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

DOCUMENT NUMBER: SD-WM-DP-179

SECTION 7 OF 10

TITLE: Final Report for Tank 241-S-102 Push Mode Cores 125 & 130
[Pages 1819 thru 2109]

DATE: 7/12/94

ORIGINATOR: Fritts L L

CO: WHC

RECIPIENT:

CO:

REFERENCES: ECN-633302

LABCORE Data Entry Template for Worklist# 7539

Analyst: AKL **Instrument:** AB00 18 **Book#** 47B56

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

Worklist Comment: S-102 DETERMIN SS USING LUDLUM (.1ML FOR SPIKE) RTS

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001465	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001465	0	F	@ALPHA01	SOLID		
6	SPK	S96T001465	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001466	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T001466	0	F	@ALPHA01	SOLID		
9	SAMPLE	S96T001467	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T001467	0	F	@ALPHA01	SOLID		

Final page for worklist # 7539

A Lewis 4/12/96
Analyst Signature **Date**

[illegible] 4/15/96
Analyst Signature **Date**

C.J. Opinen 4/15/96

Data Entry Comments: Elevated RPD's are due to low sample alpha activity. No rerun requested.

[illegible] 4/16/96

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

LABCORE Completed Worklist Report for Worklist# 7539

Analyst: akl **Instrument:** AB18 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: S-102 DETERMIN SS USING LUDLUM (.1ML FOR SPIKE) RTS

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.42E-4	110.940	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.42E+00	4.420	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	2.15E-3	0.000	uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	1.38E+02	138.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	2.56E+00	2.560	uCi/g
4	SAMPLE	S96T001465	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.17E-02	4.200e-003	uCi/g
4	SAMPLE	S96T001465	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.85E+01	0.000	% Ct. Error
5	DUP	S96T001465	0	F	@ALPHA01	ALPHA01	SOLID	2.17E-2	8.69E-3	85.620	RPD
5	DUP	S96T001465	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	4.27E+01	42.700	% Ct. Error
6	SPK	S96T001465	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.34E-02	93.040	% Recovery
7	SAMPLE	S96T001466	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.99E-02	4.020e-003	uCi/g
7	SAMPLE	S96T001466	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.77E+01	0.000	% Ct. Error
8	DUP	S96T001466	0	F	@ALPHA01	ALPHA01	SOLID	1.99E-2	1.30E-2	41.950	RPD
8	DUP	S96T001466	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	3.93E+01	39.300	% Ct. Error
9	SAMPLE	S96T001467	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.55E-02	4.350e-003	uCi/g
9	SAMPLE	S96T001467	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	3.54E+01	0.000	% Ct. Error
10	DUP	S96T001467	0	F	@ALPHA01	ALPHA01	SOLID	1.55E-2	1.77E-2	13.250	RPD
10	DUP	S96T001467	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	3.08E+01	30.800	% Ct. Error

Final page for worklist# 7539

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			18	18
DISH SIZE (1 , 2 , or 5)		(MS)	2	2
GROSS COUNTS		(GC)	1976	2006
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.13	0.13
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			65.737	66.737
Standard Value in µCi/mL			1.28E-04	
Concentration in µCi/L	=		1.41E-01	
Replicate Concentration in µCi/L	=		1.43E-01	
AVERAGE CONCENTRATION in µCi/L	=		1.4242E-01	

Type	STD
Work List	7539
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	LIQUID
Batch Number	96003325
Rerun	0
Sample Prep	N/A
Sample #	WL7539
Instrument Code	WB27809
Prepared By	MCB
Chemist	SLF
Analyst	AKL
Date Complete	04/15/96
Analysis Date	04/12/96
Analysis Time	12:00 PM
Sample Point	S-102

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	=	4.4%	8.55E-07 µCi/mL

Analyst:	MCB		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/11/96

STANDARD.WB1 Rev. 1.0 508101MU

WORKBOOK PAGE: BLANK2

WHC-CD-WM-DP-178, REV.)

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

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		18	18
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	9	11
7539	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)	2.038	2.038
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.170	0.237

Batch Number	
96003325	Blank Concentration in µCi/g 1.79E-03
Rerun	Replicate Concentration in µCi/g 2.50E-03
0	Average Concentration in µCi/g 2.1452E-03

Sample Prep: N/A

Sample #: WL7539

Instrument Code: WB27809

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 12:00 PM

Sample Point: S-102

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)	=	2.15E-03	
RELATIVE COUNTING ERROR		138.0%	4.20E-03 µCi/g

Analyst:	AKL	Date: 15-Apr-96	
Signature of Chemist:	SLF	Date: 4/16/96	

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	73	58
7539	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)	2.038	2.038
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.303	1.803

Batch Number	
96003325	Blank Concentration in µCi/g 2.43E-02
Rerun	Replicate Concentration in µCi/g 1.90E-02
0	Average Concentration in µCi/g 2.1663E-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)
S96T001465	
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	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 2.17E-02
Analyst	
AKL	
Date Complete	
04/15/96	RELATIVE COUNTING ERROR 28.5%
Analysis Date	
04/12/96	
Analysis Time	
12:00 PM	
Sample Point	
S-102	

DETECTION LEVEL
4.20E-03 µCi/g

Analyst:		AKL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101MU

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)	32	31
7539	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)	2.276	2.276
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.937	0.903

Batch Number	
96003325	Blank Concentration in µCi/g 8.85E-03
Rerun	Replicate Concentration in µCi/g 8.53E-03
0	Average Concentration in µCi/g 8.6912E-03
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)
S96T001465	
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	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 8.69E-03
Analyst	
AKL	
Date Complete	
04/15/96	RELATIVE COUNTING ERROR 42.7%
Analysis Date	
04/12/96	
Analysis Time	
12:00 PM	
Sample Point	
S-102	

DETECTION LEVEL
3.76E-03 µCi/g

Analyst:		AKL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		18	18
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	44829	48412
7539	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)	2.038	2.038
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
96003325	SPIKE VALUE in µCi/mL	(SVal)	3.5896E-02	3.5896E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
0	SAMPLE + SPIKE µCi/g	(S+S)	1.58E+01	1.70E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.1663E-02	
FUSION01				
Sample #				
S96T001465	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))))			
MCB	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/15/96				
Analysis Date				
04/12/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.34E-02	
12:00 PM	AVG. PERCENT SPIKE RECOVERY	=	93.0%	
Sample Point				
S-102				

Analyst:		MCB	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	65	61
7539	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)	2.126	2.126
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.037	1.903

Batch Number	
96003325	Blank Concentration in µCi/g 2.06E-02
Rerun	Replicate Concentration in µCi/g 1.92E-02
0	Average Concentration in µCi/g 1.9924E-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)
S96T001466	
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	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.99E-02
Analyst	
AKL	
Date Complete	
04/15/96	RELATIVE COUNTING ERROR 27.7%
Analysis Date	
04/12/96	
Analysis Time	
12:00 PM	
Sample Point	
S-102	

DETECTION LEVEL
4.02E-03 µCi/g

Analyst:		AKL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: 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)	51	35
7539	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)	2.1512	2.1512
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.570	1.037

Batch Number	
96003325	Blank Concentration in µCi/g 1.57E-02
Rerun	Replicate Concentration in µCi/g 1.04E-02
0	Average Concentration in µCi/g 1.3027E-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)
S96T001466	
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	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.30E-02
Analyst	
AKL	
Date Complete	
04/15/96	RELATIVE COUNTING ERROR 39.3%
Analysis Date	
04/12/96	
Analysis Time	
12:00 PM	
Sample Point	
S-102	

DETECTION LEVEL
3.98E-03 µCi/g

Analyst:		AKL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM9

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	41	52
7539	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)	1.9684	1.9684
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.237	1.603

Batch Number	
96003325	Blank Concentration in µCi/g 1.35E-02
Rerun	Replicate Concentration in µCi/g 1.75E-02
0	Average Concentration in µCi/g 1.5511E-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)
S96T001467	
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	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.55E-02
Analyst	
AKL	
Date Complete	
04/15/96	RELATIVE COUNTING ERROR 35.4%
Analysis Date	
04/12/96	
Analysis Time	
12:00 PM	
Sample Point	
S-102	

DETECTION LEVEL
4.35E-03 µCi/g

Analyst:		AKL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

1828

WORKBOOK PAGE: DUP1

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)	59	51
7539	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)	2.0728	2.0728
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.837	1.570

Batch Number	
96003325	Blank Concentration in µCi/g 1.91E-02
Rerun	Replicate Concentration in µCi/g 1.63E-02
0	Average Concentration in µCi/g 1.7669E-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)
S96T001467	
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	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.77E-02
Analyst	
AKL	
Date Complete	
04/15/96	RELATIVE COUNTING ERROR 30.8%
Analysis Date	
04/12/96	
Analysis Time	
12:00 PM	
Sample Point	
S-102	

DETECTION LEVEL
4.13E-03 µCi/g

Analyst:		AKL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

Jill 3 (2000)

WHC-CD-WM-DP-170, REV. 1

LABCORE Data Entry Template for Worklist# 7540

Analyst: AKL **Instrument:** AB00 13 **Book#** 47356

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

Worklist Comment: S-102 DETERMIN SS USING LUDLUM (.1ML FOR SPIKE) RTS

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001468	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001468	0	F	@ALPHA01	SOLID		
6	SPK	S96T001468	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T001469	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T001469	0	F	@ALPHA01	SOLID		
9	SAMPLE	S96T001470	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T001470	0	F	@ALPHA01	SOLID		

Final page for worklist # 7540

A Lewis 4/17/96
Analyst Signature **Date**

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

M B Brown 4/15/96

Data Entry Comments:

The replicate data for 1469 sample and dup indicate that the RPD is due to sample inhomogeneity. The RPD for 1468 is acceptable due to low sample alpha activity. 4/16/96

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

WHC-CD-WM-DP-179, REV. 1

LABCORE Completed Worklist Report for Worklist# 7540

Analyst: akl **Instrument:** AB13 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: S-102 DETERMIN SS USING LUDLUM (.1ML FOR SPIKE) RTS

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.49E-4	116.410	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	3.98E+00	3.980	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<2.36E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	7.58E-01	0.760	uCi/g
4	SAMPLE	S96T001468	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.38E-02	5.510e-003	uCi/g
4	SAMPLE	S96T001468	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.58E+01	0.000	% Ct. Error
5	DUP	S96T001468	0	F	@ALPHA01	ALPHA01	SOLID	2.38E-2	1.98E-2	18.350	RPD
5	DUP	S96T001468	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.70E+01	27.000	% Ct. Error
6	SPK	S96T001468	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.17E-02	88.300	% Recovery
7	SAMPLE	S96T001469	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.24E-02	5.060e-003	uCi/g
7	SAMPLE	S96T001469	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.56E+01	0.000	% Ct. Error
8	DUP	S96T001469	0	F	@ALPHA01	ALPHA01	SOLID	2.24E-2	3.37E-2	40.290	RPD
8	DUP	S96T001469	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.17E+01	21.700	% Ct. Error
9	SAMPLE	S96T001470	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.64E-01	1.100e-002	uCi/g
9	SAMPLE	S96T001470	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.27E+01	0.000	% Ct. Error
10	DUP	S96T001470	0	F	@ALPHA01	ALPHA01	SOLID	1.64E-1	1.76E-1	7.060	RPD
10	DUP	S96T001470	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.29E+01	12.900	% Ct. Error

Final page for worklist# 7540

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
Type	DETECTOR NUMBER		13	13
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2489	2454
7540	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
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		82.637	81.470
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003326	Concentration in µCi/L	=	1.50E-01	
Rerun	Replicate Concentration in µCi/L	=	1.48E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4922E-01	

Sample Prep
N/A

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

Sample #
WL7540

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

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

Instrument Code
WB27810

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
SEH

Chemist
SLF

Analyst
AKL

Date Complete
04/15/96

Analysis Date
04/12/96

Analysis Time
12:00 PM

Sample Point
S102

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.49E-04	
RELATIVE COUNTING ERROR	=	4.0%	1.05E-06 µCi/mL

Analyst:	SEH		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (D-2) 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	10
7540	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9144	1.9144
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.245	0.249

Batch Number			
96003326	Blank Concentration in µCi/g	<	2.32E-03
Rerun	Replicate Concentration in µCi/g	<	2.36E-03
0	Maximum Concentration in µCi/g	<	2.3623E-03

Sample Prep: N/A

Sample #: WL7540

Instrument Code: WB27810

Prepared By: SEH

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 12:00 PM

Sample Point: S102

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)	=	< 2.36E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.				5.51E-03 µCi/g
RELATIVE COUNTING ERROR			500.0%	

Analyst:		AKL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	83	87
7540	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9144	1.9144
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.437	2.570

Batch Number	
96003326	Blank Concentration in µCi/g 2.31E-02
Rerun	Replicate Concentration in µCi/g 2.44E-02
0	Average Concentration in µCi/g 2.3780E-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)
S96T001468	
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) = 2.38E-02
Analyst	
AKL	
Date Complete	
04/15/96	RELATIVE COUNTING ERROR 25.8%
Analysis Date	
04/12/96	
Analysis Time	
12:00 PM	
Sample Point	
S102	

DETECTION LEVEL
5.51E-03 µCi/g

Analyst:		AKL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101M

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)	84	78
7540	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1812	2.1812
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.470	2.270

Batch Number		
96003326	Blank Concentration in µCi/g	2.06E-02
Rerun	Replicate Concentration in µCi/g	1.89E-02
0	Average Concentration in µCi/g	1.9759E-02

Sample Prep: FUSION01

Sample #: S96T001468

Instrument Code: WB27810

Prepared By: SEH

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 12:00 PM

Sample Point: S102

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)	=	1.98E-02	DETECTION LEVEL	
RELATIVE COUNTING ERROR		27.0%	4.84E-03 µCi/g	

Analyst:		AKL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	53231	51688
7540	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
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)	1.9144	1.9144
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
96003326	SPIKE VALUE in µCi/mL	(SVal)	3.5896E-02	3.5896E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
0	SAMPLE + SPIKE µCi/g	(S+S)	1.69E+01	1.64E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.3780E-02	
FUSION01				
Sample #				
S96T001468	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27810	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/15/96				
Analysis Date				
04/12/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.17E-02	
12:00 PM	AVG. PERCENT SPIKE RECOVERY	=	88.4%	
Sample Point				
S102				

