.	5.	2.	4.	7.	4.
271	11.	9.	7.	5.	5.	7.	1.	4.	8.	0.
281	6.	8.	1.	8.	17.	18.	26.	17.	22.	9.
291	12.	6.	4.	6.	8.	8.	5.	6.	2.	11.
301	11.	8.	11.	7.	15.	6.	12.	9.	10.	6.
311	11.	12.	3.	8.	10.	14.	5.	13.	18.	18.
321	15.	17.	16.	24.	26.	16.	22.	39.	25.	28.
331	41.	39.	40.	48.	46.	57.	61.	78.	81.	71.
341	104.	98.	137.	125.	181.	191.	250.	269.	333.	437.
351	563.	653.	769.	714.	626.	549.	581.	672.	799.	1065.
361	1293.	1588.	1669.	1349.	817.	251.	56.	6.	0.	0.
371	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
411	0.	0.	0.	1.	0.	0.	2.	0.	0.	0.
421	0.	2.	0.	1.	1.	0.	0.	0.	0.	0.
431	1.	0.	0.	0.	0.	2.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
451	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	1.	1.	0.	1.	0.	2.	0.
471	0.	4.	5.	1.	2.	4.	3.	3.	3.	2.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

D. H. Gillespie
5-9-96

Westinghouse Hanford Co.

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

Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T002140-SAM
File ID: 19a1963.CNF

Counted on: 5/ 9/96 @11: 7
Detector: AEA19
Geometry number: 1
Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1250.3	1250.3	361.353	361.353	8.000	2.511	4.000	0.994
2	21.6	21.6	303.547	303.257	12.000	8.580	6.000	1.579
3	58.8	58.8	229.768	229.761	10.000	3.489	5.000	1.815

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	0.920	5.755	5.743	0.012	0.01	34.97	1.5	2745.1	0.124E-02
2	Am241	0.032	5.479	5.476	0.003	0.04	1.24	9.0	101.1	0.456E-04
	Pu238		5.487	5.476	0.011				132.0	0.595E-04
3	Pu239	0.040	5.147	5.138	0.009	0.02	1.51	7.4	115.9	0.522E-04
	Pu240		5.144	5.138	0.006				115.9	0.522E-04
		---					---			
Totals:		0.992	<--valid peaks only-->				37.71			

DETECTOR CALIBRATION

Energy(MEV) = 4.081 + (0.0046)*Channel
Energy range (MeV): 4.081 TO 6.436
Efficiency = 0.0130 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	18257.0	100.000
Smoothed	18258.4	100.008
Composite fit	18106.2	99.174
Residuals	150.8	0.826

Analyzed by: _____
ALJ

Spectrum 19a1963.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 5820.4


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Raw Data Dump for AEA Spectrum: 19a1963.CNF

