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

DOCUMENT NUMBER: SD-WM-DP-182

SECTION 7 **OF** 10

TITLE: Final Results for Tank 241-U-105 Push Mode Cores 131, 133 and 136

DATE: 7/26/96

ORIGINATOR: Fritts, K.R.

CO: WHC

RECIPIENT:

CO:

REFERENCES: ECN-633312

LABCORE Completed Worklist Report for Worklist# 9593

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

Method: _____ Rev/Mod _____

Worklist Comment: U-105 TICTOC RERUN. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK			0	@TICTOC1 TIC-02	SOLID	1	6.00E-1	0.600	ug/g
1	BLNK			0	@TICTOC1 TOC-02	SOLID	1	1.01E+1	10.100	ug/g
2	STD			0	@TICTOC1 TIC-02	SOLID	6.02E+02	6.05E+2	100.498	% Recovery
2	STD			0	@TICTOC1 TOC-02	SOLID	3.00E+03	2.83E+3	94.333	% Recovery
3	SAMPLE	S96T000859		0	@TICTOC1 TIC-02	SOLID	N/A	5.59E+04	5.000	ug/g
3	SAMPLE	S96T000859		0	@TICTOC1 TOC-02	SOLID	N/A	1.30E+04	40.000	ug/g
4	DUP	S96T000859		0	@TICTOC1 TIC-02	SOLID	5.59E+4	2.25E+4	85.204	RPD
4	DUP	S96T000859		0	@TICTOC1 TOC-02	SOLID	1.30E+4	1.05E+4	21.277	RPD
5	TRIPL	S96T000859		0	@TICTOC1 TIC-02	SOLID	5.59E+4	5.58E+4	0.179	RPD
5	TRIPL	S96T000859		0	@TICTOC1 TOC-02	SOLID	1.30E+4	1.31E+4	0.766	RPD
6	SAMPLE	S96T001284		0	@TICTOC1 TIC-02	SOLID	N/A	3.45E+04	5.000	ug/g
6	SAMPLE	S96T001284		0	@TICTOC1 TOC-02	SOLID	N/A	9.02E+03	40.000	ug/g
7	DUP	S96T001284		0	@TICTOC1 TIC-02	SOLID	3.45E+4	2.87E+4	18.354	RPD
7	DUP	S96T001284		0	@TICTOC1 TOC-02	SOLID	9.02E+3	1.12E+4	21.563	RPD
8	SPK	S96T001284		0	@TICTOC1 TIC-02	SOLID	1.00E+02	7.74E+01	77.400	% Recovery
8	SPK	S96T001284		0	@TICTOC1 TOC-02	SOLID	1.00E+02	1.25E+02	125.000	% Recovery

Final page for worklist# 9593

6-10-96

Analyst Signature **Date**

Analyst Signature **Date**

Ralph Schwab 6/11/96

Reviewer Signature **Date**

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

06/04/96 11:33
A-0004-1

LABCORE Data Entry Template for Worklist# 9593

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

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

Worklist Comment: U-105 TICTOC RERUN. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	SOLID		
2	STD				@TICTOC1	SOLID		
3	SAMPLE	S96T000859	0		@TICTOC1	SOLID	96000092	U-105 (R)
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T000859	0		@TICTOC1	SOLID		
5	SPK	S96T000859	0		@TICTOC1	SOLID		
6	SAMPLE	S96T001284	0		@TICTOC1	SOLID	96000143	U-105 (R)
		Analytes Requested: TIC-02 , TOC-02						
7	DUP	S96T001284	0		@TICTOC1	SOLID		

Final page for worklist # 9593

RBMcCown 6/8/96
Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

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

WORKBOOK PAGE: BLANK1

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

			TIC	TOC
Sample ID	Sample Size in g	(SS)	0.0000	0.0000
BLNK	Dilution Factor	(DF)	1	1
Analysis	µg of Carbon in Sample	(C1)	7.3	27.2
9593	µg of Carbon from Baseline	(C2)	7.9	37.3

Procedure
@TICTOC1

Matrix
SOLID

Batch Number
96005757

Result
0

µg of Carbon = |C1-C2|

Sample Weight
N/A

Sample Type
BLANK

Instrument Code
CARB2

Prepared By
RCJ

Chemist
RWS

Analyst
PJM

Date Completed
06/10/96

Analysis Date
06/08/96

Analysis Time
05:00 AM

Sample Point
U-105

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon	6.00E-01	1.01E+01

Data Entered By:	RCJ	Date:	06/10/96
Signature of Chemist:	RW Schroeder	Date:	6/11/96

BLANK.WB1 REV 1.0 342100ML

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
Workorder	Final Coulometer Reading in µg	(C1)	613.3	603.7
9593	µg of Carbon from Baseline	(C2)	7.9	37.3
Standard Book	Standard Book Number		22N12B	24N12A
@TICTOC1	Standard Value (µg/ml)		602	3000

Matrix
LIQUID

Batch Number
96005757

Reason
0

Sample Prep
N/A

Sample
Instrument Code
CARB2

Prepared By
RCJ

Chemist
RWS

Analyst
PJM

Date Completed
06/10/96

Analysis Date
06/08/96

Analysis Time
05:00 AM

Sample Point
U-105

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	6.05E+02	2.83E+03
Percent Standard Recovery	100.6	94.4

Data Entered By:	RCJ	Date:	06/10/96
Signature of Chemist:	RW Schroeder	Date:	6/11/96

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)	0.0910	0.0910
SAMPLE	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	5098.9	1223.4
9593	µg of Carbon from Baseline	(C2)	7.9	37.3
Test Code				
@TICTOC1				

Matrix: SOLID

Batch Number: 96005757

Dilution Factor: 0

Sample Prep: N/A

Sample: S96T000859

Instrument Code: CARB2

Prepared By: RCJ

Chemist: RWS

Analyst: PJM

Date Completed: 06/10/96

Analysis Date: 06/08/96

Analysis Time: 05:00 AM

Sample Point: U-105

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
ug of Carbon/g	5.59E+04	1.30E+04

Data Entered By:	RCJ	Date:	06/10/96
Signature of Chemist:	Ray Schroeder	Date:	6/11/96

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)	0.0153	0.0153
DUP	Dilution Factor	(DF)	1	1
Worksheet	µg of Carbon in Sample	(C1)	352.2	198.5
9593	µg of Carbon from Baseline	(C2)	7.9	37.3
Test Code	Known µg of C from Original Sample		5.59E+4	1.30E+4
@TICTOC1				

Matrix: SOLID

Batch Number: 96005757

Reqtn: 0

Sample Prep: N/A

Sample: S96T000859

Instrument Code: CARB2

Prepared By: RCJ

Chemist: RWS

Analyst: PJM

Date Complete: 06/10/96

Analysis Date: 06/08/96

Analysis Time: 05:00 AM

Sample Point: U-105

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
Method Detection Limit in ug/g	5	40
µg of Carbon/g	2.25E+04	1.05E+04
RPD (of Sam and Dup Results)	85.2%	~~20.9%~~ 21.28

Data Entered By:	RCJ	Date:	06/10/96
Signature of Chemist:	RW Schroeder	Date:	6/11/96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: TRIPL5

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

			TIC	TOC
Type	Sample Size in g	(SS)	0.0547	0.0547
TRIPL	Dilution Factor	(DF)	1	1
Worksheet	µg of Carbon in Sample	(C1)	3058.9	756.2
9593	µg of Carbon from Baseline	(C2)	7.9	37.3
Sample Id	Known µg of C from Original Sample		5.59E+4	1.30E+4
@TICTOC1	Duplicate Result		2.25E+4	1.05E+4

Matrix: SOLID

Batch Number: 96005757

Rerun: 0

Sample Prep: N/A

Sample: S96T000859

Instrument Code: CARB2

Prepared By: RCJ

Chemist: RWS

Analyst: PJM

Date Completed: 06/10/96

Analysis Date: 06/08/96

Analysis Time: 05:00 AM

Sample Comp: U-105

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	5.58E+04	1.31E+04
RSD (of Sam, Dup, and Tripl Results)	0.4304	0.1217

Data Entered By:	RCJ	Date:	06/10/96
Signature of Chemist:	Rui Schwech	Date:	6/11/96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM6

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

			TIC	TOC
Type	Sample Size in g	(SS)	0.0589	0.0589
SAMPLE	Dilution Factor	(DF)	1	1
Work Order	µg of Carbon in Sample	(C1)	2040.3	568.4
9593	µg of Carbon from Baseline	(C2)	7.9	37.3
Test Code				
@TICTOC1				

Matrix: SOLID

Batch Number: 96005757

Rerun: 0

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

Sample Prep: N/A

Sample Number: S96T001284

Instrument Code: CARB2

Prepared By: RCJ

Chemist: RWS

Analyst: PJM

Date Completed: 06/10/96

Analysis Date: 06/08/96

Analysis Time: 05:00 AM

Sample Point: U-105

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	3.45E+04	9.02E+03

Data Entered By:	RCJ	Date:	06/10/96
Signature of Chemist:	RW Schroeder	Date:	6/11/96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP7

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

			TIC	TOC
Sample Type	Sample Size in g	(SS)	0.0840	0.0840
DUP	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	2422.4	980.4
9593	µg of Carbon from Baseline	(C2)	7.9	37.3
Test Code	Known µg of C from Original Sample		3.45E+4	9.02E+3
@TICTOC1				

Matrix: SOLID

Batch Number: 96005757

Rerun: 0

Sample Prep: N/A

Sample ID: S96T001284

Instrument Code: CARB2

Prepared By: RCJ

Chemist: RWS

Analyst: PJM

Date Completed: 06/10/96

Analysis Date: 06/08/96

Analysis Time: 05:00 AM

Sample Point: U-105

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
Method Detection Limit in ug/g	5	40
µg of Carbon/g	2.87E+04	1.12E+04
RPD (of Sam and Dup Results)	~~18.2%~~ 18.4 RWS 6/11/96	~~21.8%~~ 21.6 RWS 6/11/96

Data Entered By:	RCJ	Date:	06/10/96
Signature of Chemist:	Ruw Schroeder	Date:	6/11/96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SPIKE8

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

Type	Sample Vial Data		TIC	TOC
SPK	Sample Size in g	(SS)	0.0589	0.0589
Work List	Final Coulometer Reading in µg	(C1)	2040.3	568.4
9593	Spiked Vial Data			
Test Code	Sample Size in g	(SPK SS)	0.0413	0.0413
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C3)	1340.9	869.8
SOLID	Spike Book Number		22N12B	24N12A
Batch Number	Spike Standard Value in µg/ml		602	3000
96005757	Spike Concentration in µg	(SPK CONC)	301	300
Rerun				
0				
Sample Prep				
N/A				
Sample				
S96T001284				
Instrument Code				
CARB2				
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
PJM				
Date Completed				
06/10/96				
Analysis Date				
06/08/96				
Analysis Time				
05:00 AM				
Sample Point				
U-105				

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	4.66E+02	3.74E+03
Percent Spike Recovery	77.4	124.5

RW Schroeder 6/11/96

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

Sample: BASELINE Date: 06/07/96 Time: 23:07:07

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

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	0.70	42.86
3	1.50	1.20	41.67
4	2.00	1.40	14.29
5	2.50	1.80	22.22
6	3.01	2.10	14.29
7	3.51	2.50	16.00
8	4.01	2.80	10.71
9	4.50	3.30	15.15
10	5.00	3.60	8.33
11	5.50	3.90	7.69
12	6.00	4.40	11.36
13	6.50	4.70	6.38
14	7.00	5.10	7.84
15	7.50	5.50	7.27
16	8.00	5.80	5.17
17	8.50	6.10	4.92
18	9.00	6.50	6.15
19	9.50	6.80	4.41
20	10.00	7.30	6.85
21	10.50	7.50	2.67
22	11.00	7.90	5.06

BLANK VALUE = 7.9 micrograms carbon
BLANK FACTOR = 7.9 / 11.00073 = +7.2E-01 ug/min Carbon

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-182, REV. 1

Sample: 22N12B STD Date: 06/07/96 Time: 23:35:01

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .72 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	3.00	0.00
2	1.01	34.20	91.23
3	1.51	189.40	81.94
4	2.00	359.80	47.36
5	2.50	471.50	23.69
6	3.00	539.70	12.64
7	3.50	578.00	6.63
8	4.00	595.60	2.95
9	4.50	603.10	1.24
10	5.00	606.30	0.53
11	5.50	608.00	0.28
12	6.00	608.70	0.12
13	6.50	609.30	0.10
14	7.00	610.00	0.11
15	7.50	610.40	0.07
16	8.00	610.90	0.08
17	8.50	611.30	0.07
18	9.00	611.70	0.07
19	9.50	612.10	0.07
20	10.00	612.60	0.08
21	10.50	613.00	0.07
22	11.00	613.30	0.05

USER INPUT BLANK VALUE
BLANK VALUE = 7.919209 micrograms carbon
BLANK FACTOR = 7.919209 / 10.9989 = +7.2E-01 ug/min Carbon

SAMPLE RESULTS:
(613.3 - 7.919825)(1)/(1000) = +6.054E-01 g/L Carbon
(613.3 - 7.919825)(1)/(1000)(12) = +5.045E-02 Molar Carbon

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-182, REV. 1

Sample: BLANK Date: 06/08/96 Time: 00:12:58

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .72 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	0.70	42.86
3	1.51	1.10	36.36
4	2.01	1.30	15.38
5	2.51	1.60	18.75
6	3.00	1.90	15.79
7	3.50	2.30	17.39
8	4.00	2.70	14.81
9	4.50	3.00	10.00
10	5.00	3.30	9.09
11	5.50	3.60	8.33
12	6.00	3.90	7.69
13	6.50	4.30	9.30
14	7.00	4.70	8.51
15	7.50	5.00	6.00
16	8.00	5.40	7.41
17	8.50	5.60	3.57
18	9.00	6.00	6.67
19	9.50	6.30	4.76
20	10.00	6.70	5.97
21	10.50	6.90	2.90
22	11.00	7.30	5.48

USER INPUT BLANK VALUE
BLANK VALUE = 7.919209 micrograms carbon
BLANK FACTOR = 7.919209 / 10.9989 = +7.2E-01 ug/min Carbon

SAMPLE RESULTS:
(7.3 - 7.92108)(1)/(1) = < 5.00 E-3 g/L Carbon
(7.3 - 7.92108)(1)/(1)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-182, REV. 1

Sample: S96T000859 Date: 06/08/96 Time: 01:59:29

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .72 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.90	0.00
2	1.01	235.80	99.62
3	1.50	980.30	75.95
4	2.00	1726.70	43.23
5	2.50	2473.20	30.18
6	3.00	3219.80	23.19
7	3.50	3967.20	18.84
8	4.00	4713.60	15.84
9	4.50	5052.40	6.71
10	5.00	5066.90	0.29
11	5.50	5074.00	0.14
12	6.00	5080.10	0.12
13	6.50	5083.50	0.07
14	7.00	5086.70	0.06
15	7.50	5089.20	0.05
16	8.00	5091.10	0.04
17	8.50	5092.80	0.03
18	9.00	5094.30	0.03
19	9.50	5095.60	0.03
20	10.00	5096.70	0.02
21	10.50	5098.00	0.03
22	11.00	5098.90	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 7.919209 micrograms carbon
BLANK FACTOR = 7.919209 / 10.9989 = +7.2E-01 ug/min Carbon

SAMPLE RESULTS:
(5098.9 - 7.920478)(1)/(1) = +5.0910E+03 g/L Carbon
(5098.9 - 7.920478)(1)/(1)(12) = +4.2425E+02 Molar Carbon

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

.0910 g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T000859DUP Date: 06/08/96 Time: 02:34:08

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .72 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	26.50	100.00
3	1.50	115.40	77.04
4	2.00	203.90	43.40
5	2.50	266.90	23.60
6	3.00	307.30	13.15
7	3.50	326.60	5.91
8	4.00	334.40	2.33
9	4.50	338.10	1.09
10	5.00	339.80	0.50
11	5.50	341.30	0.44
12	6.00	342.30	0.29
13	6.50	343.20	0.26
14	7.00	344.10	0.26
15	7.50	345.10	0.29
16	8.00	345.80	0.20
17	8.50	346.50	0.20
18	9.00	347.40	0.26
19	9.50	348.10	0.20
20	10.00	352.20	1.16
21	10.50	352.20	0.00
22	11.00	352.20	0.00

USER INPUT BLANK VALUE
BLANK VALUE = 7.919209 micrograms carbon
BLANK FACTOR = 7.919209 / 10.9989 = +7.2E-01 ug/min Carbon

SAMPLE RESULTS:
(352.2 - 7.919868)(1)/(1) = +3.443E+02 g/L Carbon
(352.2 - 7.919868)(1)/(1)(12) = +2.869E+01 Molar Carbon

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

.0153g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HC-SD-WM-DP-182, REV. /

Sample: S96T000859TRP Date: 06/08/96 Time: 03:02:35

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .72 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	107.10	100.00
3	1.50	776.30	86.20
4	2.00	1523.40	49.04
5	2.50	2269.60	32.88
6	3.00	2839.40	20.07
7	3.50	2945.40	3.60
8	4.00	3003.30	1.93
9	4.50	3029.00	0.85
10	5.00	3038.00	0.30
11	5.50	3042.80	0.16
12	6.00	3045.70	0.10
13	6.50	3048.00	0.08
14	7.00	3050.10	0.07
15	7.50	3051.60	0.05
16	8.00	3053.00	0.05
17	8.50	3054.40	0.05
18	9.00	3055.50	0.04
19	9.50	3056.50	0.03
20	10.00	3057.30	0.03
21	10.50	3058.10	0.03
22	11.00	3058.90	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 7.919209 micrograms carbon
BLANK FACTOR = 7.919209 / 10.9989 = +7.2E-01 ug/min Carbon

SAMPLE RESULTS:
(3058.9 - 7.919154)(1)/(1) = +3.0510E+03 g/L Carbon
(3058.9 - 7.919154)(1)/(1)(12) = +2.5425E+02 Molar Carbon

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

.0547g

1620

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0 HC-SD-WM-DP-182, REV. 1

Sample: S96T001284 Date: 06/08/96 Time: 03:36:53

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .72 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	60.10	99.67
3	1.50	665.20	90.97
4	2.00	1301.60	48.89
5	2.50	1647.60	21.00
6	3.00	1823.40	9.64
7	3.51	1916.40	4.85
8	4.00	1974.60	2.95
9	4.50	2004.80	1.51
10	5.00	2017.10	0.61
11	5.50	2022.70	0.28
12	6.00	2026.50	0.19
13	6.50	2028.90	0.12
14	7.00	2030.80	0.09
15	7.50	2032.50	0.08
16	8.00	2034.00	0.07
17	8.50	2035.40	0.07
18	9.00	2036.50	0.05
19	9.50	2037.60	0.05
20	10.00	2038.50	0.04
21	10.50	2039.60	0.05
22	11.00	2040.30	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 7.919209 micrograms carbon
BLANK FACTOR = 7.919209 / 10.9989 = +7.2E-01 ug/min Carbon

SAMPLE RESULTS:
(2040.3 - 7.920484)(1)/(1) = +2.0324E+03 g/L Carbon
(2040.3 - 7.920484)(1)/(1)(12) = +1.6936E+02 Molar Carbon

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

.0589g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HC-SD-WM-DP-182, REV. /

Sample: S96T001284DUP Date: 06/08/96 Time: 04:02:53

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .72 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	53.70	100.00
3	1.50	654.90	91.80
4	2.00	1400.50	53.24
5	2.50	1964.20	28.70
6	3.00	2181.50	9.96
7	3.50	2281.70	4.39
8	4.00	2341.40	2.55
9	4.50	2373.00	1.33
10	5.00	2387.20	0.59
11	5.50	2394.40	0.30
12	6.00	2399.40	0.21
13	6.50	2403.50	0.17
14	7.00	2406.90	0.14
15	7.50	2409.50	0.11
16	8.00	2412.00	0.10
17	8.50	2414.20	0.09
18	9.00	2416.20	0.08
19	9.50	2417.90	0.07
20	10.00	2419.50	0.07
21	10.50	2421.00	0.06
22	11.00	2422.40	0.06

USER INPUT BLANK VALUE
BLANK VALUE = 7.919209 micrograms carbon
BLANK FACTOR = 7.919209 / 10.9989 = +7.2E-01 ug/min Carbon

SAMPLE RESULTS:
(2422.4 - 7.917122)(1)/(1) = +2.4145E+03 g/L Carbon
(2422.4 - 7.917122)(1)/(1)(12) = +2.0121E+02 Molar Carbon

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

.0840g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HC-SD-WM-DP-182, REV. 1

Sample: S96T001284SPK Date: 06/08/96 Time: 04:28:48

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .72 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	75.50	98.68
3	1.51	464.00	83.73
4	2.00	817.80	43.26
5	2.50	1042.10	21.52
6	3.00	1164.10	10.48
7	3.50	1237.10	5.90
8	4.00	1282.80	3.56
9	4.50	1306.50	1.81
10	5.00	1316.00	0.72
11	5.50	1320.90	0.37
12	6.00	1324.30	0.26
13	6.50	1327.00	0.20
14	7.00	1329.30	0.17
15	7.50	1331.30	0.15
16	8.00	1333.10	0.14
17	8.50	1334.70	0.12
18	9.00	1336.30	0.12
19	9.50	1337.50	0.09
20	10.00	1338.60	0.08
21	10.50	1339.80	0.09
22	11.00	1340.90	0.08

USER INPUT BLANK VALUE
BLANK VALUE = 7.919209 micrograms carbon
BLANK FACTOR = 7.919209 / 10.9989 = +7.2E-01 ug/min Carbon

SAMPLE RESULTS:
(1340.9 - 7.921077)(1)/(1) = +1.3330E+03 g/L Carbon
(1340.9 - 7.921077)(1)/(1)(12) = +1.1108E+02 Molar Carbon

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

.0413g
+.500mL 22N12B

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>> HC-SD-WM-DP-182, REV. (

Sample: BASELINE Date: 06/07/96 Time: 23:19:43

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

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.80	100.00
3	1.51	2.60	69.23
4	2.00	9.90	73.74
5	2.50	18.50	46.49
6	3.00	24.20	23.55
7	3.50	27.10	10.70
8	4.00	28.80	5.90
9	4.50	29.90	3.68
10	5.00	30.80	2.92
11	5.50	31.50	2.22
12	6.00	32.30	2.48
13	6.50	32.80	1.52
14	7.00	33.50	2.09
15	7.50	33.90	1.18
16	8.00	34.50	1.74
17	8.50	34.90	1.15
18	9.00	35.60	1.97
19	9.50	35.90	0.84
20	10.00	36.50	1.64
21	10.50	37.10	1.62
22	11.00	37.30	0.54

BLANK VALUE = 37.3 micrograms carbon
BLANK FACTOR = 37.3 / 10.9989 = +3.39E+00 ug/min Carbon

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

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HC-SD-WM-DP-182, REV. 1

Sample: 24N12A STD Date: 06/07/96 Time: 23:48:30

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.39 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	1.70	100.00
3	1.51	30.10	94.35
4	2.00	140.80	78.62
5	2.50	318.40	55.78
6	3.00	462.70	31.19
7	3.50	536.60	13.77
8	4.00	573.90	6.50
9	4.50	588.20	2.43
10	5.00	593.60	0.91
11	5.50	596.10	0.42
12	6.00	597.50	0.23
13	6.50	598.40	0.15
14	7.00	599.10	0.12
15	7.50	600.00	0.15
16	8.00	600.50	0.08
17	8.50	601.10	0.10
18	9.00	601.80	0.12
19	9.50	602.20	0.07
20	10.00	602.80	0.10
21	10.50	603.20	0.07
22	11.00	603.70	0.08

USER INPUT BLANK VALUE
BLANK VALUE = 37.28628 micrograms carbon
BLANK FACTOR = 37.28628 / 10.9989 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(603.7 - 37.28917)(1)/(200) = +2.832E+00 g/L Carbon
(603.7 - 37.28917)(1)/(200)(12) = +2.360E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJMcCown 6/08/96
PJ MCCOWN 00000

.200 mL

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-182, REV. 1

Sample: BLANK Date: 06/08/96 Time: 00:30:24

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.39 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.00	0.70	100.00
3	1.50	3.20	78.13
4	2.00	8.50	62.35
5	2.50	13.70	37.96
6	3.00	17.50	21.71
7	3.50	19.50	10.26
8	4.00	20.60	5.34
9	4.50	21.50	4.19
10	5.00	22.10	2.71
11	5.50	22.60	2.21
12	6.00	23.10	2.16
13	6.50	23.60	2.12
14	7.00	24.00	1.67
15	7.50	24.50	2.04
16	8.00	25.00	2.00
17	8.50	25.40	1.57
18	9.00	25.80	1.55
19	9.50	26.30	1.90
20	10.00	26.70	1.50
21	10.50	26.80	0.37
22	11.00	27.20	1.47

USER INPUT BLANK VALUE
BLANK VALUE = 37.28628 micrograms carbon
BLANK FACTOR = 37.28628 / 10.9989 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(27.2 - 37.29226)(1)/(1) = < 5.00 E-3 g/L Carbon
(27.2 - 37.29226)(1)/(1)(12) = < 4.17 E-4 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HC-SD-WM-DP-182, REV. 1

Sample: S96T000859 Date: 06/08/96 Time: 02:12:36

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.39 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.90	0.00
2	1.01	39.10	97.70
3	1.51	285.20	86.29
4	2.00	593.20	51.92
5	2.50	860.30	31.05
6	3.00	1016.20	15.34
7	3.50	1100.90	7.69
8	4.00	1151.20	4.37
9	4.50	1176.80	2.18
10	5.00	1189.00	1.03
11	5.50	1196.90	0.66
12	6.00	1202.30	0.45
13	6.50	1206.30	0.33
14	7.00	1209.80	0.29
15	7.50	1211.80	0.17
16	8.00	1213.70	0.16
17	8.50	1216.10	0.20
18	9.00	1217.50	0.11
19	9.50	1219.30	0.15
20	10.00	1220.80	0.12
21	10.50	1222.10	0.11
22	11.00	1223.40	0.11

USER INPUT BLANK VALUE
BLANK VALUE = 37.28628 micrograms carbon
BLANK FACTOR = 37.28628 / 10.9989 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(1223.4 - 37.28605)(1)/(1) = +1.1861E+03 g/L Carbon
(1223.4 - 37.28605)(1)/(1)(12) = +9.8843E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

.0910g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T000859DUP Date: 06/08/96 Time: 02:47:24

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.39 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	22.50	97.33
3	1.51	66.10	65.96
4	2.00	112.20	41.09
5	2.50	146.80	23.57
6	3.00	166.10	11.62
7	3.50	175.10	5.14
8	4.00	179.70	2.56
9	4.50	182.30	1.43
10	5.00	184.70	1.30
11	5.50	186.80	1.12
12	6.00	188.50	0.90
13	6.50	190.20	0.89
14	7.00	191.40	0.63
15	7.50	192.60	0.62
16	8.00	193.80	0.62
17	8.50	194.50	0.36
18	9.00	195.50	0.51
19	9.50	196.20	0.36
20	10.00	197.10	0.46
21	10.50	197.80	0.35
22	11.00	198.50	0.35

USER INPUT BLANK VALUE
BLANK VALUE = 37.28628 micrograms carbon
BLANK FACTOR = 37.28628 / 10.9989 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(198.5 - 37.29228)(1)/(1) = +1.612E+02 g/L Carbon
(198.5 - 37.29228)(1)/(1)(12) = +1.343E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

.0153g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T000859TRP Date: 06/08/96 Time: 03:20:33

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.39 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	25.60	98.83
3	1.51	174.00	85.29
4	2.01	368.80	52.82
5	2.51	521.90	29.34
6	3.01	616.50	15.34
7	3.51	671.60	8.20
8	4.01	688.50	2.45
9	4.50	692.10	0.52
10	5.00	700.50	1.20
11	5.50	709.80	1.31
12	6.00	718.80	1.25
13	6.50	734.90	2.19
14	7.00	741.10	0.84
15	7.50	744.90	0.51
16	8.00	747.60	0.36
17	8.50	749.40	0.24
18	9.00	751.30	0.25
19	9.50	752.70	0.19
20	10.00	754.00	0.17
21	10.50	755.20	0.16
22	11.00	756.20	0.13

USER INPUT BLANK VALUE
BLANK VALUE = 37.28628 micrograms carbon
BLANK FACTOR = 37.28628 / 10.9989 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(756.2 - 37.29843)(1)/(1) = +7.189E+02 g/L Carbon
(756.2 - 37.29843)(1)/(1)(12) = +5.991E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

.0547g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001284 Date: 06/08/96 Time: 03:50:37

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.39 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	15.20	96.71
3	1.50	90.80	83.26
4	2.00	234.10	61.21
5	2.50	373.70	37.36
6	3.00	456.90	18.21
7	3.50	506.20	9.74
8	4.00	531.30	4.72
9	4.50	541.30	1.85
10	5.00	546.70	0.99
11	5.50	550.50	0.69
12	6.00	553.80	0.60
13	6.50	556.40	0.47
14	7.00	558.30	0.34
15	7.50	560.10	0.32
16	8.00	561.70	0.28
17	8.50	562.90	0.21
18	9.00	564.40	0.27
19	9.50	565.50	0.19
20	10.00	566.60	0.19
21	10.50	567.40	0.14
22	11.00	568.40	0.18

USER INPUT BLANK VALUE
BLANK VALUE = 37.28628 micrograms carbon
BLANK FACTOR = 37.28628 / 10.9989 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(568.4 - 37.28891)(1)/(1) = +5.311E+02 g/L Carbon
(568.4 - 37.28891)(1)/(1)(12) = +4.426E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

.0589g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001284DUP Date: 06/08/96 Time: 04:15:09

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.39 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	1.00	66.40	97.89
3	1.50	230.60	71.21
4	2.00	424.00	45.61
5	2.50	655.90	35.36
6	3.00	788.10	16.77
7	3.50	838.10	5.97
8	4.00	870.10	3.68
9	4.50	909.80	4.36
10	5.00	936.60	2.86
11	5.50	949.20	1.33
12	6.00	956.00	0.71
13	6.50	960.80	0.50
14	7.00	964.40	0.37
15	7.50	967.40	0.31
16	8.00	970.00	0.27
17	8.50	972.20	0.23
18	9.00	974.40	0.23
19	9.50	976.20	0.18
20	10.00	977.70	0.15
21	10.50	979.00	0.13
22	11.00	980.40	0.14

USER INPUT BLANK VALUE
BLANK VALUE = 37.28628 micrograms carbon
BLANK FACTOR = 37.28628 / 10.9989 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(980.4 - 37.28602)(1)/(1) = +9.431E+02 g/L Carbon
(980.4 - 37.28602)(1)/(1)(12) = +7.859E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

.0840g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T001284SPK Date: 06/08/96 Time: 04:44:46

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.39 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	20.20	93.56
3	1.51	98.20	79.43
4	2.00	274.10	64.17
5	2.50	527.40	48.03
6	3.00	685.60	23.07
7	3.50	762.50	10.09
8	4.00	808.40	5.68
9	4.50	832.10	2.85
10	5.00	841.60	1.13
11	5.50	846.50	0.58
12	6.00	851.10	0.54
13	6.50	853.90	0.33
14	7.00	855.20	0.15
15	7.50	856.10	0.11
16	8.00	859.00	0.34
17	8.50	861.50	0.29
18	9.00	864.30	0.32
19	9.50	865.90	0.18
20	10.00	867.40	0.17
21	10.50	868.70	0.15
22	11.00	869.80	0.13

USER INPUT BLANK VALUE
BLANK VALUE = 37.28628 micrograms carbon
BLANK FACTOR = 37.28628 / 10.9989 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(869.8 - 37.29228)(1)/(1) = +8.325E+02 g/L Carbon
(869.8 - 37.29228)(1)/(1)(12) = +6.938E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown 6/08/96
PJ MCCOWN 00000

.0413g
+.100mL 74N12A 1632

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# 7233

Analyst: SLH **Instrument:** CARB2 **Book#** TOC 22N/12A
TIC 16N/12E

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

Worklist Comment: U-105 TICTOC. RTS!

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	SOLID		
2	STD				@TICTOC1	SOLID		
3	SAMPLE	S96T000859	0		@TICTOC1	SOLID	96000092	U-105 (R)
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T000859	0		@TICTOC1	SOLID		
5	TRIPL	S96T000859	0		@TICTOC1	SOLID		
6	SAMPLE	S96T001284	0		@TICTOC1	SOLID	96000143	U-105 (R)
		Analytes Requested: TIC-02 , TOC-02						
7	DUP	S96T001284	0		@TICTOC1	SOLID		
8	TRIPL	S96T001284	0		@TICTOC1	SOLID		
9	SPK	S96T001284	0		@TICTOC1	SOLID		

Final page for worklist # 7233

Analyst Signature **Date**

R.J. Stark 5-16-96
Analyst Signature **Date**

DATA NOT USED IN PACKAGE

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7233

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

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

Worklist Comment: U-105 TICTOC. RTS!