Analyst:		SEH	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	84	90
7540	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0856	2.0856
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.470	2.670

Batch Number		
96003326	Blank Concentration in µCi/g	2.15E-02
Rerun	Replicate Concentration in µCi/g	2.33E-02
0	Average Concentration in µCi/g	2.2409E-02

Sample Prep: FUSION01

Sample #: S96T001469

Instrument Code: WB27810

Prepared By: SEH

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 12:00 PM

Sample Point: S102

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)	=	2.24E-02	DETECTION LEVEL	
RELATIVE COUNTING ERROR		25.6%	5.06E-03 µCi/g	

Analyst:	AKL		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

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)	116	108
7540	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8384	1.8384
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.537	3.270

Batch Number		
96003326	Blank Concentration in µCi/g	3.50E-02
Rerun	Replicate Concentration in µCi/g	3.23E-02
0	Average Concentration in µCi/g	3.3666E-02

Sample Prep: FUSION01

Sample # : S96T001469

Instrument Code: WB27810

Prepared By: SEH

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 12:00 PM

Sample Point: S102

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)	=	3.37E-02	
RELATIVE COUNTING ERROR		21.7%	5.74E-03 µCi/g

Analyst:	AKL		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM9

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	265	277
7540	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 GRAMS of SOLIDS / L	(Dg/L)	2.1168	2.1168
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8.503	8.903

Blank Concentration in µCi/g	1.61E-01
Replicate Concentration in µCi/g	1.68E-01
Average Concentration in µCi/g	1.6449E-01

Batch Number: 96003326
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001470
Instrument Code: WB27810
Prepared By: SEH
Chemist: SLF
Analyst: AKL
Date Complete: 04/15/96
Analysis Date: 04/12/96
Analysis Time: 12:00 PM
Sample Point: S102

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)	=	1.64E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		12.7%	1.10E-02 µCi/g

Analyst:	AKL		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP1

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	323	259
7540	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 GRAMS of SOLIDS / L	(Dg/L)	2.1292	2.1292
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		10.437	8.303

Batch Number 96003326	
Blank Concentration in µCi/g	1.96E-01
Rerun 0	Replicate Concentration in µCi/g 1.56E-01
Average Concentration in µCi/g	1.7606E-01

Sample Prep: FUSION01

Sample # S96T001470

Instrument Code WB27810

Prepared By SEH

Chemist SLF

Analyst AKL

Date Complete 04/15/96

Analysis Date 04/12/96

Analysis Time 12:00 PM

Sample Point S102

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)	=	1.76E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		12.9%	1.09E-02 µCi/g

Analyst:	AKL		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

Ref 3 Green

LABCORE Data Entry Template for Worklist# 7541

Analyst: AKL **Instrument:** AB00 #15 **Book#** 47B56

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

Worklist Comment: S-102 DETERMIN SS USING LUDLUM (.1ML FOR SPIKE) RTS

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	SAMPLE	S96T001472	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
4	DUP	S96T001472	0	F	@ALPHA01	SOLID		
5	SPK	S96T001472	0	F	@ALPHA01	SOLID		
6	SAMPLE	S96T001471	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
7	DUP	S96T001471	0	F	@ALPHA01	SOLID		
8	SAMPLE	S96T001473	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
9	DUP	S96T001473	0	F	@ALPHA01	SOLID		
10	SAMPLE	S96T001474	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
11	DUP	S96T001474	0	F	@ALPHA01	SOLID		

Final page for worklist # 7541

C Luis 4/12/96
Analyst Signature **Date**

M S Brown 4/15/96
Analyst Signature **Date**

C.J. Opinen 4/15/96

Data Entry Comments: The RPDs' for 1472 + 1473 are acceptable due to low sample alpha activity. 4/16/96

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

LABCORE Completed Worklist Report for Worklist# 7541

Analyst: akl **Instrument:** AB15 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: S-102 DETERMIN SS USING LUDLUM (.1ML FOR SPIKE) RTS

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.44E-4	112.500	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.14E+00	4.140	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<7.66E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	SAMPLE	S96T001472	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.96E-01	1.010e-002	uCi/g
3	SAMPLE	S96T001472	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.28E+01	0.000	% Ct. Error
4	DUP	S96T001472	0	F	@ALPHA01	ALPHA01	SOLID	1.96E-1	1.74E-1	11.890	RPD
4	DUP	S96T001472	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.31E+01	13.100	% Ct. Error
5	SPK	S96T001472	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.32E-02	92.480	% Recovery
6	SAMPLE	S96T001471	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.76E+00	2.280e-002	uCi/g
6	SAMPLE	S96T001471	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	6.20E+00	0.000	% Ct. Error
7	DUP	S96T001471	0	F	@ALPHA01	ALPHA01	SOLID	1.76E+0	1.81E+0	2.800	RPD
7	DUP	S96T001471	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	6.28E+00	6.280	% Ct. Error
8	SAMPLE	S96T001473	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.88E-01	9.130e-003	uCi/g
8	SAMPLE	S96T001473	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.22E+01	0.000	% Ct. Error
9	DUP	S96T001473	0	F	@ALPHA01	ALPHA01	SOLID	1.88E-1	1.61E-1	15.470	RPD
9	DUP	S96T001473	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.31E+01	13.100	% Ct. Error
10	SAMPLE	S96T001474	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.35E-01	8.680e-003	uCi/g
10	SAMPLE	S96T001474	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.43E+01	0.000	% Ct. Error
11	DUP	S96T001474	0	F	@ALPHA01	ALPHA01	SOLID	1.35E-1	1.29E-1	4.550	RPD
11	DUP	S96T001474	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.44E+01	14.400	% Ct. Error

Final page for worklist# 7541

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		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2260	2316
7541	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		75.163	77.030
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003327	Concentration in µCi/L	=	1.42E-01	
Rerun	Replicate Concentration in µCi/L	=	1.46E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4402E-01	

Sample Prep: N/A

Sample #: WL7541

Instrument Code: WB26872

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: S-102

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	=	1.44E-04	8.37E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.1%	

Analyst:	MCB		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

STANDARD.WB1 Rev. 1.0 508101ML

1843

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	3	9
7541	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8292	1.8292
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.176	0.337

Batch Number			
96003327	Blank Concentration in µCi/g	<	4.00E-03
Rerun	Replicate Concentration in µCi/g	<	7.66E-03
0	Maximum Concentration in µCi/g	<	7.6604E-03

Sample Prep: N/A

Sample #: WL7541

Instrument Code: WB26872

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: S-102

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

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

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

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

ALPHA TOTAL in µCi/g	(Maximum)	=	< 7.66E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.				1.01E-02 µCi/g
RELATIVE COUNTING ERROR			500.0%	

Analyst:	AKL	Date: 15-Apr-96	
Signature of Chemist:	SLF	Date: 4/16/96	

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM3

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)	249	279
7541	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8292	1.8292
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8.130	9.130

Batch Number	
96003327	Blank Concentration in µCi/g 1.85E-01
Rerun	Replicate Concentration in µCi/g 2.08E-01
0	Average Concentration in µCi/g 1.9645E-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)
S96T001472	
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	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.96E-01
Analyst	
AKL	
Date Complete	
04/15/96	RELATIVE COUNTING ERROR 12.8%
Analysis Date	
04/12/96	
Analysis Time	
03:00 PM	
Sample Point	
S-102	

DETECTION LEVEL
1.01E-02 µCi/g

Analyst:	AKL	Date: 15-Apr-96	
Signature of Chemist:	SLF	Date: 4/16/96	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP4

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)	238	242
7541	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8728	1.8728
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7.763	7.897

Batch Number	
96003327	Blank Concentration in µCi/g 1.73E-01
Rerun	Replicate Concentration in µCi/g 1.76E-01
0	Average Concentration in µCi/g 1.7409E-01

Sample Prep: FUSION01

Sample #: S96T001472

Instrument Code: WB26872

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: S-102

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)	=	1.74E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		13.1%	9.83E-03 µCi/g

Analyst:	AKL		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE5

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	54269	51365
7541	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)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8292	1.8292
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
96003327	SPIKE VALUE in µCi/mL	(SVal)	3.5896E-02	3.5896E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
0	SAMPLE + SPIKE µCi/g	(S+S)	4.12E+01	3.90E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.9645E-01	
FUSION01				
Sample #				
S96T001472	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))))			
MCB	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/15/96				
Analysis Date				
04/12/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.32E-02	
03:00 PM	AVG. PERCENT SPIKE RECOVERY	=	92.4%	
Sample Point				
S-102				

Analyst:		MCB	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM6

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	1039	1016
7541	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.016	2.016
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		34.463	33.697

Batch Number		
96003327	Blank Concentration in µCi/g	1.78E+00
Rerun	Replicate Concentration in µCi/g	1.74E+00
0	Average Concentration in µCi/g	1.7597E+00

Sample Prep: FUSION01

Sample #: S96T001471

Instrument Code: WB26872

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: S-102

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)	=	1.76E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		6.2%	2.28E-02 µCi/g

Analyst:	AKL		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP7

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)	1060	989
7541	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9588	1.9588
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		35.163	32.797

Batch Number	
96003327	Blank Concentration in µCi/g 1.87E+00
Rerun	Replicate Concentration in µCi/g 1.74E+00
0	Average Concentration in µCi/g 1.8058E+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)
S96T001471	
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	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.81E+00
Analyst	
AKL	
Date Complete	
04/15/96	RELATIVE COUNTING ERROR 6.3%
Analysis Date	
04/12/96	
Analysis Time	
03:00 PM	
Sample Point	
S-102	

DETECTION LEVEL: 2.35E-02 µCi/g

Analyst:	AKL	Date: 15-Apr-96	
Signature of Chemist:	SLF	Date: 4/16/96	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM8

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)	286	271
7541	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0158	2.0158
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.363	8.863

Batch Number	
96003327	
Rerun	
0	
Sample Prep	
FUSION01	
Sample #	
S96T001473	
Instrument Code	
WB26872	
Prepared By	
MCB	
Chemist	
SLF	
Analyst	
AKL	
Date Complete	
04/15/96	
Analysis Date	
04/12/96	
Analysis Time	
03:00 PM	
Sample Point	
S-102	

Blank Concentration in µCi/g	1.93E-01
Replicate Concentration in µCi/g	1.83E-01
Average Concentration in µCi/g	1.8824E-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)	=	1.88E-01		DETECTION LEVEL
RELATIVE COUNTING ERROR		12.2%		9.13E-03 µCi/g

Analyst:	AKL		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP9

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)	254	238
7541	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0788	2.0788
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8.297	7.763

Batch Number	
96003327	Blank Concentration in µCi/g 1.66E-01
Rerun	Replicate Concentration in µCi/g 1.55E-01
0	Average Concentration in µCi/g 1.6084E-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)
S96T001473	
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	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.61E-01
Analyst	
AKL	
Date Complete	
04/15/96	RELATIVE COUNTING ERROR 13.1%
Analysis Date	
04/12/96	
Analysis Time	
03:00 PM	
Sample Point	
S-102	

DETECTION LEVEL
8.85E-03 µCi/g

Analyst:		AKL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: 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)	203	219
7541	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1204	2.1204
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.597	7.130

Batch Number	
96003327	Blank Concentration in µCi/g 1.30E-01
Rerun	Replicate Concentration in µCi/g 1.40E-01
0	Average Concentration in µCi/g 1.3478E-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)
S96T001474	
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	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.35E-01
Analyst	
AKL	
Date Complete	
04/15/96	RELATIVE COUNTING ERROR 14.3%
Analysis Date	
04/12/96	
Analysis Time	
03:00 PM	
Sample Point	
S-102	

DETECTION LEVEL
8.68E-03 µCi/g

Analyst:		AKL	Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: 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)	207	200
7541	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1332	2.1332
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.730	6.497
Batch Number				
96003327	Blank Concentration in µCi/g		1.31E-01	
Rerun	Replicate Concentration in µCi/g		1.27E-01	
0	Average Concentration in µCi/g		1.2909E-01	

Sample Prep: FUSION01

Sample #: S96T001474

Instrument Code: WB26872

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 04/15/96

Analysis Date: 04/12/96

Analysis Time: 03:00 PM

Sample Point: S-102

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)	=	1.29E-01	
RELATIVE COUNTING ERROR		14.4%	8.63E-03 µCi/g

Analyst:	AKL		Date: 15-Apr-96
Signature of Chemist:		SLF	Date: 4/16/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 7542

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

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

Worklist Comment: S-102 DETERMIN SS USING LUDLUM (.1ML FOR SPIKE) RTS

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	SAMPLE	S96T001475	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
4	DUP	S96T001475	0	F	@ALPHA01	SOLID		
5	SPK	S96T001475	0	F	@ALPHA01	SOLID		
6	SAMPLE	S96T001476	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
7	DUP	S96T001476	0	F	@ALPHA01	SOLID		
8	SAMPLE	S96T001477	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
9	DUP	S96T001477	0	F	@ALPHA01	SOLID		
10	SAMPLE	S96T001478	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
11	DUP	S96T001478	0	F	@ALPHA01	SOLID		

Final page for worklist # 7542

Kim Thomas 4-11-96
Analyst Signature **Date**

Sharon L Hollis 4.12.96
Analyst Signature **Date**
C.J. Quinn 4/12/96

Data Entry Comments:
No spk added to 1475 - sample will be rerun.
The RPD for 1477 is acceptable due to low sample alpha activity.