1	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.
11	1.	0.	0.	0.	0.	0.	1.	0.	0.	1.
21	0.	0.	0.	0.	1.	1.	2.	0.	0.	2.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	1.	0.	0.	0.	0.	0.	0.	1.	1.	0.
51	0.	1.	1.	0.	0.	0.	1.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	1.	2.	1.	0.
71	0.	0.	1.	0.	1.	0.	1.	0.	0.	1.
81	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
101	1.	0.	0.	0.	0.	1.	0.	2.	0.	0.
111	1.	0.	0.	0.	1.	1.	1.	0.	1.	1.
121	1.	0.	0.	1.	1.	1.	2.	0.	0.	3.
131	0.	1.	0.	0.	2.	0.	1.	2.	0.	1.
141	2.	1.	0.	1.	0.	1.	0.	3.	2.	0.
151	1.	1.	0.	0.	0.	1.	1.	1.	1.	0.
161	1.	0.	0.	1.	0.	1.	1.	3.	0.	1.
171	0.	1.	1.	1.	0.	0.	2.	1.	0.	1.
181	0.	3.	3.	0.	4.	3.	0.	1.	1.	0.
191	2.	2.	2.	1.	1.	5.	1.	1.	2.	9.
201	4.	1.	5.	4.	3.	5.	5.	4.	5.	5.
211	3.	7.	9.	13.	10.	13.	15.	16.	16.	16.
221	19.	24.	25.	23.	30.	47.	49.	55.	71.	71.
231	67.	53.	28.	18.	11.	4.	0.	1.	2.	1.
241	0.	0.	1.	0.	1.	0.	0.	1.	0.	1.
251	0.	3.	1.	2.	1.	3.	1.	4.	2.	3.
261	2.	3.	4.	5.	3.	2.	1.	4.	3.	12.
271	6.	13.	8.	3.	3.	3.	0.	11.	6.	6.
281	9.	2.	9.	16.	10.	11.	15.	21.	13.	14.
291	7.	13.	12.	16.	11.	14.	17.	12.	20.	21.
301	20.	27.	24.	30.	21.	23.	19.	12.	12.	8.
311	8.	13.	13.	9.	14.	18.	29.	17.	22.	26.
321	30.	26.	30.	29.	32.	36.	42.	33.	46.	53.
331	55.	48.	41.	68.	67.	81.	72.	113.	81.	106.
341	124.	153.	139.	167.	211.	236.	293.	379.	444.	480.
351	658.	718.	717.	565.	498.	544.	668.	793.	966.	1224.
361	1496.	1662.	1323.	740.	253.	42.	1.	0.	0.	1.
371	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	1.	0.	0.	0.	0.	1.	1.	0.
401	0.	0.	0.	0.	0.	0.	1.	1.	0.	0.
411	1.	0.	0.	0.	1.	0.	0.	1.	0.	0.
421	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
451	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
461	0.	0.	0.	0.	1.	0.	2.	0.	1.	0.
471	1.	0.	2.	2.	3.	0.	1.	2.	1.	0.
481	2.	0.	0.	0.	0.	0.	0.	0.	1.	0.
491	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
511	0.	0.								

DH Milbrin
5-9-96

Westinghouse Hanford Co.

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

Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T002140-DUP
File ID: 20a2094.CNF

Counted on: 5/ 9/96 @11: 8
Detector: AEA20
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	1296.1	1296.1	362.505	362.505	8.000	2.657	4.000	1.027
2	25.4	25.4	303.744	303.564	12.000	5.456	6.000	0.954
3	81.6	81.6	230.154	230.147	12.000	3.511	6.000	1.653

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	0.919	5.755	5.751	0.004	0.01	37.17	1.5	1780.8	0.802E-03
2	Pu238	0.035	5.487	5.480	0.007	0.03	1.41	8.1	92.3	0.416E-04
	Am241		5.479	5.480	-.001				70.7	0.318E-04
3	Pu239	0.055	5.147	5.142	0.005	0.02	2.21	6.1	103.6	0.467E-04
	Pu240		5.144	5.142	0.002				103.6	0.467E-04
Totals:		1.009	<--valid peaks only-->				40.79			

DETECTOR CALIBRATION

Energy(MEV) = 4.083 + (0.0046)*Channel
Energy range (MeV): 4.083 TO 6.439
Efficiency = 0.0213 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	19414.0	100.000
Smoothed	19414.0	100.000
Composite fit	19582.8	100.870
Residuals	-168.8	-0.870

Analyzed by: _____
ALJ

Spectrum 20a2094.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 7159.9


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Raw Data Dump for AEA Spectrum: 20a2094.CNF