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK			0	@TICTOC1 TIC-02	SOLID	1	2.30E+0	2.300	ug/g
1	BLNK			0	@TICTOC1 TOC-02	SOLID	1	1.05E+1	10.500	ug/g
2	STD			0	@TICTOC1 TIC-02	SOLID	6.02E+02	5.97E+2	99.169	% Recovery
2	STD			0	@TICTOC1 TOC-02	SOLID	2.99E+03	2.72E+3	90.970	% Recovery
3	SAMPLE	S96T000859		0	@TICTOC1 TIC-02	SOLID	N/A	4.51E+04	5.000	ug/g
3	SAMPLE	S96T000859		0	@TICTOC1 TOC-02	SOLID	N/A	2.28E+03	40.000	ug/g
4	DUP	S96T000859		0	@TICTOC1 TIC-02	SOLID	4.51E+4	2.70E+4	50.208	RPD
4	DUP	S96T000859		0	@TICTOC1 TOC-02	SOLID	2.28E+3	1.35E+4	142.205	RPD
5	TRIPL	S96T000859		0	@TICTOC1 TIC-02	SOLID	4.51E+4	2.75E+4	48.485	RPD
5	TRIPL	S96T000859		0	@TICTOC1 TOC-02	SOLID	2.28E+3	7.05E+3	102.251	RPD
6	SAMPLE	S96T001284		0	@TICTOC1 TIC-02	SOLID	N/A	2.07E+04	5.000	ug/g
6	SAMPLE	S96T001284		0	@TICTOC1 TOC-02	SOLID	N/A	1.25E+03	40.000	ug/g
7	DUP	S96T001284		0	@TICTOC1 TIC-02	SOLID	2.07E+4	3.06E+4	38.596	RPD
7	DUP	S96T001284		0	@TICTOC1 TOC-02	SOLID	1.25E+3	9.70E+3	154.338	RPD
8	TRIPL	S96T001284		0	@TICTOC1 TIC-02	SOLID	2.07E+4	3.12E+4	40.462	RPD
8	TRIPL	S96T001284		0	@TICTOC1 TOC-02	SOLID	1.25E+3	1.13E+4	160.159	RPD
9	SPK	S96T001284		0	@TICTOC1 TIC-02	SOLID	1.00E+02	1.19E+02	119.000	% Recovery
9	SPK	S96T001284		0	@TICTOC1 TOC-02	SOLID	1.00E+02	4.04E+02	404.000	% Recovery

Final page for worklist# 7233

Analyst Signature Date

Analyst Signature Date

Robert W Schroeder 5/20/96
Reviewer Signature Date

Rejected

DATA NOT USED IN PACKAGE

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

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T00859 Date: 05/12/96 Time: 14:16:22

Sample Size = 1 uL .1230g
Dil Factor = 1
Blank ID # =
Blank Value = 3.36 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	1.40	57.14
3	1.51	2.10	33.33
4	2.00	3.00	30.00
5	2.50	8.70	65.52
6	3.00	29.20	70.21
7	3.51	67.60	56.80
8	4.01	118.20	42.81
9	4.50	170.10	30.51
10	5.00	213.50	20.33
11	5.50	246.40	13.35
12	6.00	268.40	8.20
13	6.50	281.90	4.79
14	7.00	290.30	2.89
15	7.50	296.50	2.09
16	8.00	301.30	1.59
17	8.50	305.10	1.25
18	9.00	308.30	1.04
19	9.50	310.90	0.84
20	10.00	313.30	0.77
21	10.50	315.60	0.73
22	11.00	317.20	0.50

DATA NOT USED IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 36.96205 micrograms carbon
BLANK FACTOR = 36.96205 / 11.00061 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(317.2 - 36.96492)(1)/(1) = +2.802E+02 g/L Carbon
(317.2 - 36.96492)(1)/(1)(12) = +2.335E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

7/15/96 SK 21.

Sample Run By: SL HOOD 00000

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

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T00859 DUP Date: 05/12/96 Time: 14:40:48

Sample Size = 1 uL .0341g
Dil Factor = 1
Blank ID # =
Blank Value = 3.36 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	32.70	0.00
2	1.01	529.50	93.82
3	1.51	1003.50	47.23
4	2.01	1160.80	13.55
5	2.50	1222.40	5.04
6	3.00	1251.00	2.29
7	3.50	1264.80	1.09
8	4.00	1273.10	0.65
9	4.50	1279.10	0.47
10	5.00	1283.60	0.35
11	5.50	1287.30	0.29
12	6.00	1290.20	0.22
13	6.50	1293.00	0.22
14	7.00	1295.00	0.15
15	7.50	1297.00	0.15
16	8.00	1298.60	0.12
17	8.50	1300.30	0.13
18	9.00	1301.60	0.10
19	9.50	1302.70	0.08
20	10.00	1303.80	0.08
21	10.50	1304.70	0.07
22	11.00	1305.70	0.08

DATA NOT USED IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 36.96205 micrograms carbon
BLANK FACTOR = 36.96205 / 11.00061 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(1305.7 - 36.9561)(1)/(1) = +1.2687E+03 g/L Carbon
(1305.7 - 36.9561)(1)/(1)(12) = +1.0573E+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: S96T00859 TRP Date: 05/12/96 Time: 15:05:37

Sample Size = 1 uL .0853g
Dil Factor = 1
Blank ID # =
Blank Value = 3.36 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.70	0.00
2	1.01	129.50	98.69
3	1.51	367.00	64.71
4	2.00	494.50	25.78
5	2.50	551.10	10.27
6	3.00	579.50	4.90
7	3.50	594.50	2.52
8	4.00	603.00	1.41
9	4.50	609.30	1.03
10	5.00	614.40	0.83
11	5.50	618.80	0.71
12	6.00	621.90	0.50
13	6.50	624.90	0.48
14	7.00	627.20	0.37
15	7.50	629.20	0.32
16	8.00	631.10	0.30
17	8.50	632.50	0.22
18	9.00	634.10	0.25
19	9.50	635.30	0.19
20	10.00	636.50	0.19
21	10.50	637.60	0.17
22	11.00	638.50	0.14

DATA
NOT USED
IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 36.96205 micrograms carbon
BLANK FACTOR = 36.96205 / 11.00061 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(638.5 - 36.9561)(1)/(1) = +6.015E+02 g/L Carbon
(638.5 - 36.9561)(1)/(1)(12) = +5.013E+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: S96T01284 Date: 05/12/96 Time: 15:32:23

Sample Size = 1 uL .11089
Dil Factor = 1
Blank ID # =
Blank Value = 3.36 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	0.00	0.00
4	2.00	1.00	100.00
5	2.50	3.30	69.70
6	3.00	7.50	56.00
7	3.50	38.20	80.37
8	4.00	79.90	52.19
9	4.50	110.60	27.76
10	5.00	130.20	15.05
11	5.50	141.10	7.73
12	6.00	148.30	4.86
13	6.50	153.40	3.32
14	7.00	157.50	2.60
15	7.50	160.80	2.05
16	8.00	163.50	1.65
17	8.50	166.10	1.57
18	9.00	168.20	1.25
19	9.50	170.30	1.23
20	10.00	172.10	1.05
21	10.50	173.90	1.04
22	11.00	175.60	0.97

DATA NOT USED IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 36.96205 micrograms carbon
BLANK FACTOR = 36.96205 / 11.00061 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(175.6 - 36.96574)(1)/(1) = +1.386E+02 g/L Carbon
(175.6 - 36.96574)(1)/(1)(12) = +1.155E+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: S96T01284 DUP Date: 05/12/96 Time: 15:57:43

Sample Size = 1 uL .1209g
Dil Factor = 1
Blank ID # =
Blank Value = 3.36 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	3.20	0.00
2	1.00	87.50	96.34
3	1.50	363.10	75.90
4	2.00	718.70	49.48
5	2.50	932.50	22.93
6	3.00	1033.90	9.81
7	3.50	1091.20	5.25
8	4.00	1126.30	3.12
9	4.50	1147.40	1.84
10	5.00	1159.60	1.05
11	5.50	1168.50	0.76
12	6.00	1175.30	0.58
13	6.50	1180.80	0.47
14	7.00	1186.20	0.46
15	7.50	1190.10	0.33
16	8.00	1194.00	0.33
17	8.50	1196.80	0.23
18	9.00	1199.90	0.26
19	9.50	1202.80	0.24
20	10.00	1204.90	0.17
21	10.50	1207.30	0.20
22	11.00	1209.30	0.17

DATA NOT USED IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 36.96205 micrograms carbon
BLANK FACTOR = 36.96205 / 11.00061 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(1209.3 - 36.96164)(1)/(1) = +1.1723E+03 g/L Carbon
(1209.3 - 36.96164)(1)/(1)(12) = +9.7695E+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: S96T01284 TRP Date: 05/12/96 Time: 16:26:58

Sample Size = 1 uL .1165g
Dil Factor = 1
Blank ID # =
Blank Value = 3.36 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	135.40	99.11
3	1.51	649.50	79.15
4	2.01	1103.70	41.15
5	2.51	1217.70	9.36
6	3.01	1268.80	4.03
7	3.50	1297.50	2.21
8	4.00	1309.80	0.94
9	4.50	1316.80	0.53
10	5.00	1322.60	0.44
11	5.50	1326.90	0.32
12	6.00	1330.80	0.29
13	6.50	1334.10	0.25
14	7.00	1336.70	0.19
15	7.50	1339.40	0.20
16	8.00	1341.60	0.16
17	8.50	1343.90	0.17
18	9.00	1346.20	0.17
19	9.50	1347.60	0.10
20	10.00	1349.40	0.13
21	10.50	1351.20	0.13
22	11.00	1352.90	0.13

DATA NOT USED IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 36.96205 micrograms carbon
BLANK FACTOR = 36.96205 / 11.00061 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(1352.9 - 36.95959)(1)/(1) = +1.3159E+03 g/L Carbon
(1352.9 - 36.95959)(1)/(1)(12) = +1.0966E+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: S96T001284 SPK Date: 05/12/96 Time: 17:05:06

Sample Size = 1 uL .1148g
Dil Factor = 1
Blank ID # =
Blank Value = 3.36 ug/minute C

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	88.30	99.66
3	1.50	338.60	73.92
4	2.00	702.80	51.82
5	2.50	1163.30	39.59
6	3.00	1537.10	24.32
7	3.50	1707.40	9.97
8	4.00	1788.80	4.55
9	4.50	1838.70	2.71
10	5.00	1871.10	1.73
11	5.50	1891.10	1.06
12	6.00	1901.30	0.54
13	6.50	1909.10	0.41
14	7.00	1914.90	0.30
15	7.50	1920.30	0.28
16	8.00	1925.00	0.24
17	8.50	1929.00	0.21
18	9.00	1932.40	0.18
19	9.50	1935.40	0.16
20	10.00	1938.00	0.13
21	10.50	1941.00	0.15
22	11.00	1943.40	0.12

DATA NOT USED IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 36.96205 micrograms carbon
BLANK FACTOR = 36.96205 / 11.00061 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(1943.4 - 36.96205)(1)/(1) = +1.9064E+03 g/L Carbon
(1943.4 - 36.96205)(1)/(1)(12) = +1.5887E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00000

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

Sample: BLKK Date: 05/12/96 Time: 11:15:57

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

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.50	0.00
2	1.01	2.90	82.76
3	1.51	3.60	19.44
4	2.00	4.10	12.20
5	2.50	4.40	6.82
6	3.00	4.60	4.35
7	3.50	4.90	6.12
8	4.00	5.10	3.92
9	4.50	5.40	5.56
10	5.00	5.70	5.26
11	5.50	5.80	1.72
12	6.00	6.00	3.33
13	6.50	6.20	3.23
14	7.00	6.40	3.13
15	7.50	6.60	3.03
16	8.00	6.80	2.94
17	8.50	7.00	2.86
18	9.00	7.20	2.78
19	9.50	7.40	2.70
20	10.00	7.70	3.90
21	10.50	7.80	1.28
22	11.00	8.00	2.50

DATA
NOT USED
IN PACKAGE

BLANK VALUE = 8 micrograms carbon
BLANK FACTOR = 8 / 10.99982 = +7.3E-01 ug/min Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: B-2 Date: 05/12/96 Time: 13:33:56

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .73 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	1.20	50.00
3	1.50	1.50	20.00
4	2.00	1.80	16.67
5	2.50	2.00	10.00
6	3.00	2.20	9.09
7	3.50	2.40	8.33
8	4.00	2.60	7.69
9	4.50	3.00	13.33
10	5.00	3.10	3.23
11	5.50	3.30	6.06
12	6.00	3.60	8.33
13	6.50	3.80	5.26
14	7.00	4.00	5.00
15	7.50	4.20	4.76
16	8.00	4.40	4.55
17	8.50	4.70	6.38
18	9.00	4.80	2.08
19	9.50	5.10	5.88
20	10.00	5.30	3.77
21	10.50	5.50	3.64
22	11.00	5.70	3.51

DATA NOT USED IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 8.030446 micrograms carbon
BLANK FACTOR = 8.030446 / 11.00061 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:
(5.7 - 8.031115)(1)/(1) = < 5.00 E-3 g/L Carbon
(5.7 - 8.031115)(1)/(1)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD Date: 05/12/96 Time: 13:04:28

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .73 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.50	0.00
2	1.01	83.90	99.40
3	1.50	282.70	70.32
4	2.00	422.50	33.09
5	2.50	505.90	16.49
6	3.00	554.00	8.68
7	3.50	577.90	4.14
8	4.00	590.90	2.20
9	4.50	596.60	0.96
10	5.00	599.50	0.48
11	5.50	601.30	0.30
12	6.00	602.00	0.12
13	6.50	602.60	0.10
14	7.00	603.00	0.07
15	7.50	603.40	0.07
16	8.00	603.70	0.05
17	8.50	604.00	0.05
18	9.00	604.20	0.03
19	9.50	604.50	0.05
20	10.00	604.70	0.03
21	10.50	605.00	0.05
22	11.00	605.20	0.03

DATA
NOT USED
IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 8.030446 micrograms carbon
BLANK FACTOR = 8.030446 / 11.00061 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:
(605.2 - 8.031115)(1)/(1000) = +5.972E-01 g/L Carbon
(605.2 - 8.031115)(1)/(1000)(12) = +4.976E-02 Molar Carbon

Sample Run By: SL Hood Boatright
SL HOOD 00000

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

Sample: BLK Date: 05/12/96 Time: 12:50:08

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

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	1.50	100.00
3	1.51	5.50	72.73
4	2.00	11.40	51.75
5	2.50	17.90	36.31
6	3.00	22.10	19.00
7	3.50	25.30	12.65
8	4.00	27.60	8.33
9	4.50	29.10	5.15
10	5.00	30.30	3.96
11	5.50	31.20	2.88
12	6.00	31.90	2.19
13	6.50	32.70	2.45
14	7.00	33.30	1.80
15	7.50	33.80	1.48
16	8.00	34.40	1.74
17	8.50	35.00	1.71
18	9.00	35.40	1.13
19	9.50	35.90	1.39
20	10.00	36.20	0.83
21	10.50	36.60	1.09
22	11.00	37.00	1.08

DATA NOT USED IN PACKAGE

BLANK VALUE = 37 micrograms carbon
BLANK FACTOR = 37 / 11.00061 = +3.36E+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

Sample: B-2 Date: 05/12/96 Time: 13:46:29

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.36 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.50	0.00
2	1.01	2.00	75.00
3	1.50	5.10	60.78
4	2.00	9.00	43.33
5	2.50	12.10	25.62
6	3.00	14.70	17.69
7	3.50	16.70	11.98
8	4.00	18.30	8.74
9	4.50	19.50	6.15
10	5.00	20.70	5.80
11	5.50	21.50	3.72
12	6.00	22.00	2.27
13	6.50	22.70	3.08
14	7.00	23.20	2.16
15	7.50	23.80	2.52
16	8.00	24.20	1.65
17	8.50	24.60	1.63
18	9.00	25.00	1.60
19	9.50	25.50	1.96
20	10.00	25.80	1.16
21	10.50	26.20	1.53
22	11.00	26.50	1.13

DATA
NOT USED
IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 36.96205 micrograms carbon
BLANK FACTOR = 36.96205 / 11.00061 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(26.5 - 36.95282)(1)/(1) = < 5.00 E-3 g/L Carbon
(26.5 - 36.95282)(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: STD Date: 05/12/96 Time: 13:18:50

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.36 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	39.40	0.00
2	1.01	111.90	64.79
3	1.51	191.90	41.69
4	2.00	266.00	27.86
5	2.51	333.10	20.14
6	3.00	394.40	15.54
7	3.50	445.30	11.43
8	4.00	485.50	8.28
9	4.50	514.60	5.65
10	5.00	535.70	3.94
11	5.50	549.00	2.42
12	6.00	557.90	1.60
13	6.50	563.90	1.06
14	7.00	568.40	0.79
15	7.50	571.40	0.53
16	8.00	573.90	0.44
17	8.50	575.70	0.31
18	9.00	577.20	0.26
19	9.50	578.40	0.21
20	10.00	579.40	0.17
21	10.50	580.20	0.14
22	11.00	580.90	0.12

DATA NOT USED IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 36.96205 micrograms carbon
BLANK FACTOR = 36.96205 / 11.00061 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(580.9 - 36.96492)(1)/(200) = +2.720E+00 g/L Carbon
(580.9 - 36.96492)(1)/(200)(12) = +2.266E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: SL Hood Bootright
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T00859 Date: 05/12/96 Time: 14:02:52

Sample Size = 1 uL .1230g
Dil Factor = 1
Blank ID # =
Blank Value = .73 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	39.80	0.00
2	1.01	742.40	94.64
3	1.51	1489.70	50.16
4	2.00	2235.80	33.37
5	2.50	2983.40	25.06
6	3.00	3729.70	20.01
7	3.50	4476.40	16.68
8	4.00	5223.90	14.31
9	4.50	5511.50	5.22
10	5.00	5521.00	0.17
11	5.50	5528.50	0.14
12	6.00	5533.50	0.09
13	6.50	5537.50	0.07
14	7.00	5540.70	0.06
15	7.50	5543.70	0.05
16	8.00	5545.80	0.04
17	8.50	5547.90	0.04
18	9.00	5549.70	0.03
19	9.50	5551.40	0.03
20	10.00	5552.90	0.03
21	10.50	5554.30	0.03
22	11.00	5555.50	0.02

DATA NOT USED IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 8.030446 micrograms carbon
BLANK FACTOR = 8.030446 / 11.00061 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:
(5555.5 - 8.029154)(1)/(1) = +5.5475E+03 g/L Carbon
(5555.5 - 8.029154)(1)/(1)(12) = +4.6229E+02 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T00859 DUP Date: 05/12/96 Time: 14:28:36

Sample Size = 1 uL .0941g
Dil Factor = 1
Blank ID # =
Blank Value = .73 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	17.80	0.00
2	1.01	637.80	97.21
3	1.50	1384.50	53.93
4	2.00	2014.90	31.29
5	2.50	2210.00	8.83
6	3.00	2330.20	5.16
7	3.50	2404.70	3.10
8	4.00	2465.10	2.45
9	4.50	2495.10	1.20
10	5.00	2507.40	0.49
11	5.50	2514.30	0.27
12	6.00	2519.10	0.19
13	6.50	2523.70	0.18
14	7.00	2526.90	0.13
15	7.50	2530.90	0.16
16	8.00	2534.30	0.13
17	8.50	2537.70	0.13
18	9.00	2540.60	0.11
19	9.50	2543.00	0.09
20	10.00	2545.00	0.08
21	10.50	2546.60	0.06
22	11.00	2547.80	0.05

DATA NOT USED IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 8.030446 micrograms carbon
BLANK FACTOR = 8.030446 / 11.00061 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:
(2547.8 - 8.030446)(1)/(1) = +2.5398E+03 g/L Carbon
(2547.8 - 8.030446)(1)/(1)(12) = +2.1165E+02 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T00859 TRP Date: 05/12/96 Time: 14:53:11

Sample Size = 1 uL .0853g
Dil Factor = 1
Blank ID # =
Blank Value = .73 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	11.20	0.00
2	1.01	620.70	98.20
3	1.51	1367.60	54.61
4	2.01	1981.40	30.98
5	2.51	2105.70	5.90
6	3.01	2185.20	3.64
7	3.51	2239.30	2.42
8	4.01	2277.70	1.69
9	4.50	2305.60	1.21
10	5.00	2322.70	0.74
11	5.50	2331.10	0.36
12	6.00	2336.10	0.21
13	6.50	2339.70	0.15
14	7.00	2342.90	0.14
15	7.50	2345.40	0.11
16	8.00	2347.60	0.09
17	8.50	2349.60	0.09
18	9.00	2351.20	0.07
19	9.50	2352.80	0.07
20	10.00	2354.30	0.06
21	10.50	2355.70	0.06
22	11.00	2357.00	0.06

DATA NOT USED IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 8.030446 micrograms carbon
BLANK FACTOR = 8.030446 / 11.00061 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:
(2357 - 8.029733)(1)/(1) = +2.3490E+03 g/L Carbon
(2357 - 8.029733)(1)/(1)(12) = +1.9575E+02 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T01284 Date: 05/12/96 Time: 15:18:20

Sample Size = 1 uL .1103g
Dil Factor = 1
Blank ID # =
Blank Value = .73 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.10	0.00
2	1.01	340.30	99.68
3	1.51	1086.90	68.69
4	2.00	1820.50	40.30
5	2.50	2065.30	11.85
6	3.00	2162.70	4.50
7	3.50	2217.10	2.45
8	4.00	2244.80	1.23
9	4.50	2258.70	0.62
10	5.00	2266.40	0.34
11	5.50	2272.30	0.26
12	6.00	2276.20	0.17
13	6.50	2279.90	0.16
14	7.00	2282.80	0.13
15	7.50	2285.20	0.11
16	8.00	2287.60	0.10
17	8.50	2289.90	0.10
18	9.00	2292.20	0.10
19	9.50	2293.50	0.06
20	10.00	2295.30	0.08
21	10.50	2296.70	0.06
22	11.00	2298.40	0.07

DATA NOT USED IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 8.030446 micrograms carbon
BLANK FACTOR = 8.030446 / 11.00061 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:
(2298.4 - 8.029778)(1)/(1) = +2.2904E+03 g/L Carbon
(2298.4 - 8.029778)(1)/(1)(12) = +1.9086E+02 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T01284 DUP Date: 05/12/96 Time: 15:45:00

Sample Size = 1 uL .1209g
Dil Factor = 1
Blank ID # =
Blank Value = .73 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	2.80	0.00
2	1.01	471.20	99.41
3	1.50	1217.50	61.30
4	2.00	1964.80	38.03
5	2.50	2711.80	27.55
6	3.00	3457.80	21.57
7	3.50	3618.50	4.44
8	4.00	3635.10	0.46
9	4.50	3648.30	0.36
10	5.00	3657.20	0.24
11	5.50	3664.10	0.19
12	6.00	3669.40	0.14
13	6.50	3673.80	0.12
14	7.00	3678.20	0.12
15	7.50	3683.10	0.13
16	8.00	3688.10	0.14
17	8.50	3692.50	0.12
18	9.00	3696.90	0.12
19	9.50	3701.20	0.12
20	10.00	3704.70	0.09
21	10.50	3708.50	0.10
22	11.00	3711.40	0.08

DATA NOT USED IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 8.030446 micrograms carbon
BLANK FACTOR = 8.030446 / 11.00061 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:
(3711.4 - 8.02844)(1)/(1) = +3.7034E+03 g/L Carbon
(3711.4 - 8.02844)(1)/(1)(12) = +3.0861E+02 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T01284 TRP Date: 05/12/96 Time: 16:12:25

Sample Size = 1 uL .11659
Dil Factor = 1
Blank ID # =
Blank Value = .73 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.80	0.00
2	1.01	505.60	99.64
3	1.51	1252.40	59.63
4	2.00	1999.20	37.35
5	2.50	2746.00	27.20
6	3.00	3451.00	20.43
7	3.50	3557.80	3.00
8	4.00	3580.20	0.63
9	4.50	3595.10	0.41
10	5.00	3604.10	0.25
11	5.50	3610.70	0.18
12	6.00	3616.00	0.15
13	6.50	3620.40	0.12
14	7.00	3624.30	0.11
15	7.50	3628.10	0.10
16	8.00	3631.40	0.09
17	8.50	3634.30	0.08
18	9.00	3637.50	0.09
19	9.50	3640.10	0.07
20	10.00	3642.50	0.07
21	10.50	3645.00	0.07
22	11.00	3647.50	0.07

DATA NOT USED IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 8.030446 micrograms carbon
BLANK FACTOR = 8.030446 / 11.00061 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:
(3647.5 - 8.029109)(1)/(1) = +3.6395E+03 g/L Carbon
(3647.5 - 8.029109)(1)/(1)(12) = +3.0329E+02 Molar Carbon

Sample Run By: _____
SL HOOD 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T01284 SPK Date: 05/12/96 Time: 16:44:38

Sample Size = 1 uL .1143
Dil Factor = 1
Blank ID # =
Blank Value = .73 ug/minute C

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

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.50	0.00
2	1.01	495.40	99.70
3	1.50	1242.30	60.12
4	2.00	1989.00	37.54
5	2.50	2724.10	26.99
6	3.00	3040.20	10.40
7	3.50	3085.90	1.48
8	4.00	3116.10	0.97
9	4.50	3135.00	0.60
10	5.00	3145.30	0.33
11	5.50	3153.00	0.24
12	6.00	3159.30	0.20
13	6.50	3165.00	0.18
14	7.00	3169.60	0.15
15	7.50	3173.80	0.13
16	8.00	3177.70	0.12
17	8.50	3181.60	0.12
18	9.00	3184.80	0.10
19	9.50	3188.10	0.10
20	10.00	3190.70	0.08
21	10.50	3193.30	0.08
22	11.00	3195.70	0.08

DATA
NOT USED
IN PACKAGE

USER INPUT BLANK VALUE
BLANK VALUE = 8.030446 micrograms carbon
BLANK FACTOR = 8.030446 / 11.00061 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:
(3195.7 - 8.03049)(1)/(1) = +3.1877E+03 g/L Carbon
(3195.7 - 8.03049)(1)/(1)(12) = +2.6564E+02 Molar Carbon

Sample Run By: _____
SL HOOD 00000

WORKBOOK PAGE: BLANK1

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

			TIC	TOC
Type	Sample Size in g	(SS)	0.0000	0.0000
BLNK	Dilution Factor	(DF)	1	1
Worklist	µg of Carbon in Sample	(C1)	5.7	26.5
7233	µg of Carbon from Baseline	(C2)	8	37

Text Code: @TICTOC1

Matrix: SOLID

Batch Number: 96004775

Rerun: 0

µg of Carbon = |C1-C2|

Sample Prep: N/A

Sample: BLANK

Instrument Code: CARB2

Prepared By: RTS

Chemist: RWS

Analyst: raw

Date Completed: 05/16/96

Analysis Date: 05/12/96

Analysis Time:

Sample Point: U-105

DATA NOT USED IN PACKAGE

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon	2.30E+00	1.05E+01

DATA NOT USED IN PACKAGE

Data Entered By:	RTS	Date:	05/16/96
Signature of Chemist:	Rui Schwartz	Date:	5/20/96

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
Work List	Final Coulometer Reading in µg	(C1)	605.2	580.9
7233	µg of Carbon from Baseline	(C2)	8	37
Test Code	Standard Book Number		22N12A	16N12E
@TICTOC1	Standard Value (µg/ml)		602	2990

Matrix: LIQUID
Batch Number: 96004775
Rerun: 0
Sample Prep: N/A
Sample #: STANDARD
Instrument Code: CARB2
Prepared By: RTS
Chemist: RWS
Analysis: raw
Date Complete: 05/16/96
Analysis Date: 05/12/96
Analysis Time:
Sample Point: U-105

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

DATA NOT USED IN PACKAGE

	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	5.97E+02	2.72E+03
Percent Standard Recovery	99.2	91.0

Data Entered By:	RTS	Date:	05/16/96
Signature of Chemist:	RW Schwedler	Date:	5/20/96

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)	0.1230	0.1230
SAMPLE	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	5555.5	317.2
7233	µg of Carbon from Baseline	(C2)	8	37
Test Code				
@TICTOC1				

Matrix: SOLID

Batch Number: 96004775

Rerun: 0

Sample Prep: N/A

Sample #: S96T000859

Instrument Code: CARB2

Prepared By: RTS

Chemist: RWS

Analyst: raw

Date Complete: 05/16/96

Analysis Date: 05/12/96

Analysis Time:

Sample Point: U-105

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	4.51E+04	2.28E+03

DATA NOT USED IN PACKAGE

Data Entered By:	RTS	Date:	05/16/96
Signature of Chemist:	RW Schroeder	Date:	5/20/96

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)	0.0941	0.0941
DUP	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	2547.8	1305.7
7233	µg of Carbon from Baseline	(C2)	8	37
Test Code	Known µg of C from Original Sample		4.51E+4	2.28E+3
@TICTOC1				

Matrix	SOLID
Batch Number	96004775
Rerun	0
Sample Prep	N/A
Sample #	S96T000859
Instrument Code	CARB2
Prepared By	RTS
Chemist	RWS
Analyst	raw
Date Complete	05/16/96
Analysis Date	05/12/96
Analysis Time	
Sample Point	U-105

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
Method Detection Limit in ug/g	5	40
µg of Carbon/g	2.70E+04	1.35E+04
RPD (of Sam and Dup Results)	50.2%	142.1%

Data Entered By:	RTS	Date:	05/16/96
Signature of Chemist:	RW Schroeder	Date:	5/20/96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: TRIPL5

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

			TIC	TOC
Type:	Sample Size in g	(SS)	0.0853	0.0853
TRIPL	Dilution Factor	(DF)	1	1
Work List:	µg of Carbon in Sample	(C1)	2357	638.5
7233	µg of Carbon from Baseline	(C2)	8	37
Test Code:	Known µg of C from Original Sample		4.51E+4	2.28E+3
@TICTOC1	Duplicate Result		2.70E+4	1.35E+4

Matrix:
SOLID

Batch Number:
96004775

Rerun:
0

Sample Prep:
N/A

Sample:
S96T000859

Instrument Code:
CARB2

Prepared By:
RTS

Chemist:
RWS

Analyst:
raw

Date Complete:
05/16/96

Analysis Date:
05/12/96

Analysis Time:

Sample Point:
U-105

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	2.75E+04	7.05E+03
RSD (of Sam, Dup, and Tripl Results)	0.3101	0.7399

Data Entered By:	RTS	Date:	05/16/96
Signature of Chemist:	RW Schneider	Date:	5/20/96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM6

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

			TIC	TOC
Type	Sample Size in g	(SS)	0.1108	0.1108
SAMPLE	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	2298.4	175.6
7233	µg of Carbon from Baseline	(C2)	8	37
Test Code				
@TICTOC1				

Matrix	SOLID
Batch Number	96004775
Rerun	0
Sample Prep	N/A
Sample #	S96T001284
Instrument Code	CARB2
Prepared By	RTS
Chemist	RWS
Analyst	raw
Date Complete	05/16/96
Analysis Date	05/12/96
Analysis Time	
Sample Point	U-105

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	2.07E+04	1.25E+03

Data Entered By:	RTS	Date:	05/16/96
Signature of Chemist:	Ron Schwoeck	Date:	5/20/96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP7

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

			TIC	TOC
Type	Sample Size in g	(SS)	0.1209	0.1209
DUP	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	3711.4	1209.3
7233	µg of Carbon from Baseline	(C2)	8	37
Test Code	Known µg of C from Original Sample		2.07E+4	1.25E+3
@TICTOC1				

Matrix	SOLID
Batch Number	96004775
Rerun #	0
Sample Prep	N/A
Sample #	S96T001284
Instrument Code	CARB2
Prepared By	RTS
Chemist	RWS
Analyst	raw
Date Complete	05/16/96
Analysis Date	05/12/96
Analysis Time	
Sample Point	U-105

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
Method Detection Limit in ug/g	5	40
µg of Carbon/g	3.06E+04	9.70E+03
RPD (of Sam and Dup Results)	38.7%	154.3%

Data Entered By:	RTS	Date:	05/16/96
Signature of Chemist:	Ruth Schwoerer	Date:	5/20/96

SAMPLE.WB1 REV 1.0 342100ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: TRIPL8

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

			TIC	TOC
Type	Sample Size in g	(SS)	0.1165	0.1165
TRIPL	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	3647.5	1352.9
7233	µg of Carbon from Baseline	(C2)	8	37
Test Code	Known µg of C from Original Sample		2.07E+4	1.25E+3
@TICTOC1	Duplicate Result		3.06E+4	9.70E+3

Matrix
SOLID

Batch Number
96004775

Rerun
0

Sample Prep
N/A

Sample #
S96T001284

Instrument Code
CARB2

Prepared By
RTS

Chemist
RWS

Analyst
raw

Date Complete
05/16/96

Analysis Date
05/12/96

Analysis Time

Sample Point
U-105

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	3.12E+04	1.13E+04
RSD (of Sam, Dup, and Tripl Results)	0.2148	0.7280

Data Entered By:	RTS	Date:	05/16/96
Signature of Chemist:	RW Schroeder	Date:	5/20/96

SAMPLE.WB1 REV 1.0 342100ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SPIKE9

WHC-SD-WM-DP-182, REV.)