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

LABCORE Completed Worklist Report for Worklist# 7542

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

Method: _____ Rev/Mod _____

Worklist Comment: S-102 DETERMIN SS USING LUDLUM (.1ML FOR SPIKE) RTS

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.32E-4	103.130	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.70E+00	4.700	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<1.52E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	SAMPLE	S96T001475	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.33E-01	4.570e-003	uCi/g
3	SAMPLE	S96T001475	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.03E+01	0.000	% Ct. Error
4	DUP	S96T001475	0	F	@ALPHA01	ALPHA01	SOLID	2.33E-1	1.96E-1	17.250	RPD
4	DUP	S96T001475	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.16E+01	11.600	% Ct. Error
5	SPK	S96T001475	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	0.00E+00	0.000	% Recovery
6	SAMPLE	S96T001476	0	F	@ALPHA01	ALPHA01	SOLID	N/A	5.87E-01	5.250e-003	uCi/g
6	SAMPLE	S96T001476	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	7.10E+00	0.000	% Ct. Error
7	DUP	S96T001476	0	F	@ALPHA01	ALPHA01	SOLID	5.87E-1	6.16E-1	4.820	RPD
7	DUP	S96T001476	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	6.81E+00	6.810	% Ct. Error
8	SAMPLE	S96T001477	0	F	@ALPHA01	ALPHA01	SOLID	N/A	7.27E-01	4.980e-003	uCi/g
8	SAMPLE	S96T001477	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	6.17E+00	0.000	% Ct. Error
9	DUP	S96T001477	0	F	@ALPHA01	ALPHA01	SOLID	7.27E-1	6.41E-1	12.570	RPD
9	DUP	S96T001477	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	6.26E+00	6.260	% Ct. Error
10	SAMPLE	S96T001478	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.23E-01	4.750e-003	uCi/g
10	SAMPLE	S96T001478	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.45E+01	0.000	% Ct. Error
11	DUP	S96T001478	0	F	@ALPHA01	ALPHA01	SOLID	1.23E-1	1.33E-1	7.810	RPD
11	DUP	S96T001478	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.44E+01	14.400	% Ct. Error

Final page for worklist# 7542

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

Reviewer Signature 4/15/96 **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)	1952	1740
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			65.037	57.970
Standard Value in µCi/mL			1.28E-04	
Concentration in µCi/L	=		1.39E-01	
Replicate Concentration in µCi/L	=		1.24E-01	
AVERAGE CONCENTRATION in µCi/L	=		1.3167E-01	

Type	STD
Work List	7542
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	LIQUID
Batch Number	96003328
Rerun	0
Sample Prep	N/A
Sample #	WL7542
Instrument Code	WB27806
Prepared By	SLH
Chemist	SLF
Analyst	KNT
Date Complete	04/12/96
Analysis Date	04/11/96
Analysis Time	02:10 PM
Sample Point	S102

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	=	1.32E-04	5.10E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.7%	

Analyst:	SLH		Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		16	16
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	1	1
7542	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)	2.2344	2.2344
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.079	0.079
Batch Number				
96003328	Blank Concentration in µCi/g	<	1.52E-03	
Rerun	Replicate Concentration in µCi/g	<	1.52E-03	
0	Maximum Concentration in µCi/g	<	1.5167E-03	

Sample Prep: N/A

Sample #: WL7542

Instrument Code: WB27806

Prepared By: SLH

Chemist: SLF

Analyst: KNT

Date Complete: 04/12/96

Analysis Date: 04/11/96

Analysis Time: 02:10 PM

Sample Point: S102

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

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

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

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

				DETECTION LEVEL
ALPHA TOTAL in µCi/g (Maximum)	=	< 1.52E-03		
LESS THAN Value was Determined from Rmax.				4.57E-03 µCi/g
RELATIVE COUNTING ERROR			500.0%	

Analyst:		KNT	Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: 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)	367	365
7542	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)	2.2344	2.2344
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12.203	12.137

Batch Number	
96003328	Blank Concentration in µCi/g 2.34E-01
Rerun	Replicate Concentration in µCi/g 2.33E-01
0	Average Concentration in µCi/g 2.3322E-01

Sample Prep: FUSION01

Sample # : S96T001475

Instrument Code: WB27806

Prepared By: SLH

Chemist: SLF

Analyst: KNT

Date Complete: 04/12/96

Analysis Date: 04/11/96

Analysis Time: 02:10 PM

Sample Point: S102

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) =	2.33E-01	
RELATIVE COUNTING ERROR	10.3%	4.57E-03 µCi/g

Analyst:		KNT	Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: 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)	289	329
7542	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)	2.248	2.248
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.603	10.937

Batch Number		
96003328	Blank Concentration in µCi/g	1.83E-01
Rerun	Replicate Concentration in µCi/g	2.08E-01
0	Average Concentration in µCi/g	1.9562E-01

Sample Prep: FUSION01

Sample #: S96T001475

Instrument Code: WB27806

Prepared By: SLH

Chemist: SLF

Analyst: KNT

Date Complete: 04/12/96

Analysis Date: 04/11/96

Analysis Time: 02:10 PM

Sample Point: S102

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)	=	1.96E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR			11.6%	4.54E-03 µCi/g

Analyst:		KNT	Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101MI

WORKBOOK PAGE: SPIKE5

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)	336	304
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)	2.2344	2.2344
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)	3.5896E-02	3.5896E-02
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2104	0.2104
SAMPLE + SPIKE µCi/g		(S+S)	2.14E-01	1.94E-01
AVERAGE or MAXIMUM µCi/g in SAMPLE			2.3322E-01	

Type	SPK
Work List	7542
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	SOLID
Batch Number	96003328
Rerun	0
Sample Prep	FUSION01
Sample #	S96T001475
Instrument Code	WB27806
Prepared By	SLH
Chemist	SLF
Analyst	KNT
Date Complete	04/12/96
Analysis Date	04/11/96
Analysis Time	02:10 PM
Sample Point	S102

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 found is a < value; 0 will be reported to MLIMS and DVD

QC ACTUAL	=	3.59E-02
QC FOUND	=	-3.28E-05
AVG. PERCENT SPIKE RECOVERY	=	-0.1%

Analyst:		SLH	Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

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)	764	837
7542	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)	1.9436	1.9436
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		25.437	27.870

Batch Number	
96003328	Blank Concentration in µCi/g 5.60E-01
Rerun	Replicate Concentration in µCi/g 6.14E-01
0	Average Concentration in µCi/g 5.8719E-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)
S96T001476	
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) = 5.87E-01
Analyst	
KNT	
Date Complete	
04/12/96	RELATIVE COUNTING ERROR 7.1%
Analysis Date	
04/11/96	
Analysis Time	
02:10 PM	
Sample Point	
S102	

DETECTION LEVEL
5.25E-03 µCi/g

Analyst:		KNT	Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 50810/ML

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)	896	830
7542	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)	1.998	1.998
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		29.837	27.637

Batch Number	
96003328	Blank Concentration in µCi/g 6.39E-01
Rerun	Replicate Concentration in µCi/g 5.92E-01
0	Average Concentration in µCi/g 6.1585E-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)
S96T001476	
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) = 6.16E-01
Analyst	
KNT	
Date Complete	
04/12/96	RELATIVE COUNTING ERROR 6.8%
Analysis Date	
04/11/96	
Analysis Time	
02:10 PM	
Sample Point	
S102	

DETECTION LEVEL
5.11E-03 µCi/g

Analyst:		KNT	Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: 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)	1011	1075
7542	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)	2.0468	2.0468
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		33.670	35.803

Batch Number	
96003328	Blank Concentration in µCi/g 7.04E-01
Rerun	Replicate Concentration in µCi/g 7.49E-01
0	Average Concentration in µCi/g 7.2668E-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)
S96T001477	
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) = 7.27E-01
Analyst	
KNT	
Date Complete	
04/12/96	RELATIVE COUNTING ERROR 6.2%
Analysis Date	
04/11/96	
Analysis Time	
02:10 PM	
Sample Point	
S102	

DETECTION LEVEL
4.98E-03 µCi/g

Analyst:		KNT	Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101MI

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)	982	987
7542	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)	2.1892	2.1892
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		32.703	32.870

Batch Number	
96003328	Blank Concentration in µCi/g 6.40E-01
Rerun	Replicate Concentration in µCi/g 6.43E-01
0	Average Concentration in µCi/g 6.4127E-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)
S96T001477	
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) = 6.41E-01
Analyst	
KNT	
Date Complete	
04/12/96	RELATIVE COUNTING ERROR 6.3%
Analysis Date	
04/11/96	
Analysis Time	
02:10 PM	
Sample Point	
S102	

DETECTION LEVEL
4.66E-03 µCi/g

Analyst:	KNT		Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM1

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	186	187
7542	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)	2.1476	2.1476
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.170	6.203

Batch Number	
96003328	Blank Concentration in µCi/g 1.23E-01
Rerun	Replicate Concentration in µCi/g 1.24E-01
0	Average Concentration in µCi/g 1.2335E-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)
S96T001478	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.23E-01
Analyst	
KNT	
Date Complete	
04/12/96	RELATIVE COUNTING ERROR 14.5%
Analysis Date	
04/11/96	
Analysis Time	
02:10 PM	
Sample Point	
S102	

DETECTION LEVEL
4.75E-03 µCi/g

Analyst:		KNT	Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: 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)	187	219
7542	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)	2.1624	2.1624
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.203	7.270
Batch Number				
96003328	Blank Concentration in µCi/g		1.23E-01	
Rerun	Replicate Concentration in µCi/g		1.44E-01	
0	Average Concentration in µCi/g		1.3340E-01	

Sample Prep: FUSION01

Sample #: S96T001478

Instrument Code: WB27806

Prepared By: SLH

Chemist: SLF

Analyst: KNT

Date Complete: 04/12/96

Analysis Date: 04/11/96

Analysis Time: 02:10 PM

Sample Point: S102

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)	=	1.33E-01	
RELATIVE COUNTING ERROR		14.4%	4.72E-03 µCi/g

Analyst:	KNT		Date: 12-Apr-96
Signature of Chemist:		SLF	Date: 4/15/96

SAMPLE.WB1 Rev. 1.0 508101ML

Ref 3

04/11/96 09:35
A-0004-1

LABCORE Data Entry Template for Worklist# 7579

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

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

Worklist Comment: Use .100 mL sample size (perform boil down). Rerun #1. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AB-01	SOLID		
2	BLNK-PREP				@AB-01	SOLID		
3	BLNK/BKG				@AB-01	SOLID		
4	SAMPLE	S96T000879	0	F	@AB-01	SOLID	96000030	S102
	Analytes Requested: ALPHA01 , ALPHA01E, BETA-01 , BETA-01E							
5	DUP	S96T000879	0	F	@AB-01	SOLID		
6	SPK	S96T000879	0	F	@AB-01	SOLID		
7	SAMPLE	S96T000880	0	F	@AB-01	SOLID	96000030	S102
	Analytes Requested: ALPHA01 , ALPHA01E, BETA-01 , BETA-01E							
8	DUP	S96T000880	0	F	@AB-01	SOLID		
9	SPK	S96T000880	0	F	@AB-01	SOLID		

Final page for worklist # 7579

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

Sue E. Hogan 4/16/96
Analyst Signature **Date**
C.J. Opinen 4/16/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7579

Analyst: akl **Instrument:** AB15 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Use .100 mL sample size (perform boil down). Rerun #1. SLF

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@AB-01	ALPHA01	SOLID	1.28E-04	1.44E-4	112.500	% Recovery
1	STD			0	@AB-01	ALPHA01E	SOLID	1	4.18E+00	4.180	% Ct. Error
1	STD			0	@AB-01	BETA-01	SOLID	1.81E-03	1.99E-3	109.940	% Recovery
1	STD			0	@AB-01	BETA-01E	SOLID	1	8.39E-01	0.840	% Ct. Error
2	BLNK-PREP			0	@AB-01	ALPHA01	SOLID	1	<3.83E-3		uCi/g
2	BLNK-PREP			0	@AB-01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
2	BLNK-PREP			0	@AB-01	BETA-01	SOLID	1	2.37E-2	2.000e-002	uCi/g
2	BLNK-PREP			0	@AB-01	BETA-01E	SOLID	1.00	4.72E+01	47.200	% Ct. Error
3	BLNK/BKG			0	@AB-01	ALPHA01	SOLID	1.00E+00	1.33E+00	1.330	uCi/g
3	BLNK/BKG			0	@AB-01	BETA-01	SOLID	1.00E+00	1.48E+00	1.480	uCi/g
4	SAMPLE	S96T000879	0	F	@AB-01	ALPHA01	SOLID	N/A	3.24E-02	5.120e-003	uCi/g
4	SAMPLE	S96T000879	0	F	@AB-01	ALPHA01E	SOLID	N/A	2.42E+01	0.000	% Ct. Error
4	SAMPLE	S96T000879	0	F	@AB-01	BETA-01	SOLID	N/A	1.10E+02	1.530e-002	uCi/g
4	SAMPLE	S96T000879	0	F	@AB-01	BETA-01E	SOLID	N/A	2.68E-01	0.000	% Ct. Error
5	DUP	S96T000879	0	F	@AB-01	ALPHA01	SOLID	3.24E-2	2.29E-2	34.360	RPD
5	DUP	S96T000879	0	F	@AB-01	ALPHA01E	SOLID	1.00	2.69E+01	26.900	% Ct. Error
5	DUP	S96T000879	0	F	@AB-01	BETA-01	SOLID	1.10E+2	1.17E+2	6.170	RPD
5	DUP	S96T000879	0	F	@AB-01	BETA-01E	SOLID	1.00	2.58E-01	0.260	% Ct. Error
6	SPK	S96T000879	0	F	@AB-01	ALPHA01	SOLID	3.59E-02	3.22E-02	89.690	% Recovery
6	SPK	S96T000879	0	F	@AB-01	BETA-01	SOLID	1.92E-01	1.99E-01	103.650	% Recovery
7	SAMPLE	S96T000880	0	F	@AB-01	ALPHA01	SOLID	N/A	5.26E-01	1.570e-002	uCi/g
7	SAMPLE	S96T000880	0	F	@AB-01	ALPHA01E	SOLID	N/A	9.29E+00	0.000	% Ct. Error
7	SAMPLE	S96T000880	0	F	@AB-01	BETA-01	SOLID	N/A	2.27E+02	4.710e-002	uCi/g
7	SAMPLE	S96T000880	0	F	@AB-01	BETA-01E	SOLID	N/A	3.29E-01	0.000	% Ct. Error
8	DUP	S96T000880	0	F	@AB-01	ALPHA01	SOLID	5.26E-1	5.29E-1	0.570	RPD
8	DUP	S96T000880	0	F	@AB-01	ALPHA01E	SOLID	1.00	9.76E+00	9.760	% Ct. Error
8	DUP	S96T000880	0	F	@AB-01	BETA-01	SOLID	2.27E+2	2.29E+2	0.880	RPD
8	DUP	S96T000880	0	F	@AB-01	BETA-01E	SOLID	1.00	3.36E-01	0.340	% Ct. Error
9	SPK	S96T000880	0	F	@AB-01	ALPHA01	SOLID	3.59E-02	3.38E-02	94.150	% Recovery
9	SPK	S96T000880	0	F	@AB-01	BETA-01	SOLID	1.92E-01	1.91E-01	99.480	% Recovery

Final page for worklist# 7579

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

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

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	56738	55294
7579	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1883.267	1835.133
Batch Number	Standard Value in µCi/mL		1.81E-03	
96003383	Concentration in µCi/L	=	2.02E+00	
Rerun	Replicate Concentration in µCi/L	=	1.96E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	1.9907E+00	
Sample Prep				
N/A				
Sample #				
WL7579				
Instrument Code				
WB26872				
Prepared By				
SEH				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/16/96				
Analysis Date				
04/15/96				
Analysis Time				
12:30 PM				
Sample Point				
S102				

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

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

TOTAL BETA µCi/mL = TOTAL BETA 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.