1	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
11	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.
21	0.	1.	1.	0.	0.	0.	0.	1.	1.	0.
31	0.	0.	0.	0.	0.	1.	0.	1.	1.	0.
41	2.	0.	1.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
61	1.	1.	0.	0.	1.	1.	0.	0.	0.	0.
71	1.	0.	0.	0.	0.	1.	0.	0.	0.	1.
81	4.	1.	0.	0.	2.	0.	1.	1.	0.	0.
91	0.	0.	0.	1.	0.	0.	1.	0.	0.	0.
101	0.	0.	0.	1.	1.	0.	1.	1.	0.	0.
111	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
121	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
131	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
141	1.	2.	1.	1.	1.	1.	3.	0.	1.	1.
151	1.	2.	1.	1.	0.	0.	2.	0.	0.	0.
161	1.	0.	0.	3.	0.	2.	0.	1.	2.	0.
171	0.	3.	0.	4.	2.	2.	2.	1.	2.	5.
181	1.	1.	1.	5.	1.	3.	1.	1.	2.	0.
191	1.	3.	1.	3.	5.	1.	3.	2.	6.	6.
201	2.	2.	3.	2.	7.	5.	9.	5.	9.	10.
211	7.	12.	16.	13.	7.	14.	19.	22.	21.	36.
221	35.	27.	36.	36.	58.	52.	67.	71.	83.	104.
231	93.	77.	56.	36.	14.	8.	2.	1.	1.	0.
241	0.	1.	1.	1.	0.	1.	1.	1.	0.	0.
251	1.	2.	2.	1.	2.	2.	1.	7.	4.	2.
261	2.	2.	3.	2.	3.	6.	8.	6.	4.	7.
271	5.	3.	7.	5.	8.	7.	5.	4.	4.	8.
281	6.	6.	10.	12.	10.	14.	18.	19.	29.	13.
291	13.	23.	18.	16.	11.	19.	16.	21.	20.	18.
301	15.	34.	24.	38.	26.	23.	23.	13.	11.	11.
311	8.	11.	9.	16.	8.	10.	16.	13.	13.	14.
321	14.	15.	26.	17.	35.	34.	27.	37.	28.	45.
331	52.	35.	54.	58.	55.	72.	87.	76.	94.	95.
341	94.	105.	125.	154.	170.	193.	232.	295.	338.	432.
351	593.	641.	761.	761.	640.	603.	561.	673.	819.	943.
361	1248.	1592.	1619.	1469.	919.	379.	76.	4.	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	1.	0.	0.	0.	0.	0.	0.	1.	0.	0.
421	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
431	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
451	1.	0.	0.	0.	0.	1.	0.	1.	0.	0.
461	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
471	0.	2.	0.	1.	0.	3.	0.	2.	1.	0.
481	0.	2.	0.	0.	0.	1.	0.	0.	0.	0.
491	1.	0.	0.	0.	0.	0.	0.	0.	0.	2.
511	1.	0.								

D. H. Milbrea
5-9-96

Westinghouse Hanford Co.

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

Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T002141-SAM
File ID: 21a2198.CNF

Counted on: 5/ 9/96 @11: 8
Detector: AEA21
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	983.6	983.6	360.268	360.268	14.000	6.377	7.000	2.110
2	19.4	19.4	303.988	303.153	14.000	7.883	7.000	0.969
3	44.7	44.7	228.968	228.944	16.000	6.850	8.000	3.263

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Ra224	0.922	5.686	5.729	-.043	0.03	36.90	1.5	1339.9	0.604E-03
	Pu236		5.755	5.729	0.026				1285.2	0.579E-03
2	Am241	0.037	5.479	5.466	0.013	0.04	1.48	8.8	53.9	0.243E-04
	Pu238		5.487	5.466	0.021				70.4	0.317E-04
3	Pu239	0.036	5.147	5.125	0.022	0.03	1.44	7.9	49.0	0.221E-04
	Pu240		5.144	5.125	0.019				49.0	0.221E-04
		---					---			
Totals:		0.995	<--valid peaks only-->				39.82			

DETECTOR CALIBRATION

Energy(MEV) = 4.072 + (0.0046)*Channel
Energy range (MeV): 4.072 TO 6.427
Efficiency = 0.0293 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	19219.0	100.000
Smoothed	19218.9	100.000
Composite fit	19117.5	99.472
Residuals	101.5	0.528