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

Type	**Sample Vial Data**		TIC	TOC
SPK	Sample Size in g	(SS)	0.1108	0.1108
Work List	Final Coulometer Reading in µg	(C1)	2298.4	175.6
7233	**Spiked Vial Data**			
Test Code	Sample Size in g	(SPK SS)	0.1148	0.1148
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C3)	3195.7	1943.4
SOLID	Spike Book Number		22N12A	16N12E
Batch Number	Spike Standard Value in µg/ml		602	2990
96004775	Spike Concentration in µg	(SPK CONC)	301	299
Rerun				
0				
Sample Prep				
N/A				
Sample #				
S96T001284				
Instrument Code				
CARB2				
Prepared By				
RTS				
Chemist				
RWS				
Analyst				
raw				
Date Complete				
05/16/96				
Analysis Date				
05/12/96				
Analysis Time				
			TIC	TOC
	QC Actual in µg/mL		6.02E+02	2.99E+03
Sample Point	QC Found in µg/mL		7.17E+02	1.21E+04
U-105	Percent Spike Recovery		119.1	404.1

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

RW Schroeder 5/20/96

DATA NOT USED IN PACKAGE

RADIOCHEMICAL ANALYSES

1664.1

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LABCORE Data Entry Template for Worklist# 7101

Analyst: AKL **Instrument:** AB00 13 **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	S96T001232	0		@ALPHA01	LIQUID	96000143	U-105 (R)
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T001232	0		@ALPHA01	LIQUID		
6	SPK	S96T001232	0		@ALPHA01	LIQUID		
7	SAMPLE	S96T001234	0		@ALPHA01	LIQUID	96000143	U-105 (R)
		Analytes Requested: ALPHA01 , ALPHA01E						
8	DUP	S96T001234	0		@ALPHA01	LIQUID		

Final page for worklist # 7101

[signature] 4/3/96
Analyst Signature **Date**

[signature] 4/5/96
Analyst Signature **Date**
Lee Hogan 4/5/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7101

Analyst: akl **Instrument:** AB13 **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	1.52E-4	118.750	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	LIQUID	1.00	3.97E+00	3.970	% Ct. Error
2	BLNK		0	@ALPHA01	ALPHA01	LIQUID	1	<2.16E-4		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	8.89E-01	0.890	uCi/mL
4	SAMPLE	S96T001232	0	@ALPHA01	ALPHA01	LIQUID	N/A	6.53E-04	3.410e-004	uCi/mL
4	SAMPLE	S96T001232	0	@ALPHA01	ALPHA01E	LIQUID	N/A	4.53E+01	0.000	% Ct. Error
5	DUP	S96T001232	0	@ALPHA01	ALPHA01	LIQUID	6.53E-4	6.33E-4	3.110	RPD
5	DUP	S96T001232	0	@ALPHA01	ALPHA01E	LIQUID	1.00	4.75E+01	47.500	% Ct. Error
6	SPK	S96T001232	0	@ALPHA01	ALPHA01	LIQUID	3.59E-02	3.68E-02	102.510	% Recovery
7	SAMPLE	S96T001234	0	@ALPHA01	ALPHA01	LIQUID	N/A <	1.46E-05	3.480e-005	uCi/mL
7	SAMPLE	S96T001234	0	@ALPHA01	ALPHA01E	LIQUID	N/A	5.00E+02	0.000	% Ct. Error
8	DUP	S96T001234	0	@ALPHA01	ALPHA01	LIQUID	<1.46E-5	<1.95E-5		RPD
8	DUP	S96T001234	0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error

Final page for worklist# 7101

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

4/8/96

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
DETECTOR NUMBER			13	13
DISH SIZE (1 , 2 , or 5)	(MS)		2	2
GROSS COUNTS	(GC)		2557	2460
COUNT TIME in MINUTES	(CT)		30	30
BACKGROUND in cpm	(BKG)		0.3	0.3
SAMPLE SIZE in mL	(SS)		1.000	1.000
DILUTION FACTOR	(DF)		1	1
STANDARD BOOK NUMBER	(Std BN)		47B56	47B56
EFFICIENCY FACTOR	(EFF)		0.2477	0.2477
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			84.933	81.700
Standard Value in µCi/mL			1.28E-04	
Concentration in µCi/L		=	1.54E-01	
Replicate Concentration in µCi/L		=	1.49E-01	
AVERAGE CONCENTRATION in µCi/L		=	1.5151E-01	

Type	STD
Work List	7101
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	LIQUID
Batch Number	96002825
Rerun	0
Sample Prep	N/A
Sample #	WL7101
Instrument Code	WB27810
Prepared By	CJO
Chemist	SLF
Analyst	AKL
Date Complete	04/05/96
Analysis Date	04/03/96
Analysis Time	03:00 PM
Sample Point	U-105

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	=	1.52E-04	
RELATIVE COUNTING ERROR	=	4.0%	1.01E-06 µCi/mL

Analyst:	CJO		Date: 05-Apr-96
Signature of Chemist:		SLF	Date: 4/5/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK	REPLICATE
Type	DETECTOR NUMBER		13	13
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	12	4
7101	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.300	0.300
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.352	0.233
Batch Number				
96002825	Blank Concentration in µCi/L	<	2.16E-01	
Rerun	Replicate Concentration in µCi/L	<	1.43E-01	
0	Maximum Concentration in µCi/L	<	2.1553E-01	

Sample Prep: N/A
Sample #: WL7101
Instrument Code: WB27810
Prepared By: CJO
Chemist: SLF
Analyst: AKL
Date Complete: 04/05/96
Analysis Date: 04/03/96
Analysis Time: 03:00 PM
Sample Point: U-105

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)	=	< 2.16E-04	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			3.41E-04 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst:		AKL	Date: 05-Apr-96
Signature of Chemist:		SLF	Date: 4/5/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	43	39
7101	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.300	0.300
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.133	1.000

Blank Concentration in µCi/L	6.94E-01
Replicate Concentration in µCi/L	6.12E-01
Average Concentration in µCi/L	6.5306E-01

Batch Number: 96002825
Rerun: 0
Sample Prep: N/A
Sample #: S96T001232
Instrument Code: WB27810
Prepared By: CJO
Chemist: SLF
Analyst: AKL
Date Complete: 04/05/96
Analysis Date: 04/03/96
Analysis Time: 03:00 PM
Sample Point: U-105

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 (Average) =	6.53E-04	DETECTION LEVEL
RELATIVE COUNTING ERROR	45.3%	3.41E-04 µCi/mL

Analyst:		AKL	Date: 05-Apr-96
Signature of Chemist:		SLF	Date: 4/5/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	43	37
7101	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.300	0.300
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.133	0.933

Batch Number	
96002825	Blank Concentration in µCi/L 6.94E-01
Rerun	Replicate Concentration in µCi/L 5.71E-01
0	Average Concentration in µCi/L 6.3265E-01
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)
S96T001232	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
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
CJO	
Chemist	
SLF	ALPHA TOTAL in µCi/mL (Average) = 6.33E-04
Analyst	
AKL	
Date Complete	
04/05/96	RELATIVE COUNTING ERROR 47.5%
Analysis Date	
04/03/96	
Analysis Time	
03:00 PM	
Sample Point	
U-105	

DETECTION LEVEL
3.41E-04 µCi/mL

Analyst:		AKL	Date: 05-Apr-96
Signature of Chemist:		SLF	Date: 4/5/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

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

			SPIKE	REPLICATE
DETECTOR NUMBER			13	13
DISH SIZE 1 , 2 , or 5		(MS)	2	2
TOTAL COUNTS		(TC)	60304	61253
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.3	0.3
SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	0.300	0.300
SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	101	101
DIGEST DILUTION FACTOR		(DDF)	1	1
SPIKE VOLUME in mL		(SVol)	0.100	0.100
SPIKE DILUTION FACTOR		(SDF)	1	1
SPIKE BOOK NUMBER		(Spk BN)	123B43	123B43
SPIKE VALUE in µCi/mL		(SVal)	3.5898E-02	3.5898E-02
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2477	0.2477
SAMPLE + SPIKE µCi/mL		(S+S)	1.23E+00	1.25E+00
AVERAGE or MAXIMUM µCi/mL in SAMPLE			6.5306E-04	

Type	SPK
Work List	7101
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	LIQUID
Batch Number	96002825
Rerun	0
Sample Prep	N/A
Sample #	S96T001232
Instrument Code	WB27810
Prepared By	CJO
Chemist	SLF
Analyst	AKL
Date Complete	04/05/96
Analysis Date	04/03/96
Analysis Time	03:00 PM
Sample Point	U-105

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

QC ACTUAL	=	3.59E-02
QC FOUND	=	3.68E-02
AVG. PERCENT SPIKE RECOVERY	=	102.6%

Analyst:	CJO	Date: 05-Apr-96
Signature of Chemist:	SLF	Date: 4/5/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	7	4
7101	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	34.33	34.33
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.233	0.233

Batch Number			
96002825	Blank Concentration in µCi/L	<	1.46E-02
Rerun	Replicate Concentration in µCi/L	<	1.46E-02
0	Maximum Concentration in µCi/L	<	1.4568E-02

Sample Prep: N/A

Sample # : S96T001234

Instrument Code: WB27810

Prepared By: CJO

Chemist: SLF

Analyst: AKL

Date Complete: 04/05/96

Analysis Date: 04/03/96

Analysis Time: 03:00 PM

Sample Point: U-105

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) =	< 1.46E-05	DETECTION LEVEL
LESS Than Value was Determined from Lc.		
RELATIVE COUNTING ERROR	500.0%	3.48E-05 µCi/mL

Analyst:		AKL	Date: 05-Apr-96
Signature of Chemist:		SLF	Date: 4/5/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

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

			DUP	REPLICATE
Type: DUP	DETECTOR NUMBER		13	13
	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List: 7101	GROSS COUNTS	(GC)	8	11
	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?: AT	BACKGROUND in cpm	(BKG)	0.3	0.3
	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code: @ALPHA01	DILUTION FACTOR	(DF)	34.33	34.33
	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix: LIQUID	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.233	0.313

Batch Number: 96002825

Blank Concentration in µCi/L	<	1.46E-02
Replicate Concentration in µCi/L	<	1.95E-02
Maximum Concentration in µCi/L	<	1.9518E-02

Rerun: 0

Sample Prep: N/A

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.

Sample #: S96T001234

Instrument Code: WB27810

Prepared By: CJO

Chemist: SLF

Analyst: AKL

Date Complete: 04/05/96

Analysis Date: 04/03/96

Analysis Time: 03:00 PM

Sample Point: U-105

		DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Maximum) =	< 1.95E-05	3.48E-05 µCi/mL
LESS Than Value was Determined from Lc.		
RELATIVE COUNTING ERROR	500.0%	

Analyst:		AKL	Date: 05-Apr-96
Signature of Chemist:		SLF	Date: 4/5/96

SAMPLE.WB1 Rev. 1.0 508101WL

LABCORE Data Entry Template for Worklist# 7466

Analyst: KNT **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	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001285	0	F	@ALPHA01	SOLID	96000143	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001285	0	F	@ALPHA01	SOLID		
6	SPK	S96T001285	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001291	0	F	@ALPHA01	SOLID	96000143	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T001291	0	F	@ALPHA01	SOLID		
9	SAMPLE	S96T001296	0	F	@ALPHA01	SOLID	96000143	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T001296	0	F	@ALPHA01	SOLID		

Final page for worklist # 7466

Kim Thomas 4-9-96
Analyst Signature **Date**

4/11/96
Analyst Signature **Date**
4/11/96

Data Entry Comments:

The RPD for 1285 is out of control limits.
Sample ~~Batch~~ SLF will be rerun.
4/11/96

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

LABCORE Completed Worklist Report for Worklist# 7466

Analyst: knt **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	1.35E-4	105.470	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.59E+00	4.590	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<2.97E-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	2.22E+00	2.220	uCi/g
4	SAMPLE	S96T001285	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.30E+00	5.430e-003	uCi/g
4	SAMPLE	S96T001285	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	5.06E+00	0.000	% Ct. Error
5	DUP	S96T001285	0	F	@ALPHA01	ALPHA01	SOLID	1.30E+0	1.07E+0	19.410	RPD
5	DUP	S96T001285	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	5.44E+00	5.440	% Ct. Error
6	SPK	S96T001285	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.42E-02	95.260	% Recovery
7	SAMPLE	S96T001291	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.09E-01	4.880e-003	uCi/g
7	SAMPLE	S96T001291	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.14E+01	0.000	% Ct. Error
8	DUP	S96T001291	0	F	@ALPHA01	ALPHA01	SOLID	2.09E-1	2.03E-1	2.910	RPD
8	DUP	S96T001291	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.22E+01	12.200	% Ct. Error
9	SAMPLE	S96T001296	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.91E-01	4.860e-003	uCi/g
9	SAMPLE	S96T001296	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	8.35E+00	0.000	% Ct. Error
10	DUP	S96T001296	0	F	@ALPHA01	ALPHA01	SOLID	3.91E-1	3.59E-1	8.530	RPD
10	DUP	S96T001296	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	9.26E+00	9.260	% Ct. Error

Final page for worklist# 7466

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

4/11/96

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
DETECTOR NUMBER			16	16
DISH SIZE (1 , 2 , or 5)		(MS)	2	2
GROSS COUNTS		(GC)	1966	1826
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.03	0.03
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			65.503	60.837
Standard Value in µCi/mL			1.28E-04	
Concentration in µCi/L	=		1.40E-01	
Replicate Concentration in µCi/L	=		1.30E-01	
AVERAGE CONCENTRATION in µCi/L	=		1.3524E-01	

Type	STD
Work List	7466
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	LIQUID
Batch Number	96003240
Rerun	0
Sample Prep	N/A
Sample #	WL7466
Instrument Code	WB27806
Prepared By	SLH
Chemist	SLF
Analyst	KNT
Date Complete	04/11/96
Analysis Date	04/09/96
Analysis Time	05:30 PM
Sample Point	U-105 (R)

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	=	1.35E-04	
RELATIVE COUNTING ERROR	=	4.6%	5.10E-07 µCi/mL

Analyst:	SLH		Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/11/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
DETECTOR NUMBER			16	16
DISH SIZE (1 , 2 , or 5)	(MS)		2	2
GROSS COUNTS	(GC)		2	2
COUNT TIME in MINUTES	(CT)		30	30
BACKGROUND in cpm	(BKG)		0.03	0.03
SAMPLE SIZE in mL	(SS)		0.050	0.050
DILUTION FACTOR	(DF)		1	1
DIGEST GRAMS of SOLIDS / L	(Dg/L)		1.8804	1.8804
EFFICIENCY FACTOR	(EFF)		0.2104	0.2104
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			0.130	0.130
Blank Concentration in µCi/g		<	2.97E-03	
Replicate Concentration in µCi/g		<	2.97E-03	
Maximum Concentration in µCi/g		<	2.9677E-03	

Type	BLNK-PREP
Work List	7466
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	SOLID
Batch Number	96003240
Rerun	0
Sample Prep	N/A
Sample #	WL7466
Instrument Code	WB27806
Prepared By	SLH
Chemist	SLF
Analyst	KNT
Date Complete	04/11/96
Analysis Date	04/09/96
Analysis Time	05:30 PM
Sample Point	U-105 (R)

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)	=	< 2.97E-03		DETECTION LEVEL
LESS THAN Value was Determined from Rmax.				5.43E-03 µCi/g
RELATIVE COUNTING ERROR			500.0%	

Analyst:		KNT	Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 7/11/96

BLANK.WB1 Rev. 1.0 508101ML

1677

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)	1502	1918
7466	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8804	1.8804
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		50.037	63.903

Blank Concentration in µCi/g	1.14E+00
Replicate Concentration in µCi/g	1.46E+00
Average Concentration in µCi/g	1.2973E+00

Batch Number: 96003240
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001285
Instrument Code: WB27806
Prepared By: SLH
Chemist: SLF
Analyst: KNT
Date Complete: 04/11/96
Analysis Date: 04/09/96
Analysis Time: 05:30 PM
Sample Point: U-105 (R)

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)	=	1.30E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		5.1%	5.43E-03 µCi/g

Analyst:	KNT		Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/11/96

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)	1475	1301
7466	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8492	1.8492
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		49.137	43.337
Batch Number				
96003240	Blank Concentration in µCi/g		1.14E+00	
Rerun	Replicate Concentration in µCi/g		1.00E+00	
0	Average Concentration in µCi/g		1.0706E+00	

Sample Prep
FUSION01
Sample #
S96T001285
Instrument Code
WB27806
Prepared By
SLH
Chemist
SLF
Analyst
KNT
Date Complete
04/11/96
Analysis Date
04/09/96
Analysis Time
05:30 PM
Sample Point
U-105 (R)

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)	=	1.07E+00	
RELATIVE COUNTING ERROR		5.4%	5.52E-03 µCi/g

Analyst:		KNT	Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/11/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

HC-SD-WM-DP-182, REV. 1

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

			SPIKE	REPLICATE
DETECTOR NUMBER			16	16
DISH SIZE 1 , 2 , or 5		(MS)	2	2
TOTAL COUNTS		(TC)	48966	50244
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.03	0.03
SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	0.050	0.050
SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	1	1
DIGEST GRAMS of SOLIDS / L		(Dg/L)	1.8804	1.8804
SPIKE VOLUME in mL		(SVol)	0.100	0.100
SPIKE DILUTION FACTOR		(SDF)	1	1
SPIKE BOOK NUMBER		(Spk BN)	123B43	123B43
SPIKE VALUE in µCi/mL		(SVal)	3.5897E-02	3.5897E-02
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2104	0.2104
SAMPLE + SPIKE µCi/g		(S+S)	3.72E+01	3.81E+01
AVERAGE or MAXIMUM µCi/g in SAMPLE			1.2973E+00	

Type	SPK
Work List	7466
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	SOLID
Batch Number	96003240
Rerun	0
Sample Prep	FUSION01
Sample #	S96T001285
Instrument Code	WB27806
Prepared By	SLH
Chemist	SLF
Analyst	KNT
Date Complete	04/11/96
Analysis Date	04/09/96
Analysis Time	05:30 PM
Sample Point	U-105 (R)

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	=	3.42E-02
AVG. PERCENT SPIKE RECOVERY	=	95.2%

Analyst:		SLH	Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/11/96

SPIKE.WB1 Rev. 1.0 508101ML

1680

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)	296	318
7466	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0924	2.0924
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.837	10.570

Blank Concentration in µCi/g	2.01E-01
Replicate Concentration in µCi/g	2.16E-01
Average Concentration in µCi/g	2.0880E-01

Batch Number: 96003240
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001291
Instrument Code: WB27806
Prepared By: SLH
Chemist: SLF
Analyst: KNT
Date Complete: 04/11/96
Analysis Date: 04/09/96
Analysis Time: 05:30 PM
Sample Point: U-105 (R)

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) =	2.09E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR	11.4%	4.88E-03 µCi/g

Analyst:	KNT	Date: 11-Apr-96	
Signature of Chemist:	SLF	Date: 4/11/96	

SAMPLE.WB1 Rev. 1.0 508101MI

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)	325	259
7466	COUNT TIME in MINUTES	(CT)	30	30
AT or TS ?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0456	2.0456
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		10.803	8.603

Blank Concentration in µCi/g	2.26E-01
Replicate Concentration in µCi/g	1.80E-01
Average Concentration in µCi/g	2.0311E-01

Batch Number: 96003240
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001291
Instrument Code: WB27806
Prepared By: SLH
Chemist: SLF
Analyst: KNT
Date Complete: 04/11/96
Analysis Date: 04/09/96
Analysis Time: 05:30 PM
Sample Point: U-105 (R)

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)	=	2.03E-01	
RELATIVE COUNTING ERROR		12.2%	4.99E-03 µCi/g

Analyst:	KNT		Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/11/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM9

HC-SD-WM-DP-182, REV. 1

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)	597	554
7466	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0996	2.0996
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		19.870	18.437

Batch Number	
96003240	Blank Concentration in µCi/g 4.05E-01
Rerun	Replicate Concentration in µCi/g 3.76E-01
0	Average Concentration in µCi/g 3.9061E-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)
S96T001296	
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) = 3.91E-01
Analyst	
KNT	
Date Complete	
04/11/96	RELATIVE COUNTING ERROR 8.3%
Analysis Date	
04/09/96	
Analysis Time	
05:30 PM	
Sample Point	
U-105 (R)	

DETECTION LEVEL
4.86E-03 µCi/g

Analyst:		KNT	Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/11/96

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)	543	451
7466	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9716	1.9716
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		18.070	15.003

Blank Concentration in µCi/g	3.92E-01
Replicate Concentration in µCi/g	3.26E-01
Average Concentration in µCi/g	3.5914E-01

Batch Number: 96003240
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001296
Instrument Code: WB27806
Prepared By: SLH
Chemist: SLF
Analyst: KNT
Date Complete: 04/11/96
Analysis Date: 04/09/96
Analysis Time: 05:30 PM
Sample Point: U-105 (R)

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)	=	3.59E-01	5.17E-03 µCi/g
RELATIVE COUNTING ERROR		9.3%	

Analyst:	KNT		Date: 11-Apr-96
Signature of Chemist:		SLF	Date: 4/11/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 7467

Analyst: KNT **Instrument:** AB00 14 **Book#** 47856

Method: LA-508-101 Rev/Mod A-0

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	S96T001303	0	F	@ALPHA01	SOLID	96000143	U-105 (R)
	Analytes Requested:				ALPHA01 , ALPHA01E			
5	DUP	S96T001303	0	F	@ALPHA01	SOLID		
6	SPK	S96T001303	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001310	0	F	@ALPHA01	SOLID	96000143	U-105 (R)
	Analytes Requested:				ALPHA01 , ALPHA01E			
8	DUP	S96T001310	0	F	@ALPHA01	SOLID		

Final page for worklist # 7467

Kim Thomas 4-9-96
Analyst Signature **Date**

Sharon L Hulet 4-10-96
Analyst Signature **Date**

M G Rivera 4/10/96

Data Entry Comments: SPK recovery acceptable due to low alpha activity. 4/16/96

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

LABCORE Completed Worklist Report for Worklist# 7467

Analyst: knt **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	1.20E-4	93.750	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	4.69E+00	4.690	% Ct. Error
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<2.58E-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	6.31E-01	0.630	uCi/g
4	SAMPLE	S96T001303	0	F	@ALPHA01 ALPHA01	SOLID	N/A	1.08E-01	6.060e-003	uCi/g
4	SAMPLE	S96T001303	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	1.17E+01	0.000	% Ct. Error
5	DUP	S96T001303	0	F	@ALPHA01 ALPHA01	SOLID	1.08E-1	1.27E-1	16.170	RPD
5	DUP	S96T001303	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	1.06E+01	10.600	% Ct. Error
6	SPK	S96T001303	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	2.80E-02	77.990	% Recovery
7	SAMPLE	S96T001310	0	F	@ALPHA01 ALPHA01	SOLID	N/A	2.50E-01	1.220e-002	uCi/g
7	SAMPLE	S96T001310	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	1.10E+01	0.000	% Ct. Error
8	DUP	S96T001310	0	F	@ALPHA01 ALPHA01	SOLID	2.50E-1	2.79E-1	10.960	RPD
8	DUP	S96T001310	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	1.04E+01	10.400	% Ct. Error

Final page for worklist# 7467

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

4/16/96

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)	1871	1777
7467	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		61.997	58.863
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003241	Concentration in µCi/L	=	1.23E-01	
Rerun	Replicate Concentration in µCi/L	=	1.17E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.1970E-01	

Sample Prep: N/A

Sample #: WL7467

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: KNT

Date Complete: 04/10/96

Analysis Date: 04/09/96

Analysis Time: 10:45 AM

Sample Point: U-105 (R)

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	=	1.20E-04	
RELATIVE COUNTING ERROR	=	4.7%	1.21E-06 µCi/mL

Analyst:	SLH		Date: 10-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)	9	5
7467	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.992	1.992
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.259	0.259
Batch Number				
96003241	Blank Concentration in µCi/g	<	2.58E-03	
Rerun	Replicate Concentration in µCi/g	<	2.58E-03	
0	Maximum Concentration in µCi/g	<	2.5770E-03	

Sample Prep: N/A

Sample #: WL7467

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: KNT

Date Complete: 04/10/96

Analysis Date: 04/09/96

Analysis Time: 10:45 AM

Sample Point: U-105 (R)

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)	=	< 2.58E-03		DETECTION LEVEL
LESS Than Value was Determined from Lc.				6.06E-03 µCi/g
RELATIVE COUNTING ERROR			500.0%	

Analyst:	KNT	Date: 10-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)	359	312
7467	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.992	1.992
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11.597	10.030

Batch Number	
96003241	Blank Concentration in µCi/g 1.15E-01
Rerun	Replicate Concentration in µCi/g 9.97E-02
0	Average Concentration in µCi/g 1.0753E-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)
S96T001303	
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	ALPHA TOTAL in µCi/g (Average) = 1.08E-01
Analyst	
KNT	
Date Complete	
04/10/96	RELATIVE COUNTING ERROR 11.7%
Analysis Date	
04/09/96	
Analysis Time	
10:45 AM	
Sample Point	
U-105 (R)	

DETECTION LEVEL
6.06E-03 µCi/g

Analyst:	KNT	Date: 10-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)	371	440
7467	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0432	2.0432
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11.997	14.297

Batch Number	
96003241	Blank Concentration in µCi/g 1.16E-01
Rerun	Replicate Concentration in µCi/g 1.39E-01
0	Average Concentration in µCi/g 1.2746E-01

Sample Prep: FUSION01

Sample #: S96T001303

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: KNT

Date Complete: 04/10/96

Analysis Date: 04/09/96

Analysis Time: 10:45 AM

Sample Point: U-105 (R)

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)	=	1.27E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		10.6%	5.90E-03 µCi/g

Analyst:	KNT		Date: 10-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

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)	40294	45275
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.37	0.37
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)	1.992	1.992
SPIKE VOLUME in mL		(SVol)	0.100	0.100
SPIKE DILUTION FACTOR		(SDF)	1	1
SPIKE BOOK NUMBER		(Spk BN)	123B43	123B43
SPIKE VALUE in µCi/mL		(SVal)	3.5897E-02	3.5897E-02
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2274	0.2274
SAMPLE + SPIKE µCi/g		(S+S)	1.34E+01	1.50E+01
AVERAGE or MAXIMUM µCi/g in SAMPLE			1.0753E-01	

Type	SPK
Work List	7467
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	SOLID
Batch Number	96003241
Rerun	0
Sample Prep	FUSION01
Sample #	S96T001303
Instrument Code	WB27807
Prepared By	SLH
Chemist	SLF
Analyst	KNT
Date Complete	04/10/96
Analysis Date	04/09/96
Analysis Time	10:45 AM
Sample Point	U-105 (R)

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	=	2.80E-02
AVG. PERCENT SPIKE RECOVERY	=	78.1%

Analyst:		SLH	Date: 10-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)	349	421
7467	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9716	1.9716
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11.263	13.663

Blank Concentration in µCi/g	2.26E-01
Replicate Concentration in µCi/g	2.75E-01
Average Concentration in µCi/g	2.5044E-01

Batch Number: 96003241
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001310
Instrument Code: WB27807
Prepared By: SLH
Chemist: SLF
Analyst: KNT
Date Complete: 04/10/96
Analysis Date: 04/09/96
Analysis Time: 10:45 AM
Sample Point: U-105 (R)

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) =	2.50E-01	
RELATIVE COUNTING ERROR	11.0%	1.22E-02 µCi/g

Analyst:	KNT	Date: 10-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)	390	432
7467	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8936	1.8936
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12.630	14.030

Batch Number	
96003241	Blank Concentration in µCi/g 2.64E-01
Rerun	Replicate Concentration in µCi/g 2.94E-01
0	Average Concentration in µCi/g 2.7889E-01

Sample Prep: FUSION01

Sample #: S96T001310

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: KNT

Date Complete: 04/10/96

Analysis Date: 04/09/96

Analysis Time: 10:45 AM

Sample Point: U-105 (R)

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) = 2.79E-01		DETECTION LEVEL
RELATIVE COUNTING ERROR	10.4%	1.27E-02 µCi/g

Analyst:		KNT	Date: 10-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 7604

Analyst: AKL **Instrument:** AB00 #16 **Book#** 47856

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Use 1-10-.5 mL sample size. Rerun #1. 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	S96T001285	0	F	@ALPHA01	SOLID	96000143	U-105 (R)
		Analytes Requested:			ALPHA01 , ALPHA01E			
5	DUP	S96T001285	0	F	@ALPHA01	SOLID		
6	SPK	S96T001285	0	F	@ALPHA01	SOLID		

Final page for worklist # 7604

4/15/96
Analyst Signature **Date**

4-16-96
Analyst Signature **Date**

Data Entry Comments:

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

WHC-SD-WM-DP-182, REV. 1

LABCORE Completed Worklist Report for Worklist# 7604

Analyst: akl **Instrument:** AB16 **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		@ALPHA01 ALPHA01	SOLID	1.28E-04	1.45E-4	113.280	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	4.37E+00	4.370	% Ct. Error
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<4.34E-2		uCi/g
2	BLNK-PREP		0		@ALPHA01 ALPHA01E	SOLID	1.00	1.55E+02	155.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01 ALPHA01	SOLID	1.00E+00	2.35E+00	2.350	uCi/g
4	SAMPLE	S96T001285	0	F	@ALPHA01 ALPHA01	SOLID	N/A	1.40E+00	5.080e-002	uCi/g
4	SAMPLE	S96T001285	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	1.04E+01	0.000	% Ct. Error
5	DUP	S96T001285	0	F	@ALPHA01 ALPHA01	SOLID	1.40E+0	1.34E+0	4.380	RPD
5	DUP	S96T001285	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	1.11E+01	11.100	% Ct. Error
6	SPK	S96T001285	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	4.02E-02	111.980	% Recovery

Final page for worklist# 7604

Analyst Signature **Date**

Analyst Signature **Date**

4/17/96

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
DETECTOR NUMBER			16	16
DISH SIZE (1 , 2 , or 5)		(MS)	2	2
GROSS COUNTS		(GC)	2034	2031
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.17	0.17
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			67.630	67.530
Standard Value in µCi/mL			1.28E-04	
Concentration in µCi/L	=		1.45E-01	
Replicate Concentration in µCi/L	=		1.45E-01	
AVERAGE CONCENTRATION in µCi/L	=		1.4468E-01	

Type	STD
Work List	7604
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	LIQUID
Batch Number	96003408
Rerun	0
Sample Prep	N/A
Sample #	WL7604
Instrument Code	WB27806
Prepared By	SLH
Chemist	SLF
Analyst	AKL
Date Complete	04/16/96
Analysis Date	04/15/96
Analysis Time	12:30 PM
Sample Point	U-105 (R)

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	=	1.45E-04		DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.4%		9.46E-07 µCi/mL

Analyst:		SLH	Date: 16-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
DETECTOR NUMBER			16	16
DISH SIZE (1 , 2 , or 5)		(MS)	2	2
GROSS COUNTS		(GC)	14	10
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.17	0.17
SAMPLE SIZE in mL		(SS)	1.000	1.000
DILUTION FACTOR		(DF)	101	101
DIGEST GRAMS of SOLIDS / L		(Dg/L)	1.8804	1.8804
EFFICIENCY FACTOR		(EFF)	0.2104	0.2104
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			0.297	0.377

Blank Concentration in µCi/g		3.41E-02
Replicate Concentration in µCi/g	<	4.34E-02
Maximum Concentration in µCi/g	<	4.3359E-02

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)	=	< 4.34E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rs.			
RELATIVE COUNTING ERROR		155.4%	5.08E-02 µCi/g

Type	BLNK-PREP
Work List	7604
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	SOLID
Batch Number	96003408
Rerun	0
Sample Prep	N/A
Sample #	WL7604
Instrument Code	WB27806
Prepared By	SLH
Chemist	SLF
Analyst	AKL
Date Complete	04/16/96
Analysis Date	04/15/96
Analysis Time	12:30 PM
Sample Point	U-105 (R)

Analyst:	AKL		Date: 16-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

BLANK.WB1 Rev. 1.0 508101MU

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)	370	371
7604	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)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8804	1.8804
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12.163	12.197

Blank Concentration in µCi/g	1.40E+00
Replicate Concentration in µCi/g	1.40E+00
Average Concentration in µCi/g	1.4006E+00

Batch Number: 96003408
Rerun: 1
Sample Prep: FUSION01
Sample #: S96T001285
Instrument Code: WB27806
Prepared By: SLH
Chemist: SLF
Analyst: AKL
Date Complete: 04/16/96
Analysis Date: 04/15/96
Analysis Time: 12:30 PM
Sample Point: U-105 (R)

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)	=	1.40E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		10.4%	5.08E-02 µCi/g

Analyst:		AKL	Date: 16-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)	371	328
7604	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)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8492	1.8492
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12.197	10.763

Batch Number		
96003408	Blank Concentration in µCi/g	1.43E+00
Rerun	Replicate Concentration in µCi/g	1.26E+00
1	Average Concentration in µCi/g	1.3424E+00

Sample Prep: FUSION01

Sample #: S96T001285

Instrument Code: WB27806

Prepared By: SLH

Chemist: SLF

Analyst: AKL

Date Complete: 04/16/96

Analysis Date: 04/15/96

Analysis Time: 12:30 PM

Sample Point: U-105 (R)

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)	=	1.34E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR			11.1%	5.17E-02 µCi/g

Analyst:		AKL	Date: 16-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)	57628	55856
7604	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)	1.000	1.000
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8804	1.8804
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
96003408	SPIKE VALUE in µCi/mL	(SVal)	3.5896E-02	3.5896E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
1	SAMPLE + SPIKE µCi/g	(S+S)	2.21E+02	2.14E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.4006E+00	
FUSION01				
Sample #				
S96T001285				
Instrument Code				
WB27806				
Prepared By				
SLH				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/16/96				
Analysis Date				
04/15/96				
Analysis Time				
12:30 PM				
Sample Point				
U-105 (R)				

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	=	4.02E-02
AVG. PERCENT SPIKE RECOVERY	=	112.1%

Analyst:		SLH	Date: 16-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 7843

Analyst: EAL **Instrument:** AB00 #14 **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	S96T000928	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T000928	0	F	@ALPHA01	SOLID		
6	SPK	S96T000928	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T000933	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T000933	0	F	@ALPHA01	SOLID		
9	SAMPLE	S96T000940	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T000940	0	F	@ALPHA01	SOLID		