TOTAL BETA CONCENTRATION in µCi/mL	=	1.99E-03		DETECTION LEVEL
RELATIVE COUNTING ERROR	=	0.8%		2.68E-06 µCi/mL

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

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: STD2

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

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2214	2355
7579	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		73.600	78.300
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003383	Concentration in µCi/L	=	1.39E-01	
Renin	Replicate Concentration in µCi/L	=	1.48E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4375E-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 #
WL7579
Instrument Code
WB26872
Prepared By
SEH
Chemist
SLF
Analyst
AKL
Date Complete
04/16/96
Analysis Date
04/15/96
Analysis Time
12:30 PM
Sample Point
S102

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.44E-04	
RELATIVE COUNTING ERROR	=	4.2%	8.93E-07 µCi/mL

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

STANDARD.WB1 Rev. 1.0 508101M

WORKBOOK PAGE: BLANK3

TB : 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)	372	340
7579	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9196	1.9196
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4.400	3.333

Batch Number	
96003383	Blank Concentration in µCi/g 2.70E-02
Rerun	Replicate Concentration in µCi/g 2.05E-02
0	Average Concentration in µCi/g 2.3724E-02

Sample Prep: N/A

Sample #: WL7579

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: AKL

Date Complete: 04/16/96

Analysis Date: 04/15/96

Analysis Time: 12:30 PM

Sample Point: S102

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

TOTAL BETA 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
TOTAL BETA in µCi/g (Average)	=	2.37E-02	
RELATIVE COUNTING ERROR		47.2%	1.53E-02 µCi/g

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

BLANK.WB1 Rev. 1.0 508101MU

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

WORKBOOK PAGE: BLANK4

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)	6	10
7579	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9196	1.9196
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.191	0.353

Batch Number			
96003383	Blank Concentration in µCi/g	<	2.07E-03
Rerun	Replicate Concentration in µCi/g	<	3.83E-03
0	Maximum Concentration in µCi/g	<	3.8321E-03

Sample Prep: N/A

Sample # : WL7579

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: AKL

Date Complete: 04/16/96

Analysis Date: 04/15/96

Analysis Time: 12:30 PM

Sample Point: S102

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)	=	< 3.83E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.				5.12E-03 µCi/g
RELATIVE COUNTING ERROR			500.0%	

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

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

TB : 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)	535903	537337
7579	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9196	1.9196
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		17855.433	17903.233

Batch Number		
96003383	Blank Concentration in µCi/g	1.10E+02
Rerun	Replicate Concentration in µCi/g	1.10E+02
1	Average Concentration in µCi/g	1.0970E+02

Sample Prep: FUSION01

Sample #: S96T000879

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: AKL

Date Complete: 04/16/96

Analysis Date: 04/15/96

Analysis Time: 12:30 PM

Sample Point: S102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	1.10E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	1.53E-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: SAM8

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)	82	109
7579	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9196	1.9196
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.533	3.433

Batch Number	
96003383	Blank Concentration in µCi/g 2.75E-02
Rerun	Replicate Concentration in µCi/g 3.72E-02
1	Average Concentration in µCi/g 3.2356E-02

Sample Prep: FUSION01

Sample # : S96T000879

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: AKL

Date Complete: 04/16/96

Analysis Date: 04/15/96

Analysis Time: 12:30 PM

Sample Point: S102

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) =	3.24E-02	
RELATIVE COUNTING ERROR	24.2%	5.12E-03 µCi/g

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

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP9

TB : 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)	586959	578000
7579	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9544	1.9544
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		19557.300	19258.667

Batch Number	
96003383	Blank Concentration in µCi/g 1.18E+02
Rerun	Replicate Concentration in µCi/g 1.16E+02
1	Average Concentration in µCi/g 1.1696E+02
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T000879	
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	TOTAL BETA in µCi/g (Average) = 1.17E+02
Analyst	
AKL	
Date Complete	
04/16/96	RELATIVE COUNTING ERROR 0.3%
Analysis Date	
04/15/96	
Analysis Time	
12:30 PM	
Sample Point	
S102	

DETECTION LEVEL
1.51E-02 µCi/g

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

SAMPLE.WB1 Rev. 1.0 508101MLV

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)	69	72
7579	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9544	1.9544
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.100	2.200

Batch Number	
96003383	Blank Concentration in µCi/g 2.24E-02
Rerun	Replicate Concentration in µCi/g 2.34E-02
1	Average Concentration in µCi/g 2.2903E-02

Sample Prep: FUSION01

Sample # S96T000879

Instrument Code WB26872

Prepared By SEH

Chemist SLF

Analyst AKL

Date Complete 04/16/96

Analysis Date 04/15/96

Analysis Time 12:30 PM

Sample Point S102

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)	=	2.29E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		26.9%	5.02E-03 µCi/g

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

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE11

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

			SPIKE	REPLICATE
DETECTOR NUMBER			15	15
DISH SIZE 1, 2, or 5		(MS)	2	2
TOTAL COUNTS		(TC)	368995	359897
COUNT TIME in MINUTES		(CT)	10	10
BACKGROUND in cpm		(BKG)	8	8
SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	1.000	1.000
SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	11	11
DIGEST GRAMS of SOLIDS / L		(Dg/L)	1.9196	1.9196
SPIKE VOLUME in mL		(SVol)	0.100	0.100
SPIKE DILUTION FACTOR		(SDF)	1	1
SPIKE BOOK NUMBER		(Spk BN)	42B56	42B56
SPIKE VALUE in µCi/mL		(SVal)	1.9220E-01	1.9220E-01
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.4207	0.4207
SAMPLE + SPIKE µCi/g		(S+S)	2.26E+02	2.21E+02
AVERAGE or MAXIMUM µCi/g in SAMPLE			1.0970E+02	

Type	SPK
Work List	7579
AT or TB ?	TB
Test Code	@AB-01
Matrix	SOLID
Batch Number	96003383
Rerun	1
Sample Prep	FUSION01
Sample #	S96T000879
Instrument Code	WB26872
Prepared By	SEH
Chemist	SLF
Analyst	AKL
Date Complete	04/16/96
Analysis Date	04/15/96
Analysis Time	12:30 PM
Sample Point	S102

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	=	1.92E-01
QC FOUND	=	1.99E-01
AVG. PERCENT SPIKE RECOVERY	=	103.4%

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

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE12

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	52751	49552
7579	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9196	1.9196
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
96003383	SPIKE VALUE in µCi/mL	(SVal)	3.5896E-02	3.5896E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
1	SAMPLE + SPIKE µCi/g	(S+S)	1.91E+01	1.79E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		3.2356E-02	
FUSION01				
Sample #				
S96T000879	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))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/16/96				
Analysis Date				
04/15/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.22E-02	
12:30 PM	AVG. PERCENT SPIKE RECOVERY	=	89.7%	
Sample Point				
S102				

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

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM1

TB : 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)	367280	356403
7579	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	0.300	0.300
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0828	2.0828
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12234.667	11872.100

Batch Number		
96003383	Blank Concentration in µCi/g	2.31E+02
Rerun	Replicate Concentration in µCi/g	2.24E+02
1	Average Concentration in µCi/g	2.2720E+02

Sample Prep: FUSION01

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

TOTAL BETA 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.

Sample # S96T000880

Instrument Code WB26872

Prepared By SEH

Chemist SLF

Analyst AKL

Date Complete 04/16/96

Analysis Date 04/15/96

Analysis Time 12:30 PM

Sample Point S102

TOTAL BETA in µCi/g (Average)	=	2.27E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	4.71E-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: 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)	497	463
7579	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.300	0.300
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0828	2.0828
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		16.367	15.233

Batch Number	
96003383	Blank Concentration in µCi/g 5.45E-01
Rerun	Replicate Concentration in µCi/g 5.08E-01
1	Average Concentration in µCi/g 5.2644E-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)
S96T000880	
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) = 5.26E-01
Analyst	
AKL	
Date Complete	
04/16/96	RELATIVE COUNTING ERROR 9.3%
Analysis Date	
04/15/96	
Analysis Time	
12:30 PM	
Sample Point	
S102	

DETECTION LEVEL
1.57E-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: DUP1

TB : 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)	351703	340763
7579	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	0.300	0.300
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.978	1.978
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11715.433	11350.767

Batch Number	
96003383	
Rerun	
1	
Sample Prep	
FUSION01	
Sample #	
S96T000880	
Instrument Code	
WB26872	
Prepared By	
SEH	
Chemist	
SLF	
Analyst	
AKL	
Date Complete	
04/16/96	
Analysis Date	
04/15/96	
Analysis Time	
12:30 PM	
Sample Point	
S102	

Blank Concentration in µCi/g	2.33E+02
Replicate Concentration in µCi/g	2.25E+02
Average Concentration in µCi/g	2.2891E+02

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	2.29E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	4.96E-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: 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)	496	421
7579	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.300	0.300
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.978	1.978
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		16.333	13.833

Batch Number		
96003383	Blank Concentration in µCi/g	5.73E-01
Rerun	Replicate Concentration in µCi/g	4.85E-01
1	Average Concentration in µCi/g	5.2919E-01

Sample Prep: FUSION01

Sample #: S96T000880

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: AKL

Date Complete: 04/16/96

Analysis Date: 04/15/96

Analysis Time: 12:30 PM

Sample Point: S102

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)	=	5.29E-01	
RELATIVE COUNTING ERROR		9.8%	1.65E-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: SPIKE17

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	293678	304696
7579	COUNT TIME in MINUTES	(CT)	10	10
AT or TB ?	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.300	0.300
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0828	2.0828
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96003383	SPIKE VALUE in µCi/mL	(SVal)	1.9220E-01	1.9220E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
1	SAMPLE + SPIKE µCi/g	(S+S)	5.53E+02	5.74E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.2720E+02	
FUSION01				
Sample #				
S96T000880	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))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/16/96				
Analysis Date				
04/15/96	QC ACTUAL	=	1.92E-01	
Analysis Time	QC FOUND	=	1.91E-01	
12:30 PM	AVG. PERCENT SPIKE RECOVERY	=	99.5%	
Sample Point				
S102				

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

SPIKE.WB1 Rev. 1.0 508101NL

WORKBOOK PAGE: SPIKE18

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	50964	57110
7579	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.300	0.300
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0828	2.0828
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
96003383	SPIKE VALUE in µCi/mL	(SVal)	3.5896E-02	3.5896E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
1	SAMPLE + SPIKE µCi/g	(S+S)	5.66E+01	6.34E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		5.2644E-01	
FUSION01				
Sample #				
S96T000880	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))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/16/96				
Analysis Date				
04/15/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.38E-02	
12:30 PM	AVG. PERCENT SPIKE RECOVERY	=	94.1%	
Sample Point				
S102				

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

SPIKE.WB1 Rev. 1.0 508101ML

RUSH

04/15/96 10:50
A-0004-1

LABCORE Data Entry Template for Worklist# 7684

Analyst: AKL **Instrument:** AB00 18 **Book#** 47B56

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

Worklist Comment: Use 1-10-.5 mL sample size. SUPER RUSH!! 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	S96T001475	0	F	@ALPHA01	SOLID	96000094	S102
		Analytes Requested:			ALPHA01 , ALPHA01E			
5	DUP	S96T001475	0	F	@ALPHA01	SOLID		
6	SPK	S96T001475	0	F	@ALPHA01	SOLID		

Final page for worklist # 7684

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

Shirley L Hall 4-16-96
Analyst Signature **Date**

MS Bu -- 4/16/96

Data Entry Comments:

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

worklistdata Version 0.0 05/16/95
04/17/96 08:15

LABCORE Completed Worklist Report for Worklist# 7684

Analyst: akl **Instrument:** AB18 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Use 1-10-.5 mL sample size. SUPER RUSH!! 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	4.45E+00	4.450	% Ct. Error
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<7.63E-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	9.30E-01	0.930	uCi/g
4	SAMPLE	S96T001475	0	F	@ALPHA01 ALPHA01	SOLID	N/A	2.47E-01	1.370e-002	uCi/g
4	SAMPLE	S96T001475	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	1.10E+01	0.000	% Ct. Error
5	DUP	S96T001475	0	F	@ALPHA01 ALPHA01	SOLID	2.47E-1	2.26E-1	8.880	RPD
5	DUP	S96T001475	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	1.15E+01	11.500	% Ct. Error
6	SPK	S96T001475	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.37E-02	93.870	% Recovery

Final page for worklist# 7684

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			18	18
DISH SIZE (1 , 2 , or 5)		(MS)	2	2
GROSS COUNTS		(GC)	2081	1978
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.43	0.43
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			68.937	65.503
Standard Value in µCi/mL			1.28E-04	
Concentration in µCi/L	=		1.48E-01	
Replicate Concentration in µCi/L	=		1.41E-01	
AVERAGE CONCENTRATION in µCi/L	=		1.4453E-01	

Type	STD
Work List	7684
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	LIQUID
Batch Number	96003502
Rerun	0
Sample Prep	N/A
Sample #	WL7684
Instrument Code	WB27809
Prepared By	SLH
Chemist	SLF
Analyst	AKL
Date Complete	04/16/96
Analysis Date	04/15/96
Analysis Time	02:00 PM
Sample Point	S102

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	=	1.45E-04	1.40E-06 µCi/mL
RELATIVE COUNTING ERROR	=	4.5%	

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
Type	DETECTOR NUMBER		18	18
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	15	9
7684	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.43	0.43
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2344	2.2344
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.361	0.279

Batch Number			
96003502	Blank Concentration in µCi/g	<	7.63E-03
Rerun	Replicate Concentration in µCi/g	<	5.91E-03
0	Maximum Concentration in µCi/g	<	7.6321E-03