Analyzed by: _____
ALJ

Spectrum 21a2198.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 6399.9


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Raw Data Dump for AEA Spectrum: 21a2198.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
21	0.	0.	0.	0.	1.	1.	1.	0.	0.	0.
31	2.	0.	0.	0.	0.	1.	0.	0.	0.	1.
41	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
61	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
71	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
91	1.	1.	1.	0.	0.	0.	0.	2.	0.	2.
101	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
111	0.	0.	0.	0.	0.	2.	0.	0.	1.	1.
121	0.	1.	1.	0.	0.	1.	0.	1.	0.	0.
131	1.	1.	0.	0.	0.	0.	1.	1.	2.	0.
141	0.	1.	2.	0.	0.	2.	2.	1.	1.	0.
151	0.	1.	0.	0.	0.	1.	1.	1.	0.	0.
161	0.	1.	0.	0.	0.	2.	0.	1.	1.	0.
171	1.	3.	1.	0.	0.	2.	2.	0.	0.	0.
181	0.	3.	2.	3.	3.	3.	0.	1.	1.	0.
191	1.	1.	1.	3.	3.	5.	2.	5.	4.	4.
201	1.	2.	7.	3.	5.	3.	6.	7.	6.	7.
211	4.	4.	6.	12.	6.	10.	10.	18.	19.	14.
221	23.	35.	30.	32.	31.	35.	51.	55.	50.	53.
231	44.	36.	34.	19.	26.	14.	6.	3.	5.	2.
241	2.	1.	2.	2.	5.	0.	1.	1.	1.	0.
251	2.	1.	0.	2.	4.	3.	3.	2.	3.	6.
261	2.	4.	4.	3.	6.	4.	1.	6.	6.	5.
271	6.	8.	11.	1.	7.	5.	9.	9.	12.	5.
281	7.	8.	14.	11.	8.	19.	17.	17.	19.	20.
291	16.	10.	19.	21.	23.	17.	26.	12.	19.	24.
301	20.	22.	33.	23.	24.	28.	19.	20.	13.	14.
311	21.	22.	18.	17.	24.	14.	33.	23.	32.	28.
321	32.	35.	33.	36.	39.	49.	40.	59.	60.	72.
331	90.	71.	69.	72.	84.	116.	106.	101.	122.	125.
341	155.	169.	195.	214.	262.	322.	312.	395.	496.	532.
351	646.	643.	683.	674.	734.	770.	867.	986.	1032.	1097.
361	1039.	1028.	854.	680.	520.	322.	201.	92.	51.	20.
371	7.	3.	3.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
391	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
401	1.	0.	1.	0.	0.	0.	0.	0.	2.	0.
411	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
421	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
431	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	1.	0.	0.	1.	2.	0.
461	0.	0.	0.	0.	2.	1.	0.	0.	1.	1.
471	2.	1.	0.	3.	0.	2.	1.	1.	0.	0.
481	1.	0.	0.	0.	0.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

D. H. Milicia
5-9-96

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T002141-DUP
File ID: 22a2292.CNF

Counted on: 5/ 9/96 @11: 9
Detector: AEA22
Geometry number: 1
Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1192.2	1192.2	360.782	360.782	10.000	2.634	5.000	0.918
2	31.2	31.2	301.299	301.059	12.000	7.735	6.000	2.675
3?	14.1	14.1	286.892	286.230	8.000	1.485	4.000	0.833
4	53.1	53.1	228.065	228.064	10.000	3.284	5.000	1.366

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	0.912	5.755	5.767	-.012	0.01	36.58	1.5	203.0	0.914E-04
	Cm243		5.779	5.767	0.012				272.5	0.123E-03
2	Pu238	0.030	5.487	5.492	-.005	0.04	1.20	9.6	9.1	0.408E-05
	Am241		5.479	5.492	-.013				6.9	0.312E-05
3		????		5.424			0.29	27.0		
4	Pu239	0.038	5.147	5.156	-.009	0.02	1.52	7.3	8.2	0.371E-05
	Pu240		5.144	5.156	-.012				8.2	0.371E-05
		---					---			
Totals:		0.980	<--valid peaks only-->				39.29			

DETECTOR CALIBRATION
Energy(MEV) = 4.107 + (0.0046)*Channel
Energy range (MeV): 4.107 TO 6.462
Efficiency = 0.1839 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	19244.0	100.000
Smoothed	19244.7	100.003
Composite fit	18997.6	98.720
Residuals	246.4	1.280

Analyzed by: _____
ALJ

Spectrum 22a2292.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 6186.4


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Raw Data Dump for AEA Spectrum: 22a2292.CNF