Final page for worklist # 7843

A. Lambel 04·20·96
Analyst Signature **Date**

C.J. Ganen 4/22/96
Analyst Signature **Date**

M G Brown 4/24/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 7843

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	1.39E-4	108.590	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	SOLID	1.00	4.32E+00	4.320	% Ct. Error
2	BLNK-PREP		0	@ALPHA01	ALPHA01	SOLID	1	<2.65E-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	9.46E-01	0.950	uCi/g
4	SAMPLE	S96T000928	0 F	@ALPHA01	ALPHA01	SOLID	N/A	4.38E-01	623.0e-005	uCi/g
4	SAMPLE	S96T000928	0 F	@ALPHA01	ALPHA01E	SOLID	N/A	5.72E+00	0.0e+000	% Ct. Error
5	DUP	S96T000928	0 F	@ALPHA01	ALPHA01	SOLID	4.38E-1	4.45E-1	1.590	RPD
5	DUP	S96T000928	0 F	@ALPHA01	ALPHA01E	SOLID	1.00	5.53E+00	5.530	% Ct. Error
6	SPK	S96T000928	0 F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.15E-02	87.740	% Recovery
7	SAMPLE	S96T000933	0 F	@ALPHA01	ALPHA01	SOLID	N/A	4.04E-01	576.0e-005	uCi/g
7	SAMPLE	S96T000933	0 F	@ALPHA01	ALPHA01E	SOLID	N/A	5.61E+00	0.0e+000	% Ct. Error
8	DUP	S96T000933	0 F	@ALPHA01	ALPHA01	SOLID	4.04E-1	4.26E-1	5.300	RPD
8	DUP	S96T000933	0 F	@ALPHA01	ALPHA01E	SOLID	1.00	5.53E+00	5.530	% Ct. Error
9	SAMPLE	S96T000940	0 F	@ALPHA01	ALPHA01	SOLID	N/A	1.92E-01	598.0e-005	uCi/g
9	SAMPLE	S96T000940	0 F	@ALPHA01	ALPHA01E	SOLID	N/A	8.68E+00	0.0e+000	% Ct. Error
10	DUP	S96T000940	0 F	@ALPHA01	ALPHA01	SOLID	1.92E-1	2.12E-1	9.900	RPD
10	DUP	S96T000940	0 F	@ALPHA01	ALPHA01E	SOLID	1.00	8.23E+00	8.230	% Ct. Error

Final page for worklist# 7843

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

4/25/96

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)	2091	2134
7843	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		69.330	70.763
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003685	Concentration in µCi/L	=	1.37E-01	
Rerun	Replicate Concentration in µCi/L	=	1.40E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3875E-01	

Sample Prep: N/A

Sample #: WL7843

Instrument Code: WB27807

Prepared By: CJO

Chemist: SLF

Analyst: SCL

Date Complete: 04/23/96

Analysis Date: 04/20/96

Analysis Time: 12:35 PM

Sample Point: U-105

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	1.21E-06 µCi/mL
RELATIVE COUNTING ERROR	=	4.3%	

Analyst:		CJO	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

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)	10	11
7843	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9368	1.9368
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.259	0.259

Batch Number			
96003685	Blank Concentration in µCi/g	<	2.65E-03
Rerun	Replicate Concentration in µCi/g	<	2.65E-03
0	Maximum Concentration in µCi/g	<	2.6504E-03

Sample Prep: N/A

Sample #: WL7843

Instrument Code: WB27807

Prepared By: CJO

Chemist: SLF

Analyst: SCL

Date Complete: 04/23/96

Analysis Date: 04/20/96

Analysis Time: 12:35 PM

Sample Point: U-105

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)	=	< 2.65E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			6.23E-03 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst:		SCL	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

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)	1207	1383
7843	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9368	1.9368
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		39.863	45.730

Batch Number	
96003685	Blank Concentration in µCi/g 4.08E-01
Rerun	Replicate Concentration in µCi/g 4.68E-01
0	Average Concentration in µCi/g 4.3771E-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)
S96T000928	
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) = 4.38E-01
Analyst	
SCL	
Date Complete	
04/23/96	RELATIVE COUNTING ERROR 5.7%
Analysis Date	
04/20/96	
Analysis Time	
12:35 PM	
Sample Point	
U-105	

DETECTION LEVEL
6.23E-03 µCi/g

Analyst:		SCL	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

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)	1303	1289
7843	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9068	1.9068
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		43.063	42.597

Blank Concentration in µCi/g	4.47E-01
Replicate Concentration in µCi/g	4.43E-01
Average Concentration in µCi/g	4.4494E-01

Batch Number: 96003685

Rerun: 0

Sample Prep: FUSION01

Sample #: S96T000928

Instrument Code: WB27807

Prepared By: CJO

Chemist: SLF

Analyst: SCL

Date Complete: 04/23/96

Analysis Date: 04/20/96

Analysis Time: 12:35 PM

Sample Point: U-105

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)	=	4.45E-01		
RELATIVE COUNTING ERROR		5.5%		6.33E-03 µCi/g

Analyst:		SCL	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	54125	43983
7843	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)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9368	1.9368
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
96003685	SPIKE VALUE in µCi/mL	(SVal)	3.5895E-02	3.5895E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/g	(S+S)	1.84E+01	1.50E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		4.3771E-01	
FUSION01				
Sample #				
S96T000928				
Instrument Code				
WB27807				
Prepared By				
CJO				
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
04/23/96				
Analysis Date				
04/20/96				
Analysis Time				
12:35 PM				
Sample Point				
U-105				

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	=	3.15E-02
AVG. PERCENT SPIKE RECOVERY	=	87.9%

Analyst:	CJO	Date: 23-Apr-96
Signature of Chemist:	SLF	Date: 4/24/96

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)	1332	1253
7843	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0936	2.0936
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		44.030	41.397

Batch Number	
96003685	Blank Concentration in µCi/g 4.17E-01
Rerun	Replicate Concentration in µCi/g 3.92E-01
0	Average Concentration in µCi/g 4.0413E-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)
S96T000933	
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	
Analyst	
SCL	
Date Complete	
04/23/96	
Analysis Date	
04/20/96	
Analysis Time	
12:35 PM	
Sample Point	
U-105	

		DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average) =	4.04E-01	
RELATIVE COUNTING ERROR	5.6%	5.76E-03 µCi/g

Analyst:		SCL	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

1708

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)	1407	1290
7843	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0724	2.0724
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		46.530	42.630

Batch Number	
96003685	
Rerun	
0	
Sample Prep	
FUSION01	
Sample #	
S96T000933	
Instrument Code	
WB27807	
Prepared By	
CJO	
Chemist	
SLF	
Analyst	
SCL	
Date Complete	
04/23/96	
Analysis Date	
04/20/96	
Analysis Time	
12:35 PM	
Sample Point	
U-105	

Blank Concentration in µCi/g	4.45E-01
Replicate Concentration in µCi/g	4.07E-01
Average Concentration in µCi/g	4.2611E-01

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)	=	4.26E-01	
RELATIVE COUNTING ERROR		5.5%	5.82E-03 µCi/g

Analyst:		SCL	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

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)	651	542
7843	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.016	2.016
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		21.330	17.697

Batch Number	
96003685	
Rerun	
0	
Sample Prep	
FUSION01	
Sample #	
S96T000940	
Instrument Code	
WB27807	
Prepared By	
CJO	
Chemist	
SLF	
Analyst	
SCL	
Date Complete	
04/23/96	
Analysis Date	
04/20/96	
Analysis Time	
12:35 PM	
Sample Point	
U-105	

Blank Concentration in µCi/g	2.10E-01
Replicate Concentration in µCi/g	1.74E-01
Average Concentration in µCi/g	1.9173E-01

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)	=	1.92E-01	
RELATIVE COUNTING ERROR		8.7%	5.98E-03 µCi/g

Analyst:		SCL	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

1710

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)	600	717
7843	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0156	2.0156
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		19.630	23.530

Blank Concentration in µCi/g	1.93E-01
Replicate Concentration in µCi/g	2.31E-01
Average Concentration in µCi/g	2.1208E-01

Batch Number: 96003685
Rerun: 0
Sample Prep: FUSION01
Sample # : S96T000940
Instrument Code: WB27807
Prepared By: CJO
Chemist: SLF
Analyst: SCL
Date Complete: 04/23/96
Analysis Date: 04/20/96
Analysis Time: 12:35 PM
Sample Point: U-105

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) =	2.12E-01	
RELATIVE COUNTING ERROR	8.2%	5.98E-03 µCi/g

Analyst:		SCL	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 7844

Analyst: EAL **Instrument:** AB00 #16 **Book#** 471356

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	S96T000947	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T000947	0	F	@ALPHA01	SOLID		
6	SPK	S96T000947	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T000954	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T000954	0	F	@ALPHA01	SOLID		
9	SAMPLE	S96T000961	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T000961	0	F	@ALPHA01	SOLID		

Final page for worklist # 7844

A. Lambel 04·20·96
Analyst Signature **Date**

Sylvia Z Gibson 4/22/96
Analyst Signature **Date**

Lee E. Hogan 4/23/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 7844

Analyst: eal **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	1.55E-4	121.090	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.27E+00	4.270	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<1.62E-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	6.41E-01	0.640	uCi/g
4	SAMPLE	S96T000947	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.63E-01	409.0e-005	uCi/g
4	SAMPLE	S96T000947	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	9.17E+00	0.0e+000	% Ct. Error
5	DUP	S96T000947	0	F	@ALPHA01	ALPHA01	SOLID	1.63E-1	1.93E-1	16.850	RPD
5	DUP	S96T000947	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	8.35E+00	8.350	% Ct. Error
6	SPK	S96T000947	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.49E-02	97.210	% Recovery
7	SAMPLE	S96T000954	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.94E-01	406.0e-005	uCi/g
7	SAMPLE	S96T000954	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	8.62E+00	0.0e+000	% Ct. Error
8	DUP	S96T000954	0	F	@ALPHA01	ALPHA01	SOLID	1.94E-1	1.82E-1	6.380	RPD
8	DUP	S96T000954	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	8.78E+00	8.780	% Ct. Error
9	SAMPLE	S96T000961	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.34E-01	403.0e-005	uCi/g
9	SAMPLE	S96T000961	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.01E+01	0.0e+000	% Ct. Error
10	DUP	S96T000961	0	F	@ALPHA01	ALPHA01	SOLID	1.34E-1	1.32E-1	1.500	RPD
10	DUP	S96T000961	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.04E+01	10.400	% Ct. Error

Final page for worklist# 7844

Analyst Signature Date

Analyst Signature Date

4/25/96

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)	2123	2233
7844	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
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		70.637	74.303
	Standard Value in µCi/mL		1.28E-04	
96003686	Concentration in µCi/L	=	1.51E-01	
	Replicate Concentration in µCi/L	=	1.59E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.5515E-01	

N/A

WL7844

WB27806

SZC

SLF

EAL

04/22/96

04/20/96

12:25 PM

U-105

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	=	1.55E-04		
RELATIVE COUNTING ERROR	=	4.3%		8.52E-07 µCi/mL

Analyst:		SZC	Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/23/96

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)	1	4
7844	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0848	2.0848
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.154	0.158

Batch Number		
96003686	Blank Concentration in µCi/g	< 1.58E-03
Rerun	Replicate Concentration in µCi/g	< 1.62E-03
0	Maximum Concentration in µCi/g	< 1.6217E-03

Sample Prep: N/A

Sample #: WL7844

Instrument Code: WB27806

Prepared By: SZC

Chemist: SLF

Analyst: EAL

Date Complete: 04/22/96

Analysis Date: 04/20/96

Analysis Time: 12:25 PM

Sample Point: U-105

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)	=	< 1.62E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			4.09E-03 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst:		EAL	Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

BLANK.WB1 Rev. 1.0 508101ML

I:\508101\OUT\AT7844.WB1 04/25/96 09:30:45

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
Matrix Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work Log	GROSS COUNTS	(GC)	492	468
7844	COUNT TIME in MINUTES	(CT)	30	30
Acc. Id #	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Lab Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0848	2.0848
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		16.270	15.470

Batch Number		
96003686	Blank Concentration in µCi/g	1.67E-01
Batch Count	Replicate Concentration in µCi/g	1.59E-01
0	Average Concentration in µCi/g	1.6297E-01

Sample Prep
FUSION01

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Sample #
S96T000947

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

Instrument Code
WB27806

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

Prepared By
SZC

Chemist
SLF

ALPHA TOTAL in µCi/g (Average)	=	1.63E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		9.2%	4.09E-03 µCi/g

Analyst
EAL

Date Complete
04/22/96

Analysis Date
04/20/96

Analysis Time
12:25 PM

Sample Point
U-105

Analyst:		EAL	Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/23/96

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
Workbook:	GROSS COUNTS	(GC)	563	573
7844	COUNT TIME in MINUTES	(CT)	30	30
Analyst:	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Method Code:	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0808	2.0808
Method:	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		18.637	18.970

Batch Number:		
96003686	Blank Concentration in µCi/g	1.92E-01
Rerun:	Replicate Concentration in µCi/g	1.95E-01
0	Average Concentration in µCi/g	1.9347E-01

Sample Prep:
FUSION01

Sample:
S96T000947

Instrument Code:
WB27806

Prepared By:
SZC

Chemist:
SLF

Analyst:
EAL

Date Complete:
04/22/96

Analysis Date:
04/20/96

Analysis Time:
12:25 PM

Sample Point:
U-105

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)	=	1.93E-01		DETECTION LEVEL
RELATIVE COUNTING ERROR		8.3%		4.09E-03 µCi/g

Analyst:		EAL	Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/23/96

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)	49785	48914
7844	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)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0848	2.0848
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
96003686	SPIKE VALUE in µCi/mL	(SVal)	3.5895E-02	3.5895E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/g	(S+S)	1.70E+01	1.67E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.6297E-01	
FUSION01				
Sample #				
S96T000947	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27806	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SZC	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
EAL				
Date Complete				
04/22/96				
Analysis Date				
04/20/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.49E-02	
12:25 PM	AVG. PERCENT SPIKE RECOVERY	=	97.2%	
Sample Point				
U-105				

Analyst:		SZC	Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

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

			SAMPLE	REPLICATE
Matrix Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	619	529
7844	COUNT TIME in MINUTES	(CT)	30	30
AT or TB Z	BACKGROUND in cpm	(BKG)	0.13	0.13
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)	2.0976	2.0976
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		20.503	17.503

Blank Concentration in µCi/g	2.09E-01
Replicate Concentration in µCi/g	1.79E-01
Average Concentration in µCi/g	1.9396E-01

Batch Number: 96003686
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T000954
Instrument Code: WB27806
Prepared By: SZC
Chemist: SLF
Analyst: EAL
Date Complete: 04/22/96
Analysis Date: 04/20/96
Analysis Time: 12:25 PM
Sample Point: U-105

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)	=	1.94E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		8.6%	4.06E-03 µCi/g

Analyst:		EAL	Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1 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)	584	510
7844	COUNT TIME in MINUTES	(CT)	30	30
AT or LB ?	BACKGROUND in cpm	(BKG)	0.13	0.13
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)	2.132	2.132
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		19.337	16.870

Batch Number	
96003686	Blank Concentration in µCi/g 1.94E-01
Rerun	Replicate Concentration in µCi/g 1.69E-01
0	Average Concentration in µCi/g 1.8179E-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)
S96T000954	
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	
SZC	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.82E-01
Analyst	
EAL	
Date Complete	
04/22/96	RELATIVE COUNTING ERROR 8.8%
Analysis Date	
04/20/96	
Analysis Time	
12:25 PM	
Sample Point	
U-105	

DETECTION LEVEL
4.00E-03 µCi/g

Analyst:		EAL	Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

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)	412	390
7844	COUNT TIME in MINUTES	(CT)	30	30
Analyst	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Lab Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1152	2.1152
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		13.603	12.870

Batch Number		
96003686	Blank Concentration in µCi/g	1.38E-01
Rerun	Replicate Concentration in µCi/g	1.30E-01
0	Average Concentration in µCi/g	1.3398E-01

Sample Prep
FUSION01

Sample #
S96T000961

Instrument Code
WB27806

Prepared By
SZC

Chemist
SLF

Analyst
EAL

Date Complete
04/22/96

Analysis Date
04/20/96

Analysis Time
12:25 PM

Sample Point
U-105

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)	=	1.34E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		10.1%	4.03E-03 µCi/g

Analyst:		EAL	Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP10

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

			DUP	REPLICATE
Sample Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worksheet	GROSS COUNTS	(GC)	429	370
7844	COUNT TIME in MINUTES	(CT)	30	30
Analyst ID #	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Cert Method	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1452	2.1452
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		14.170	12.203

Batch Number		
96003686	Blank Concentration in µCi/g	1.41E-01
Replicate	Replicate Concentration in µCi/g	1.22E-01
0	Average Concentration in µCi/g	1.3160E-01

Sample Prep
FUSION01

Sample #
S96T000961

Instrument Code
WB27806

Prepared By
SZC

Chemist
SLF

Analyst
EAL

Date Complete
04/22/96

Analysis Date
04/20/96

Analysis Time
12:25 PM

Sample Point
U-105

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) =	1.32E-01	
RELATIVE COUNTING ERROR	10.4%	3.97E-03 µCi/g

Analyst:		EAL	Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1. 508101ML

LABCORE Data Entry Template for Worklist# 7846

Analyst: KGH **Instrument:** AB00 15 **Book#** 417856

Method: LA-508-101 Rev/Mod _____

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	S96T000991	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T000991	0	F	@ALPHA01	SOLID		
6	SPK	S96T000991	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T000998	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T000998	0	F	@ALPHA01	SOLID		
9	SAMPLE	S96T001005	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T001005	0	F	@ALPHA01	SOLID		
11	SAMPLE	S96T001012	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
12	DUP	S96T001012	0	F	@ALPHA01	SOLID		

Final page for worklist # 7846

Analyst Signature Date 4-22-96

Analyst Signature Date 4/23/96

MSB 4/24/96

Data Entry Comments:
Replicate results ~~Elevated~~ SLF 4/24/96 indicate that the elevated RPD's for 991 + 1005 are caused by sample inhomogeneity.

KGH 4/24/96

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

LABCORE Completed RadChem Report for Worklist#: 7846

Analyst: kgh **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	1.35E-4	105.470	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.25E+00	4.250	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<1.65E-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	6.86E-01	0.690	uCi/g
4	SAMPLE	S96T000991	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.58E-01	415.0e-005	uCi/g
4	SAMPLE	S96T000991	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	5.85E+00	0.0e+000	% Ct. Error
5	DUP	S96T000991	0	F	@ALPHA01	ALPHA01	SOLID	3.58E-1	4.32E-1	18.730	RPD
5	DUP	S96T000991	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	5.36E+00	5.360	% Ct. Error
6	SPK	S96T000991	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.37E-02	93.870	% Recovery
7	SAMPLE	S96T000998	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.28E+00	416.0e-005	uCi/g
7	SAMPLE	S96T000998	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	3.08E+00	0.0e+000	% Ct. Error
8	DUP	S96T000998	0	F	@ALPHA01	ALPHA01	SOLID	1.28E+0	1.30E+0	1.550	RPD
8	DUP	S96T000998	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	3.16E+00	3.160	% Ct. Error
9	SAMPLE	S96T001005	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.17E+00	779.0e-005	uCi/g
9	SAMPLE	S96T001005	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	4.45E+00	0.0e+000	% Ct. Error
10	DUP	S96T001005	0	F	@ALPHA01	ALPHA01	SOLID	1.17E+0	1.33E+0	12.800	RPD
10	DUP	S96T001005	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	4.15E+00	4.150	% Ct. Error
11	SAMPLE	S96T001012	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.07E+00	819.0e-005	uCi/g
11	SAMPLE	S96T001012	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	3.41E+00	0.0e+000	% Ct. Error
12	DUP	S96T001012	0	F	@ALPHA01	ALPHA01	SOLID	2.07E+0	2.06E+0	0.480	RPD
12	DUP	S96T001012	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	3.50E+00	3.500	% Ct. Error

Final page for worklist# 7846

Analyst Signature **Date**

Analyst Signature **Date**

4/25/96

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		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2139	2153
7846	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)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		71.130	71.597
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003689	Concentration in µCi/L	=	1.35E-01	
Rerun	Replicate Concentration in µCi/L	=	1.36E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3507E-01	

Sample Prep: N/A

Sample #: WL7846

Instrument Code: WB26872

Prepared By: CJO

Chemist: SLF

Analyst: KGH

Date Complete: 04/23/96

Analysis Date: 04/22/96

Analysis Time: 12:00 PM

Sample Point: U-105

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	=	1.35E-04	8.37E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.3%	

Analyst:		CJO	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

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)	2	5
7846	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)	2.0172	2.0172
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.176	0.176
Batch Number				
96003689	Blank Concentration in µCi/g	<	1.65E-03	
Rerun	Replicate Concentration in µCi/g	<	1.65E-03	
0	Maximum Concentration in µCi/g	<	1.6481E-03	
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)			
WL7846				
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				
CJO				
Chemist				
SLF	ALPHA TOTAL in µCi/g (Maximum) = < 1.65E-03			
Analyst				
KGH	LESS Than Value was Determined from Lc.			
Date Complete				
04/23/96	RELATIVE COUNTING ERROR 500.0%			
Analysis Date				
04/22/96				
Analysis Time				
12:00 PM				
Sample Point				
U-105				

DETECTION LEVEL
4.15E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

BLANK.WB1 Rev. 1.0 508101ML

1726

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)	1138	1164
7846	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)	2.0172	2.0172
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		37.763	38.630

Batch Number	
96003689	Blank Concentration in µCi/g 3.54E-01
Rerun	Replicate Concentration in µCi/g 3.62E-01
0	Average Concentration in µCi/g 3.5838E-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)
S96T000991	
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	
CJO	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 3.58E-01
Analyst	
KGH	
Date Complete	
04/23/96	RELATIVE COUNTING ERROR 5.8%
Analysis Date	
04/22/96	
Analysis Time	
12:00 PM	
Sample Point	
U-105	

DETECTION LEVEL
4.15E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

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)	1409	1351
7846	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)	2.0092	2.0092
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		46.797	44.863
Batch Number				
96003689	Blank Concentration in µCi/g		4.41E-01	
Rerun	Replicate Concentration in µCi/g		4.23E-01	
0	Average Concentration in µCi/g		4.3171E-01	

Sample Prep: FUSION01

Sample #: S96T000991

Instrument Code: WB26872

Prepared By: CJO

Chemist: SLF

Analyst: KGH

Date Complete: 04/23/96

Analysis Date: 04/22/96

Analysis Time: 12:00 PM

Sample Point: U-105

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)	=	4.32E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		5.4%	4.16E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	55839	53169
7846	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)	2.0172	2.0172
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
96003689	SPIKE VALUE in µCi/mL	(SVal)	3.5895E-02	3.5895E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
0	SAMPLE + SPIKE µCi/g	(S+S)	1.75E+01	1.66E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		3.5838E-01	
FUSION01				
Sample #				
S96T000991	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB26872	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
CJO	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
KGH				
Date Complete				
04/23/96				
Analysis Date				
04/22/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.37E-02	
12:00 PM	AVG. PERCENT SPIKE RECOVERY	=	93.8%	
Sample Point				
U-105				

Analyst:		CJO	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SPIKE.WB1 Rev. 1.0 508101ML

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)	4129	4067
7846	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)	2.01	2.01
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		137.463	135.397

Batch Number	
96003689	Blank Concentration in µCi/g 1.29E+00
Rerun	Replicate Concentration in µCi/g 1.27E+00
0	Average Concentration in µCi/g 1.2846E+00
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)
S96T000998	
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	
CJO	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.28E+00
Analyst	
KGH	
Date Complete	
04/23/96	RELATIVE COUNTING ERROR 3.1%
Analysis Date	
04/22/96	
Analysis Time	
12:00 PM	
Sample Point	
U-105	

DETECTION LEVEL
4.16E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

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)	3863	4371
7846	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)	1.9928	1.9928
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		128.597	145.530

Batch Number	
96003689	Blank Concentration in µCi/g 1.22E+00
Rerun	Replicate Concentration in µCi/g 1.38E+00
0	Average Concentration in µCi/g 1.3018E+00
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)
S96T000998	
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	
CJO	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.30E+00
Analyst	
KGH	
Date Complete	
04/23/96	RELATIVE COUNTING ERROR 3.2%
Analysis Date	
04/22/96	
Analysis Time	
12:00 PM	
Sample Point	
U-105	

DETECTION LEVEL
4.20E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

1731

WORKBOOK PAGE: SAM9

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)	1957	2052
7846	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1472	2.1472
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		65.063	68.230

Batch Number	
96003689	Blank Concentration in µCi/g 1.15E+00
Rerun	Replicate Concentration in µCi/g 1.20E+00
0	Average Concentration in µCi/g 1.1749E+00
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)
S96T001005	
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	
CJO	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.17E+00
Analyst	
KGH	
Date Complete	
04/23/96	RELATIVE COUNTING ERROR 4.4%
Analysis Date	
04/22/96	
Analysis Time	
12:00 PM	
Sample Point	
U-105	

DETECTION LEVEL
7.79E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP1

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)	2241	2327
7846	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.17	2.17
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		74.530	77.397

Batch Number		
96003689	Blank Concentration in µCi/g	1.30E+00
Rerun	Replicate Concentration in µCi/g	1.35E+00
0	Average Concentration in µCi/g	1.3251E+00

Sample Prep: FUSION01

Sample #: S96T001005

Instrument Code: WB26872

Prepared By: CJO

Chemist: SLF

Analyst: KGH

Date Complete: 04/23/96

Analysis Date: 04/22/96

Analysis Time: 12:00 PM

Sample Point: U-105

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)	=	1.33E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		4.2%	7.71E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM1

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)	3391	3321
7846	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0428	2.0428
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		112.863	110.530

Blank Concentration in µCi/g	2.09E+00
Replicate Concentration in µCi/g	2.05E+00
Average Concentration in µCi/g	2.0697E+00

Batch Number: 96003689
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001012
Instrument Code: WB26872
Prepared By: CJO
Chemist: SLF
Analyst: KGH
Date Complete: 04/23/96
Analysis Date: 04/22/96
Analysis Time: 12:00 PM
Sample Point: U-105

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) =	2.07E+00	
RELATIVE COUNTING ERROR	3.4%	8.19E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP1

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)	3159	3439
7846	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.022	2.022
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		105.130	114.463

Batch Number	
96003689	Blank Concentration in µCi/g 1.97E+00
Rerun	Replicate Concentration in µCi/g 2.14E+00
0	Average Concentration in µCi/g 2.0555E+00

Sample Prep: FUSION01

Sample #: S96T001012

Instrument Code: WB26872

Prepared By: CJO

Chemist: SLF

Analyst: KGH

Date Complete: 04/23/96

Analysis Date: 04/22/96

Analysis Time: 12:00 PM

Sample Point: U-105

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)	=	2.06E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		3.5%	8.27E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 7847

Analyst: KGH **Instrument:** AB00 14 **Book#** 417856

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	S96T001508	0	F	@ALPHA01	SOLID	96000143	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001508	0	F	@ALPHA01	SOLID		
6	SPK	S96T001508	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001510	0	F	@ALPHA01	SOLID	96000143	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T001510	0	F	@ALPHA01	SOLID		

Final page for worklist # 7847

Kristin K Kyle 4-22-96
Analyst Signature **Date**

Sharon L Uehl 4-25-96
Analyst Signature **Date**
C.J. Opinen 4/30/96

Data Entry Comments:
RPD's are out of control limits. Batch will be reran. [illegible] 5/3/96

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

LABCORE Completed RadChem Report for Worklist#: 7847

Analyst: cjo **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	1.34E-4	104.688	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	SOLID	1.00	4.42E+00	4.420	% Ct. Error
2	BLNK-PREP		0	@ALPHA01	ALPHA01	SOLID	1	<2.88E-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	1.96E+00	1.960	uCi/g
4	SAMPLE	S96T001508	0 F	@ALPHA01	ALPHA01	SOLID	N/A	1.06E+00	427.0e-005	uCi/g
4	SAMPLE	S96T001508	0 F	@ALPHA01	ALPHA01E	SOLID	N/A	3.28E+00	0.0e+000	% Ct. Error
5	DUP	S96T001508	0 F	@ALPHA01	ALPHA01	SOLID	1.06E+0	8.37E-1	23.511	RPD
5	DUP	S96T001508	0 F	@ALPHA01	ALPHA01E	SOLID	1.00	3.74E+00	3.740	% Ct. Error
6	SPK	S96T001508	0 F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.16E-02	88.022	% Recovery
7	SAMPLE	S96T001510	0 F	@ALPHA01	ALPHA01	SOLID	N/A	3.55E+00	914.0e-005	uCi/g
7	SAMPLE	S96T001510	0 F	@ALPHA01	ALPHA01E	SOLID	N/A	2.59E+00	0.0e+000	% Ct. Error
8	DUP	S96T001510	0 F	@ALPHA01	ALPHA01	SOLID	3.55E+0	4.43E+0	22.055	RPD
8	DUP	S96T001510	0 F	@ALPHA01	ALPHA01E	SOLID	1.00	2.46E+00	2.460	% Ct. Error

Final page for worklist# 7847

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

5/2/96

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)	2075	1988
7847	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		68.937	66.037
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003690	Concentration in µCi/L	=	1.37E-01	
Rerun	Replicate Concentration in µCi/L	=	1.31E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3368E-01	

Sample Prep: N/A

Sample #: WL7847

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: KGH

Date Complete: 04/25/96

Analysis Date: 04/22/96

Analysis Time: 12:00 PM

Sample Point: U-105

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	=	1.34E-04	
RELATIVE COUNTING ERROR	=	4.4%	9.89E-07 µCi/mL

Analyst:		SLH	Date: 25-Apr-96
Signature of Chemist:		SLF	Date: 5/2/96

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)	10	17
7847	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)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.3184	2.3184
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.329	0.337

Batch Number			
96003690	Blank Concentration in µCi/g	<	2.81E-03
Rerun	Replicate Concentration in µCi/g		2.88E-03
0	Maximum Concentration in µCi/g	<	2.8765E-03

Sample Prep: N/A

Sample #: WL7847

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: KGH

Date Complete: 04/25/96

Analysis Date: 04/22/96

Analysis Time: 12:00 PM

Sample Point: U-105

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.			4.27E-03 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst:		KGH	Date: 25-Apr-96
Signature of Chemist:		SLF	Date: 5/2/96

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)	3602	3834
7847	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)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.3184	2.3184
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		119.837	127.570

Blank Concentration in µCi/g	1.02E+00
Replicate Concentration in µCi/g	1.09E+00
Average Concentration in µCi/g	1.0569E+00

Batch Number: 96003690
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001508
Instrument Code: WB27807
Prepared By: SLH
Chemist: SLF
Analyst: KGH
Date Complete: 04/25/96
Analysis Date: 04/22/96
Analysis Time: 12:00 PM
Sample Point: U-105

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)	=	1.06E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		3.3%	4.27E-03 µCi/g

Analyst:		KGH	Date: 25-Apr-96
Signature of Chemist:		SLF	Date: 5/2/96

SAMPLE.WB1 Rev. 1.0 508101ML

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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)	2978	2760
7847	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)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2568	2.2568
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		99.037	91.770

Batch Number	
96003690	Blank Concentration in µCi/g 8.69E-01
Rerun	Replicate Concentration in µCi/g 8.05E-01
0	Average Concentration in µCi/g 8.3739E-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)
S96T001508	
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	ALPHA TOTAL in µCi/g (Average) = 8.37E-01
Analyst	
KGH	
Date Complete	
04/25/96	RELATIVE COUNTING ERROR 3.7%
Analysis Date	
04/22/96	
Analysis Time	
12:00 PM	
Sample Point	
U-105	

DETECTION LEVEL
4.38E-03 µCi/g

Analyst:		KGH	Date: 25-Apr-96
Signature of Chemist:		SLF	Date: 5/2/96

SAMPLE.WB1 Rev. 1.0 508101ML

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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)	55080	48032
7847	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)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.3184	2.3184
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
96003690	SPIKE VALUE in µCi/mL	(SVal)	3.5895E-02	3.5895E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/g	(S+S)	1.57E+01	1.37E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.0569E+00	
FUSION01				
Sample #				
S96T001508	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27807	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SLH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
KGH				
Date Complete				
04/25/96				
Analysis Date				
04/22/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.16E-02	
12:00 PM	AVG. PERCENT SPIKE RECOVERY	=	88.0%	
Sample Point				
U-105				

Analyst:		SLH	Date: 25-Apr-96
Signature of Chemist:		SLF	Date: 5/2/96

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)	5898	5750
7847	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1648	2.1648
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		196.370	191.437

Blank Concentration in µCi/g	3.59E+00
Replicate Concentration in µCi/g	3.50E+00
Average Concentration in µCi/g	3.5486E+00

Batch Number: 96003690
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001510
Instrument Code: WB27807
Prepared By: SLH
Chemist: SLF
Analyst: KGH
Date Complete: 04/25/96
Analysis Date: 04/22/96
Analysis Time: 12:00 PM
Sample Point: U-105

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) =	3.55E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR	2.6%	9.14E-03 µCi/g

Analyst:		KGH	Date: 25-Apr-96
Signature of Chemist:		SLF	Date: 5/2/96

SAMPLE.WB1 Rev. 1.0 508101ML

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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)	8292	6375
7847	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1848	2.1848
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		276.170	212.270

Batch Number	
96003690	Blank Concentration in µCi/g 5.01E+00
Rerun	Replicate Concentration in µCi/g 3.85E+00
0	Average Concentration in µCi/g 4.4285E+00

Sample Prep: FUSION01

Sample #: S96T001510

Instrument Code: WB27807

Prepared By: SLH

Chemist: SLF

Analyst: KGH

Date Complete: 04/25/96

Analysis Date: 04/22/96

Analysis Time: 12:00 PM

Sample Point: U-105

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) =	4.43E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR	2.5%	9.05E-03 µCi/g

Analyst:		KGH	Date: 25-Apr-96
Signature of Chemist:		SLF	Date: 5/2/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 8083

Analyst: SMF **Instrument:** AB00 16 **Book#** 47B56

Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Determine sample size using ludlum. Spike: 0.1 ml /jlsforslf

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	SAMPLE	S96T000968	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested:				ALPHA01 , ALPHA01E			
4	DUP	S96T000968	0	F	@ALPHA01	SOLID		
5	SPK	S96T000968	0	F	@ALPHA01	SOLID		
6	SAMPLE	S96T000975	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested:				ALPHA01 , ALPHA01E			
7	DUP	S96T000975	0	F	@ALPHA01	SOLID		
8	SAMPLE	S96T000984	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested:				ALPHA01 , ALPHA01E			
9	DUP	S96T000984	0	F	@ALPHA01	SOLID		

Final page for worklist # 8083

Susie M. Fulton 4-26-96
Analyst Signature **Date**

Sylvia Z Cochran 4/27/96
Analyst Signature **Date**

Sue E. Hogan 4/30/96

Data Entry Comments:
S96T000968 Sample Size .100 ml
S96T000975 & S96T000984 Sample Size ~~1.0ml~~ ~~10ml = 5ml~~ SMF 4-27-96
.050 ml

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

worklistrad Version 0.0 04/18/96
04/30/96 14:51

LABCORE Completed RadChem Report for Worklist#: 8083

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

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum. Spike: 0.1 ml /jlsforslf

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	119.531	% Recovery
1	STD			0	@ALPHA01 ALPHA01E	SOLID	1.00	4.29E+00	4.290	% Ct. Error
2	BLNK-PREP			0	@ALPHA01 ALPHA01	SOLID	1	1.40E-3	0.001	uCi/g
2	BLNK-PREP			0	@ALPHA01 ALPHA01E	SOLID	1.00	1.40E+02	140.000	% Ct. Error
3	SAMPLE	S96T000968		0 F	@ALPHA01 ALPHA01	SOLID	N/A	6.48E-02	279.0e-005	uCi/g
3	SAMPLE	S96T000968		0 F	@ALPHA01 ALPHA01E	SOLID	N/A	1.60E+01	0.0e+000	% Ct. Error
4	DUP	S96T000968		0 F	@ALPHA01 ALPHA01	SOLID	6.48E-2	1.07E-1	49.127	RPD
4	DUP	S96T000968		0 F	@ALPHA01 ALPHA01E	SOLID	1.00	1.20E+01	12.000	% Ct. Error
5	SPK	S96T000968		0 F	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.15E-02	87.744	% Recovery
6	SAMPLE	S96T000975		0 F	@ALPHA01 ALPHA01	SOLID	N/A	2.39E-01	520.0e-005	uCi/g
6	SAMPLE	S96T000975		0 F	@ALPHA01 ALPHA01E	SOLID	N/A	1.10E+01	0.0e+000	% Ct. Error
7	DUP	S96T000975		0 F	@ALPHA01 ALPHA01	SOLID	2.39E-1	2.31E-1	3.404	RPD
7	DUP	S96T000975		0 F	@ALPHA01 ALPHA01E	SOLID	1.00	1.17E+01	11.700	% Ct. Error
8	SAMPLE	S96T000984		0 F	@ALPHA01 ALPHA01	SOLID	N/A	5.28E-01	516.0e-005	uCi/g
8	SAMPLE	S96T000984		0 F	@ALPHA01 ALPHA01E	SOLID	N/A	7.41E+00	0.0e+000	% Ct. Error
9	DUP	S96T000984		0 F	@ALPHA01 ALPHA01	SOLID	5.28E-1	4.75E-1	10.568	RPD
9	DUP	S96T000984		0 F	@ALPHA01 ALPHA01E	SOLID	1.00	7.60E+00	7.600	% Ct. Error

Final page for worklist# 8083

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date 5/3/96

Replicate data ~~Elevated~~ indicate SLF that elevated RPD for 968 is due to sample inhomogeneity.