Sample Prep: N/A

Sample #: WL7684

Instrument Code: WB27809

Prepared By: SLH

Chemist: SLF

Analyst: AKL

Date Complete: 04/16/96

Analysis Date: 04/15/96

Analysis Time: 02:00 PM

Sample Point: S102

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

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

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

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

ALPHA TOTAL in µCi/g (Maximum)	=	< 7.63E-03	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			1.37E-02 µCi/g
RELATIVE COUNTING ERROR		500.0%	

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

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	352	375
7684	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.43	0.43
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2344	2.2344
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11.303	12.070

Batch Number	
96003502	Blank Concentration in µCi/g 2.39E-01
Rerun	Replicate Concentration in µCi/g 2.56E-01
1	Average Concentration in µCi/g 2.4741E-01

Sample Prep: FUSION01

Sample #: S96T001475

Instrument Code: WB27809

Prepared By: SLH

Chemist: SLF

Analyst: AKL

Date Complete: 04/16/96

Analysis Date: 04/15/96

Analysis Time: 02:00 PM

Sample Point: S102

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)	=	2.47E-01	
RELATIVE COUNTING ERROR		11.0%	1.37E-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		18	18
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	328	342
7684	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.43	0.43
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.248	2.248
Matrix	EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		10.503	10.970
Batch Number				
96003502	Blank Concentration in µCi/g		2.21E-01	
Rerun	Replicate Concentration in µCi/g		2.31E-01	
1	Average Concentration in µCi/g		2.2592E-01	

Sample Prep: FUSION01

Sample #: S96T001475

Instrument Code: WB27809

Prepared By: SLH

Chemist: SLF

Analyst: AKL

Date Complete: 04/16/96

Analysis Date: 04/15/96

Analysis Time: 02:00 PM

Sample Point: S102

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) =	2.26E-01	
RELATIVE COUNTING ERROR	11.5%	1.37E-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		18	18
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	47972	46849
7684	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.43	0.43
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2344	2.2344
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
96003502	SPIKE VALUE in µCi/mL	(SVal)	3.5896E-02	3.5896E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2095	0.2095
1	SAMPLE + SPIKE µCi/g	(S+S)	3.38E+01	3.31E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.4741E-01	
FUSION01				
Sample #				
S96T001475	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))))			
SLH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/16/96				
Analysis Date				
04/15/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.37E-02	
02:00 PM	AVG. PERCENT SPIKE RECOVERY	=	93.9%	
Sample Point				
S102				

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# 8160

Analyst: S.C.C **Instrument:** AB00 14 **Book#** 47856

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

Worklist Comment: Determine sample size using ludlum.For spike use:0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AB-01	SOLID		
2	BLNK-PREP				@AB-01	SOLID		
3	BLNK/BKG				@AB-01	SOLID		
4	SAMPLE	S96T001583	0	F	@AB-01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E, BETA-01 , BETA-01E							
5	DUP	S96T001583	0	F	@AB-01	SOLID		
6	SPK	S96T001583	0	F	@AB-01	SOLID		
7	SAMPLE	S96T001584	0	F	@AB-01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E, BETA-01 , BETA-01E							
8	DUP	S96T001584	0	F	@AB-01	SOLID		
9	SPK	S96T001584	0	F	@AB-01	SOLID		
10	SAMPLE	S96T001585	0	F	@AB-01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E, BETA-01 , BETA-01E							
11	DUP	S96T001585	0	F	@AB-01	SOLID		
12	SPK	S96T001585	0	F	@AB-01	SOLID		

Final page for worklist # 8160

Sue C Lai 4-30-96
Analyst Signature **Date**

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

C.J. Quinn 5/7/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8160

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	@AB-01	ALPHA01	SOLID	1.28E-04	1.33E-4	103.906	% Recovery
1	STD			0	@AB-01	ALPHA01E	SOLID	1	4.39E+00	4.390	% Ct. Error
1	STD			0	@AB-01	BETA-01	SOLID	1.81E-03	1.95E-3	107.735	% Recovery
1	STD			0	@AB-01	BETA-01E	SOLID	1	8.22E-01	0.822	% Ct. Error
2	BLNK-PREP			0	@AB-01	ALPHA01	SOLID	1	<8.39E-3		uCi/g
2	BLNK-PREP			0	@AB-01	ALPHA01E	SOLID	1.00	2.34E+02	234.000	% Ct. Error
2	BLNK-PREP			0	@AB-01	BETA-01	SOLID	1	7.49E-2	0.075	uCi/g
2	BLNK-PREP			0	@AB-01	BETA-01E	SOLID	1.00	3.03E+01	30.300	% Ct. Error
3	BLNK/BKG			0	@AB-01	ALPHA01	SOLID	1.00E+00	1.62E+00	1.620	uCi/g
3	BLNK/BKG			0	@AB-01	BETA-01	SOLID	1.00E+00	1.59E+00	1.590	uCi/g
4	SAMPLE	S96T001583	0	F	@AB-01	ALPHA01	SOLID	N/A	2.18E-02	120.0e-004	uCi/g
4	SAMPLE	S96T001583	0	F	@AB-01	ALPHA01E	SOLID	N/A	4.71E+01	0.0e+000	% Ct. Error
4	SAMPLE	S96T001583	0	F	@AB-01	BETA-01	SOLID	N/A	9.60E+01	321.0e-004	uCi/g
4	SAMPLE	S96T001583	0	F	@AB-01	BETA-01E	SOLID	N/A	3.77E-01	0.0e+000	% Ct. Error
5	DUP	S96T001583	0	F	@AB-01	ALPHA01	SOLID	2.18E-2	2.15E-2	1.386	RPD
5	DUP	S96T001583	0	F	@AB-01	ALPHA01E	SOLID	1.00	5.23E+01	52.300	% Ct. Error
5	DUP	S96T001583	0	F	@AB-01	BETA-01	SOLID	9.60E+1	9.25E+1	3.714	RPD
5	DUP	S96T001583	0	F	@AB-01	BETA-01E	SOLID	1.00	3.87E-01	0.387	% Ct. Error
6	SPK	S96T001583	0	F	@AB-01	ALPHA01	SOLID	3.59E-02	2.97E-02	82.730	% Recovery
6	SPK	S96T001583	0	F	@AB-01	BETA-01	SOLID	1.92E-01	1.87E-01	97.396	% Recovery
7	SAMPLE	S96T001584	0	F	@AB-01	ALPHA01	SOLID	N/A	2.77E-01	237.0e-004	uCi/g
7	SAMPLE	S96T001584	0	F	@AB-01	ALPHA01E	SOLID	N/A	1.51E+01	0.0e+000	% Ct. Error
7	SAMPLE	S96T001584	0	F	@AB-01	BETA-01	SOLID	N/A	1.89E+02	635.0e-004	uCi/g
7	SAMPLE	S96T001584	0	F	@AB-01	BETA-01E	SOLID	N/A	3.77E-01	0.0e+000	% Ct. Error
8	DUP	S96T001584	0	F	@AB-01	ALPHA01	SOLID	2.77E-1	2.49E-1	10.646	RPD
8	DUP	S96T001584	0	F	@AB-01	ALPHA01E	SOLID	1.00	1.63E+01	16.300	% Ct. Error
8	DUP	S96T001584	0	F	@AB-01	BETA-01	SOLID	1.89E+2	1.90E+2	0.528	RPD
8	DUP	S96T001584	0	F	@AB-01	BETA-01E	SOLID	1.00	3.76E-01	0.376	% Ct. Error
9	SPK	S96T001584	0	F	@AB-01	ALPHA01	SOLID	3.59E-02	3.18E-02	88.579	% Recovery
9	SPK	S96T001584	0	F	@AB-01	BETA-01	SOLID	1.92E-01	1.95E-01	101.562	% Recovery
10	SAMPLE	S96T001585	0	F	@AB-01	ALPHA01	SOLID	N/A	2.60E-01	270.0e-004	uCi/g
10	SAMPLE	S96T001585	0	F	@AB-01	ALPHA01E	SOLID	N/A	1.64E+01	0.0e+000	% Ct. Error
10	SAMPLE	S96T001585	0	F	@AB-01	BETA-01	SOLID	N/A	2.14E+02	722.0e-004	uCi/g
10	SAMPLE	S96T001585	0	F	@AB-01	BETA-01E	SOLID	N/A	3.78E-01	0.0e+000	% Ct. Error
11	DUP	S96T001585	0	F	@AB-01	ALPHA01	SOLID	2.60E-1	2.36E-1	9.677	RPD
11	DUP	S96T001585	0	F	@AB-01	ALPHA01E	SOLID	1.00	1.79E+01	17.900	% Ct. Error
11	DUP	S96T001585	0	F	@AB-01	BETA-01	SOLID	2.14E+2	2.18E+2	1.852	RPD
11	DUP	S96T001585	0	F	@AB-01	BETA-01E	SOLID	1.00	3.80E-01	0.380	% Ct. Error
12	SPK	S96T001585	0	F	@AB-01	ALPHA01	SOLID	3.59E-02	3.13E-02	87.187	% Recovery
12	SPK	S96T001585	0	F	@AB-01	BETA-01	SOLID	1.92E-01	1.89E-01	98.438	% Recovery

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

LABCORE Completed RadChem Report for Worklist#: 8160

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit

Final page for worklist# 8160

Analyst Signature Date

Analyst Signature Date

5/9/96

Reviewer Signature Date

WORKBOOK PAGE: STD1

TB : 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)	57989	58359
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1920.967	1933.300
Batch Number	Standard Value in µCi/mL		1.81E-03	
96004029	Concentration in µCi/L	=	1.94E+00	
Rerun	Replicate Concentration in µCi/L	=	1.95E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	1.9485E+00	
Sample Prep				
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG			
Sample #	TOTAL BETA µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)			
WL8160	TOTAL BETA µCi/mL = TOTAL BETA µCi/L / 1000mL/L			
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
Prepared By				
SEH				
Chemist				
SLF	TOTAL BETA CONCENTRATION in µCi/mL	=	1.95E-03	DETECTION LEVEL
Analyst				
SCL				
Date Complete				3.08E-06
05/07/96	RELATIVE COUNTING ERROR	=	0.8%	µCi/mL
Analysis Date				
04/30/96				
Analysis Time				
03:30 PM				
Sample Point				
S102				

Analyst:		SEH	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/7/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: STD2

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)	2033	2025
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		67.437	67.170
Batch Number	Standard Value in µCi/mL		1.28E-04	
96004029	Concentration in µCi/L	=	1.34E-01	
Rerun	Replicate Concentration in µCi/L	=	1.33E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3332E-01	
Sample Prep				
N/A				
Sample #				
WL8160				
Instrument Code				
WB27807				
Prepared By				
SEH				
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
05/07/96				
Analysis Date				
04/30/96				
Analysis Time				
03:30 PM				
Sample Point				
S102				

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	=	1.33E-04	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.4%	1.15E-06 µCi/mL

Analyst:		SEH	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/7/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK3

TB : 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)	556	590
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1076	2.1076
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.533	7.667

Batch Number	
96004029	Blank Concentration in µCi/g 6.90E-02
Rerun	Replicate Concentration in µCi/g 8.09E-02
0	Average Concentration in µCi/g 7.4936E-02

Sample Prep: N/A

Sample #: WL8160

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 05/07/96

Analysis Date: 04/30/96

Analysis Time: 03:30 PM

Sample Point: S102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	7.49E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		30.3%	3.21E-02 µCi/g

Analyst:	SCL		Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK4

WHC-SD-WM-DP-173, REV. 1

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

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		14	14
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	14	18
8160	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
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1076	2.1076
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.406	0.270

Batch Number			
96004029	Blank Concentration in µCi/g	<	8.39E-03
Rerun	Replicate Concentration in µCi/g		5.58E-03
0	Maximum Concentration in µCi/g	<	8.3856E-03

Sample Prep: N/A

Sample #: WL8160

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 05/07/96

Analysis Date: 04/30/96

Analysis Time: 03:30 PM

Sample Point: S102

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

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

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

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

ALPHA TOTAL in µCi/g (Maximum)	=	< 8.39E-03		DETECTION LEVEL
LESS THAN Value was Determined from Rmax.				1.20E-02 µCi/g
RELATIVE COUNTING ERROR		233.7%		

Analyst:		SCL	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

BLANK.WB1 Rev. 1.0 508101ML

1898

WORKBOOK PAGE: SAM7

TB : 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)	275902	270750
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1076	2.1076
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9184.733	9013.000

Batch Number	
96004029	Blank Concentration in µCi/g 9.69E+01
Rerun	Replicate Concentration in µCi/g 9.51E+01
0	Average Concentration in µCi/g 9.6033E+01

Sample Prep: FUSION01

Sample #: S96T001583

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 05/07/96

Analysis Date: 04/30/96

Analysis Time: 03:30 PM

Sample Point: S102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	9.60E+01	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.4%	3.21E-02 µCi/g

Analyst:	SCL		Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM8

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)	44	39
8160	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
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1076	2.1076
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.137	0.970

Blank Concentration in µCi/g	2.35E-02
Replicate Concentration in µCi/g	2.01E-02
Average Concentration in µCi/g	2.1780E-02

Batch Number: 96004029
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001583
Instrument Code: WB27807
Prepared By: SEH
Chemist: SLF
Analyst: SCL
Date Complete: 05/07/96
Analysis Date: 04/30/96
Analysis Time: 03:30 PM
Sample Point: S102

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)	=	2.18E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		47.1%	1.20E-02 µCi/g

Analyst:		SCL	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP9

TB : 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)	258002	259224
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0704	2.0704
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8588.067	8628.800

Batch Number	
96004029	Blank Concentration in µCi/g 9.23E+01
Rerun	Replicate Concentration in µCi/g 9.27E+01
0	Average Concentration in µCi/g 9.2489E+01

Sample Prep: FUSION01

Sample #: S96T001583

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 05/07/96

Analysis Date: 04/30/96

Analysis Time: 03:30 PM

Sample Point: S102

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

TOTAL BETA 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
TOTAL BETA in µCi/g (Average)	=	9.25E+01	
RELATIVE COUNTING ERROR		0.4%	3.27E-02 µCi/g

Analyst:	SCL		Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

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)	35	46
8160	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
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0704	2.0704
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.837	1.203