1	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
11	1.	0.	0.	1.	1.	0.	0.	0.	0.	1.
21	0.	0.	2.	1.	0.	0.	1.	0.	0.	0.
31	1.	1.	0.	0.	0.	0.	1.	0.	0.	1.
41	1.	1.	0.	0.	1.	0.	0.	0.	0.	1.
51	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.
61	0.	1.	0.	1.	0.	0.	0.	0.	1.	0.
71	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	1.	1.	0.	1.	0.	0.	0.	0.	0.	1.
91	0.	2.	0.	0.	1.	1.	0.	1.	0.	1.
101	1.	1.	0.	0.	1.	0.	0.	1.	0.	0.
111	0.	1.	0.	0.	1.	0.	1.	0.	0.	1.
121	1.	0.	0.	0.	1.	1.	1.	0.	1.	1.
131	3.	1.	0.	1.	1.	0.	0.	0.	0.	0.
141	0.	0.	0.	1.	0.	1.	3.	1.	2.	1.
151	1.	0.	1.	0.	0.	1.	0.	2.	1.	0.
161	3.	1.	0.	0.	0.	3.	2.	2.	0.	1.
171	1.	4.	1.	2.	1.	1.	2.	2.	1.	4.
181	3.	3.	2.	4.	2.	1.	2.	0.	3.	3.
191	1.	2.	0.	4.	1.	5.	4.	4.	3.	6.
201	6.	4.	5.	2.	6.	6.	6.	10.	5.	9.
211	7.	7.	8.	13.	15.	16.	21.	23.	22.	34.
221	27.	38.	21.	23.	36.	50.	55.	71.	55.	51.
231	35.	15.	7.	5.	0.	0.	0.	1.	2.	1.
241	3.	3.	5.	1.	3.	1.	4.	0.	5.	2.
251	2.	6.	1.	1.	5.	4.	2.	4.	3.	3.
261	4.	4.	8.	6.	5.	9.	6.	10.	10.	6.
271	7.	6.	5.	3.	5.	11.	11.	6.	10.	7.
281	10.	12.	15.	22.	23.	24.	33.	25.	20.	15.
291	9.	18.	16.	24.	25.	23.	22.	18.	35.	34.
301	43.	43.	30.	26.	28.	16.	13.	17.	10.	20.
311	21.	23.	24.	26.	18.	25.	25.	27.	30.	46.
321	34.	46.	47.	53.	52.	48.	73.	53.	51.	79.
331	76.	75.	76.	83.	85.	88.	88.	130.	159.	134.
341	156.	201.	204.	242.	291.	306.	355.	431.	521.	651.
351	687.	774.	683.	541.	589.	617.	733.	846.	1071.	1270.
361	1502.	1404.	1007.	456.	129.	9.	2.	1.	0.	1.
371	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	1.	0.	1.	1.	0.	1.	0.	2.	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	1.	0.	0.	0.	0.	0.	2.	0.	1.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.
461	0.	1.	0.	2.	0.	0.	1.	0.	1.	1.
471	2.	0.	0.	1.	1.	1.	1.	1.	1.	1.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
511	0.	0.								

D. H. Mitchia
5-9-96

Westinghouse Hanford Co.

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

Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T002142-SAM
File ID: 23a2325.CNF

Counted on: 5/ 9/96 @11:10
Detector: AEA23
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	1193.4	1193.4	361.429	361.429	8.000	2.845	4.000	1.021
2	24.1	24.1	303.762	303.442	12.000	6.938	6.000	1.177
3	72.1	72.1	229.232	229.226	12.000	3.442	6.000	1.493

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	0.914	5.755	5.759	-.0040	.01	36.36	1.5	1224.4	0.552E-03
	Cm243		5.779	5.759	0.020				1643.8	0.740E-03
2	Pu238	0.036	5.487	5.492	-.0050	.03	1.42	8.5	64.9	0.292E-04
	Am241		5.479	5.492	-.013				49.7	0.224E-04
3	Pu239	0.051	5.147	5.151	-.0040	.02	2.03	6.4	67.0	0.302E-04
	Pu240		5.144	5.151	-.007				67.0	0.302E-04
		---					---			
Totals:		1.001	<--valid peaks only-->				39.80			

DETECTOR CALIBRATION
Energy(MEV) = 4.097 + (0.0046)*Channel
Energy range (MeV): 4.097 TO 6.452
Efficiency = 0.0303 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	19088.0	100.000
Smoothed	19088.7	100.004
Composite fit	19106.7	100.098
Residuals	-18.7	-0.098

Analyzed by: _____
ALJ

Spectrum 23a2325.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 5876.5


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3
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3