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

5/3/96

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)	2094	2198
8083	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
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		69.770	73.237
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003944	Concentration in µCi/L	=	1.49E-01	
Rerun	Replicate Concentration in µCi/L	=	1.57E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.5308E-01	
Sample Prep				
N/A				
Sample #				
WL8083				
Instrument Code				
WB27806				
Prepared By				
SZC				
Chemist				
SLF				
Analyst				
SMF				
Date Complete				
04/29/96				
Analysis Date				
04/27/96				
Analysis Time				
05:00 AM				
Sample Point				
U-105				

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		
RELATIVE COUNTING ERROR	=	4.3%		5.10E-07 µCi/mL

Analyst:		SZC	Date: 29-Apr-96
Signature of Chemist:		SLF	Date: 5/3/96

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)	5	4
8083	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
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)	1.8304	1.8304
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.137	0.103

Batch Number	
96003944	Blank Concentration in µCi/g 1.60E-03
Rerun	Replicate Concentration in µCi/g 1.21E-03
0	Average Concentration in µCi/g 1.4036E-03
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)
WL8083	
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	
SZC	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.40E-03
Analyst	
SMF	
Date Complete	
04/29/96	RELATIVE COUNTING ERROR 140.0%
Analysis Date	
04/27/96	
Analysis Time	
05:00 AM	
Sample Point	
U-105	

DETECTION LEVEL
2.79E-03 µCi/g

Analyst:		SMF	Date: 29-Apr-96
Signature of Chemist:		SLF	Date: 5/3/96

BLANK.WB1 Rev. 1.0 508101ML

1748

WORKBOOK PAGE: SAM3

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)	182	152
8083	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
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)	1.8304	1.8304
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.037	5.037

Batch Number	
96003944	Blank Concentration in µCi/g 7.06E-02
Rerun	Replicate Concentration in µCi/g 5.89E-02
1	Average Concentration in µCi/g 6.4760E-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)
S96T000968	
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	
SZC	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 6.48E-02
Analyst	
SMF	
Date Complete	
04/29/96	RELATIVE COUNTING ERROR 16.0%
Analysis Date	
04/27/96	
Analysis Time	
05:00 AM	
Sample Point	
U-105	

DETECTION LEVEL
2.79E-03 µCi/g

Analyst:	SMF	Date:	29-Apr-96
Signature of Chemist:	SLF	Date:	5/3/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP4

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)	285	269
8083	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
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)	1.834	1.834
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.470	8.937

Blank Concentration in µCi/g	1.11E-01
Replicate Concentration in µCi/g	1.04E-01
Average Concentration in µCi/g	1.0744E-01

Batch Number: 96003944
Rerun: 1
Sample Prep: FUSION01
Sample #: S96T000968
Instrument Code: WB27806
Prepared By: SZC
Chemist: SLF
Analyst: SMF
Date Complete: 04/29/96
Analysis Date: 04/27/96
Analysis Time: 05:00 AM
Sample Point: U-105

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)	=	1.07E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		12.0%	2.78E-03 µCi/g

Analyst:		SMF	Date: 29-Apr-96
Signature of Chemist:		SLF	Date: 5/3/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK5

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)	40519	48067
8083	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
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)	1.8304	1.8304
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
96003944	SPIKE VALUE in µCi/mL	(SVal)	3.5894E-02	3.5894E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
1	SAMPLE + SPIKE µCi/g	(S+S)	1.58E+01	1.87E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		6.4760E-02	
FUSION01				
Sample #				
S96T000968				
Instrument Code				
WB27806				
Prepared By				
SZC				
Chemist				
SLF				
Analyst				
SMF				
Date Complete				
04/29/96				
Analysis Date				
04/27/96				
Analysis Time				
05:00 AM				
Sample Point				
U-105				

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	=	3.15E-02
AVG. PERCENT SPIKE RECOVERY	=	87.7%

Analyst:		SZC	Date: 29-Apr-96
Signature of Chemist:		SLF	Date: 5/3/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM6

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)	322	335
8083	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9604	1.9604
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		10.703	11.137

Batch Number	
96003944	Blank Concentration in µCi/g 2.34E-01
Rerun	Replicate Concentration in µCi/g 2.43E-01
1	Average Concentration in µCi/g 2.3851E-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)
S96T000975	
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	
SZC	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 2.39E-01
Analyst	
SMF	
Date Complete	
04/29/96	RELATIVE COUNTING ERROR 11.0%
Analysis Date	
04/27/96	
Analysis Time	
05:00 AM	
Sample Point	
U-105	

DETECTION LEVEL
5.20E-03 µCi/g

Analyst:		SMF	Date: 29-Apr-96
Signature of Chemist:		SLF	Date: 5/2/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP7

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)	282	356
8083	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9668	1.9668
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.370	11.837

Batch Number		
96003944	Blank Concentration in µCi/g	2.04E-01
Rerun	Replicate Concentration in µCi/g	2.58E-01
1	Average Concentration in µCi/g	2.3084E-01

Sample Prep: FUSION01

Sample #: S96T000975

Instrument Code: WB27806

Prepared By: SZC

Chemist: SLF

Analyst: SMF

Date Complete: 04/29/96

Analysis Date: 04/27/96

Analysis Time: 05:00 AM

Sample Point: U-105

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) =	2.31E-01	
RELATIVE COUNTING ERROR	11.7%	5.19E-03 µCi/g

Analyst:		SMF	Date: 29-Apr-96
Signature of Chemist:		SLF	Date: 5/3/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM8

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)	703	762
8083	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9764	1.9764
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		23.403	25.370

Batch Number	
96003944	Blank Concentration in µCi/g 5.07E-01
Rerun	Replicate Concentration in µCi/g 5.50E-01
1	Average Concentration in µCi/g 5.2833E-01

Sample Prep: FUSION01

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

Sample #: S96T000984

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

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: SZC

Chemist: SLF

ALPHA TOTAL in µCi/g (Average) =	5.28E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR	7.4%	5.16E-03 µCi/g

Analyst: SMF

Date Complete: 04/29/96

Analysis Date: 04/27/96

Analysis Time: 05:00 AM

Sample Point: U-105

Analyst:		SMF	Date: 29-Apr-96
Signature of Chemist:		SLF	Date: 5/3/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP9

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)	672	668
8083	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0124	2.0124
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		22.370	22.237

Batch Number	
96003944	Blank Concentration in µCi/g 4.76E-01
Rerun	Replicate Concentration in µCi/g 4.73E-01
1	Average Concentration in µCi/g 4.7456E-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)
S96T000984	
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	
SZC	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 4.75E-01
Analyst	
SMF	
Date Complete	
04/29/96	RELATIVE COUNTING ERROR 7.6%
Analysis Date	
04/27/96	
Analysis Time	
05:00 AM	
Sample Point	
U-105	

DETECTION LEVEL
5.07E-03 µCi/g

Analyst:		SMF	Date: 29-Apr-96
Signature of Chemist:		SLF	Date: 5/3/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 8184

Analyst: KNT **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	S96T001774	0	F	@ALPHA01	SOLID	96000323	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001774	0	F	@ALPHA01	SOLID		
6	SAMPLE	S96T001776	0	F	@ALPHA01	SOLID	96000323	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
7	DUP	S96T001776	0	F	@ALPHA01	SOLID		
8	SPK	S96T001776	0	F	@ALPHA01	SOLID		

Final page for worklist # 8184

Kim Thomas 4-30-96
Analyst Signature **Date**

Shawn L Hall 5-2-96
Analyst Signature **Date**

Sue E. Hogan 5/3/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8184

Analyst: cjo **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	1.42E-4	110.938	% Recovery
1	STD			0	@ALPHA01	ALPHA01E	SOLID	1.00	4.52E+00	4.520	% Ct. Error
2	BLNK-PREP			0	@ALPHA01	ALPHA01	SOLID	1	<3.03E-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	6.67E-01	0.667	uCi/g
4	SAMPLE	S96T001774	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.52E-01	811.0e-005	uCi/g
4	SAMPLE	S96T001774	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	9.53E+00	0.0e+000	% Ct. Error
5	DUP	S96T001774	0	F	@ALPHA01	ALPHA01	SOLID	3.52E-1	3.80E-1	7.650	RPD
5	DUP	S96T001774	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	8.40E+00	8.400	% Ct. Error
6	SAMPLE	S96T001776	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.97E-01	677.0e-005	uCi/g
6	SAMPLE	S96T001776	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	9.12E+00	0.0e+000	% Ct. Error
7	DUP	S96T001776	0	F	@ALPHA01	ALPHA01	SOLID	2.97E-1	2.48E-1	17.982	RPD
7	DUP	S96T001776	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.04E+01	10.400	% Ct. Error
8	SPK	S96T001776	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	2.96E-02	82.451	% Recovery

Final page for worklist# 8184

Analyst Signature Date

Analyst Signature Date

Reviewer Signature 5/7/96 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)	1893	2103
8184	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
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		63.000	70.000
Batch Number	Standard Value in µCi/mL		1.28E-04	
96004035	Concentration in µCi/L	=	1.35E-01	
Rerun	Replicate Concentration in µCi/L	=	1.50E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4237E-01	
Sample Prep				
N/A				
Sample #				
8184				
Instrument Code				
WB27806				
Prepared By				
SLH2				
Chemist				
SLF				
Analyst				
KNT				
Date Complete				
05/02/96				
Analysis Date				
04/30/96				
Analysis Time				
11:00 AM				
Sample Point				
U-105 (R)				

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	=	4.5%	7.71E-07 µCi/mL

Analyst:	SLH2	Date: 02-May-96	
Signature of Chemist:	SLF	Date: 5/15/96	

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)	1	3
8184	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9024	1.9024
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.135	0.135

Batch Number			
96004035	Blank Concentration in µCi/g	<	3.03E-03
Rerun	Replicate Concentration in µCi/g	<	3.03E-03
0	Maximum Concentration in µCi/g	<	3.0323E-03

Sample Prep: N/A

Sample #: WL8184

Instrument Code: WB27806

Prepared By: SLH2

Chemist: SLF

Analyst: KNT

Date Complete: 05/02/96

Analysis Date: 04/30/96

Analysis Time: 11:00 AM

Sample Point: U-105 (R)

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)	=	< 3.03E-03		DETECTION LEVEL
LESS Than Value was Determined from Lc.				8.11E-03 µCi/g
RELATIVE COUNTING ERROR			500.0%	

Analyst:		KNT	Date: 02-May-96
Signature of Chemist:		SLF	Date: SLF 5/15/96

BLANK.WB1 Rev. 1.0 508101ML

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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)	513	432
8184	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9024	1.9024
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		17.000	14.300

Blank Concentration in µCi/g	3.83E-01
Replicate Concentration in µCi/g	3.22E-01
Average Concentration in µCi/g	3.5224E-01

Batch Number: 96004035
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001774
Instrument Code: WB27806
Prepared By: SLH2
Chemist: SLF
Analyst: KNT
Date Complete: 05/02/96
Analysis Date: 04/30/96
Analysis Time: 11:00 AM
Sample Point: U-105 (R)

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)	=	3.52E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		9.5%	8.11E-03 µCi/g

Analyst:		KNT	Date: 02-May-96
Signature of Chemist:		SLF	Date: 5/15/96

SAMPLE.WB1 Rev. 1.0 508101MI

1760

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)	553	580
8184	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1192	2.1192
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		18.333	19.233

Batch Number	
96004035	Blank Concentration in µCi/g 3.70E-01
Rerun	Replicate Concentration in µCi/g 3.89E-01
0	Average Concentration in µCi/g 3.7952E-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)
S96T001774	
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	
SLH2	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 3.80E-01
Analyst	
KNT	
Date Complete	
05/02/96	RELATIVE COUNTING ERROR 8.4%
Analysis Date	
04/30/96	
Analysis Time	
11:00 AM	
Sample Point	
U-105 (R)	

DETECTION LEVEL
7.28E-03 µCi/g

Analyst:		KNT	Date: 02-May-96
Signature of Chemist:		SLF	Date: 5/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM6

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)	471	483
8184	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2792	2.2792
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		15.600	16.000

Batch Number	
96004035	
Rerun	
0	
Sample Prep	
FUSION01	
Sample #	
S96T001776	
Instrument Code	
WB27806	
Prepared By	
SLH2	
Chemist	
SLF	
Analyst	
KNT	
Date Complete	
05/02/96	
Analysis Date	
04/30/96	
Analysis Time	
11:00 AM	
Sample Point	
U-105 (R)	

Blank Concentration in µCi/g	2.93E-01
Replicate Concentration in µCi/g	3.01E-01
Average Concentration in µCi/g	2.9683E-01

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)	=	2.97E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		9.1%	6.77E-03 µCi/g

Analyst:	KNT	Date: 02-May-96	
Signature of Chemist:	SLF	Date: 5/15/96	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP7

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)	445	367
8184	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.3156	2.3156
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		14.733	12.133

Blank Concentration in µCi/g	2.72E-01
Replicate Concentration in µCi/g	2.24E-01
Average Concentration in µCi/g	2.4840E-01

Batch Number: 96004035
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001776
Instrument Code: WB27806
Prepared By: SLH2
Chemist: SLF
Analyst: KNT
Date Complete: 05/02/96
Analysis Date: 04/30/96
Analysis Time: 11:00 AM
Sample Point: U-105 (R)

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)	=	2.48E-01	
RELATIVE COUNTING ERROR		10.4%	6.66E-03 µCi/g

Analyst:	KNT		Date: 02-May-96
Signature of Chemist:	SLF		Date: 5/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK8

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	42335	41480
8184	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.050	0.050
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2792	2.2792
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
96004035	SPIKE VALUE in µCi/mL	(SVal)	3.5893E-02	3.5893E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/g	(S+S)	2.65E+01	2.60E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.9683E-01	
FUSION01				
Sample #				
S96T001776	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27806	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SLH2	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
KNT				
Date Complete				
05/02/96				
Analysis Date				
04/30/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	2.96E-02	
11:00 AM	AVG. PERCENT SPIKE RECOVERY	=	82.4%	
Sample Point				
U-105 (R)				

Analyst:		SLH2	Date: 02-May-96
Signature of Chemist:		SLF	Date: 5/15/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 8185

Analyst: KNT **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	S96T001778	0	F	@ALPHA01	SOLID	96000323	U-105 (R)
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T001778	0	F	@ALPHA01	SOLID		
6	SPK	S96T001778	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001779	0	F	@ALPHA01	SOLID	96000323	U-105 (R)
		Analytes Requested: ALPHA01 , ALPHA01E						
8	DUP	S96T001779	0	F	@ALPHA01	SOLID		

Final page for worklist # 8185

Kim Thomas 4-30-96
Analyst Signature **Date**

Sue E. Hogan 5/1/96
Analyst Signature **Date**
C.J. Opinen 5/6/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8185

Analyst: seh **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	1.40E-4	109.375	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	4.26E+00	4.260	% Ct. Error
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<2.35E-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	3.33E-01	0.333	uCi/g
4	SAMPLE	S96T001778	0	F	@ALPHA01 ALPHA01	SOLID	N/A	4.83E-01	629.0e-005	uCi/g
4	SAMPLE	S96T001778	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	6.93E+00	0.0e+000	% Ct. Error
5	DUP	S96T001778	0	F	@ALPHA01 ALPHA01	SOLID	4.83E-1	4.95E-1	2.454	RPD
5	DUP	S96T001778	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	6.85E+00	6.850	% Ct. Error
6	SPK	S96T001778	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.26E-02	90.808	% Recovery
7	SAMPLE	S96T001779	0	F	@ALPHA01 ALPHA01	SOLID	N/A	4.01E-01	630.0e-005	uCi/g
7	SAMPLE	S96T001779	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	7.81E+00	0.0e+000	% Ct. Error
8	DUP	S96T001779	0	F	@ALPHA01 ALPHA01	SOLID	4.01E-1	3.82E-1	4.853	RPD
8	DUP	S96T001779	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	7.71E+00	7.710	% Ct. Error

Final page for worklist# 8185

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date 5/7/96

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		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2121	2331
8185	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
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		70.600	77.600
Batch Number	Standard Value in µCi/mL		1.28E-04	
96004036	Concentration in µCi/L	=	1.34E-01	
Rerun	Replicate Concentration in µCi/L	=	1.47E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4025E-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 #: WL8185

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: KNT

Date Complete: 05/01/96

Analysis Date: 04/30/96

Analysis Time: 11:00 AM

Sample Point: U-105 (R)

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.40E-04	6.82E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.3%	

Analyst:	SEH		Date: 01-May-96
Signature of Chemist:		SLF	Date: 5/15/96

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)	1	1
8185	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1676	2.1676
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.135	0.135
Batch Number				
96004036	Blank Concentration in µCi/g	<	2.35E-03	
Rerun	Replicate Concentration in µCi/g	<	2.35E-03	
0	Maximum Concentration in µCi/g	<	2.3527E-03	

Sample Prep: N/A

Sample #: WL8185

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: KNT

Date Complete: 05/01/96

Analysis Date: 04/30/96

Analysis Time: 11:00 AM

Sample Point: U-105 (R)

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) = < 2.35E-03		DETECTION LEVEL
LESS Than Value was Determined from Lc.		
RELATIVE COUNTING ERROR	500.0%	6.29E-03 µCi/g

Analyst:		KNT	Date: 01-May-96
Signature of Chemist:		SLF	Date: 5/15/96

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)	809	857
8185	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1676	2.1676
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		26.867	28.467

Batch Number	
96004036	Blank Concentration in µCi/g 4.69E-01
Rerun	Replicate Concentration in µCi/g 4.97E-01
0	Average Concentration in µCi/g 4.8315E-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)
S96T001778	
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) = 4.83E-01
Analyst	
KNT	
Date Complete	
05/01/96	RELATIVE COUNTING ERROR 6.9%
Analysis Date	
04/30/96	
Analysis Time	
11:00 AM	
Sample Point	
U-105 (R)	

DETECTION LEVEL
6.29E-03 µCi/g

Analyst:	KNT	Date: 01-May-96	
Signature of Chemist:	SLF	Date: 5/15/96	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
DETECTOR NUMBER			15	15
DISH SIZE (1 , 2 , or 5)		(MS)	2	2
GROSS COUNTS		(GC)	836	828
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.1	0.1
SAMPLE SIZE in mL		(SS)	0.050	0.050
DILUTION FACTOR		(DF)	1	1
DIGEST GRAMS of SOLIDS / L		(Dg/L)	2.1124	2.1124
EFFICIENCY FACTOR		(EFF)	0.2380	0.2380
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			27.767	27.500

Blank Concentration in µCi/g	4.98E-01
Replicate Concentration in µCi/g	4.93E-01
Average Concentration in µCi/g	4.9517E-01

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) =	4.95E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR	6.8%	6.45E-03 µCi/g

Type	DUP
Work List	8185
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	SOLID
Batch Number	96004036
Rerun	0
Sample Prep	FUSION01
Sample #	S96T001778
Instrument Code	WB26872
Prepared By	SEH
Chemist	SLF
Analyst	KNT
Date Complete	05/01/96
Analysis Date	04/30/96
Analysis Time	11:00 AM
Sample Point	U-105 (R)

Analyst:		KNT	Date: 01-May-96
Signature of Chemist:		SLF	Date: 5/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	51845	53183
8185	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.050	0.050
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1676	2.1676
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
96004036	SPIKE VALUE in µCi/mL	(SVal)	3.5893E-02	3.5893E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
0	SAMPLE + SPIKE µCi/g	(S+S)	3.02E+01	3.10E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		4.8315E-01	
FUSION01				
Sample #				
S96T001778				
Instrument Code				
WB26872				
Prepared By				
SEH				
Chemist				
SLF				
Analyst				
KNT				
Date Complete				
05/01/96				
Analysis Date				
04/30/96				
Analysis Time				
11:00 AM				
Sample Point				
U-105 (R)				

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	=	3.26E-02
AVG. PERCENT SPIKE RECOVERY	=	90.8%

Analyst:	SEH	Date: 01-May-96
Signature of Chemist:	SLF	Date: 5/15/96

SPIKE.WB1 Rev. 1.0 508101ML

1771

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)	743	639
8185	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1624	2.1624
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		24.667	21.200

Blank Concentration in µCi/g	4.32E-01
Replicate Concentration in µCi/g	3.71E-01
Average Concentration in µCi/g	4.0145E-01

Batch Number: 96004036
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001779
Instrument Code: WB26872
Prepared By: SEH
Chemist: SLF
Analyst: KNT
Date Complete: 05/01/96
Analysis Date: 04/30/96
Analysis Time: 11:00 AM
Sample Point: U-105 (R)

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)	=	4.01E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		7.8%	6.30E-03 µCi/g

Analyst:		KNT	Date: 01-May-96
Signature of Chemist:		SLF	Date: 5/15/96

SAMPLE.WB1 Rev. 1.0 50810 ML

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)	656	690
8185	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2104	2.2104
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		21.767	22.900

Batch Number	
96004036	Blank Concentration in µCi/g 3.73E-01
Rerun	Replicate Concentration in µCi/g 3.92E-01
0	Average Concentration in µCi/g 3.8246E-01

Sample Prep: FUSION01

Sample #: S96T001779

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: KNT

Date Complete: 05/01/96

Analysis Date: 04/30/96

Analysis Time: 11:00 AM

Sample Point: U-105 (R)

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	7.7%	6.17E-03 µCi/g

Analyst:		KNT	Date: 01-May-96
Signature of Chemist:		SLF	Date: 5/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 8186

Analyst: KNT **Instrument:** AB00 #18 **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	S96T001781	0	F	@ALPHA01	SOLID	96000323	U-105 (R)
	Analytes Requested:				ALPHA01 , ALPHA01E			
5	DUP	S96T001781	0	F	@ALPHA01	SOLID		
6	SPK	S96T001781	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001782	0	F	@ALPHA01	SOLID	96000323	U-105 (R)
	Analytes Requested:				ALPHA01 , ALPHA01E			
8	DUP	S96T001782	0	F	@ALPHA01	SOLID		

Final page for worklist # 8186

Kim Thomas 5-1-96 5-1-96
Analyst Signature **Date**

Sylvia Z Cochrane 5-3-96
Analyst Signature **Date**

C.J. Opinen 5/3/96

Data Entry Comments:

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

worklistrad Version 0.0 04/18/96
05/07/96 09:34

LABCORE Completed RadChem Report for Worklist#: 8186

Analyst: cjo **Instrument:** AB18 **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	1.40E-4	109.375	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	4.60E+00	4.600	% Ct. Error
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<4.79E-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	9.44E-01	0.944	uCi/g
4	SAMPLE	S96T001781	0	F	@ALPHA01 ALPHA01	SOLID	N/A	1.21E+00	114.0e-004	uCi/g
4	SAMPLE	S96T001781	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	4.80E+00	0.0e+000	% Ct. Error
5	DUP	S96T001781	0	F	@ALPHA01 ALPHA01	SOLID	1.21E+0	1.12E+0	7.725	RPD
5	DUP	S96T001781	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	4.84E+00	4.840	% Ct. Error
6	SPK	S96T001781	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.32E-02	92.479	% Recovery
7	SAMPLE	S96T001782	0	F	@ALPHA01 ALPHA01	SOLID	N/A	9.05E-01	113.0e-004	uCi/g
7	SAMPLE	S96T001782	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	5.40E+00	0.0e+000	% Ct. Error
8	DUP	S96T001782	0	F	@ALPHA01 ALPHA01	SOLID	9.05E-1	8.65E-1	4.520	RPD
8	DUP	S96T001782	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	5.55E+00	5.550	% Ct. Error

Final page for worklist# 8186

Analyst Signature **Date**

Analyst Signature **Date**

5/8/96

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			18	18
DISH SIZE (1 , 2 , or 5)		(MS)	2	2
GROSS COUNTS		(GC)	1841	2080
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.3	0.3
SAMPLE SIZE in mL		(SS)	1.000	1.000
DILUTION FACTOR		(DF)	1	1
STANDARD BOOK NUMBER		(Std BN)	47B56	47B56
EFFICIENCY FACTOR		(EFF)	0.2095	0.2095
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			61.067	69.033
Standard Value in µCi/mL			1.28E-04	
Concentration in µCi/L	=		1.31E-01	
Replicate Concentration in µCi/L	=		1.48E-01	
AVERAGE CONCENTRATION in µCi/L	=		1.3987E-01	

Type	STD
Work List	8186
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	LIQUID
Batch Number	96004037
Rerun	0
Sample Prep	N/A
Sample #	WL8186
Instrument Code	WB27809
Prepared By	SZC
Chemist	SLF
Analyst	KNT
Date Complete	05/03/96
Analysis Date	05/01/96
Analysis Time	05:25 AM
Sample Point	U-105

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	1.20E-06 µCi/mL
RELATIVE COUNTING ERROR	=	4.6%	

Analyst:	SZC		Date: 03-May-96
Signature of Chemist:		SLF	Date: 5/8/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
DETECTOR NUMBER			18	18
DISH SIZE (1 , 2 , or 5)		(MS)	2	2
GROSS COUNTS		(GC)	8	9
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.3	0.3
SAMPLE SIZE in mL		(SS)	0.050	0.050
DILUTION FACTOR		(DF)	1	1
DIGEST GRAMS of SOLIDS / L		(Dg/L)	2.0948	2.0948
EFFICIENCY FACTOR		(EFF)	0.2095	0.2095
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			0.233	0.233

Blank Concentration in µCi/g	<	4.79E-03
Replicate Concentration in µCi/g	<	4.79E-03
Maximum Concentration in µCi/g	<	4.7902E-03

Type	BLNK-PREP
Work List	8186
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	SOLID
Batch Number	96004037
Rerun	0
Sample Prep	N/A
Sample #	WL8186
Instrument Code	WB27809
Prepared By	SZC
Chemist	SLF
Analyst	KNT
Date Complete	05/03/96
Analysis Date	05/01/96
Analysis Time	05:25 AM
Sample Point	U-105

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)	=	< 4.79E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			1.14E-02 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst:		KNT	Date: 03-May-96
Signature of Chemist:		SLF	Date: 5/8/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	1692	1866
8186	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0948	2.0948
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		56.100	61.900
Batch Number				
96004037	Blank Concentration in µCi/g		1.15E+00	
Rerun	Replicate Concentration in µCi/g		1.27E+00	
0	Average Concentration in µCi/g		1.2112E+00	
Sample Prep				
FUSION01				
Sample #				
S96T001781				
Instrument Code				
WB27809				
Prepared By				
SZC				
Chemist				
SLF				
Analyst				
KNT				
Date Complete				
05/03/96				
Analysis Date				
05/01/96				
Analysis Time				
05:25 AM				
Sample Point				
U-105				

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)	=	1.21E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		4.8%	1.14E-02 µCi/g

Analyst:	KNT		Date: 03-May-96
Signature of Chemist:		SLF	Date: 5/8/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		18	18
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	1666	1723
8186	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1624	2.1624
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		55.233	57.133

Batch Number	
96004037	Blank Concentration in µCi/g 1.10E+00
Rerun	Replicate Concentration in µCi/g 1.14E+00
0	Average Concentration in µCi/g 1.1173E+00
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)
S96T001781	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SZC	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.12E+00
Analyst	
KNT	
Date Complete	
05/03/96	RELATIVE COUNTING ERROR 4.8%
Analysis Date	
05/01/96	
Analysis Time	
05:25 AM	
Sample Point	
U-105	

DETECTION LEVEL
1.11E-02 µCi/g

Analyst:		KNT	Date: 03-May-96
Signature of Chemist:		SLF	Date: 5/8/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		18	18
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	47414	48843
8186	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.050	0.050
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0948	2.0948
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
96004037	SPIKE VALUE in µCi/mL	(SVal)	3.5893E-02	3.5893E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
0	SAMPLE + SPIKE µCi/g	(S+S)	3.24E+01	3.34E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.2112E+00	
FUSION01				
Sample #				
S96T001781	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27809	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SZC	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
KNT				
Date Complete				
05/03/96				
Analysis Date				
05/01/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.32E-02	
05:25 AM	AVG. PERCENT SPIKE RECOVERY	=	92.5%	
Sample Point				
U-105				

Analyst:		SZC	Date: 03-May-96
Signature of Chemist:		SLF	Date: 5/8/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	1345	1354
8186	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1228	2.1228
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		44.533	44.833

Batch Number		
96004037	Blank Concentration in µCi/g	9.02E-01
Rerun	Replicate Concentration in µCi/g	9.08E-01
0	Average Concentration in µCi/g	9.0517E-01

Sample Prep: FUSION01

Sample #: S96T001782

Instrument Code: WB27809

Prepared By: SZC

Chemist: SLF

Analyst: KNT

Date Complete: 05/03/96

Analysis Date: 05/01/96

Analysis Time: 05:25 AM

Sample Point: U-105

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)	=	9.05E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		5.4%	1.13E-02 µCi/g

Analyst:		KNT	Date: 03-May-96
Signature of Chemist:		SLF	Date: 5/8/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		18	18
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	1316	1273
8186	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1312	2.1312
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		43.567	42.133

Batch Number	
96004037	Blank Concentration in µCi/g 8.79E-01
Rerun	Replicate Concentration in µCi/g 8.50E-01
0	Average Concentration in µCi/g 8.6461E-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)
S96T001782	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SZC	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 8.65E-01
Analyst	
KNT	
Date Complete	
05/03/96	RELATIVE COUNTING ERROR 5.6%
Analysis Date	
05/01/96	
Analysis Time	
05:25 AM	
Sample Point	
U-105	

DETECTION LEVEL
1.12E-02 µCi/g

Analyst:	KNT		Date: 03-May-96
Signature of Chemist:		SLF	Date: 5/8/96

SAMPLE.WB1 Rev. 1.0 508101ML

1782

04/30/96 14:41
A-0004-1

LABCORE Data Entry Template for Worklist# 8187

Analyst: KNT **Instrument:** AB00 #13 **Book#** 47656

Method: LA-508-101 Rev/Mod 0-2

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	S96T001783	0	F	@ALPHA01	SOLID	96000323	U-105 (R)
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T001783	0	F	@ALPHA01	SOLID		
6	SAMPLE	S96T001784	0	F	@ALPHA01	SOLID	96000323	U-105 (R)
		Analytes Requested: ALPHA01 , ALPHA01E						
7	DUP	S96T001784	0	F	@ALPHA01	SOLID		
8	SPK	S96T001784	0	F	@ALPHA01	SOLID		