Batch Number	
96004029	Blank Concentration in µCi/g 1.76E-02
Rerun	Replicate Concentration in µCi/g 2.53E-02
0	Average Concentration in µCi/g 2.1470E-02

Sample Prep: FUSION01

Sample #: S96T001583

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 05/07/96

Analysis Date: 04/30/96

Analysis Time: 03:30 PM

Sample Point: S102

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) =	2.15E-02	
RELATIVE COUNTING ERROR	52.3%	1.22E-02 µCi/g

Analyst:		SCL	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK11

TB : 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)	823432	835214
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1076	2.1076
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96004029	SPIKE VALUE in µCi/mL	(SVal)	1.9202E-01	1.9202E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
0	SAMPLE + SPIKE µCi/g	(S+S)	2.90E+02	2.94E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		9.6033E+01	
FUSION01				
Sample #				
S96T001583	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))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
05/07/96				
Analysis Date				
04/30/96	QC ACTUAL	=	1.92E-01	
Analysis Time	QC FOUND	=	1.87E-01	
03:30 PM	AVG. PERCENT SPIKE RECOVERY	=	97.6%	
Sample Point				
S102				

Analyst:		SEH	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK12

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)	44339	45596
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1076	2.1076
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
96004029	SPIKE VALUE in µCi/mL	(SVal)	3.5893E-02	3.5893E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/g	(S+S)	3.06E+01	3.14E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.1780E-02	
FUSION01				
Sample #				
S96T001583	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))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
05/07/96				
Analysis Date				
04/30/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	2.97E-02	
03:30 PM	AVG. PERCENT SPIKE RECOVERY	=	82.6%	
Sample Point				
S102				

Analyst:		SEH	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM1

TB : 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)	271043	273925
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1308	2.1308
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9022.767	9118.833

Batch Number		
96004029	Blank Concentration in µCi/g	1:88E+02
Rerun	Replicate Concentration in µCi/g	1.90E+02
0	Average Concentration in µCi/g	1.8939E+02

Sample Prep: FUSION01

Sample #: S96T001584

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 05/07/96

Analysis Date: 04/30/96

Analysis Time: 03:30 PM

Sample Point: S102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	1.89E+02		DETECTION LEVEL
RELATIVE COUNTING ERROR		0.4%		6.35E-02 µCi/g

Analyst:		SCL	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM1

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)	230	196
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1308	2.1308
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7.337	6.203

Batch Number	
96004029	Blank Concentration in µCi/g 3.00E-01
Rerun	Replicate Concentration in µCi/g 2.54E-01
0	Average Concentration in µCi/g 2.7692E-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)
S96T001584	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SEH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 2.77E-01
Analyst	
SCL	
Date Complete	
05/07/96	RELATIVE COUNTING ERROR 15.1%
Analysis Date	
04/30/96	
Analysis Time	
03:30 PM	
Sample Point	
S102	

DETECTION LEVEL
2.37E-02 µCi/g

Analyst:		SCL	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP1

TB : 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)	278595	273292
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1512	2.1512
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9274.500	9097.733

Batch Number	
96004029	Blank Concentration in µCi/g 1.92E+02
Rerun	Replicate Concentration in µCi/g 1.88E+02
0	Average Concentration in µCi/g 1.8998E+02
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T001584	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SEH	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 1.90E+02
Analyst	
SCL	
Date Complete	
05/07/96	RELATIVE COUNTING ERROR 0.4%
Analysis Date	
04/30/96	
Analysis Time	
03:30 PM	
Sample Point	
S102	

DETECTION LEVEL
6.29E-02 µCi/g

Analyst:		SCL	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

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)	216	173
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1512	2.1512
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.870	5.437

Batch Number	
96004029	Blank Concentration in µCi/g 2.78E-01
Rerun	Replicate Concentration in µCi/g 2.20E-01
0	Average Concentration in µCi/g 2.4931E-01

Sample Prep: FUSION01

Sample #: S96T001584

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 05/07/96

Analysis Date: 04/30/96

Analysis Time: 03:30 PM

Sample Point: S102

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)	=	2.49E-01	
RELATIVE COUNTING ERROR		16.3%	2.35E-02 µCi/g

Analyst:		SCL	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK17

TB : 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)	852182	850035
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB?	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.250	0.250
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1308	2.1308
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96004029	SPIKE VALUE in µCi/mL	(SVal)	1.9202E-01	1.9202E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
0	SAMPLE + SPIKE µCi/g	(S+S)	5.93E+02	5.91E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.8939E+02	
FUSION01				
Sample #				
S96T001584				
Instrument Code				
WB27807				
Prepared By				
SEH				
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
05/07/96				
Analysis Date				
04/30/96				
Analysis Time				
03:30 PM				
Sample Point				
S102				

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	=	1.92E-01
QC FOUND	=	1.95E-01
AVG. PERCENT SPIKE RECOVERY	=	101.6%

Analyst:		SEH	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK18

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)	48665	48090
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.250	0.250
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1308	2.1308
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
96004029	SPIKE VALUE in µCi/mL	(SVal)	3.5893E-02	3.5893E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/g	(S+S)	6.63E+01	6.56E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.7692E-01	
FUSION01				
Sample #				
S96T001584	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))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
05/07/96				
Analysis Date				
04/30/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.18E-02	
03:30 PM	AVG. PERCENT SPIKE RECOVERY	=	88.6%	
Sample Point				
S102				

Analyst:		SEH	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM1

TB : 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)	269766	272020
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8748	1.8748
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8980.200	9055.333

Batch Number	
96004029	Blank Concentration in µCi/g 2.13E+02
Rerun	Replicate Concentration in µCi/g 2.15E+02
0	Average Concentration in µCi/g 2.1399E+02

Sample Prep: FUSION01

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

TOTAL BETA 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.

Sample # S96T001585

Instrument Code WB27807

Prepared By SEH

Chemist SLF

Analyst SCL

Date Complete 05/07/96

Analysis Date 04/30/96

Analysis Time 03:30 PM

Sample Point S102

TOTAL BETA in µCi/g (Average)	=	2.14E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.4%	7.22E-02 µCi/g

Analyst:	SCL		Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

1911

WORKBOOK PAGE: SAM2

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)	170	186
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8748	1.8748
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		5.337	5.870

Batch Number	
96004029	Blank Concentration in µCi/g 2.48E-01
Rerun	Replicate Concentration in µCi/g 2.73E-01
0	Average Concentration in µCi/g 2.6050E-01

Sample Prep: FUSION01

Sample # : S96T001585

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 05/07/96

Analysis Date: 04/30/96

Analysis Time: 03:30 PM

Sample Point: S102

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)	=	2.60E-01	2.70E-02 µCi/g
RELATIVE COUNTING ERROR		16.4%	

Analyst:	SCL		Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

1912

WORKBOOK PAGE: DUP2

TB : 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)	268858	267155
8160	COUNT TIME in MINUTES	(CT)	30	30
A1 or TB ?	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8196	1.8196
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8949.933	8893.167

Batch Number 96004029	
Blank Concentration in µCi/g	2.19E+02
Rerun 0	Replicate Concentration in µCi/g 2.17E+02
Average Concentration in µCi/g	2.1813E+02

Sample Prep: FUSION01

Sample # S96T001585

Instrument Code WB27807

Prepared By SEH

Chemist SLF

Analyst SCL

Date Complete 05/07/96

Analysis Date 04/30/96

Analysis Time 03:30 PM

Sample Point S102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	2.18E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.4%	7.44E-02 µCi/g

Analyst:	SCL		Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP2

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)	169	147
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8196	1.8196
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		5.303	4.570

Batch Number	
96004029	Blank Concentration in µCi/g 2.54E-01
Rerun	Replicate Concentration in µCi/g 2.19E-01
0	Average Concentration in µCi/g 2.3647E-01

Sample Prep: FUSION01

Sample #: S96T001585

Instrument Code: WB27807

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 05/07/96

Analysis Date: 04/30/96

Analysis Time: 03:30 PM

Sample Point: S102

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)	=	2.36E-01	
RELATIVE COUNTING ERROR		17.9%	2.78E-02 µCi/g

Analyst:	SCL		Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

1914

WORKBOOK PAGE: SPK23

TB : 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)	845619	815429
8160	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	12	12
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.250	0.250
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8748	1.8748
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96004029	SPIKE VALUE in µCi/mL	(SVal)	1.9202E-01	1.9202E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
0	SAMPLE + SPIKE µCi/g	(S+S)	6.69E+02	6.45E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.1399E+02	
FUSION01				
Sample #				
S96T001585	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))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
05/07/96				
Analysis Date				
04/30/96	QC ACTUAL	=	1.92E-01	
Analysis Time	QC FOUND	=	1.89E-01	
03:30 PM	AVG. PERCENT SPIKE RECOVERY	=	98.2%	
Sample Point				
S102				

Analyst:		SEH	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SPIKE.WB1 Rev. 1.0 508101ML

1915

WORKBOOK PAGE: SPK24

WHC-SD-WM-DP-179, REV. 1

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

			SPIKE	REPLICATE
DETECTOR NUMBER			14	14
DISH SIZE 1 , 2 , or 5		(MS)	2	2
TOTAL COUNTS		(TC)	48661	46484
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.33	0.33
SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	0.250	0.250
SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	11	11
DIGEST GRAMS of SOLIDS / L		(Dg/L)	1.8748	1.8748
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)	0.2274	0.2274
SAMPLE + SPIKE µCi/g		(S+S)	7.54E+01	7.20E+01
AVERAGE or MAXIMUM µCi/g in SAMPLE			2.6050E-01	

Type
SPK
Work List
8160
AT or LB?
AT
Test Code
@AB-01
Matrix
SOLID
Batch Number
96004029
Rerun
0
Sample Prep
FUSION01
Sample #
S96T001585
Instrument Code
WB27807
Prepared By
SEH
Chemist
SLF
Analyst
SCL
Date Complete
05/07/96
Analysis Date
04/30/96
Analysis Time
03:30 PM
Sample Point
S102

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	=	3.13E-02
AVG. PERCENT SPIKE RECOVERY	=	87.2%

Analyst:		SEH	Date: 07-May-96
Signature of Chemist:		SLF	Date: 5/9/96

SPIKE.WB1 Rev. 1.0 508101ML

1916

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# 6867

Analyst: S.C.L **Instrument:** AB00 #16 **Book#** 43 B56

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	S96T000869	0	F	@ALPHA01	SOLID	96000030	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T000869	0	F	@ALPHA01	SOLID		
6	SPK	S96T000869	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T000870	0	F	@ALPHA01	SOLID	96000030	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T000870	0	F	@ALPHA01	SOLID		
9	SAMPLE	S96T000871	0	F	@ALPHA01	SOLID	96000030	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T000871	0	F	@ALPHA01	SOLID		
11	SAMPLE	S96T000872	0	F	@ALPHA01	SOLID	96000030	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
12	DUP	S96T000872	0	F	@ALPHA01	SOLID		

Final page for worklist # 6867

Sue C Li 3-26-96
Analyst Signature **Date**

Sue Hogan 3/27/96
Analyst Signature **Date**

DATA
NOT USED
IN PACKAGE

Data Entry Comments: SPK recovery is out of control limits. Batch will be rerun. 4/1/96

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

LABCORE Completed Worklist Report for Worklist# 6867

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

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01 ALPHA01	SOLID	1.53E-05	1.58E-5	103.270	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	4.22E+00	4.220	% Ct. Error
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<3.21E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01 ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01 ALPHA01	SOLID	1.00E+00	1.04E+00	1.040	uCi/g
4	SAMPLE	S96T000869	0	F	@ALPHA01 ALPHA01	SOLID	N/A	4.51E-03	6.640e-003	uCi/g
4	SAMPLE	S96T000869	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	1.23E+02	0.000	% Ct. Error
5	DUP	S96T000869	0	F	@ALPHA01 ALPHA01	SOLID	4.51E-3	4.93E-3	8.900	RPD
5	DUP	S96T000869	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	9.00E+01	90.000	% Ct. Error
6	SPK	S96T000869	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	2.12E-02	59.050	% Recovery
7	SAMPLE	S96T000870	0	F	@ALPHA01 ALPHA01	SOLID	N/A	2.62E-02	8.070e-003	uCi/g
7	SAMPLE	S96T000870	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	3.52E+01	0.000	% Ct. Error
8	DUP	S96T000870	0	F	@ALPHA01 ALPHA01	SOLID	2.62E-2	2.42E-2	7.940	RPD
8	DUP	S96T000870	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	2.96E+01	29.600	% Ct. Error
9	SAMPLE	S96T000871	0	F	@ALPHA01 ALPHA01	SOLID	N/A	1.96E-02	1.530e-002	uCi/g
9	SAMPLE	S96T000871	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	5.75E+01	0.000	% Ct. Error
10	DUP	S96T000871	0	F	@ALPHA01 ALPHA01	SOLID	1.96E-2	2.61E-2	28.450	RPD
10	DUP	S96T000871	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	4.85E+01	48.500	% Ct. Error
11	SAMPLE	S96T000872	0	F	@ALPHA01 ALPHA01	SOLID	N/A	7.96E-02	1.560e-002	uCi/g
11	SAMPLE	S96T000872	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	2.28E+01	0.000	% Ct. Error
12	DUP	S96T000872	0	F	@ALPHA01 ALPHA01	SOLID	7.96E-2	7.61E-2	4.500	RPD
12	DUP	S96T000872	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	2.32E+01	23.200	% Ct. Error

Final page for worklist# 6867

Analyst Signature Date

Analyst Signature Date

Reviewer Signature 3/28/96 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) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2269	2194
6867	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	43B56	43B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		75.263	72.763
Batch Number	Standard Value in µCi/mL		1.53E-05	
96002573	Concentration in µCi/L	=	1.61E-02	
Rerun	Replicate Concentration in µCi/L	=	1.56E-02	
0	AVERAGE CONCENTRATION in µCi/L	=	1.5846E-02	

Sample Prep: N/A

Sample #: WL#6867

Instrument Code: WB27806

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 03/27/96

Analysis Date: 03/26/96

Analysis Time: 01:10 PM

Sample Point: S102

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	=	1.58E-05	
RELATIVE COUNTING ERROR	=	4.2%	1.30E-07 µCi/mL

Analyst:		SEH	Date: 27-Mar-96
Signature of Chemist:		SLF	Date: 3/28/96

STANDARD.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

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)	12	11
6867	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)	1.9628	1.9628
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.294	0.259