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

Raw Data Dump for AEA Spectrum: 23a2325.CNF

1	0.	0.	0.	0.	1.	0.	1.	0.	0.	0.
11	0.	1.	0.	0.	0.	0.	2.	0.	0.	0.
21	0.	0.	0.	0.	1.	1.	0.	0.	1.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	1.	0.	0.	2.	0.	1.	1.	0.	0.
51	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.
61	0.	0.	1.	0.	0.	1.	1.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
91	1.	0.	0.	0.	1.	0.	0.	0.	1.	0.
101	1.	0.	0.	0.	0.	0.	0.	3.	0.	0.
111	1.	0.	0.	0.	0.	1.	0.	0.	3.	0.
121	1.	0.	0.	0.	0.	0.	0.	2.	1.	1.
131	1.	2.	1.	0.	0.	1.	0.	0.	1.	0.
141	0.	2.	1.	1.	3.	4.	2.	2.	2.	2.
151	3.	2.	1.	1.	1.	0.	0.	0.	2.	2.
161	1.	1.	2.	2.	2.	0.	2.	3.	2.	0.
171	0.	1.	0.	1.	1.	1.	0.	3.	3.	2.
181	0.	1.	2.	2.	2.	2.	2.	2.	1.	2.
191	2.	0.	4.	0.	3.	2.	5.	3.	5.	2.
201	5.	7.	3.	5.	2.	7.	10.	6.	10.	11.
211	9.	13.	14.	12.	19.	8.	29.	19.	28.	29.
221	28.	34.	40.	57.	37.	62.	57.	90.	83.	83.
231	84.	46.	27.	16.	2.	2.	2.	0.	0.	0.
241	1.	0.	0.	0.	0.	1.	1.	2.	1.	0.
251	1.	2.	3.	1.	3.	2.	0.	2.	0.	1.
261	1.	2.	4.	3.	3.	4.	6.	6.	4.	4.
271	4.	4.	5.	4.	6.	6.	1.	7.	5.	10.
281	12.	12.	8.	9.	19.	14.	18.	12.	14.	18.
291	11.	13.	15.	18.	20.	19.	24.	10.	29.	28.
301	20.	32.	31.	28.	33.	30.	19.	10.	12.	13.
311	17.	11.	19.	22.	14.	24.	21.	14.	27.	26.
321	23.	22.	28.	34.	42.	47.	48.	51.	55.	59.
331	65.	60.	62.	79.	84.	85.	78.	103.	134.	119.
341	155.	175.	164.	205.	245.	236.	296.	356.	431.	534.
351	653.	708.	723.	653.	575.	531.	623.	774.	997.	1201.
361	1416.	1457.	1346.	857.	358.	89.	18.	6.	1.	1.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
381	0.	3.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	1.	0.	0.	1.	0.	0.	0.	0.	2.
431	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
451	0.	1.	1.	0.	0.	0.	0.	2.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	1.	1.	1.
471	1.	0.	1.	1.	4.	0.	0.	0.	1.	0.
481	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
511	1.	0.								

D.H. Milliken
5-9-96

Westinghouse Hanford Co.

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

Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
S96T002142-DUP
File ID: 24a2427.CNF

Counted on: 5/ 9/96 @11:11
Detector: AEA24
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	1227.1	1227.1	361.769	361.769	10.000	2.802	5.000	1.034
2	29.1	29.1	303.778	303.534	10.000	4.279	5.000	0.921
3	71.8	71.8	229.923	229.916	12.000	3.868	6.000	1.643

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	0.913	5.755	5.750	0.005	0.01	36.63	1.5	1625.3	0.732E-03
2	Pu238	0.034	5.487	5.483	0.004	0.02	1.35	8.4	81.5	0.367E-04
	Am241		5.479	5.483	-.004				62.4	0.281E-04
3	Pu239	0.052	5.147	5.144	0.003	0.02	2.10	6.2	91.3	0.411E-04
	Pu240		5.144	5.144	0.000				91.3	0.411E-04
Totals:		0.999	<--valid peaks only-->				40.08			

DETECTOR CALIBRATION

Energy(MEV) = 4.086 + (0.0046)*Channel
Energy range (MeV): 4.086 TO 6.442
Efficiency = 0.0230 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	19257.0	100.000
Smoothed	19256.5	99.998
Composite fit	19239.5	99.909
Residuals	17.5	0.091