Final page for worklist # 8187

Kim Thomas 5-1-96
Analyst Signature **Date**

Sue E. Hogan 5/2/96
Analyst Signature **Date**

C.J. Opinen 5/3/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8187

Analyst: cjo **Instrument:** AB13 **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	1.36E-4	106.250	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.18E+00	4.180	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<3.96E-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	8.02E-01	0.802	uCi/g
4	SAMPLE	S96T001783	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.29E+00	953.0e-005	uCi/g
4	SAMPLE	S96T001783	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	4.26E+00	0.0e+000	% Ct. Error
5	DUP	S96T001783	0	F	@ALPHA01	ALPHA01	SOLID	1.29E+0	1.18E+0	8.907	RPD
5	DUP	S96T001783	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	4.46E+00	4.460	% Ct. Error
6	SAMPLE	S96T001784	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.08E+00	938.0e-005	uCi/g
6	SAMPLE	S96T001784	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	4.60E+00	0.0e+000	% Ct. Error
7	DUP	S96T001784	0	F	@ALPHA01	ALPHA01	SOLID	1.08E+0	1.27E+0	16.170	RPD
7	DUP	S96T001784	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	4.27E+00	4.270	% Ct. Error
8	SPK	S96T001784	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	2.87E-02	79.944	% Recovery

Final page for worklist# 8187

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

5/8/96

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		13	13
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2283	2219
8187	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
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)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		75.830	73.697
Batch Number	Standard Value in µCi/mL		1.28E-04	
96004038	Concentration in µCi/L	=	1.38E-01	
Rerun	Replicate Concentration in µCi/L	=	1.34E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3596E-01	

Sample Prep: N/A

Sample #: WL8187

Instrument Code: WB27810

Prepared By: SEH

Chemist: SLF

Analyst: KNT

Date Complete: 05/02/96

Analysis Date: 05/01/96

Analysis Time: 05:25 AM

Sample Point: U-105 (R)

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	=	1.36E-04	9.70E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.2%	

Analyst:		SEH	Date: 02-May-96
Signature of Chemist:		SLF	Date: 5/8/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		13	13
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	5	8
8187	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0352	2.0352
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.221	0.221

Batch Number			
96004038	Blank Concentration in µCi/g	<	3.96E-03
Rerun	Replicate Concentration in µCi/g	<	3.96E-03
0	Maximum Concentration in µCi/g	<	3.9561E-03

Sample Prep: N/A

Sample #: WL8187

Instrument Code: WB27810

Prepared By: SEH

Chemist: SLF

Analyst: KNT

Date Complete: 05/02/96

Analysis Date: 05/01/96

Analysis Time: 05:25 AM

Sample Point: U-105 (R)

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)	=	< 3.96E-03		DETECTION LEVEL
LESS Than Value was Determined from Lc.				9.53E-03 µCi/g
RELATIVE COUNTING ERROR		500.0%		

Analyst:	KNT	Date: 02-May-96	
Signature of Chemist:	SLF	Date: 5/8/96	

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2200	2139
8187	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0352	2.0352
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		73.063	71.030

Batch Number	
96004038	Blank Concentration in µCi/g 1.31E+00
Rerun	Replicate Concentration in µCi/g 1.27E+00
0	Average Concentration in µCi/g 1.2875E+00
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)
S96T001783	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SEH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.29E+00
Analyst	
KNT	
Date Complete	
05/02/96	RELATIVE COUNTING ERROR 4.3%
Analysis Date	
05/01/96	
Analysis Time	
05:25 AM	
Sample Point	
U-105 (R)	

DETECTION LEVEL
9.53E-03 µCi/g

Analyst:		KNT	Date: 02-May-96
Signature of Chemist:		SLF	Date: 5/8/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	1955	1978
8187	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0176	2.0176
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		64.897	65.663

Blank Concentration in µCi/g	1.17E+00
Replicate Concentration in µCi/g	1.18E+00
Average Concentration in µCi/g	1.1768E+00

Batch Number: 96004038
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001783
Instrument Code: WB27810
Prepared By: SEH
Chemist: SLF
Analyst: KNT
Date Complete: 05/02/96
Analysis Date: 05/01/96
Analysis Time: 05:25 AM
Sample Point: U-105 (R)

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) =	1.18E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR	4.5%	9.62E-03 µCi/g

Analyst:		KNT	Date: 02-May-96
Signature of Chemist:		SLF	Date: 5/8/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM6

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	1853	1843
8187	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0672	2.0672
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		61.497	61.163
Batch Number				
96004038	Blank Concentration in µCi/g		1.08E+00	
Rerun	Replicate Concentration in µCi/g		1.08E+00	
0	Average Concentration in µCi/g		1.0790E+00	

Sample Prep: FUSION01

Sample #: S96T001784

Instrument Code: WB27810

Prepared By: SEH

Chemist: SLF

Analyst: KNT

Date Complete: 05/02/96

Analysis Date: 05/01/96

Analysis Time: 05:25 AM

Sample Point: U-105 (R)

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)	=	1.08E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		4.6%	9.38E-03 µCi/g

Analyst:	KNT		Date: 02-May-96
Signature of Chemist:		SLF	Date: 5/8/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP7

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2129	2129
8187	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0276	2.0276
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		70.697	70.697

Batch Number	
96004038	
Rerun	
0	
Sample Prep	
FUSION01	
Sample #	
S96T001784	
Instrument Code	
WB27810	
Prepared By	
SEH	
Chemist	
SLF	
Analyst	
KNT	
Date Complete	
05/02/96	
Analysis Date	
05/01/96	
Analysis Time	
05:25 AM	
Sample Point	
U-105 (R)	

Blank Concentration in µCi/g	1.27E+00
Replicate Concentration in µCi/g	1.27E+00
Average Concentration in µCi/g	1.2681E+00

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)	=	1.27E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		4.3%	9.57E-03 µCi/g

Analyst:		KNT	Date: 02-May-96
Signature of Chemist:		SLF	Date: 5/8/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK8

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	51662	46768
8187	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.050	0.050
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0672	2.0672
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
96004038	SPIKE VALUE in µCi/mL	(SVal)	3.5893E-02	3.5893E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
0	SAMPLE + SPIKE µCi/g	(S+S)	3.03E+01	2.74E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.0790E+00	
FUSION01				
Sample #				
S96T001784				
Instrument Code				
WB27810				
Prepared By				
SEH				
Chemist				
SLF				
Analyst				
KNT				
Date Complete				
05/02/96				
Analysis Date				
05/01/96				
Analysis Time				
05:25 AM				
Sample Point				
U-105 (R)				

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	=	2.87E-02
AVG. PERCENT SPIKE RECOVERY	=	80.0%

Analyst:		SEH	Date: 02-May-96
Signature of Chemist:		SLF	Date: 5/8/96

SPIKE.WB1 Rev. 1.0 508101ML

05/03/96 15:15
A-0004-1

LABCORE Data Entry Template for Worklist# 8332

Analyst: DBB **Instrument:** AB00 16 **Book#** 47B56

Method: LA-508-101 Rev/Mod D-2 "A" SPK # 123B43

Worklist Comment: Use .100 mL sample size. Rerun #1. 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	S96T001508	0	F	@ALPHA01	SOLID	96000143	U-105 (R)
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T001508	0	F	@ALPHA01	SOLID		
6	SPK	S96T001508	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001510	0	F	@ALPHA01	SOLID	96000143	U-105 (R)
		Analytes Requested: ALPHA01 , ALPHA01E						
8	DUP	S96T001510	0	F	@ALPHA01	SOLID		

Final page for worklist # 8332

DB Griffin 5-4-96
Analyst Signature Date

MB Brown 5/7/96
Analyst Signature Date

Sue E. Hogan 5/8/96

Data Entry Comments: RPD for 1510 is consistent with the 1st run. No rerun requested. 5/9/96

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

worklistrad Version 0.0 04/18/96
05/09/96 11:34

LABCORE Completed RadChem Report for Worklist#: 8332

Analyst: dgg **Instrument:** AB16 **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		@ALPHA01 ALPHA01	SOLID	1.28E-04	1.28E-4	100.000	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	4.64E+00	4.640	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<1.65e-3		uCi/g
2	BLNK-PREP		0		@ALPHA01 ALPHA01E	SOLID	1.00	184.3	184.300	uCi/g
3	BLNK/BKG		0		@ALPHA01 ALPHA01	SOLID	1.00E+00	5.00	5.000	BLNK/BKG
4	SAMPLE	S96T001508	0	F	@ALPHA01 ALPHA01	SOLID	N/A	9.90E-01	220.0e-005	uCi/g
4	SAMPLE	S96T001508	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	3.56E+00	0.0e+000	% Ct. Error
5	DUP	S96T001508	0	F	@ALPHA01 ALPHA01	SOLID	9.90E-1	9.06E-1	8.861	RPD
5	DUP	S96T001508	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	3.76E+00	3.760	% Ct. Erro
6	SPK	S96T001508	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	2.97E-02	82.730	% Recovery
7	SAMPLE	S96T001510	0	F	@ALPHA01 ALPHA01	SOLID	N/A	3.55E+00	471.0e-005	uCi/g
7	SAMPLE	S96T001510	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	2.71E+00	0.0e+000	% Ct. Error
8	DUP	S96T001510	0	F	@ALPHA01 ALPHA01	SOLID	3.55E+0	4.53E+0	24.257	RPD
8	DUP	S96T001510	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	2.42E+00	2.420	% Ct. Erro

Final page for worklist# 8332

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

5/9/96

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)	1790	1804
8332	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
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		59.637	60.103
Batch Number	Standard Value in µCi/mL		1.28E-04	
96004239	Concentration in µCi/L	=	1.28E-01	
Rerun	Replicate Concentration in µCi/L	=	1.29E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.2818E-01	

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)
WL8332	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
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
MCB	
Chemist	
SLF	
Analyst	
DGG	
Date Complete	
05/07/96	
Analysis Date	
05/04/96	
Analysis Time	
05:00 AM	
Sample Point	
U-105 (R)	

ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.28E-04	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.6%	5.10E-07 µCi/mL

Analyst:	MCB		Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

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)	3	6
8332	COUNT TIME in MINUTES	(CT)	30	30
AT for FB 7	BACKGROUND in cpm	(BKG)	0.03	0.03
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)	2.3184	2.3184
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.179	0.170

Blank Concentration in µCi/g	<	1.65E-03
Replicate Concentration in µCi/g		1.57E-03
Maximum Concentration in µCi/g	<	1.6494E-03

Batch Number: 96004239
Rerun: 0
Sample Prep: N/A
Sample #: WL8332
Instrument Code: WB27806
Prepared By: MCB
Chemist: SLF
Analyst: DGG
Date Complete: 05/07/96
Analysis Date: 05/04/96
Analysis Time: 05:00 AM
Sample Point: U-105 (R)

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)	=	< 1.65E-03	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			2.20E-03 µCi/g
RELATIVE COUNTING ERROR		184.3%	

Analyst:		DGG	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

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)	3391	3040
8332	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
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)	2.3184	2.3184
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		113.003	101.303

Blank Concentration in µCi/g	1.04E+00
Replicate Concentration in µCi/g	9.35E-01
Average Concentration in µCi/g	9.8951E-01

Batch Number: 96004239
Rerun: 1
Sample Prep: FUSION01
Sample #: S96T001508
Instrument Code: WB27806
Prepared By: MCB
Chemist: SLF
Analyst: DGG
Date Complete: 05/07/96
Analysis Date: 05/04/96
Analysis Time: 05:00 AM
Sample Point: U-105 (R)

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) =	9.90E-01	
RELATIVE COUNTING ERROR	3.6%	2.20E-03 µCi/g

Analyst: DGG Date: 07-May-96

Signature of Chemist: SLF Date: 5/9/96

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)	3008	2725
8332	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
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)	2.2568	2.2568
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		100.237	90.803

Blank Concentration in µCi/g	9.51E-01
Replicate Concentration in µCi/g	8.61E-01
Average Concentration in µCi/g	9.0616E-01

Batch Number: 96004239
Rerun: 1
Sample Prep: FUSION01
Sample #: S96T001508
Instrument Code: WB27806
Prepared By: MCB
Chemist: SLF
Analyst: DGG
Date Complete: 05/07/96
Analysis Date: 05/04/96
Analysis Time: 05:00 AM
Sample Point: U-105 (R)

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)	=	9.06E-01	
RELATIVE COUNTING ERROR		3.8%	2.26E-03 µCi/g

Analyst:		DGG	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

AT : LA-508-101 (D-2) LA-508-113 (A-2) SPIKED SAMPLE

			SPIKE	REPLICATE
DETECTOR NUMBER			16	16
DISH SIZE 1 , 2 , or 5		(MS)	2	2
TOTAL COUNTS		(TC)	48485	41123
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.03	0.03
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)	2.3184	2.3184
SPIKE VOLUME in mL		(SVol)	0.100	0.100
SPIKE DILUTION FACTOR		(SDF)	1	1
SPIKE BOOK NUMBER		(Spk BN)	123B43	123B43
SPIKE VALUE in µCi/mL		(SVal)	3.5893E-02	3.5893E-02
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2104	0.2104
SAMPLE + SPIKE µCi/g		(S+S)	1.49E+01	1.27E+01
AVERAGE or MAXIMUM µCi/g in SAMPLE			9.8951E-01	

Type	SPK
Work List	8332
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	SOLID
Batch Number	96004239
Rerun	1
Sample Prep	FUSION01
Sample #	S96T001508
Instrument Code	WB27806
Prepared By	MCB
Chemist	SLF
Analyst	DGG
Date Complete	05/07/96
Analysis Date	05/04/96
Analysis Time	05:00 AM
Sample Point	U-105 (R)

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	=	2.97E-02
AVG. PERCENT SPIKE RECOVERY	=	82.7%

Analyst:		MCB	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

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

			SAMPLE	REPLICATE
Level	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worklist	GROSS COUNTS	(GC)	5225	5554
8332	COUNT TIME in MINUTES	(CT)	30	30
AT or TB	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1648	2.1648
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		174.137	185.103

Batch Number	
96004239	Blank Concentration in µCi/g 3.44E+00
Rerun	Replicate Concentration in µCi/g 3.66E+00
1	Average Concentration in µCi/g 3.5528E+00

Sample Prep: FUSION01

Sample #: S96T001510

Instrument Code: WB27806

Prepared By: MCB

Chemist: SLF

Analyst: DGG

Date Complete: 05/07/96

Analysis Date: 05/04/96

Analysis Time: 05:00 AM

Sample Point: U-105 (R)

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) =	3.55E+00	
RELATIVE COUNTING ERROR	2.7%	4.71E-03 µCi/g

Analyst:		DGG	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

WHC-SD-WM-DP-182, REV. 1

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)	6580	7292
8332	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1848	2.1848
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		219.303	243.037

Batch Number	
96004239	
Rerun	
1	
Sample Prep	
FUSION01	
Sample #	
S96T001510	
Instrument Code	
WB27806	
Prepared By	
MCB	
Chemist	
SLF	
Analyst	
DGG	
Date Complete	
05/07/96	
Analysis Date	
05/04/96	
Analysis Time	
05:00 AM	
Sample Point	
U-105 (R)	

Blank Concentration in µCi/g	4.30E+00
Replicate Concentration in µCi/g	4.76E+00
Average Concentration in µCi/g	4.5306E+00

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)	=	4.53E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		2.4%	4.67E-03 µCi/g

Analyst:		DGG	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

1800

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

03/18/96 14:46
A-0004-1

LABCORE Data Entry Template for Worklist# 6595

Analyst: S.C.L **Instrument:** AB00 18 **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	S96T001018	0		@ALPHA01	LIQUID	96000092	U-105 (R)
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T001018	0		@ALPHA01	LIQUID		
6	SPK	S96T001018	0		@ALPHA01	LIQUID		

Final page for worklist # 6595

Sue C Lai 3-19-96
Analyst Signature **Date**

SL Walker 3-20-96
Analyst Signature **Date**

MGBrown 3/20/96

DATA NOT USED IN PACKAGE

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 6595

Analyst: scl **Instrument:** AB18 **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	1.61E-5	105.230	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	LIQUID	1.00	4.21E+00	4.210	% Ct. Error
2	BLNK		0	@ALPHA01	ALPHA01	LIQUID	1	<1.16E-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	7.07E-01	0.710	uCi/mL
4	SAMPLE	S96T001018	0	@ALPHA01	ALPHA01	LIQUID	N/A <	1.36E-05	2.740e-005	uCi/mL
4	SAMPLE	S96T001018	0	@ALPHA01	ALPHA01E	LIQUID	N/A	5.00E+02	0.000	% Ct. Error
5	DUP	S96T001018	0	@ALPHA01	ALPHA01	LIQUID	<1.36E-5	<1.16E-5		RPD
5	DUP	S96T001018	0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error
6	SPK	S96T001018	0	@ALPHA01	ALPHA01	LIQUID	3.92E-02	4.34E-02	110.710	% Recovery

Final page for worklist# 6595

Analyst Signature Date

Analyst Signature Date

Reviewer Signature 3/25/96 Date

DATA NOT USED IN PACKAGE

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

LABCORE Completed Worklist Report for Worklist# 6595

Analyst: scl **Instrument:** AB18 **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	1.61E-5	105.230	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	LIQUID	1.00	4.21E+00	4.210	% Ct. Error
2	BLNK		0	@ALPHA01	ALPHA01	LIQUID	1	<1.16E-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	7.07E-01	0.000	uCi/mL
4	SAMPLE	S96T001018	0	@ALPHA01	ALPHA01	LIQUID	N/A <	1.36E-05	2.740e-005	uCi/mL
4	SAMPLE	S96T001018	0	@ALPHA01	ALPHA01E	LIQUID	N/A	5.00E+02	0.000	% Ct. Error
5	DUP	S96T001018	0	@ALPHA01	ALPHA01	LIQUID	<1.36E-5	<1.16E-5		RPD
5	DUP	S96T001018	0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error
6	SPK	S96T001018	0	@ALPHA01	ALPHA01	LIQUID	3.92E-02	4.34E-02	110.710	% Recovery

Final page for worklist# 6595

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date

Corrected actual + yield BLNK/BKG values.

3/25/96

DATA NOT USED IN PACKAGE

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		18	18
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2197	2316
6595	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	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)	0.2095	0.2095
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		72.903	76.870
Batch Number	Standard Value in µCi/mL		1.53E-05	
96002283	Concentration in µCi/L	=	1.57E-02	
Rerun	Replicate Concentration in µCi/L	=	1.65E-02	
0	AVERAGE CONCENTRATION in µCi/L	=	1.6102E-02	

Sample Prep: N/A

Sample #: WL6595

Instrument Code: WB27809

Prepared By: SLH

Chemist: SLF

Analyst: SCL

Date Complete: 03/20/96

Analysis Date: 03/19/96

Analysis Time: 02:00 PM

Sample Point: U-105 (R)

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		1.61E-05	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.2%	1.25E-07 µCi/mL

Analyst:	SLH		Date: 20-Mar-96
Signature of Chemist:		SLF	Date: 3/21/96

STANDARD.WB1 Rev. 1.0 508101ML

1805

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: BLANK2

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

			BLNK	REPLICATE
Type	DETECTOR NUMBER		18	18
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	6	8
6595	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.245	0.245

Blank Concentration in µCi/L	<	1.16E-02
Replicate Concentration in µCi/L	<	1.16E-02
Maximum Concentration in µCi/L	<	1.1577E-02

Batch Number: 96002283
Rerun: 0
Sample Prep: N/A
Sample #: WL6595
Instrument Code: WB27809
Prepared By: SLH
Chemist: SLF
Analyst: SCL
Date Complete: 03/20/96
Analysis Date: 03/19/96
Analysis Time: 02:00 PM
Sample Point: U-105 (R)

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) =	< 1.16E-05	DETECTION LEVEL
LESS Than Value was Determined from Lc.		2.74E-05 µCi/mL
RELATIVE COUNTING ERROR	500.0%	

Analyst:		SCL	Date: 20-Mar-96
Signature of Chemist:		SLF	Date: 3/21/96

BLANK.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	10	11
6595	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.249	0.288

Blank Concentration in µCi/L	<	1.18E-02
Replicate Concentration in µCi/L	<	1.36E-02
Maximum Concentration in µCi/L	<	1.3628E-02

Batch Number: 96002283
Rerun: 0
Sample Prep: N/A
Sample #: S96T001018
Instrument Code: WB27809
Prepared By: SLH
Chemist: SLF
Analyst: SCL
Date Complete: 03/20/96
Analysis Date: 03/19/96
Analysis Time: 02:00 PM
Sample Point: U-105 (R)

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)	=	< 1.36E-05	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			2.74E-05 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

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
DETECTOR NUMBER			18	18
DISH SIZE (1 , 2 , or 5)	(MS)		2	2
GROSS COUNTS	(GC)		6	8
COUNT TIME in MINUTES	(CT)		30	30
BACKGROUND in cpm	(BKG)		0.33	0.33
SAMPLE SIZE in mL	(SS)		0.500	0.500
DILUTION FACTOR	(DF)		11	11
DIGEST DILUTION FACTOR	(DDF)		1	1
EFFICIENCY FACTOR	(EFF)		0.2095	0.2095
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			0.245	0.245
Blank Concentration in µCi/L		<	1.16E-02	
Replicate Concentration in µCi/L		<	1.16E-02	
Maximum Concentration in µCi/L		<	1.1577E-02	

Type	DUP
Work List	6595
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	LIQUID
Batch Number	96002283
Rerun	0
Sample Prep	N/A
Sample #	S96T001018
Instrument Code	WB27809
Prepared By	SLH
Chemist	SLF
Analyst	SCL
Date Complete	03/20/96
Analysis Date	03/19/96
Analysis Time	02:00 PM
Sample Point	U-105 (R)

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)	=	< 1.16E-05	
LESS Than Value was Determined from Lc.			
RELATIVE COUNTING ERROR		500.0%	2.74E-05 µCi/mL

Analyst:		SCL	Date: 20-Mar-96
Signature of Chemist:		SLF	Date: 3/21/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SPIKE6

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

			SPIKE	REPLICATE
DETECTOR NUMBER			18	18
DISH SIZE 1 , 2 , or 5		(MS)	2	2
TOTAL COUNTS		(TC)	62023	59143
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.33	0.33
SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	0.500	0.500
SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	11	11
DIGEST DILUTION FACTOR		(DDF)	1	1
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)	3.9200E-02	3.9200E-02
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2095	0.2095
SAMPLE + SPIKE µCi/mL		(S+S)	9.78E-02	9.32E-02
AVERAGE or MAXIMUM µCi/mL in SAMPLE		<	1.2513E-04	

Type	SPK
Work List	6595
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	LIQUID
Batch Number	96002283
Rerun	0
Sample Prep	N/A
Sample #	S96T001018
Instrument Code	WB27809
Prepared By	SLH
Chemist	SLF
Analyst	SCL
Date Complete	03/20/96
Analysis Date	03/19/96
Analysis Time	02:00 PM
Sample Point	U-105 (R)

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	=	3.92E-02
QC FOUND	=	4.34E-02
AVG. PERCENT SPIKE RECOVERY	=	110.7%

Analyst:		SLH	Date: 20-Mar-96
Signature of Chemist:		SLF	Date: 3/21/96

SPIKE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

04/19/96 14:26
A-0004-1

LABCORE Data Entry Template for Worklist# 7845

Analyst: KGH **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	S96T000968	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T000968	0	F	@ALPHA01	SOLID		
6	SPK	S96T000968	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T000975	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T000975	0	F	@ALPHA01	SOLID		
9	SAMPLE	S96T000984	0	F	@ALPHA01	SOLID	96000092	U-105 (R)
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T000984	0	F	@ALPHA01	SOLID		

Final page for worklist # 7845

Kristin Hughes 4-21-96
Analyst Signature **Date**

C.J. Quinn 4/23/96
Analyst Signature **Date**

M G Sician 4/24/96

DATA NOT USED IN PACKAGE

Data Entry Comments:
RPD's for Replicates are out of limits. Batch will be rerun. 4/25/96

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

LABCORE Completed RadChem Report for Worklist#: 7845

Analyst: kgh **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	115.630	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	4.35E+00	4.350	% Ct. Error
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<3.94E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01 ALPHA01E	SOLID	1.00	3.59E+02	359.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01 ALPHA01	SOLID	1.00E+00	1.57E+00	1.570	uCi/g
4	SAMPLE	S96T000968	0	F	@ALPHA01 ALPHA01	SOLID	N/A	9.37E-02	517.0e-005	uCi/g
4	SAMPLE	S96T000968	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	1.34E+01	0.0e+000	% Ct. Error
5	DUP	S96T000968	0	F	@ALPHA01 ALPHA01	SOLID	9.37E-2	1.09E-1	15.100	RPD
5	DUP	S96T000968	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	1.22E+01	12.200	% Ct. Error
6	SPK	S96T000968	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.24E-02	90.250	% Recovery
7	SAMPLE	S96T000975	0	F	@ALPHA01 ALPHA01	SOLID	N/A	2.33E-01	483.0e-005	uCi/g
7	SAMPLE	S96T000975	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	8.09E+00	0.0e+000	% Ct. Error
8	DUP	S96T000975	0	F	@ALPHA01 ALPHA01	SOLID	2.33E-1	2.26E-1	3.050	RPD
8	DUP	S96T000975	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	8.56E+00	8.560	% Ct. Error
9	SAMPLE	S96T000984	0	F	@ALPHA01 ALPHA01	SOLID	N/A	4.22E-01	479.0e-005	uCi/g
9	SAMPLE	S96T000984	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	5.90E+00	0.0e+000	% Ct. Error
10	DUP	S96T000984	0	F	@ALPHA01 ALPHA01	SOLID	4.22E-1	4.19E-1	0.710	RPD
10	DUP	S96T000984	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	6.08E+00	6.080	% Ct. Error

Final page for worklist# 7845

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

4/25/96

Reviewer Signature **Date**

DATA NOT USED IN PACKAGE

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)	2104	2049
7845	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		69.963	68.130
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003688	Concentration in µCi/L	=	1.50E-01	
Rerun	Replicate Concentration in µCi/L	=	1.46E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4782E-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 # WL7845

Instrument Code WB27806

Prepared By CJO

Chemist SLF

Analyst KGH

Date Complete 04/23/96

Analysis Date 04/21/96

Analysis Time 12:00 PM

Sample Point U-105

ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.48E-04	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.3%	9.46E-07 µCi/mL

Analyst:		CJO	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

STANDARD.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

1812

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)	9	7
7845	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)	1.8304	1.8304
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.337	0.255
Batch Number				
96003688	Blank Concentration in µCi/g	<	3.94E-03	
Rerun	Replicate Concentration in µCi/g	<	2.98E-03	
0	Maximum Concentration in µCi/g	<	3.9362E-03	

Sample Prep: N/A

Sample #: WL7845

Instrument Code: WB27806

Prepared By: CJO

Chemist: SLF

Analyst: KGH

Date Complete: 04/23/96

Analysis Date: 04/21/96

Analysis Time: 12:00 PM

Sample Point: U-105

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)	=	< 3.94E-03		DETECTION LEVEL
LESS THAN Value was Determined from Rmax.				
RELATIVE COUNTING ERROR		358.8%		5.17E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

BLANK.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

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)	230	261
7845	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)	1.8304	1.8304
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7.497	8.530

Batch Number	
96003688	Blank Concentration in µCi/g 8.77E-02
Rerun	Replicate Concentration in µCi/g 9.98E-02
0	Average Concentration in µCi/g 9.3728E-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)
S96T000968	
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) = 9.37E-02
Analyst	
KGH	
Date Complete	
04/23/96	RELATIVE COUNTING ERROR 13.4%
Analysis Date	
04/21/96	
Analysis Time	
12:00 PM	
Sample Point	
U-105	

DETECTION LEVEL
5.17E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

I:\508101\OUT\AT7845.WB1 04/23/96 15:21:15

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)	273	300
7845	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)	1.834	1.834
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8.930	9.830

Batch Number	
96003688	Blank Concentration in µCi/g 1.04E-01
Rerun	Replicate Concentration in µCi/g 1.15E-01
0	Average Concentration in µCi/g 1.0950E-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)
S96T000968	
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) = 1.09E-01
Analyst	
KGH	
Date Complete	
04/23/96	RELATIVE COUNTING ERROR 12.2%
Analysis Date	
04/21/96	
Analysis Time	
12:00 PM	
Sample Point	
U-105	

DETECTION LEVEL
5.16E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: ~~4/25~~ SLF 4/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

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)	39820	51388
7845	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)	1.8304	1.8304
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
96003688	SPIKE VALUE in µCi/mL	(SVal)	3.5895E-02	3.5895E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/g	(S+S)	1.55E+01	2.00E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		9.3728E-02	
FUSION01				
Sample #				
S96T000968	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27806	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
CJO	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
KGH				
Date Complete				
04/23/96				
Analysis Date				
04/21/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.24E-02	
12:00 PM	AVG. PERCENT SPIKE RECOVERY	=	90.2%	
Sample Point				
U-105				

Analyst:		CJO	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SPIKE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

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)	689	602
7845	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)	1.9604	1.9604
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		22.797	19.897

Batch Number	
96003688	Blank Concentration in µCi/g 2.49E-01
Rerun	Replicate Concentration in µCi/g 2.17E-01
0	Average Concentration in µCi/g 2.3312E-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)
S96T000975	
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) = 2.33E-01
Analyst	
KGH	
Date Complete	
04/23/96	RELATIVE COUNTING ERROR 8.1%
Analysis Date	
04/21/96	
Analysis Time	
12:00 PM	
Sample Point	
U-105	

DETECTION LEVEL
4.83E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96
SAMPLE.WB1 Rev. 1.0	508101ML		

1817

DATA NOT USED IN PACKAGE

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)	539	715
7845	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)	1.9668	1.9668
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		17.797	23.663

Batch Number	
96003688	Blank Concentration in µCi/g 1.94E-01
Rerun	Replicate Concentration in µCi/g 2.58E-01
0	Average Concentration in µCi/g 2.2565E-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)
S96T000975	
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) = 2.26E-01
Analyst	
KGH	
Date Complete	
04/23/96	RELATIVE COUNTING ERROR 8.6%
Analysis Date	
04/21/96	
Analysis Time	
12:00 PM	
Sample Point	
U-105	

DETECTION LEVEL
4.81E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

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)	1228	1120
7845	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)	1.9764	1.9764
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		40.763	37.163

Batch Number	
96003688	
	Blank Concentration in µCi/g 4.42E-01
Rerun	Replicate Concentration in µCi/g 4.03E-01
0	Average Concentration in µCi/g 4.2207E-01
Sample Prep	
FUSION01	
Sample #	
S96T000984	
Instrument Code	
WB27806	
Prepared By	
CJO	
Chemist	
SLF	
Analyst	
KGH	
Date Complete	
04/23/96	
Analysis Date	
04/21/96	
Analysis Time	
12:00 PM	
Sample Point	
U-105	

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) = 4.22E-01		DETECTION LEVEL
RELATIVE COUNTING ERROR	5.9%	4.79E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

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)	1319	1056
7845	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)	2.0124	2.0124
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		43.797	35.030

Batch Number	
96003688	Blank Concentration in µCi/g 4.66E-01
Rerun	Replicate Concentration in µCi/g 3.73E-01
0	Average Concentration in µCi/g 4.1931E-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)
S96T000984	
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) = 4.19E-01
Analyst	
KGH	
Date Complete	
04/23/96	RELATIVE COUNTING ERROR 6.1%
Analysis Date	
04/21/96	
Analysis Time	
12:00 PM	
Sample Point	
U-105	

DETECTION LEVEL
4.70E-03 µCi/g

Analyst:		KGH	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

SAMPLE.WB1 Rev. 1.0 508101MU

DATA NOT USED IN PACKAGE

I:\508101\OUT\AT7845.WB1 04/23/96 15:28:36

LABCORE Data Entry Template for Worklist# 7464

Analyst: KNT **Instrument:** GEA00 2 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-105, See Traveler for Sample Sizes. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-02	SOLID		
2	BLNK-PREP				@GEA-02	SOLID		
3	SAMPLE	S96T001285	0	F	@GEA-02	SOLID	96000143	U-105 (R)
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T001285	0	F	@GEA-02	SOLID		
5	SAMPLE	S96T001291	0	F	@GEA-02	SOLID	96000143	U-105 (R)
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T001291	0	F	@GEA-02	SOLID		
7	SAMPLE	S96T001296	0	F	@GEA-02	SOLID	96000143	U-105 (R)
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
8	DUP	S96T001296	0	F	@GEA-02	SOLID		

Final page for worklist # 7464

Kim Thomas 4-8-96
Analyst Signature **Date**

Lydia Z Cochrane 4/10/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7464

Analyst: knt **Instrument:** GEA02 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: U-105, See Traveler for Sample Sizes. new