Batch Number			
96002573	Blank Concentration in µCi/g	<	3.21E-03
Rerun	Replicate Concentration in µCi/g	<	2.83E-03
0	Maximum Concentration in µCi/g	<	3.2106E-03

Sample Prep: N/A

Sample #: WL#6867

Instrument Code: WB27806

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 03/27/96

Analysis Date: 03/26/96

Analysis Time: 01:10 PM

Sample Point: S102

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

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

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

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

				DETECTION LEVEL
ALPHA TOTAL in µCi/g (Maximum)	=	< 3.21E-03		
LESS THAN Value was Determined from Rmax.				6.64E-03 µCi/g
RELATIVE COUNTING ERROR			500.0%	

Analyst:		SCL	Date: 27-Mar-96
Signature of Chemist:		SLF	Date: 3/28/96

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)	27	20
6867	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)	1.9628	1.9628
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.530	0.297

Batch Number	
96002573	Blank Concentration in µCi/g 5.78E-03
Rerun	Replicate Concentration in µCi/g 3.24E-03
0	Average Concentration in µCi/g 4.5084E-03
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)
S96T000869	
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	
SEH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 4.51E-03
Analyst	
SCL	
Date Complete	
03/27/96	RELATIVE COUNTING ERROR 122.8%
Analysis Date	
03/26/96	
Analysis Time	
01:10 PM	
Sample Point	
S102	

DETECTION LEVEL
6.64E-03 µCi/g

Analyst:		SCL	Date: 27-Mar-96
Signature of Chemist:		SLF	Date: 3/28/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

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)	26	24
6867	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)	2.0128	2.0128
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.497	0.430

Blank Concentration in µCi/g	5.28E-03
Replicate Concentration in µCi/g	4.57E-03
Average Concentration in µCi/g	4.9283E-03

Batch Number: 96002573
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T000869
Instrument Code: WB27806
Prepared By: SEH
Chemist: SLF
Analyst: SCL
Date Complete: 03/27/96
Analysis Date: 03/26/96
Analysis Time: 01:10 PM
Sample Point: S102

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) =	4.93E-03	DETECTION LEVEL
RELATIVE COUNTING ERROR	90.0%	6.48E-03 µCi/g

Analyst:		SCL	Date: 27-Mar-96
Signature of Chemist:		SLF	Date: 3/28/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SPIKE6

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	26635	32704
6867	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)	1.9628	1.9628
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
96002573	SPIKE VALUE in µCi/mL	(SVal)	3.5899E-02	3.5899E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/g	(S+S)	9.68E+00	1.19E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		4.5084E-03	
FUSION01				
Sample #				
S96T000869	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))))			
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
03/27/96				
Analysis Date				
03/26/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	2.12E-02	
01:10 PM	AVG. PERCENT SPIKE RECOVERY	=	58.9%	
Sample Point				
S102				

Analyst:		SEH	Date: 27-Mar-96
Signature of Chemist:		SLF	Date: 3/28/96

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)	84	57
6867	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)	1.6156	1.6156
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.430	1.530

Batch Number	
96002573	Blank Concentration in µCi/g 3.22E-02
Rerun	Replicate Concentration in µCi/g 2.03E-02
0	Average Concentration in µCi/g 2.6238E-02

Sample Prep: FUSION01

Sample #: S96T000870

Instrument Code: WB27806

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 03/27/96

Analysis Date: 03/26/96

Analysis Time: 01:10 PM

Sample Point: S102

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)	=	2.62E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		35.2%	8.07E-03 µCi/g

Analyst:	SCL		Date: 27-Mar-96
Signature of Chemist:		SLF	Date: 3/28/96

SAMPLE.WB1 Rev. 1.0 508101ML

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)	71	72
6867	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)	1.7784	1.7784
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.997	2.030

Batch Number	
96002573	Blank Concentration in µCi/g 2.40E-02
Rerun	Replicate Concentration in µCi/g 2.44E-02
0	Average Concentration in µCi/g 2.4237E-02

Sample Prep: FUSION01

Sample #: S96T000870

Instrument Code: WB27806

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 03/27/96

Analysis Date: 03/26/96

Analysis Time: 01:10 PM

Sample Point: S102

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) =	2.42E-02	
RELATIVE COUNTING ERROR	29.6%	7.33E-03 µCi/g

Analyst:		SCL	Date: 27-Mar-96
Signature of Chemist:		SLF	Date: 3/28/96

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)	35	34
6867	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8708	1.8708
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.797	0.763

Batch Number	
96002573	Blank Concentration in µCi/g 2.01E-02
Rerun	Replicate Concentration in µCi/g 1.92E-02
0	Average Concentration in µCi/g 1.9638E-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)
S96T000871	
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	
SEH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 1.96E-02
Analyst	
SCL	
Date Complete	
03/27/96	RELATIVE COUNTING ERROR 57.5%
Analysis Date	
03/26/96	
Analysis Time	
01:10 PM	
Sample Point	
S102	

DETECTION LEVEL
1.53E-02 µCi/g

Analyst:		SCL	Date: 27-Mar-96
Signature of Chemist:		SLF	Date: 3/28/96

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)	40	46
6867	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.916	1.916
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.963	1.163

Batch Number	
96002573	Blank Concentration in µCi/g 2.37E-02
Rerun	Replicate Concentration in µCi/g 2.86E-02
0	Average Concentration in µCi/g 2.6140E-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)
S96T000871	
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	
SEH	
Chemist	
SLF	ALPHA TOTAL in µCi/g (Average) = 2.61E-02
Analyst	
SCL	
Date Complete	
03/27/96	RELATIVE COUNTING ERROR 48.5%
Analysis Date	
03/26/96	
Analysis Time	
01:10 PM	
Sample Point	
S102	

DETECTION LEVEL
1.50E-02 µCi/g

Analyst:		SCL	Date: 27-Mar-96
Signature of Chemist:		SLF	Date: 3/28/96

SAMPLE.WB1 Rev. 1.0 508101ML

IN PROGRESS

WORKBOOK PAGE: SAM1

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	103	106
6867	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8416	1.8416
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.063	3.163

Blank Concentration in µCi/g	7.83E-02
Replicate Concentration in µCi/g	8.09E-02
Average Concentration in µCi/g	7.9626E-02

Batch Number: 96002573

Rerun: 0

Sample Prep: FUSION01

Sample #: S96T000872

Instrument Code: WB27806

Prepared By: SEH

Chemist: SLF

Analyst: SCL

Date Complete: 03/27/96

Analysis Date: 03/26/96

Analysis Time: 01:10 PM

Sample Point: S102

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

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

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

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

ALPHA TOTAL in µCi/g (Average)	=	7.96E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		22.8%	1.56E-02 µCi/g

Analyst:		SCL	Date: 27-Mar-96
Signature of Chemist:		SLF	Date: 3/28/96

SAMPLE.WB1 Rev. 1.0 508101ML

1929

DO 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)	107	100
6867	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.37	0.37
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9056	1.9056
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.197	2.963

Batch Number	
96002573	Blank Concentration in µCi/g 7.90E-02
Rerun	Replicate Concentration in µCi/g 7.32E-02
0	Average Concentration in µCi/g 7.6128E-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)
S96T000872	
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	
SEH	
Chemist	
SLF	
Analyst	
SCL	
Date Complete	
03/27/96	
Analysis Date	
03/26/96	
Analysis Time	
01:10 PM	
Sample Point	
S102	

		DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average) =	7.61E-02	
RELATIVE COUNTING ERROR	23.2%	1.51E-02 µCi/g

Analyst:		SCL	Date: 27-Mar-96
Signature of Chemist:		SLF	Date: 3/28/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

LABCORE Data Entry Template for Worklist# 7056

Analyst: [illegible] **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	S96T001173	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001173	0	F	@ALPHA01	SOLID		
6	SAMPLE	S96T001174	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
7	DUP	S96T001174	0	F	@ALPHA01	SOLID		
8	SPK	S96T001174	0	F	@ALPHA01	SOLID		
9	SAMPLE	S96T001175	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
10	DUP	S96T001175	0	F	@ALPHA01	SOLID		
11	SAMPLE	S96T001176	0	F	@ALPHA01	SOLID	96000094	S102
	Analytes Requested: ALPHA01 , ALPHA01E							
12	DUP	S96T001176	0	F	@ALPHA01	SOLID		

DATA NOT USED IN PACKAGE

Final page for worklist # 7056

A Lambel 04.02.96
Analyst Signature **Date**

L Conlin 4-3-96
Analyst Signature **Date**
by D Honaker

Data Entry Comments:
RPD for STD + STD repl. is out of control limits.
SPK recovery is out of control limits. [illegible]
4/4/96

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

LABCORE Completed Worklist Report for Worklist# 7056

Analyst: eal **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	1.16E-4	90.630	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.97E+00	4.970	% Ct. Error
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<2.78E-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	1.67E+00	1.670	uCi/g
4	SAMPLE	S96T001173	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.62E-02	3.770e-003	uCi/g
4	SAMPLE	S96T001173	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.37E+01	0.000	% Ct. Error
5	DUP	S96T001173	0	F	@ALPHA01	ALPHA01	SOLID	2.62E-2	2.67E-2	1.890	RPD
5	DUP	S96T001173	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.29E+01	22.900	% Ct. Error
6	SAMPLE	S96T001174	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.14E-02	3.920e-003	uCi/g
6	SAMPLE	S96T001174	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	4.59E+01	0.000	% Ct. Error
7	DUP	S96T001174	0	F	@ALPHA01	ALPHA01	SOLID	1.14E-2	1.51E-2	27.920	RPD
7	DUP	S96T001174	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	3.85E+01	38.500	% Ct. Error
8	SPK	S96T001174	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	1.89E-02	52.650	% Recovery
9	SAMPLE	S96T001175	0	F	@ALPHA01	ALPHA01	SOLID	N/A	9.89E-03	3.290e-003	uCi/g
9	SAMPLE	S96T001175	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	3.78E+01	0.000	% Ct. Error
10	DUP	S96T001175	0	F	@ALPHA01	ALPHA01	SOLID	9.89E-3	1.26E-2	24.100	RPD
10	DUP	S96T001175	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	3.37E+01	33.700	% Ct. Error
11	SAMPLE	S96T001176	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.04E-03	3.650e-003	uCi/g
11	SAMPLE	S96T001176	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.01E+02	0.000	% Ct. Error
12	DUP	S96T001176	0	F	@ALPHA01	ALPHA01	SOLID	3.04E-3	7.49E-3	84.520	RPD
12	DUP	S96T001176	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	5.16E+01	51.600	% Ct. Error

Final page for worklist# 7056

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

4/4/96

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) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	1565	1941
7056	COUNT TIME in MINUTES	(CT)	30	30
Analyte	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Calc 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		52.067	64.600
Sample Number	Standard Value in µCi/mL		1.28E-04	
96002767	Concentration in µCi/L	=	1.03E-01	
Rerun	Replicate Concentration in µCi/L	=	1.28E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.1555E-01	

Sample Prep
N/A

Standard
47B56

Instrument Code
WB27807

Prepared By
LC

Chemist
SF

Analyst
EAL

Date Complete
04/03/96

Analysis Date
04/02/96

Analysis Time

Sample Point
S102

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	=	1.16E-04	
RELATIVE COUNTING ERROR	=	5.0%	7.13E-07 µCi/mL

Analyst:		LC	Date: 03-Apr-96
Signature of Chemist:		SF	Date: 4/4/96

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
Worksheet	GROSS COUNTS	(GC)	4	6
7056	COUNT TIME in MINUTES	(CT)	30	30
Alpha/Beta	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Instrument Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8904	1.8904
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.179	0.265

Batch Number			
96002767	Blank Concentration in µCi/g	<	1.87E-03
Replicate	Replicate Concentration in µCi/g	<	2.78E-03
0	Maximum Concentration in µCi/g	<	2.7768E-03

Sample Prep
N/A

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

Formula
BLNK-PREP

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

Instrument Code
WB27807

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

Prepared By
LC

Chemist
SF

ALPHA TOTAL in µCi/g (Maximum)	=	< 2.78E-03	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			3.77E-03 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst
EAL

Date Complete
04/03/96

Analysis Date
04/02/96

Analysis Time

Sample Point
S102

Analyst:		EAL	Date: 03-Apr-96
Signature of Chemist:		SF	Date: 4/4/96

BLANK.WB1 Rev. 1.0 508101ML

USED IN PACKAGE

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
Worksheet	GROSS COUNTS	(GC)	77	79
7056	COUNT TIME in MINUTES	(CT)	30	30
Batch ID	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Dilution	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8904	1.8904
Efficiency	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.467	2.533

Batch Number		
96002767	Blank Concentration in µCi/g	2.58E-02
Replicate	Replicate Concentration in µCi/g	2.65E-02
0	Average Concentration in µCi/g	2.6196E-02

Sample Prep
FUSION01

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

Sample #
S96T001173

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

Instrument Code
WB27807

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
LC

Chemist
SF

ALPHA TOTAL in µCi/g (Average)	=	2.62E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		23.7%	3.77E-03 µCi/g

Analyst
EAL

Date Complete
04/03/96

Analysis Date
04/02/96

Analysis Time

Sample Point
S102

Analyst:		EAL	Date: 03-Apr-96
Signature of Chemist:		SF	Date: 4/4/96

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

1935

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
Workplate	GROSS COUNTS	(GC)	82	87
7056	COUNT TIME in MINUTES	(CT)	30	30
Alpha or Beta?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Procedure	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0192	2.0192
Efficiency	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.633	2.800

Blank Number		
96002767	Blank Concentration in µCi/g	2.58E-02
Replicate	Replicate Concentration in µCi/g	2.75E-02
0	Average Concentration in µCi/g	2.6651E-02

Sample Prep
FUSION01

Sample #
S96T001173

Instrument Code
WB27807

Prepared By
LC

Chemist
SF

Analyst
EAL

Date Complete
04/03/96

Analysis Date
04/02/96

Analysis Time

Sample Point
S102

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)	=	2.67E-02	3.53E-03 µCi/g
RELATIVE COUNTING ERROR		22.9%	

Analyst:		EAL	Date: 03-Apr-96
Signature of Chemist:		SF	Date: 4/4/96

SAMPLE.WB1 Rev. 1. 508101ML

USED PAGE

WORKBOOK PAGE: SAM6

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)	43	26
7056	COUNT TIME in MINUTES	(CT)	30	30
AT or TB	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.818	1.818
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.333	0.767