Analyzed by: _____
ALJ

Spectrum 24a2427.CNF

1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 6197.9

WHC-SD-WM-DP-184, REV. 1

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

Raw Data Dump for AEA Spectrum: 24a2427.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	2.	0.	1.	0.	0.
31	1.	0.	1.	0.	0.	1.	0.	1.	0.	3.
41	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
51	0.	0.	0.	0.	0.	2.	1.	0.	0.	0.
61	0.	0.	1.	0.	0.	0.	0.	0.	1.	0.
71	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
81	0.	0.	1.	1.	0.	1.	0.	1.	0.	0.
91	0.	1.	0.	1.	4.	1.	1.	2.	0.	0.
101	2.	1.	0.	0.	0.	0.	1.	1.	0.	0.
111	1.	0.	0.	1.	0.	1.	0.	0.	0.	0.
121	0.	0.	0.	0.	0.	0.	0.	2.	0.	1.
131	0.	1.	1.	1.	0.	0.	1.	0.	0.	0.
141	2.	0.	0.	1.	2.	1.	0.	1.	0.	1.
151	0.	1.	0.	0.	1.	2.	1.	1.	2.	1.
161	1.	0.	1.	2.	0.	0.	0.	2.	0.	0.
171	1.	1.	3.	1.	1.	1.	1.	1.	0.	2.
181	1.	4.	3.	2.	1.	1.	0.	2.	1.	2.
191	7.	2.	3.	3.	3.	3.	5.	0.	1.	6.
201	3.	3.	6.	6.	5.	5.	3.	6.	11.	8.
211	7.	7.	10.	13.	18.	16.	18.	23.	24.	19.
221	34.	32.	40.	50.	47.	56.	70.	60.	86.	81.
231	81.	71.	48.	19.	19.	3.	2.	2.	0.	0.
241	0.	0.	0.	1.	2.	1.	1.	0.	1.	1.
251	1.	3.	5.	1.	2.	3.	1.	1.	2.	2.
261	1.	4.	0.	2.	2.	8.	5.	5.	3.	6.
271	6.	7.	4.	2.	7.	5.	6.	5.	3.	11.
281	9.	14.	0.	14.	10.	23.	14.	15.	16.	16.
291	16.	11.	10.	15.	21.	21.	23.	30.	25.	27.
301	27.	29.	33.	40.	33.	32.	18.	15.	11.	11.
311	9.	7.	11.	17.	22.	10.	24.	17.	13.	24.
321	28.	27.	18.	23.	32.	39.	30.	41.	48.	51.
331	45.	46.	64.	55.	70.	80.	79.	81.	121.	109.
341	124.	126.	157.	185.	190.	249.	270.	314.	427.	505.
351	644.	721.	764.	676.	602.	610.	678.	754.	989.	1116.
361	1325.	1485.	1467.	1056.	517.	143.	31.	4.	0.	0.
371	1.	0.	0.	0.	0.	0.	0.	0.	0.	1.
381	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	1.	0.	0.	0.	0.	1.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	1.	0.	0.	0.	1.	1.	0.	0.	0.
431	0.	0.	0.	1.	1.	3.	0.	0.	0.	0.
441	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	1.	0.	2.	0.
461	1.	0.	0.	0.	0.	0.	1.	1.	0.	0.
471	1.	2.	0.	1.	2.	2.	1.	1.	2.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
491	1.	0.	0.	1.	0.	1.	0.	0.	0.	0.
511	1.	0.								

P.O. Box 1970 Richland, WA 99352 PART II

WHC-SD-WM-DP-184, REV. 0

ANALYTICAL SERVICES

45-DAY SAFETY SCREENING RESULTS FOR TANK 241-U-107, PUSH MODE CORES 129, 134 AND 135

Project Coordinator: JAIDUK JO

Prepared for the U.S. Department of Energy
Office of Environmental Restoration
and Waste Management

by

Westinghouse Hanford Company
Box 1970
Richland, Washington

2-1

WHC-SD-WM-DP-184, REV. 1

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WHC-SD-WM-DP-184, REV. 0

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