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-02	CO60-02	SOLID	0.0257		2.54e-02	98.830	% Recovery
1	STD		0		@GEA-02	CO60-02E	SOLID	1		1.37	1.370	% Ct. Error
1	STD		0		@GEA-02	CS13702	SOLID	0.0271		2.68e-02	98.890	% Recovery
1	STD		0		@GEA-02	CS13702E	SOLID	1		1.64	1.640	% Ct. Error
2	BLNK-PREP		0		@GEA-02	CO60-02	SOLID	1		<7.40e-5		uCi/g
2	BLNK-PREP		0		@GEA-02	CS13702	SOLID	1		<5.20e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15402	SOLID	1		<1.53e-4		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15502	SOLID	1		<1.63e-4		uCi/g
2	BLNK-PREP		0		@GEA-02	AM24102	SOLID	1		<3.39e-4		uCi/g
3	SAMPLE	S96T001285	0	F	@GEA-02	CO60-02	SOLID	N/A	<	1.086e-01	0.109	uCi/g
3	SAMPLE	S96T001285	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S96T001285	0	F	@GEA-02	CS13702	SOLID	N/A		1.723e+02	0.000	uCi/g
3	SAMPLE	S96T001285	0	F	@GEA-02	CS13702E	SOLID	N/A		0.850	0.000	% Ct. Error
3	SAMPLE	S96T001285	0	F	@GEA-02	EU15402	SOLID	N/A		1.202e+00	0.000	uCi/g
3	SAMPLE	S96T001285	0	F	@GEA-02	EU15402E	SOLID	N/A		16.9	0.000	% Ct. Error
3	SAMPLE	S96T001285	0	F	@GEA-02	EU15502	SOLID	N/A	<	9.545e-01	0.955	uCi/g
3	SAMPLE	S96T001285	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S96T001285	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.926e+00	1.926	uCi/g
3	SAMPLE	S96T001285	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.000	% Ct. Error
4	DUP	S96T001285	0	F	@GEA-02	CO60-02	SOLID	<1.09e-1		<5.79e1		RPD
4	DUP	S96T001285	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct. Error
4	DUP	S96T001285	0	F	@GEA-02	CS13702	SOLID	1.72e+02		1.62e+02	5.990	RPD
4	DUP	S96T001285	0	F	@GEA-02	CS13702E	SOLID	1		0.880	0.880	% Ct. Error
4	DUP	S96T001285	0	F	@GEA-02	EU15402	SOLID	1.20e+00	O	1.01e+00	17.190	RPD
4	DUP	S96T001285	0	F	@GEA-02	EU15402E	SOLID	1		20.6	20.600	% Ct. Error
4	DUP	S96T001285	0	F	@GEA-02	EU15502	SOLID	<9.55e-1		<6.27e2		RPD
4	DUP	S96T001285	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct. Error
4	DUP	S96T001285	0	F	@GEA-02	AM24102	SOLID	<1.93e0		1.15e+03		RPD
4	DUP	S96T001285	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct. Error
5	SAMPLE	S96T001291	0	F	@GEA-02	CO60-02	SOLID	N/A	<	5.302e-02	5.302e-002	uCi/g
5	SAMPLE	S96T001291	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S96T001291	0	F	@GEA-02	CS13702	SOLID	N/A		1.916e+02	0.000	uCi/g
5	SAMPLE	S96T001291	0	F	@GEA-02	CS13702E	SOLID	N/A		0.540	0.000	% Ct. Error
5	SAMPLE	S96T001291	0	F	@GEA-02	EU15402	SOLID	N/A	<	2.169e-01	0.217	uCi/g
5	SAMPLE	S96T001291	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S96T001291	0	F	@GEA-02	EU15502	SOLID	N/A	<	6.036e-01	0.604	uCi/g
5	SAMPLE	S96T001291	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S96T001291	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.254e+00	1.254	uCi/g
5	SAMPLE	S96T001291	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.000	% Ct. Error
6	DUP	S96T001291	0	F	@GEA-02	CO60-02	SOLID	<5.30e-2		<5.18e-2		RPD
6	DUP	S96T001291	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 Worklist Report for Worklist# 7464

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
6	DUP	S96T001291	0	F	@GEA-02	CS13702	SOLID	1.92e+02		1.90e+02	1.050	RPD
6	DUP	S96T001291	0	F	@GEA-02	CS13702E	SOLID	1		0.550	0.550	% Ct. Error
6	DUP	S96T001291	0	F	@GEA-02	EU15402	SOLID	<2.17e-1		2.66e-01		RPD
6	DUP	S96T001291	0	F	@GEA-02	EU15402E	SOLID	1		32.5	32.500	% Ct. Error
6	DUP	S96T001291	0	F	@GEA-02	EU15502	SOLID	<6.04e-1		<6.05e-1		RPD
6	DUP	S96T001291	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct. Error
6	DUP	S96T001291	0	F	@GEA-02	AM24102	SOLID	<1.25e0		<1.24e0		RPD
6	DUP	S96T001291	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct. Error
7	REJECT	S96T001296	0	F	@GEA-02	CO60-02	SOLID	N/A	<	2.459e-01		uCi/g
7	REJECT	S96T001296	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a		% Ct. Error
7	REJECT	S96T001296	0	F	@GEA-02	CS13702	SOLID	N/A		8.240e+02		uCi/g
7	REJECT	S96T001296	0	F	@GEA-02	CS13702E	SOLID	N/A		0.580		% Ct. Error
7	REJECT	S96T001296	0	F	@GEA-02	EU15402	SOLID	N/A	<	1.191e+00		uCi/g
7	REJECT	S96T001296	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a		% Ct. Error
7	REJECT	S96T001296	0	F	@GEA-02	EU15502	SOLID	N/A	<	2.809e+00		uCi/g
7	REJECT	S96T001296	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a		% Ct. Error
7	REJECT	S96T001296	0	F	@GEA-02	AM24102	SOLID	N/A	<	5.920e+00		uCi/g
7	REJECT	S96T001296	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a		% Ct. Error
8	DUP	S96T001296	0	F	@GEA-02	CO60-02	SOLID	<2.46e-1		5.58e-02		RPD
8	DUP	S96T001296	0	F	@GEA-02	CO60-02E	SOLID	1		48.8	48.800	% Ct. Error
8	DUP	S96T001296	0	F	@GEA-02	CS13702	SOLID	8.24e+02		1.61e+02	134.620	RPD
8	DUP	S96T001296	0	F	@GEA-02	CS13702E	SOLID	1		0.610	0.610	% Ct. Error
8	DUP	S96T001296	0	F	@GEA-02	EU15402	SOLID	<1.19e0		3.85e-01		RPD
8	DUP	S96T001296	0	F	@GEA-02	EU15402E	SOLID	1		21.7	21.700	% Ct. Error
8	DUP	S96T001296	0	F	@GEA-02	EU15502	SOLID	<2.81e0		<5.79e-1		RPD
8	DUP	S96T001296	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct. Error
8	DUP	S96T001296	0	F	@GEA-02	AM24102	SOLID	<5.92e0		<1.21e0		RPD
8	DUP	S96T001296	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct. Error

Comments Section:

Comments for sample# S96T001285 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T001291 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T001296 **and test** @GEA-02 .
DL=0 => n/a. Rerun requested

Final page for worklist# 7464

Analyst Signature **Date**

Analyst Signature **Date**

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

LABCORE Completed Worklist Report for Worklist# 7464

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit

R A Jones 4/18/96
Reviewer Signature Date

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

```
*****************************************************************************
* 222-S Laboratory Counting Room     9-APR-1996 04:41:56.83                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-182, REV. 1

```
Worklist #:              7464
Sample ID:               WL7464-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00
```

Removed by: 4-9-96

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2415.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.74 sec
Dead Time:               0.3%
```

Verified by: 4/9/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-APR-1996 03:51:10.62
Decayed to:              9-APR-1996 03:51:10.62
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
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
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.89*	19336	1.55	1323.80	1315	17	1.6		CS-137	26.8
0	1173.66	12986	1.86	2347.38	2339	17	1.9		CO-60	25.5
0	1333.00	11624	1.98	2666.16	2657	20	1.9		CO-60	25.3
0	1345.12	34	8.59	2690.41	2680	21	83.2			

Summary of Nuclide Activity
Sample ID : WL7464-STD Acquisition date : 9-APR-1996 03:51:10

Total number of lines in spectrum	4	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	3	75.00%

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	2.540E+01	2.540E+01	0.035E+01	1.37	
CS-137	30.00Y	1.000	2.683E+01	2.683E+01	0.044E+01	1.64	
		Total Activity :	5.223E+01	5.223E+01			
		Grand Total Activity :	5.223E+01	5.223E+01			

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

Minimum Detectable Activity Report
Sample ID : WL7464-STD Acquisition date : 9-APR-1996 03:51:10

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1064.	477.59	1.3232E+00
NA-22	94.	1274.53	9.4461E-02
NA-24	24.	1368.55	5.1155E-02
K-40	125.	1460.75	1.1386E+00
CR-51	1087.	320.08	9.9779E-01
MN-54	627.	834.83	1.6770E-01
CO-56	676.	846.76	1.7627E-01
CO-57	1238.	122.06	7.8670E-02
CO-58	594.	810.78	1.6019E-01
FE-59	640.	1099.25	3.8489E-01
SE-75	1349.	264.66	1.6778E-01
SR-85	801.	514.01	1.3188E-01
Y-88	13.	1836.06	4.7400E-02
NB-94	675.	871.09	1.8042E-01
ZRNB-95	538.	724.18	3.1525E-01
RU-103	831.	497.08	1.3773E-01
RURH-106	589.	621.93	2.5571E+00
AG-108m	547.	722.94	1.5268E-01
CD-109	1096.	88.03	2.5414E+00
AG-110M	831.	657.76	1.6676E-01
SN-113	1041.	391.69	1.7752E-01
TE-123m	1317.	159.00	8.1183E-02
SB-124	608.	602.73	1.2845E-01
SB-125	1107.	427.89	4.2964E-01
TE-125m	1199.	109.27	2.5668E+01
I-131	1047.	364.48	1.3339E-01
CS-134	621.	604.70	1.3038E-01
BA-140	693.	537.31	5.0140E-01
LA-140	12.	1596.21	4.3457E-02
CEPR-144	1324.	133.51	1.2160E+00
EU-152	23.	1408.01	2.4325E-01
EU-154	94.	1274.51	2.7467E-01
EU-155	1120.	105.31	3.3321E-01
HG-203	1245.	279.20	1.1992E-01
TL-208	1264.	277.36	1.5530E+00
BI-212	528.	727.18	2.0592E+00
PB-212	1489.	238.63	2.2019E-01
BI-214	631.	609.31	2.8814E-01
PB-214	1097.	351.92	5.3861E-01
RA-224	1508.	240.99	2.4591E+00
RA-226	1423.	186.10	2.2003E+00
AC-228	800.	911.21	7.6740E-01
TH-228	1135.	84.37	7.9415E+00
TH-229	1109.	88.47	3.7068E-01
PA-233	1229.	312.17	2.7200E-01
UTH-233	1426.	245.34	8.9592E+01
PA-234M	691.	1001.03	3.5096E-01
TH-234	1047.	63.29	4.4437E+00
U-235	1430.	185.71	1.3411E-01
NP-237	1106.	86.48	7.6608E-01
NP-239	1157.	106.12	3.2136E-01

Minimum Detectable Activity Report (continued)

Sample ID : WL7464-STD Acquisition date : 9-APR-1996 03:51:10

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1342.	129.30	1.0697E+03
AM-241	996.	59.54	6.8989E-01
AM-243	1085.	74.67	2.1102E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     9-APR-1996 06:08:28.74                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

HC-SD-WM-DP-182, REV. 1

```
Worklist #:              7464
Sample ID:               WL7464-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00
```

Removed by: 4-9-96

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2416.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.49 sec
Dead Time:               0.0%
```

Verified by: 4/9/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-APR-1996 05:17:48.00
Decayed to:              9-APR-1996 05:17:48.00
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
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
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	351.29*	42	1.14	702.79	696	13	86.9			
0	609.59*	40	1.75	1219.22	1212	16	60.7			
0	661.99*	35	1.60	1324.01	1315	16	101.6		CS-137	9.785E-02
0	1461.70*	13	2.36	2923.66	2917	18	181.9		K-40	0.592

Sample ID : WL7464-BLK Acquisition date : 9-APR-1996 05:17:48

HC-SD-WM-DP-182, 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~~	~~5.920E-01~~	~~5.920E-01~~	~~10.77E-01~~	~~181.90~~	BKG
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~9.785E-02~~	~~9.785E-02~~	~~9.946E-02~~	~~101.64~~	BKG
		Total Activity :	6.898E-01	6.898E-01			
		Grand Total Activity :	6.898E-01	6.898E-01			

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

Sample ID : WL7464-BLK
Acquisition date : 9-APR-1996 05:17:48

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	34.	477.59	4.6966E-01
NA-22	7.	1274.53	5.2603E-02
NA-24	12.	1368.55	7.4409E-02
CR-51	42.	320.08	3.9408E-01
MN-54	23.	834.83	6.4773E-02
CO-56	12.	846.76	4.6997E-02
CO-57	86.	122.06	4.1406E-02
CO-58	22.	810.78	6.1152E-02
FE-59	11.	1099.25	1.0252E-01
CO-60	13.	1332.50	7.3975E-02
SE-75	58.	264.66	6.9503E-02
SR-85	52.	514.01	6.6878E-02
Y-88	2.	1836.06	3.7259E-02
NB-94	15.	871.09	5.4037E-02
ZRNB-95	19.	724.18	1.1715E-01
RU-103	54.	497.08	7.0196E-02
RURH-106	19.	621.93	9.1831E-01
AG-108m	21.	722.94	5.9590E-02
CD-109	68.	88.03	1.2672E+00
AG-110M	25.	657.76	5.7492E-02
SN-113	37.	391.69	6.7048E-02
TE-123m	67.	159.00	3.6653E-02
SB-124	30.	602.73	5.6919E-02
SB-125	33.	427.89	1.4743E-01
TE-125m	66.	109.27	1.2044E+01
I-131	45.	364.48	5.5012E-02
CS-134	22.	604.70	4.9061E-02
BA-140	23.	537.31	1.8122E-01
LA-140	3.	1596.21	4.0576E-02
CEPR-144	77.	133.51	5.8833E-01
EU-152	9.	1408.01	2.9606E-01
EU-154	7.	1274.51	1.5283E-01
EU-155	67.	105.31	1.6311E-01
HG-203	64.	279.20	5.4458E-02
TL-208	68.	277.36	7.1984E-01
BI-212	15.	727.18	6.8974E-01
PB-212	90.	238.63	1.0824E-01
BI-214	60.	609.31	1.7771E-01
PB-214	86.	351.92	3.0039E-01
RA-224	70.	240.99	1.0613E+00
RA-226	92.	186.10	1.1217E+00
AC-228	32.	911.21	3.0796E-01
TH-228	79.	84.37	4.1929E+00
TH-229	64.	88.47	1.7777E-01
PA-233	53.	312.17	1.1282E-01
UTH-233	53.	245.34	3.4485E+01
PA-234M	10.	1001.03	8.3125E-02
TH-234	68.	63.29	2.2614E+00
U-235	95.	185.71	6.9104E-02
NP-237	81.	86.48	4.1505E-01
NP-239	66.	106.12	1.5376E-01

Minimum Detectable Activity Report (continued)
Sample ID : WL7464-BLK Acquisition date : 9-APR-1996 05:17:48

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	78.	129.30	5.1663E+02
AM-241	60.	59.54	3.3860E-01
AM-243	70.	74.67	1.0737E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     9-APR-1996 07:06:21.68                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7464
Sample ID:               S96T001285-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         4.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2417.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.45 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-APR-1996 06:15:31.92
Decayed to:              9-APR-1996 06:15:31.92
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
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
*****************************************************************************
```

Removed by: 4-9-96

Verified by: Bmachelor 4/9/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.64	604	1.13	245.71	241	10	33.8		CO-57	1.16
									EU-154	2.46
0	661.89*	58360	1.51	1323.80	1315	17	0.9		CS-137	324.
0	723.65	89	1.44	1447.31	1443	10	29.9		EU-154	2.26
0	873.72	50	2.43	1747.43	1739	16	49.2		EU-154	2.45
0	997.10	25	1.67	1994.19	1989	11	94.1		EU-154	1.62
0	1005.32	74	1.34	2010.63	2004	13	29.1		EU-154	2.80
0	1275.27	79	1.69	2550.65	2542	18	36.0		EU-154	1.92

Summary of Nuclide Activity
Sample ID : S96T001285-SAM Acquisition date : 9-APR-1996 06:15:31

Total number of lines in spectrum	7	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	7	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-57~~	~~271.80D~~	~~1.000~~	~~1.161E+00~~	~~1.161E+00~~	~~0.392E+00~~	~~33.79~~	BKG
CS-137	30.00Y	1.000	3.240E+02	3.240E+02	0.028E+02	0.85	
EU-154	8.59Y	1.000	2.257E+00	2.257E+00	0.381E+00	16.86	
		Total Activity :	3.274E+02	3.274E+02			
		Grand Total Activity :	3.274E+02	3.274E+02			

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

Sample ID : S96T001285-SAM Acquisition date : 9-APR-1996 06:15:31

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1897.	477.59	7.0672E+00
NA-22	93.	1274.53	3.7702E-01
NA-24	10.	1368.55	1.3332E-01
K-40	117.	1460.75	4.4133E+00
CR-51	1567.	320.08	4.7914E+00
MN-54	31.	834.83	1.4996E-01
CO-56	28.	846.76	1.4361E-01
CO-58	40.	810.78	1.6589E-01
FE-59	11.	1099.25	2.0197E-01
CO-60	25.	1332.50	2.0421E-01
SE-75	1794.	264.66	7.7389E-01
SR-85	966.	514.01	5.7922E-01
Y-88	4.	1836.06	1.0539E-01
NB-94	41.	871.09	1.7735E-01
ZRNB-95	112.	724.18	5.7525E-01
RU-103	1193.	497.08	6.6009E-01
RURH-106	411.	621.93	8.5389E+00
AG-108m	112.	722.94	2.7645E-01
CD-109	1916.	88.03	1.3443E+01
AG-110M	1079.	657.76	7.6003E-01
SN-113	1715.	391.69	9.1166E-01
TE-123m	1858.	159.00	3.8578E-01
SB-124	446.	602.73	4.3990E-01
SB-125	2002.	427.89	2.3116E+00
TE-125m	1879.	109.27	1.2851E+02
I-131	1611.	364.48	6.6184E-01
CS-134	427.	604.70	4.3265E-01
BA-140	679.	537.31	1.9840E+00
LA-140	10.	1596.21	1.5605E-01
CEPR-144	1897.	133.51	5.8217E+00
EU-152	9.	1408.01	5.9430E-01
EU-155	2032.	105.31	1.7949E+00
HG-203	1675.	279.20	5.5641E-01
TL-208	1674.	277.36	7.1485E+00
BI-212	35.	727.18	2.1119E+00
PB-212	2108.	238.63	1.0480E+00
BI-214	475.	609.31	9.9973E-01
PB-214	1637.	351.92	2.6322E+00
RA-224	2067.	240.99	1.1516E+01
RA-226	2310.	186.10	1.1214E+01
AC-228	39.	911.21	6.7455E-01
TH-228	1725.	84.37	3.9164E+01
TH-229	1825.	88.47	1.9016E+00
PA-233	1592.	312.17	1.2384E+00
UTH-233	1986.	245.34	4.2282E+02
PA-234M	21.	1001.03	2.4516E-01
TH-234	1528.	63.29	2.1474E+01
U-235	2283.	185.71	6.7774E-01
NP-237	1996.	86.48	4.1173E+00
NP-239	1975.	106.12	1.6793E+00
PU-239	1857.	129.30	5.0331E+03

Sample ID : S96T001285-SAM Acquisition date : 9-APR-1996 06:15:31

HC-SD-WM-DP-182, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	1715.	59.54	3.6213E+00
AM-243	1711.	74.67	1.0600E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room     9-APR-1996 08:26:01.44                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                7464
Sample ID:                 S96T001285-DUP
Sample Size:               1.00000E-03 L
Dilution Factor:           4.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:               GEA2
File Number:               dka300:[spec.GEA2]2g2418.cnf
Geometry:                  42
Count Time:                0 00:50:00.00 sec
Real Time:                 0 00:50:07.93 sec
Dead Time:                 0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:         9-APR-1996 07:35:13.19
Decayed to:                9-APR-1996 07:35:13.19
Standard Deviations:       2
Analysis Library:          ENVGEA
Analyst:                   ALJ
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
*****************************************************************************
```

HC-SD-WM-DP-182, REV. 1

Removed by: 4-9-96

Verified by: Bachelor 4/9/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	59.79	209	1.14	120.09	117	7	65.9		AM-241	3.93
									EU-155	113.
0	86.43*	261	1.26	173.33	171	7	56.2		NP-237	5.17
									EU-155	1.95
0	105.31	251	1.39	211.08	207	9	69.9		EU-155	2.15
0	123.10	364	1.12	246.62	243	7	41.8		CO-57	0.701
									EU-154	1.48
0	661.89*	54122	1.53	1323.80	1315	17	0.9		CS-137	300.
0	723.73	63	1.42	1447.45	1442	12	46.7		EU-154	1.60
0	873.85	42	2.52	1747.69	1741	15	60.9		EU-154	2.10
0	996.23	43	1.45	1992.46	1987	10	38.8		EU-154	2.79
0	1006.42	36	0.74	2012.84	2006	16	85.1			
0	1174.15	25	1.09	2348.36	2340	14	98.3		CO-60	0.196
0	1274.94	71	1.64	2549.99	2544	12	30.7		EU-154	1.73
0	1333.63	23	2.55	2667.41	2663	15	64.9		CO-60	0.199

Summary of Nuclide Activity
Sample ID : S96T001285-DUP

Acquisition date : 9-APR-1996 07:35:13

HC-SD-WM-DP-182, REV.

Total number of lines in spectrum 12
Number of unidentified lines 1
Number of lines tentatively identified by NID 11 91.67%

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
~~CO-57~~	~~271.80D~~	~~1.000~~	~~7.005E-01~~	~~7.006E-01~~	~~2.929E-01~~	~~41.82~~	154Eu
~~CO-60~~	~~5.27Y~~	~~1.000~~	~~1.984E-01~~	~~1.984E-01~~	~~1.074E-01~~	~~54.15~~	BKG
CS-137	30.00Y	1.000	3.004E+02	3.004E+02	0.027E+02	0.88	
EU-154	8.59Y	1.000	1.863E+00	1.863E+00	0.384E+00	20.61	
~~EU-155~~	~~4.68Y~~	~~1.000~~	~~2.151E+00~~	~~2.151E+00~~	~~1.503E+00~~	~~69.90~~	BKG
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~5.169E+00~~	~~5.169E+00~~	~~2.903E+00~~	~~56.16~~	BKG
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~3.931E+00~~	~~3.931E+00~~	~~2.589E+00~~	~~65.86~~	BKG
			---	---			
	Total Activity :		3.144E+02	3.144E+02			

Grand Total Activity : 3.144E+02 3.144E+02

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

Sample ID : S96T001285-DUP
Acquisition date : 9-APR-1996 07:35:13

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1786.	477.59	6.8560E+00
NA-22	83.	1274.53	3.5577E-01
NA-24	7.	1368.55	1.1124E-01
K-40	110.	1460.75	4.2751E+00
CR-51	1439.	320.08	4.5917E+00
MN-54	30.	834.83	1.4717E-01
CO-56	33.	846.76	1.5591E-01
CO-58	33.	810.78	1.5061E-01
FE-59	20.	1099.25	2.7465E-01
SE-75	1639.	264.66	7.3979E-01
SR-85	933.	514.01	5.6908E-01
Y-88	0.	1836.06	0.0000E+00
NB-94	40.	871.09	1.7480E-01
ZRNB-95	89.	724.18	5.1155E-01
RU-103	1149.	497.08	6.4766E-01
RURH-106	406.	621.93	8.4859E+00
AG-108m	97.	722.94	2.5717E-01
CD-109	1786.	88.03	1.2981E+01
AG-110M	927.	657.76	7.0442E-01
SN-113	1663.	391.69	8.9759E-01
TE-123m	1776.	159.00	3.7714E-01
SB-124	392.	602.73	4.1262E-01
SB-125	1901.	427.89	2.2524E+00
TE-125m	1658.	109.27	1.2074E+02
I-131	1454.	364.48	6.2882E-01
CS-134	398.	604.70	4.1741E-01
BA-140	714.	537.31	2.0359E+00
LA-140	11.	1596.21	1.6668E-01
CEPR-144	1846.	133.51	5.7430E+00
EU-152	10.	1408.01	6.4533E-01
HG-203	1543.	279.20	5.3408E-01
TL-208	1597.	277.36	6.9810E+00
BI-212	26.	727.18	1.8291E+00
PB-212	1990.	238.63	1.0182E+00
BI-214	422.	609.31	9.4252E-01
PB-214	1478.	351.92	2.5004E+00
RA-224	1911.	240.99	1.1073E+01
RA-226	2151.	186.10	1.0821E+01
AC-228	36.	911.21	6.4782E-01
TH-228	1697.	84.37	3.8846E+01
TH-229	1708.	88.47	1.8396E+00
PA-233	1495.	312.17	1.2002E+00
UTH-233	1847.	245.34	4.0781E+02
PA-234M	20.	1001.03	2.3992E-01
TH-234	1458.	63.29	2.0978E+01
U-235	2132.	185.71	6.5487E-01
NP-239	1872.	106.12	1.6351E+00
PU-239	1876.	129.30	5.0586E+03
AM-243	1606.	74.67	1.0272E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room    9-APR-1996 09:44:54.67                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7464
Sample ID:               S96T001291-SAMM
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2419.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:19.74 sec
Dead Time:               0.7%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-APR-1996 08:53:55.13
Decayed to:              9-APR-1996 08:53:55.13
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
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
*****************************************************************************
```

HC-SD-WM-DP-182, REV. 1

Removed by: 4-9-96

Verified by: Bachelor 4/9/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.88*	144525	1.53	1323.78	1315	17	0.5		CS-137	401.
0	723.30	66	0.96	1446.61	1439	12	41.3			
0	1004.63	35	1.17	2009.26	2005	11	61.9			
0	1275.26	55	1.54	2550.63	2542	16	39.1			
0	1333.21	24	1.57	2666.57	2658	15	65.4			

Sample ID : S96T001291-SAMM Acquisition date : 9-APR-1996 08:53:55

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
CS-137	30.00Y	1.000	4.011E+02	4.011E+02	0.022E+02	0.54	
		Total Activity :	4.011E+02	4.011E+02			
		Grand Total Activity :	4.011E+02	4.011E+02			

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

Sample ID : S96T001291-SAMM Acquisition date : 9-APR-1996 08:53:55

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4595.	477.59	5.4994E+00
NA-22	64.	1274.53	1.5614E-01
NA-24	5.	1368.55	4.6968E-02
K-40	107.	1460.75	2.1120E+00
CR-51	3788.	320.08	3.7253E+00
MN-54	28.	834.83	7.1301E-02
CO-56	34.	846.76	7.9086E-02
CO-57	4441.	122.06	2.9803E-01
CO-58	29.	810.78	7.0281E-02
FE-59	19.	1099.25	1.3325E-01
CO-60	30.	1332.50	1.1093E-01
SE-75	4297.	264.66	5.9893E-01
SR-85	2312.	514.01	4.4802E-01
Y-88	4.	1836.06	5.2343E-02
NB-94	35.	871.09	8.2766E-02
ZRNB-95	95.	724.18	2.6531E-01
RU-103	2795.	497.08	5.0514E-01
RURH-106	980.	621.93	6.5961E+00
AG-108m	90.	722.94	1.2392E-01
CD-109	3922.	88.03	9.6169E+00
AG-110M	2507.	657.76	5.7924E-01
SN-113	4126.	391.69	7.0701E-01
TE-123m	4424.	159.00	2.9764E-01
SB-124	1050.	602.73	3.3758E-01
SB-125	4717.	427.89	1.7739E+00
TE-125m	4018.	109.27	9.3971E+01
I-131	3879.	364.48	5.1350E-01
CS-134	1041.	604.70	3.3758E-01
BA-140	1684.	537.31	1.5626E+00
LA-140	9.	1596.21	7.4290E-02
CEPR-144	4300.	133.51	4.3826E+00
EU-152	13.	1408.01	3.5875E-01
EU-154	64.	1274.51	4.5379E-01
EU-155	4024.	105.31	1.2629E+00
HG-203	4155.	279.20	4.3817E-01
TL-208	4138.	277.36	5.6185E+00
BI-212	53.	727.18	1.3030E+00
PB-212	4804.	238.63	7.9100E-01
BI-214	989.	609.31	7.2142E-01
PB-214	3782.	351.92	2.0041E+00
RA-224	4616.	240.99	8.6059E+00
RA-226	5380.	186.10	8.5578E+00
AC-228	36.	911.21	3.2747E-01
TH-228	3780.	84.37	2.8990E+01
TH-229	3857.	88.47	1.3825E+00
PA-233	3834.	312.17	9.6096E-01
UTH-233	4555.	245.34	3.2020E+02
PA-234M	26.	1001.03	1.3531E-01
TH-234	3572.	63.29	1.6416E+01
U-235	5325.	185.71	5.1748E-01
NP-237	4020.	86.48	2.9214E+00

Sample ID : S96T001291-SAMM Acquisition date : 9-APR-1996 08:53:55

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	4065.	106.12	1.2047E+00
PU-239	4298.	129.30	3.8282E+03
AM-241	3601.	59.54	2.6242E+00
AM-243	3672.	74.67	7.7652E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     9-APR-1996 10:42:38.15                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7464
Sample ID:               S96T001291-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2420.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:19.16 sec
Dead Time:               0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-APR-1996 09:51:38.52
Decayed to:              9-APR-1996 09:51:38.52
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
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-182, REV. 1

Removed by: ALJ 4-9-96

Verified by: R Bachelor 4/9/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.85	204	1.23	246.13	244	6	96.9		CO-57	0.196
									EU-154	0.415
0	661.89*	140187	1.52	1323.79	1316	17	0.5		CS-137	389.
0	723.54	38	1.09	1447.07	1441	12	79.3		EU-154	0.486
0	1005.54	37	2.04	2011.07	2006	13	55.5		EU-154	0.708
0	1173.80	21	1.88	2347.65	2345	7	56.2			
0	1275.03	42	1.89	2550.18	2543	14	45.3		EU-154	0.508
0	1461.54*	15	1.70	2923.34	2914	17	161.9		K-40	0.667

Summary of Nuclide Activity
Sample ID : S96T001291-DUP

Acquisition date : 9-APR-1996 09:51:38

WHC-SD-WM-DP-182, REV. 1

Total number of lines in spectrum	7	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	7	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~~	~~6.668E-01~~	~~6.668E-01~~	~~10.80E-01~~	~~161.93~~	BKG
~~CO-57~~	~~271.80D~~	~~1.000~~	~~1.961E-01~~	~~1.961E-01~~	~~1.899E-01~~	~~96.86~~	BKG
CS-137	30.00Y	1.000	3.891E+02	3.891E+02	0.021E+02	0.55	
EU-154	8.59Y	1.000	5.436E-01	5.436E-01	1.764E-01	32.45	
		Total Activity :	3.905E+02	3.905E+02			
		Grand Total Activity :	3.905E+02	3.905E+02			

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

Sample ID : S96T001291-DUP
Acquisition date : 9-APR-1996 09:51:38

WHC-SD-WM-DP-182, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4459.	477.59	5.4169E+00
NA-22	49.	1274.53	1.3613E-01
NA-24	2.	1368.55	2.6115E-02
CR-51	3638.	320.08	3.6506E+00
MN-54	31.	834.83	7.4359E-02
CO-56	26.	846.76	6.9140E-02
CO-58	30.	810.78	7.1698E-02
FE-59	11.	1099.25	1.0262E-01
CO-60	27.	1332.50	1.0586E-01
SE-75	4171.	264.66	5.9002E-01
SR-85	2254.	514.01	4.4236E-01
Y-88	4.	1836.06	5.2343E-02
NB-94	42.	871.09	8.9804E-02
ZRNB-95	73.	724.18	2.3262E-01
RU-103	2795.	497.08	5.0512E-01
RURH-106	948.	621.93	6.4860E+00
AG-108m	75.	722.94	1.1314E-01
CD-109	3891.	88.03	9.5787E+00
AG-110M	2442.	657.76	5.7165E-01
SN-113	3990.	391.69	6.9524E-01
TE-123m	4205.	159.00	2.9017E-01
SB-124	966.	602.73	3.2380E-01
SB-125	4483.	427.89	1.7293E+00
TE-125m	3863.	109.27	9.2137E+01
I-131	3803.	364.48	5.0843E-01
CS-134	991.	604.70	3.2944E-01
BA-140	1612.	537.31	1.5289E+00
LA-140	8.	1596.21	7.1623E-02
CEPR-144	4244.	133.51	4.3543E+00
EU-152	8.	1408.01	2.7819E-01
EU-155	3869.	105.31	1.2384E+00
HG-203	3943.	279.20	4.2685E-01
TL-208	3973.	277.36	5.5055E+00
BI-212	41.	727.18	1.1432E+00
PB-212	4727.	238.63	7.8461E-01
BI-214	985.	609.31	7.1983E-01
PB-214	3679.	351.92	1.9763E+00
RA-224	4607.	240.99	8.5967E+00
RA-226	5437.	186.10	8.6031E+00
AC-228	40.	911.21	3.4499E-01
TH-228	3762.	84.37	2.8919E+01
TH-229	3857.	88.47	1.3825E+00
PA-233	3629.	312.17	9.3492E-01
UTH-233	4466.	245.34	3.1705E+02
PA-234M	19.	1001.03	1.1642E-01
TH-234	3514.	63.29	1.6281E+01
U-235	5362.	185.71	5.1930E-01
NP-237	3836.	86.48	2.8537E+00
NP-239	3859.	106.12	1.1738E+00
PU-239	4224.	129.30	3.7951E+03
AM-241	3375.	59.54	2.5404E+00

Sample ID : S96T001291-DUP Acquisition date : 9-APR-1996 09:51:38

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-243	3561.	74.67	7.6468E-01

WHC-SD-WM-DP-182, REV. 1

```
*************************************************************************
* 222-S Laboratory Counting Room     9-APR-1996 11:40:15.99             *
*************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7464
Sample ID:               S96T001296-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2421.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:17.20 sec
Dead Time:               0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-APR-1996 10:49:17.19
Decayed to:              9-APR-1996 10:49:17.19
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
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
*************************************************************************
```

HC-SD-WM-DP-182, REV. 1

Removed by: 4-9-96

Verified by: 4/9/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	123.32	329	1.13	247.08	243	8	71.8		CO-57	1.58
0	661.89*	124646	1.53	1323.79	1315	17	0.6		CS-137	1.730E+03
0	723.86	69	1.17	1447.73	1441	12	43.5			
0	872.95	57	1.10	1745.88	1740	12	41.7			
0	1005.04	50	1.66	2010.07	2003	13	41.1			
0	1275.12	69	1.12	2550.36	2545	15	34.3			
0	1332.42	17	1.34	2665.00	2661	13	89.9			
0	1461.50*	23	1.75	2923.26	2916	17	102.5		K-40	5.00

Sample ID : S96T001296-SAM
Acquisition date : 9-APR-1996 10:49:17

WHC-SD-WM-DP-182, REV. 1

Total number of lines in spectrum	8	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	8	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~~	~~4.997E+00~~	~~4.997E+00~~	~~5.123E+00~~	~~102.52~~	?
~~CO-57~~	~~271.80D~~	~~1.000~~	1.584E+00	1.584E+00	1.137E+00	~~71.78~~	BKG
CS-137	30.00Y	1.000	1.730E+03	1.730E+03	0.010E+03	0.58	
		Total Activity :	1.736E+03	1.736E+03			
		Grand Total Activity :	1.736E+03	1.736E+03			

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	4030.	477.59	2.5749E+01
NA-22	78.	1274.53	8.6122E-01
NA-24	7.	1368.55	2.7748E-01
CR-51	3205.	320.08	1.7132E+01
MN-54	39.	834.83	4.1645E-01
CO-56	37.	846.76	4.1259E-01
CO-58	27.	810.78	3.4450E-01
FE-59	16.	1099.25	6.1093E-01
CO-60	26.	1332.50	5.1639E-01
SE-75	3740.	264.66	2.7937E+00
SR-85	2084.	514.01	2.1271E+00
Y-88	5.	1836.06	2.8462E-01
NB-94	60.	871.09	5.3762E-01
ZRNB-95	98.	724.18	1.3457E+00
RU-103	2444.	497.08	2.3619E+00
RURH-106	872.	621.93	3.1104E+01
AG-108m	100.	722.94	6.5144E-01
CD-109	3406.	88.03	4.4807E+01
AG-110M	2130.	657.76	2.6694E+00
SN-113	3557.	391.69	3.2823E+00
TE-123m	3788.	159.00	1.3770E+00
SB-124	841.	602.73	1.5105E+00
SB-125	4087.	427.89	8.2565E+00
TE-125m	3497.	109.27	4.3831E+02
I-131	3387.	364.48	2.3989E+00
CS-134	877.	604.70	1.5494E+00
BA-140	1451.	537.31	7.2526E+00
LA-140	12.	1596.21	4.2207E-01
CEPR-144	3867.	133.51	2.0782E+01
EU-152	8.	1408.01	1.4327E+00
EU-154	78.	1274.51	2.5014E+00
EU-155	3509.	105.31	5.8970E+00
HG-203	3656.	279.20	2.0550E+00
TL-208	3583.	277.36	2.6141E+01
BI-212	42.	727.18	5.8083E+00
PB-212	4204.	238.63	3.6999E+00
BI-214	971.	609.31	3.5740E+00
PB-214	3329.	351.92	9.3974E+00
RA-224	4164.	240.99	4.0866E+01
RA-226	4744.	186.10	4.0181E+01
AC-228	47.	911.21	1.8683E+00
TH-228	3390.	84.37	1.3726E+02
TH-229	3335.	88.47	6.4277E+00
PA-233	3319.	312.17	4.4708E+00
UTH-233	4062.	245.34	1.5118E+03
PA-234M	26.	1001.03	6.8586E-01
TH-234	3154.	63.29	7.7122E+01
U-235	4693.	185.71	2.4290E+00
NP-237	3516.	86.48	1.3662E+01
NP-239	3513.	106.12	5.5996E+00
PU-239	3722.	129.30	1.7812E+04

Sample ID : S96T001296-SAM Acquisition date : 9-APR-1996 10:49:17

/HC-SD-WM-DP-182, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	3232.	59.54	1.2430E+01
AM-243	3277.	74.67	3.6681E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room     9-APR-1996 13:31:08.50                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7464
Sample ID:               S96T001296-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2422.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:15.72 sec
Dead Time:               0.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-APR-1996 12:40:12.90
Decayed to:              9-APR-1996 12:40:12.90
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
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-182, REV. /

Removed by: 4-9-96

Verified by: 4/9/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	123.05	390	1.06	246.53	243	8	58.5		CO-57	0.375
									EU-154	0.795
0	661.89*	114219	1.53	1323.80	1315	18	0.6		CS-137	317.
0	723.54	56	1.52	1447.07	1444	7	36.9		EU-154	0.717
0	873.37	28	1.93	1746.73	1743	11	68.8		EU-154	0.680
0	997.32	31	2.39	1994.63	1988	14	84.9		EU-154	1.00
0	1174.08	27	1.52	2348.22	2343	14	88.3		CO-60	0.104
0	1274.96	66	1.36	2550.03	2543	15	30.7		EU-154	0.799
0	1333.40	26	1.49	2666.95	2661	11	58.5		CO-60	0.112

Sample ID : S96T001296-DUP
Acquisition date : 9-APR-1996 12:40:12

WHC-SD-WM-DP-182, REV. 1

Total number of lines in spectrum	8	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	8	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-57~~	~~271.80D~~	~~1.000~~	~~3.754E-01~~	~~3.754E-01~~	~~2.195E-01~~	~~58.49~~	K
CO-60	5.27Y	1.000	1.095E-01	1.095E-01	0.534E-01	48.80	
CS-137	30.00Y	1.000	3.170E+02	3.170E+02	0.019E+02	0.61	
EU-154	8.59Y	1.000	7.601E-01	7.601E-01	1.647E-01	21.66	
	Total Activity :		3.183E+02	3.183E+02			

Grand Total Activity : 3.183E+02 3.183E+02

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

Sample ID : S96T001296-DUP
Acquisition date : 9-APR-1996 12:40:12

/HC-SD-WM-DP-182, REV. /

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3712.	477.59	4.9429E+00
NA-22	70.	1274.53	1.6355E-01
NA-24	9.	1368.55	6.4852E-02
K-40	102.	1460.75	2.0643E+00
CR-51	3022.	320.08	3.3272E+00
MN-54	17.	834.83	5.6015E-02
CO-56	34.	846.76	7.9162E-02
CO-58	27.	810.78	6.7791E-02
FE-59	16.	1099.25	1.2219E-01
SE-75	3451.	264.66	5.3675E-01
SR-85	1928.	514.01	4.0911E-01
Y-88	4.	1836.06	5.2693E-02
NB-94	36.	871.09	8.3107E-02
ZRNB-95	86.	724.18	2.5229E-01
RU-103	2186.	497.08	4.4674E-01
RURH-106	747.	621.93	5.7567E+00
AG-108m	94.	722.94	1.2658E-01
CD-109	3119.	88.03	8.5757E+00
AG-110M	1976.	657.76	5.1430E-01
SN-113	3131.	391.69	6.1588E-01
TE-123m	3300.	159.00	2.5705E-01
SB-124	790.	602.73	2.9285E-01
SB-125	3839.	427.89	1.6004E+00
TE-125m	3196.	109.27	8.3799E+01
I-131	2974.	364.48	4.4960E-01
CS-134	798.	604.70	2.9562E-01
BA-140	1372.	537.31	1.4107E+00
LA-140	10.	1596.21	7.8279E-02
CEPR-144	3558.	133.51	3.9867E+00
EU-152	13.	1408.01	3.6703E-01
EU-155	3292.	105.31	1.1424E+00
HG-203	3159.	279.20	3.8205E-01
TL-208	3230.	277.36	4.9645E+00
BI-212	43.	727.18	1.1783E+00
PB-212	3790.	238.63	7.0257E-01
BI-214	819.	609.31	6.5652E-01
PB-214	3074.	351.92	1.8054E+00
RA-224	3695.	240.99	7.6997E+00
RA-226	4260.	186.10	7.6153E+00
AC-228	38.	911.21	3.3635E-01
TH-228	3117.	84.37	2.6325E+01
TH-229	3069.	88.47	1.2332E+00
PA-233	3093.	312.17	8.6308E-01
UTH-233	3736.	245.34	2.8997E+02
PA-234M	21.	1001.03	1.2207E-01
TH-234	2848.	63.29	1.4659E+01
U-235	4226.	185.71	4.6101E-01
NP-237	3293.	86.48	2.6443E+00
NP-239	3285.	106.12	1.0829E+00
PU-239	3556.	129.30	3.4819E+03
AM-241	2977.	59.54	2.3858E+00

Sample ID : S96T001296-DUP Acquisition date : 9-APR-1996 12:40:12

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-243	3008.	74.67	7.0283E-01

LABCORE Data Entry Template for Worklist# 7465

Analyst: KNT **Instrument:** GEA00 3 **Book#** 12656

Method: LA-548-121 Rev/Mod E-C

Worklist Comment: U-105, Sample Size = .500ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-02	SOLID		
2	BLNK-PREP				@GEA-02	SOLID		
3	SAMPLE	S96T001303	0	F	@GEA-02	SOLID	96000143	U-105 (R)
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T001303	0	F	@GEA-02	SOLID		
5	SAMPLE	S96T001310	0	F	@GEA-02	SOLID	96000143	U-105 (R)
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T001310	0	F	@GEA-02	SOLID		

Final page for worklist # 7465

Kim Thomas 4-8-96
Analyst Signature **Date**

M C Brown 4/9/96
Analyst Signature **Date**

Data Entry Comments:

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

WHC-SD-WM-DP-182, REV. 1

LABCORE Completed Worklist Report for Worklist# 7465

Analyst: knt **Instrument:** GEA03 **Book#** 12856

Method: LA-548-(2) Rev/Mod E-0

Worklist Comment: U-105, Sample Size = .500ml. new

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-02	CO60-02	SOLID	0.0257		2.60e-02	101.170	% Recovery
1	STD		0		@GEA-02	CO60-02E	SOLID	1		1.20	1.200	% Ct. Error
1	STD		0		@GEA-02	CS13702	SOLID	0.0271		2.78e-02	102.580	% Recovery
1	STD		0		@GEA-02	CS13702E	SOLID	1		1.42	1.420	% Ct. Error
2	BLNK-PREP		0		@GEA-02	CO60-02	SOLID	1		<2.70e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	CS13702	SOLID	1		1.10e-01	0.110	uCi/g
2	BLNK-PREP		0		@GEA-02	EU15402	SOLID	1		<5.53e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15502	SOLID	1		<6.05e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	AM24102	SOLID	1		<1.76e-1		uCi/g
3	SAMPLE	S96T001303	0	F	@GEA-02	CO60-02	SOLID	N/A	<	3.324e-02	3.324e-002	uCi/g
3	SAMPLE	S96T001303	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S96T001303	0	F	@GEA-02	CS13702	SOLID	N/A		1.446e+02	0.000	uCi/g
3	SAMPLE	S96T001303	0	F	@GEA-02	CS13702E	SOLID	N/A		0.570	0.000	% Ct. Error
3	SAMPLE	S96T001303	0	F	@GEA-02	EU15402	SOLID	N/A	<	1.600e-01	0.160	uCi/g
3	SAMPLE	S96T001303	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S96T001303	0	F	@GEA-02	EU15502	SOLID	N/A	<	4.146e-01	0.415	uCi/g
3	SAMPLE	S96T001303	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S96T001303	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.081e+00	1.081	uCi/g
3	SAMPLE	S96T001303	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.000	% Ct. Error
4	DUP	S96T001303	0	F	@GEA-02	CO60-02	SOLID	<3.32e-2		<4.24e-2		RPD
4	DUP	S96T001303	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct. Error
4	DUP	S96T001303	0	F	@GEA-02	CS13702	SOLID	1.45e+02		1.50e+02	3.390	RPD
4	DUP	S96T001303	0	F	@GEA-02	CS13702E	SOLID	1		0.550	0.550	% Ct. Error
4	DUP	S96T001303	0	F	@GEA-02	EU15402	SOLID	<1.60e-1		<1.84e-1		RPD
4	DUP	S96T001303	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct. Error
4	DUP	S96T001303	0	F	@GEA-02	EU15502	SOLID	<4.15e-1		<4.14e-1		RPD
4	DUP	S96T001303	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct. Error
4	DUP	S96T001303	0	F	@GEA-02	AM24102	SOLID	<1.08e0		<1.09e0		RPD
4	DUP	S96T001303	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct. Error
5	SAMPLE	S96T001310	0	F	@GEA-02	CO60-02	SOLID	N/A	<	4.877e-02	4.877e-002	uCi/g
5	SAMPLE	S96T001310	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S96T001310	0	F	@GEA-02	CS13702	SOLID	N/A		2.830e+02	0.000	uCi/g
5	SAMPLE	S96T001310	0	F	@GEA-02	CS13702E	SOLID	N/A		0.410	0.000	% Ct. Error
5	SAMPLE	S96T001310	0	F	@GEA-02	EU15402	SOLID	N/A	<	2.308e-01	0.231	uCi/g
5	SAMPLE	S96T001310	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S96T001310	0	F	@GEA-02	EU15502	SOLID	N/A	<	5.833e-01	0.583	uCi/g
5	SAMPLE	S96T001310	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S96T001310	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.513e+00	1.513	uCi/g
5	SAMPLE	S96T001310	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.000	% Ct. Error
6	DUP	S96T001310	0	F	@GEA-02	CO60-02	SOLID	<4.88e-2		<4.79e-1		RPD
6	DUP	S96T001310	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 Worklist Report for Worklist# 7465

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
6	DUP	S96T001310	0	F	@GEA-02	CS13702 SOLID	2.83e+02	2.85e+02	0.700	RPD
6	DUP	S96T001310	0	F	@GEA-02	CS13702E SOLID	1	2.23	2.230	% Ct. Error
6	DUP	S96T001310	0	F	@GEA-02	EU15402 SOLID	<2.31e-1	<1.18e0		RPD
6	DUP	S96T001310	0	F	@GEA-02	EU15402E SOLID	1	n/a		% Ct. Error
6	DUP	S96T001310	0	F	@GEA-02	EU15502 SOLID	<5.83e-1	<3.13e0		RPD
6	DUP	S96T001310	0	F	@GEA-02	EU15502E SOLID	1	n/a		% Ct. Error
6	DUP	S96T001310	0	F	@GEA-02	AM24102 SOLID	<1.51e0	<8.42e0		RPD
6	DUP	S96T001310	0	F	@GEA-02	AM24102E SOLID	1	n/a		% Ct. Error

Comments Section:

Comments for sample# S96T001303 **and test** @GEA-02 .
DL=0 => n/a. Sample 1000x higer than cont. blnk. => OK.

Comments for sample# S96T001310 **and test** @GEA-02 .
DL=0 => n/a. Sample 1000x higher than cont. blnk. => OK.

Final page for worklist# 7465

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

B J Machelor 4/11/96
Reviewer Signature **Date**

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

```
*****************************************************************************
* 222-S Laboratory Counting Room    9-APR-1996 04:42:51.68                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

HC-SD-WM-DP-182, REV. 1

```
Worklist #:            7465
Sample ID:             WL7465-STD
Sample Size:           1.00000E-03 L
Dilution Factor:       1.00000E+00
```

Removed by: 4-9-96

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:           GEA3
File Number:           dka300:[spec.GEA3]3g3056.cnf
Geometry:              42
Count Time:            0 00:50:00.00 sec
Real Time:             0 00:50:09.89 sec
Dead Time:             0.3%
```

Verified by: 4/9/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:     9-APR-1996 03:52:05.37
Decayed to:            9-APR-1996 03:52:05.37
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

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.87*	24598	1.55	1323.91	1315	17	1.4		CS-137	27.8
0	1173.47	16545	1.88	2347.21	2339	18	1.7		CO-60	26.1
0	1332.72	14792	1.99	2665.81	2656	19	1.7		CO-60	25.9

Sample ID : WL7465-STD
Acquisition date : 9-APR-1996 03:52:05

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

HC-SD-WM-DP-182, 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
CO-60	5.27Y	1.000	2.599E+01	2.599E+01	0.031E+01	1.20	
CS-137	30.00Y	1.000	2.780E+01	2.780E+01	0.040E+01	1.42	
		Total Activity :	5.379E+01	5.379E+01			
		Grand Total Activity :	5.379E+01	5.379E+01			

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

Sample ID : WL7465-STD Acquisition date : 9-APR-1996 03:52:05

HC-SD-WM-DP-182, REV. /

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1409.	129.30	8.5512E+02
AM-241	1132.	59.54	7.0569E-01
AM-243	1132.	74.67	1.6590E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    9-APR-1996 06:12:30.61                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7465
Sample ID:               WL7465-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3057.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:       9-APR-1996 05:21:53.93
Decayed to:              9-APR-1996 05:21:53.93
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

HC-SD-WM-DP-182, REV. 1

Removed by:

4-9-96

Verified by:

Bachelor 4/9/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	355.82	82	10.04	711.94	702	26	67.3			
0	661.87*	97	1.50	1323.92	1319	12	37.4		CS-137	0.220
0	911.76*	20	1.56	1823.70	1817	16	77.1			
0	974.34	26	10.05	1948.86	1936	28	120.9			

Sample ID : WL7465-BLK Acquisition date : 9-APR-1996 05:21:53

Total number of lines in spectrum	4	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	2	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	2.204E-01	2.204E-01	0.824E-01	37.37	
		Total Activity :	2.204E-01	2.204E-01			
		Grand Total Activity :	2.204E-01	2.204E-01			

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

Minimum Detectable Activity Report
Sample ID : WL7465-BLK Acquisition date : 9-APR-1996 05:21:53

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	38.	477.59	4.0360E-01
NA-22	6.	1274.53	3.7811E-02
NA-24	9.	1368.55	4.9790E-02
K-40	136.	1460.75	1.9067E+00
CR-51	51.	320.08	3.5345E-01
MN-54	16.	834.83	4.3793E-02
CO-56	23.	846.76	5.2935E-02
CO-57	74.	122.06	2.9791E-02
CO-58	20.	810.78	4.7559E-02
FE-59	7.	1099.25	6.3364E-02
CO-60	11.	1332.50	5.3729E-02
SE-75	56.	264.66	5.5757E-02
SR-85	47.	514.01	5.1814E-02
Y-88	4.	1836.06	4.1968E-02
NB-94	13.	871.09	4.1173E-02
ZRNB-95	17.	724.18	9.2103E-02
RU-103	27.	497.08	4.0257E-02
RURH-106	19.	621.93	7.4865E-01
AG-108m	16.	722.94	4.3192E-02
CD-109	67.	88.03	9.3609E-01
AG-110M	21.	657.76	4.3058E-02
SN-113	48.	391.69	6.3161E-02
TE-123m	73.	159.00	3.0409E-02
SB-124	23.	602.73	4.0339E-02
SB-125	37.	427.89	1.2965E-01
TE-125m	74.	109.27	9.7228E+00
I-131	35.	364.48	4.0018E-02
CS-134	23.	604.70	4.0665E-02
BA-140	23.	537.31	1.4820E-01
LA-140	3.	1596.21	3.1607E-02
CEPR-144	74.	133.51	4.5072E-01
EU-152	7.	1408.01	2.1257E-01
EU-154	6.	1274.51	1.1023E-01
EU-155	64.	105.31	1.2049E-01
HG-203	69.	279.20	4.6153E-02
TL-208	66.	277.36	5.8028E-01
BI-212	24.	727.18	7.2148E-01
PB-212	82.	238.63	8.3583E-02
BI-214	46.	609.31	1.2679E-01
PB-214	73.	351.92	2.2806E-01
RA-224	77.	240.99	9.0069E-01
RA-226	91.	186.10	8.9567E-01
AC-228	32.	911.21	2.5152E-01
TH-228	77.	84.37	3.0959E+00
TH-229	64.	88.47	1.3285E-01
PA-233	46.	312.17	8.6526E-02
UTH-233	68.	245.34	3.1727E+01
PA-234M	14.	1001.03	7.9965E-02
TH-234	57.	63.29	1.7880E+00
U-235	90.	185.71	5.4054E-02
NP-237	77.	86.48	3.0133E-01

Sample ID : WL7465-BLK Acquisition date : 9-APR-1996 05:21:53

W/HC-SD-WM-DP-182, REV. /

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	70.	106.12	1.1925E-01
PU-239	68.	129.30	3.7594E+02
AM-241	70.	59.54	3.5021E-01
AM-243	72.	74.67	8.3707E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room    9-APR-1996 07:08:44.28                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7465
Sample ID:               S96T001303-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3058.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:15.96 sec
Dead Time:               0.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-APR-1996 06:17:51.84
Decayed to:              9-APR-1996 06:17:51.84
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

HC-SD-WM-DP-182, REV. /

Removed by: 4-9-96

Verified by: 4/9/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.86*	127633	1.57	1323.90	1315	18	0.6		CS-137	289.
0	723.24	36	1.14	1446.64	1443	9	61.3			
0	1274.89	46	2.14	2550.11	2539	23	48.8			
0	1332.78	13	0.76	2665.94	2662	9	70.9			

Sample ID : S96T001303-SAM
Acquisition date : 9-APR-1996 06:17:51

HC-SD-WM-DP-182, REV.

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
CS-137	30.00Y	1.000	2.885E+02	2.885E+02	0.016E+02	0.57	
		Total Activity :	2.885E+02	2.885E+02			
		Grand Total Activity :	2.885E+02	2.885E+02			

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

Sample ID : S96T001303-SAM
Acquisition date : 9-APR-1996 06:17:51

HC-SD-WM-DP-182, REV.

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3862.	477.59	4.0947E+00
NA-22	49.	1274.53	1.0966E-01
NA-24	8.	1368.55	4.8735E-02
K-40	144.	1460.75	1.9640E+00
CR-51	3059.	320.08	2.7424E+00
MN-54	24.	834.83	5.3948E-02
CO-56	31.	846.76	6.2129E-02
CO-57	3454.	122.06	2.0341E-01
CO-58	38.	810.78	6.6398E-02
FE-59	17.	1099.25	1.0234E-01
CO-60	17.	1332.50	6.6210E-02
SE-75	3262.	264.66	4.2429E-01
SR-85	1921.	514.01	3.3019E-01
Y-88	1.	1836.06	2.0984E-02
NB-94	29.	871.09	6.1240E-02
ZRNB-95	70.	724.18	1.8508E-01
RU-103	2391.	497.08	3.7831E-01
RURH-106	649.	621.93	4.3668E+00
AG-108m	67.	722.94	8.7365E-02
CD-109	2897.	88.03	6.1687E+00
AG-110M	1646.	657.76	3.8221E-01
SN-113	3356.	391.69	5.2675E-01
TE-123m	3315.	159.00	2.0502E-01
SB-124	716.	602.73	2.2657E-01
SB-125	3863.	427.89	1.3193E+00
TE-125m	3060.	109.27	6.2341E+01
I-131	3117.	364.48	3.7957E-01
CS-134	720.	604.70	2.2813E-01
BA-140	1406.	537.31	1.1542E+00
LA-140	2.	1596.21	2.7911E-02
CEPR-144	3335.	133.51	3.0233E+00
EU-152	10.	1408.01	2.5723E-01
EU-154	49.	1274.51	3.1874E-01
EU-155	3012.	105.31	8.2594E-01
HG-203	3273.	279.20	3.1692E-01
TL-208	3358.	277.36	4.1236E+00
BI-212	42.	727.18	9.4452E-01
PB-212	3802.	238.63	5.6963E-01
BI-214	733.	609.31	5.0474E-01
PB-214	3029.	351.92	1.4753E+00
RA-224	3795.	240.99	6.3188E+00
RA-226	4394.	186.10	6.2074E+00
AC-228	36.	911.21	2.6539E-01
TH-228	2832.	84.37	1.8783E+01
TH-229	2872.	88.47	8.9020E-01
PA-233	3092.	312.17	7.0632E-01
UTH-233	3721.	245.34	2.3454E+02
PA-234M	23.	1001.03	1.0304E-01
TH-234	2597.	63.29	1.2116E+01
U-235	4345.	185.71	3.7518E-01
NP-237	2920.	86.48	1.8602E+00

Sample ID : S96T001303-SAM Acquisition date : 9-APR-1996 06:17:51

HC-SD-WM-DP-182, REV.

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	3023.	106.12	7.8619E-01
PU-239	3314.	129.30	2.6227E+03
AM-241	2636.	59.54	2.1539E+00
AM-243	2753.	74.67	5.1744E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    9-APR-1996 08:17:52.89                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7465
Sample ID:               S96T001303-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3059.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:16.91 sec
Dead Time:               0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-APR-1996 07:26:55.34
Decayed to:              9-APR-1996 07:26:55.34
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

HC-SD-WM-DP-182, REV. 1

Removed by: 4-9-96

Verified by: 4/9/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.86*	135726	1.57	1323.90	1315	17	0.6		CS-137	307.
0	723.36	44	0.82	1446.89	1442	11	63.0			
0	1005.52	38	1.05	2011.24	2007	11	52.5			
0	1274.24	28	1.31	2548.81	2548	12	103.6			

Sample ID : S96T001303-DUP Acquisition date : 9-APR-1996 07:26:55

Total number of lines in spectrum 4
Number of unidentified lines 0
Number of lines tentatively identified by NID 4 100.00%

HC-SD-WM-DP-182, 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	3.068E+02	3.068E+02	0.017E+02	0.55	
		Total Activity :	3.068E+02	3.068E+02			
		Grand Total Activity :	3.068E+02	3.068E+02			

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

Sample ID : S96T001303-DUP Acquisition date : 9-APR-1996 07:26:55

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4143.	477.59	4.2407E+00
NA-22	68.	1274.53	1.2944E-01
NA-24	7.	1368.55	4.3656E-02
K-40	144.	1460.75	1.9623E+00
CR-51	3137.	320.08	2.7769E+00
MN-54	28.	834.83	5.7632E-02
CO-56	29.	846.76	5.9335E-02
CO-57	3804.	122.06	2.1349E-01
CO-58	26.	810.78	5.4982E-02
FE-59	23.	1099.25	1.1784E-01
CO-60	28.	1332.50	8.6649E-02
SE-75	3601.	264.66	4.4577E-01
SR-85	2088.	514.01	3.4424E-01
Y-88	1.	1836.06	2.0984E-02
NB-94	49.	871.09	7.9428E-02
ZRNB-95	74.	724.18	1.9036E-01
RU-103	2541.	497.08	3.8999E-01
RURH-106	735.	621.93	4.6454E+00
AG-108m	75.	722.94	9.1952E-02
CD-109	3132.	88.03	6.4147E+00
AG-110M	1655.	657.76	3.8326E-01
SN-113	3545.	391.69	5.4134E-01
TE-123m	3563.	159.00	2.1256E-01
SB-124	741.	602.73	2.3045E-01
SB-125	4204.	427.89	1.3763E+00
TE-125m	3126.	109.27	6.3004E+01
I-131	3357.	364.48	3.9392E-01
CS-134	794.	604.70	2.3959E-01
BA-140	1450.	537.31	1.1723E+00
LA-140	8.	1596.21	5.6619E-02
CEPR-144	3528.	133.51	3.1095E+00
EU-152	11.	1408.01	2.6668E-01
EU-154	68.	1274.51	3.7629E-01
EU-155	3154.	105.31	8.4522E-01
HG-203	3429.	279.20	3.2438E-01
TL-208	3403.	277.36	4.1510E+00
BI-212	45.	727.18	9.7663E-01
PB-212	3992.	238.63	5.8373E-01
BI-214	797.	609.31	5.2636E-01
PB-214	3241.	351.92	1.5262E+00
RA-224	3962.	240.99	6.4566E+00
RA-226	4676.	186.10	6.4039E+00
AC-228	36.	911.21	2.6628E-01
TH-228	3065.	84.37	1.9541E+01
TH-229	3071.	88.47	9.2051E-01
PA-233	3230.	312.17	7.2191E-01
UTH-233	3802.	245.34	2.3707E+02
PA-234M	25.	1001.03	1.0926E-01
TH-234	2801.	63.29	1.2582E+01
U-235	4626.	185.71	3.8710E-01
NP-237	3122.	86.48	1.9235E+00

Sample ID : S96T001303-DUP Acquisition date : 9-APR-1996 07:26:55

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	3095.	106.12	7.9556E-01
PU-239	3499.	129.30	2.6948E+03
AM-241	2829.	59.54	2.2314E+00
AM-243	2898.	74.67	5.3088E-01

```
*************************************************************************
* 222-S Laboratory Counting Room    9-APR-1996 09:47:25.15              *
*************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                7465
Sample ID:                 S96T001310-SAM
Sample Size:               1.00000E-03 L
Dilution Factor:           2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:               GEA3
File Number:               dka300:[spec.GEA3]3g3060.cnf
Geometry:                  42
Count Time:                0 00:50:00.00 sec
Real Time:                 0 00:50:30.51 sec
Dead Time:                 1.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:         9-APR-1996 08:55:38.83
Decayed to:                9-APR-1996 08:55:38.83
Standard Deviations:       2
Analysis Library:          ENVGEA
Analyst:                   ALJ
Background Subtract:       DKA300:[SPEC.GEA3]3GBACK

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

HC-SD-WM-DP-182, REV. 1

Removed by: 4-9-96

Verified by: 4/9/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.94	502	1.21	246.37	244	7	53.9		CO-57	0.373
0	661.87*	246975	1.57	1323.91	1315	18	0.4		CS-137	558.
0	724.24	91	1.78	1448.65	1443	15	52.9			
0	1005.50	62	2.65	2011.20	2005	19	48.4			
0	1274.51	88	2.30	2549.35	2542	14	27.8			
0	1332.47	36	1.52	2665.31	2658	14	33.3			

Sample ID : S96T001310-SAM Acquisition date : 9-APR-1996 08:55:38

Total number of lines in spectrum 6
Number of unidentified lines 0
Number of lines tentatively identified by NID 6 100.00%

WHC-SD-WM-DP-182, 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
~~CO-57~~	~~271.80D~~	~~1.000~~	~~3.734E-01~~	~~3.735E-01~~	~~2.012E-01~~	~~53.87~~	BKG
CS-137	30.00Y	1.000	5.583E+02	5.583E+02	0.023E+02	0.41	
			---	---			
Total Activity :			5.587E+02	5.587E+02			
Grand Total Activity :			5.587E+02	5.587E+02			

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

Sample ID : S96T001310-SAM Acquisition date : 9-APR-1996 08:55:38

/HC-SD-WM-DP-182, REV. /

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	7682.	477.59	5.7748E+00
NA-22	100.	1274.53	1.5666E-01
NA-24	11.	1368.55	5.5241E-02
K-40	153.	1460.75	2.0244E+00
CR-51	5833.	320.08	3.7869E+00
MN-54	55.	834.83	8.1359E-02
CO-56	57.	846.76	8.3847E-02
CO-58	72.	810.78	9.0784E-02
FE-59	29.	1099.25	1.3227E-01
CO-60	35.	1332.50	9.6153E-02
SE-75	6601.	264.66	6.0352E-01
SR-85	3664.	514.01	4.5600E-01
Y-88	4.	1836.06	4.1050E-02
NB-94	74.	871.09	9.7451E-02
ZRNB-95	147.	724.18	2.6898E-01
RU-103	4635.	497.08	5.2669E-01
RURH-106	1365.	621.93	6.3307E+00
AG-108m	131.	722.94	1.2170E-01
CD-109	5534.	88.03	8.5258E+00
AG-110M	3078.	657.76	5.2265E-01
SN-113	6303.	391.69	7.2186E-01
TE-123m	6401.	159.00	2.8488E-01
SB-124	1326.	602.73	3.0828E-01
SB-125	7449.	427.89	1.8320E+00
TE-125m	5764.	109.27	8.5556E+01
I-131	6118.	364.48	5.3178E-01
CS-134	1308.	604.70	3.0751E-01
BA-140	2672.	537.31	1.5915E+00
LA-140	11.	1596.21	6.4152E-02
CEPR-144	6391.	133.51	4.1850E+00
EU-152	1.	1408.01	7.4285E-02
EU-154	100.	1274.51	4.5504E-01
EU-155	5839.	105.31	1.1500E+00
HG-203	6239.	279.20	4.3753E-01
TL-208	6275.	277.36	5.6369E+00
BI-212	102.	727.18	1.4736E+00
PB-212	7301.	238.63	7.8939E-01
BI-214	1399.	609.31	6.9737E-01
PB-214	6003.	351.92	2.0819E+00
RA-224	7186.	240.99	8.6953E+00
RA-226	8468.	186.10	8.6172E+00
AC-228	55.	911.21	3.2978E-01
TH-228	5472.	84.37	2.6112E+01
TH-229	5495.	88.47	1.2314E+00
PA-233	5796.	312.17	9.6703E-01
UTH-233	7124.	245.34	3.2453E+02
PA-234M	30.	1001.03	1.1860E-01
TH-234	4992.	63.29	1.6798E+01
U-235	8430.	185.71	5.2255E-01
NP-237	5656.	86.48	2.5887E+00
NP-239	5787.	106.12	1.0879E+00

Sample ID : S96T001310-SAM Acquisition date : 9-APR-1996 08:55:38

HC-SD-WM-DP-182, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	6319.	129.30	3.6215E+03
AM-241	5055.	59.54	2.9829E+00
AM-243	5259.	74.67	7.1512E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    9-APR-1996 10:56:19.52                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7465
Sample ID:               S96T001310-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             NI3AC:1.cnf  3061
Geometry:                42
Count Time:              0 00:01:46.29 sec
Real Time:               0 00:01:47.34 sec
Dead Time:               1.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-APR-1996 10:51:15.33
Decayed to:              9-APR-1996 10:51:15.33
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

HC-SD-WM-DP-182, REV. 1

Removed by: 4-9-96

Verified by: 4/9/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.90*	8458	1.58	1323.97	1316	16	2.2		CS-137	540.