Batch Number	
96002767	Blank Concentration in µCi/g 1.45E-02
Rerun	Replicate Concentration in µCi/g 8.35E-03
0	Average Concentration in µCi/g 1.1441E-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)
S96T001174	
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	
LC	
Chemist	
SF	ALPHA TOTAL in µCi/g (Average) = 1.14E-02
Analyst	
EAL	
Date Complete	
04/03/96	RELATIVE COUNTING ERROR 45.9%
Analysis Date	
04/02/96	
Analysis Time	
Sample Point	
S102	

DETECTION LEVEL
3.92E-03 µCi/g

Analyst:		EAL	Date: 03-Apr-96
Signature of Chemist:		SF	Date: 4/4/96

SAMPLE.WB1 Rev. 1. 508101ML

RELEASED FOR STORAGE

WORKBOOK PAGE: DUP7

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)	51	34
7056	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.7324	1.7324
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.600	1.033

Sample Number	
96002767	Blank Concentration in µCi/g 1.83E-02
Rerun	Replicate Concentration in µCi/g 1.18E-02
0	Average Concentration in µCi/g 1.5055E-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)
S96T001174	
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	
LC	
Chemist	
SF	ALPHA TOTAL in µCi/g (Average) = 1.51E-02
Analyst	
EAL	
Date Complete	
04/03/96	RELATIVE COUNTING ERROR 38.5%
Analysis Date	
04/02/96	
Analysis Time	
Sample Point	
S102	

DETECTION LEVEL
4.12E-03 µCi/g

Analyst:		EAL	Date: 03-Apr-96
Signature of Chemist:		SF	Date: 4/4/96

SAMPLE.WB1 Rev. 1. 508101ML

DATA USED PACKAGE

1933

WORKBOOK PAGE: SPIKE8

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work Start	TOTAL COUNTS	(TC)	28259	29147
7056	COUNT TIME in MINUTES	(CT)	30	30
AT or AB?	BACKGROUND in cpm	(BKG)	0.1	0.1
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)	1.818	1.818
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
96002767	SPIKE VALUE in µCi/mL	(SVal)	3.5898E-02	3.5898E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/g	(S+S)	1.03E+01	1.06E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.1441E-03	
FUSION01				
Sample ID				
S96T001174				
Instrument Code				
WB27807				
Prepared By				
LC				
Chemist				
SF				
Analyst				
EAL				
Date Complete				
04/03/96				
Analysis Date				
04/02/96				
Analysis Time				
Sample Point				
S102				

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	=	1.89E-02
AVG. PERCENT SPIKE RECOVERY	=	52.8%

Analyst:		LC	Date: 03-Apr-96
Signature of Chemist:		SF	Date: 4/4/96

SPIKE.WB1 Rev. 1.0 508101ML

WHC-SD WM-DP-170, REV. 1

WORKBOOK PAGE: SAM9

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

			SAMPLE	REPLICATE
Type Code	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Instrument	GROSS COUNTS	(GC)	35	36
7056	COUNT TIME in MINUTES	(CT)	30	30
Analyst	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Dilution	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1704	2.1704
Efficiency	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.067	1.100

Batch Number		
96002767	Blank Concentration in µCi/g	9.74E-03
Standard	Replicate Concentration in µCi/g	1.00E-02
0	Average Concentration in µCi/g	9.8873E-03

Sample Prep
FUSION01

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

Sample
S96T001175

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

Instrument Model
WB27807

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
LC

Chemist
SF

ALPHA TOTAL in µCi/g (Average)	=	9.89E-03	DETECTION LEVEL
RELATIVE COUNTING ERROR		37.8%	3.29E-03 µCi/g

Analyst
EAL

Date Complete
04/03/96

Analysis Date
04/02/96

Analysis Time

Sample Point
S102

Analyst:		EAL	Date: 03-Apr-96
Signature of Chemist:		SF	Date: 4/4/96

SAMPLE.WB1 Rev. 1 508101ML

I:\508101\OUT\AT7056.WB1 04/03/96

WORKBOOK PAGE: DUP10

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worksheet	GROSS COUNTS	(GC)	52	42
7056	COUNT TIME in MINUTES	(CT)	30	30
Background	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Dilution	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.3	2.3
Efficiency	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.633	1.300

Blank Number		
96002767	Blank Concentration in µCi/g	1.41E-02
Replicate	Replicate Concentration in µCi/g	1.12E-02
0	Average Concentration in µCi/g	1.2632E-02

Sample Type
FUSION01

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

Worksheet
S96T001175

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

Instrument Code
WB27807

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
LC

Chemist
SF

ALPHA TOTAL in µCi/g (Average) =	1.26E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR	33.7%	3.10E-03 µCi/g

Analyst
EAL

Date Complete
04/03/96

Analysis Date
04/02/96

Analysis time

Sample Point
S102

Analyst:		EAL	Date: 03-Apr-96
Signature of Chemist:		SF	Date: 4/4/96

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM11

WHC-SD-WM-DP-179, REV. 1

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)	10	14
7056	COUNT TIME in MINUTES	(CT)	30	30
Analyte	BACKGROUND in cpm	(BKG)	0.1	0.1
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)	1.9528	1.9528
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.233	0.367

Batch Number		
96002767	Blank Concentration in µCi/g	2.37E-03
Parent	Replicate Concentration in µCi/g	3.72E-03
0	Average Concentration in µCi/g	3.0431E-03

Sample Prep
FUSION01

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

Sample
S96T001176

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

Instrument Code
WB27807

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
LC

Chemist
SF

ALPHA TOTAL in µCi/g (Average)	=	3.04E-03	DETECTION LEVEL
			3.65E-03 µCi/g
RELATIVE COUNTING ERROR		101.0%	

Analyst
EAL

Date Complete
04/03/96

Analysis Date
04/02/96

Analysis Time

Sample Point
S102

Analyst:		EAL	Date: 03-Apr-96
Signature of Chemist:		SF	Date: 4/4/96

SAMPLE.WB1 Rev. 1. 508101ML

DATA ... LOSED PACKAGE

WORKBOOK PAGE: DUP12

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

			DUP	REPLICATE
Type:	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Gross Counts	GROSS COUNTS	(GC)	22	24
7056	COUNT TIME in MINUTES	(CT)	30	30
Background	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Dilution	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.7632	1.7632
Efficiency	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.633	0.700

Batch Number		
96002767	Blank Concentration in µCi/g	7.12E-03
Replicate	Replicate Concentration in µCi/g	7.86E-03
0	Average Concentration in µCi/g	7.4897E-03

Sample Prep
FUSION01

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

Sample
S96T001176

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

Instrument
WB27807

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.

Reviewed By
LC

Chemist
SF

ALPHA TOTAL in µCi/g (Average)	=	7.49E-03	DETECTION LEVEL
RELATIVE COUNTING ERROR		51.6%	4.05E-03 µCi/g

Analyst
EAL

Date Complete
04/03/96

Analysis Date
04/02/96

Analysis Time

Sample Point
S102

Analyst:	EAL	Date: 03-Apr-96	
Signature of Chemist:	SF	Date: 4/4/96	

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

LABCORE Data Entry Template for Worklist# 9501

Analyst: S.C.L **Instrument:** AB00 18 **Book#** 47856

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				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S96T000870	0	F	@BETA-01	SOLID	96000030	S102
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S96T000870	0	F	@BETA-01	SOLID		
6	SPK	S96T000870	0	F	@BETA-01	SOLID		
7	SAMPLE	S96T000871	0	F	@BETA-01	SOLID	96000030	S102
		Analytes Requested: BETA-01 , BETA-01E						
8	DUP	S96T000871	0	F	@BETA-01	SOLID		

Final page for worklist # 9501

S.C.Li 6-5-96
Analyst Signature **Date**

[signature] 6/6/96
Analyst Signature **Date**
C.J. Opinen 6/6/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9501

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		@BETA-01 BETA-01	SOLID	1.80E-03	1.93E-3	107.222	% Recovery
1	STD		0		@BETA-01 BETA-01E	SOLID	1.00	8.44E-01	0.844	% Ct. Erro
2	BLNK-PREP		0		@BETA-01 BETA-01	SOLID	1	4.85E-2	48.500e-003	uCi/g
2	BLNK-PREP		0		@BETA-01 BETA-01E	SOLID	1.00	5.39E+01	53.900	uCi/g
3	BLNK/BKG		0		@BETA-01 BETA-01	SOLID	1.00E+00	1.34E+00	1.340	BLNK/BKG
4	SAMPLE	S96T000870	0	F	@BETA-01 BETA-01	SOLID	N/A	1.51E+02	401.0e-004	uCi/g
4	SAMPLE	S96T000870	0	F	@BETA-01 BETA-01E	SOLID	N/A	3.52E-01	0.0e+000	% Ct. Error
5	DUP	S96T000870	0	F	@BETA-01 BETA-01	SOLID	1.51E+2	1.52E+2	0.660	RPD
5	DUP	S96T000870	0	F	@BETA-01 BETA-01E	SOLID	1.00	3.34E-01	0.334	% Ct. Erro
6	SPK	S96T000870	0	F	@BETA-01 BETA-01	SOLID	1.92E-01	1.70E-01	88.542	% Recovery
7	SAMPLE	S96T000871	0	F	@BETA-01 BETA-01	SOLID	N/A	1.38E+02	346.0e-004	uCi/g
7	SAMPLE	S96T000871	0	F	@BETA-01 BETA-01E	SOLID	N/A	3.43E-01	0.0e+000	% Ct. Error
8	DUP	S96T000871	0	F	@BETA-01 BETA-01	SOLID	1.38E+2	1.39E+2	0.722	RPD
8	DUP	S96T000871	0	F	@BETA-01 BETA-01E	SOLID	1.00	3.37E-01	0.337	% Ct. Erro

Final page for worklist# 9501

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

Reviewer Signature 6/7/96 **Date**

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

WORKBOOK PAGE: STD1

TB : LA-508-101 (D-2) LA-508-113 (A-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		18	18
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worksheet	GROSS COUNTS	(GC)	55178	54784
9501	COUNT TIME in MINUTES	(CT)	30	30
Lab Code	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.4260	0.4260
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1829.267	1816.133
Batch Number	Standard Value in µCi/mL		1.80E-03	
96005667	Concentration in µCi/L	=	1.93E+00	
Rerun	Replicate Concentration in µCi/L	=	1.92E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	1.9273E+00	

Sample Prep
N/A

Sample ID
WL9501

Instrument Code
WB27809

Prepared By
MCB

Chemist
SLF

Analyst
SCL

Date Complete
06/06/96

Analysis Date
06/05/96

Analysis Time
11:30 AM

Sample Point
S-102

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

TOTAL BETA CONCENTRATION in µCi/mL	=	1.93E-03	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	0.8%	2.94E-06 µCi/mL

Analyst:		MCB	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		18	18
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	396	406
9501	COUNT TIME in MINUTES	(CT)	30	30
TA or TB ?	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Analytical Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.6156	1.6156
Matrix	EFFICIENCY FACTOR	(EFF)	0.4260	0.4260
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.200	3.533

Batch Number		
96005667	Blank Concentration in µCi/g	4.61E-02
Rerun	Replicate Concentration in µCi/g	5.09E-02
0	Average Concentration in µCi/g	4.8476E-02

Sample Prep
N/A

Sample #
WL9501

Instrument Code
WB27809

Prepared By
MCB

Chemist
SLF

Analyst
SCL

Date Complete
06/06/96

Analysis Date
06/05/96

Analysis Time
11:30 AM

Sample Point
S-102

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

TOTAL BETA 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
TOTAL BETA in µCi/g (Average) =	4.85E-02	
RELATIVE COUNTING ERROR	53.9%	4.01E-02 µCi/g

Analyst:		SCL	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

TB : 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)	318488	310928
9501	COUNT TIME in MINUTES	(CT)	30	30
Action TB?	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Analytical Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.6156	1.6156
Matrix	EFFICIENCY FACTOR	(EFF)	0.4260	0.4260
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		10606.267	10354.267

Blank Concentration in µCi/g	1.53E+02
Replicate Concentration in µCi/g	1.49E+02
Average Concentration in µCi/g	1.5090E+02

Batch Number: 96005667
Rerun: 0
Sample Prep: FUSION01
Sample#: S96T000870
Instrument Code: WB27809
Prepared By: MCB
Chemist: SLF
Analyst: SCL
Date Complete: 06/06/96
Analysis Date: 06/05/96
Analysis Time: 11:30 AM
Sample Point: S-102

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

TOTAL BETA 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
TOTAL BETA in µCi/g (Average) =	1.51E+02	
RELATIVE COUNTING ERROR	0.4%	4.01E-02 µCi/g

Analyst:	SCL		Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

TB : 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)	345277	353692
9501	COUNT TIME in MINUTES	(CT)	30	30
Alpha or Beta ?	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Cost Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.7784	1.7784
Matrix	EFFICIENCY FACTOR	(EFF)	0.4260	0.4260
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11499.233	11779.733

Blank Concentration in µCi/g	1.50E+02
Replicate Concentration in µCi/g	1.54E+02
Average Concentration in µCi/g	1.5225E+02

Batch Number: 96005667
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T000870
Instrument Code: WB27809
Prepared By: MCB
Chemist: SLF
Analyst: SCL
Date Complete: 06/06/96
Analysis Date: 06/05/96
Analysis Time: 11:30 AM
Sample Point: S-102

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

TOTAL BETA 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
TOTAL BETA in µCi/g (Average) =	1.52E+02	3.64E-02 µCi/g
RELATIVE COUNTING ERROR	0.3%	

Analyst:		SCL	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
DETECTOR NUMBER			18	18
DISH SIZE 1 , 2 , or 5		(MS)	2	2
TOTAL COUNTS		(TC)	799274	793834
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	10	10
SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	0.500	0.500
SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	11	11
DIGEST GRAMS of SOLIDS / L		(Dg/L)	1.6156	1.6156
SPIKE VOLUME in mL		(SVol)	0.100	0.100
SPIKE DILUTION FACTOR		(SDF)	1	1
SPIKE BOOK NUMBER		(Spk BN)	42B56	42B56
SPIKE VALUE in µCi/mL		(SVal)	1.9159E-01	1.9159E-01
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.426	0.426
SAMPLE + SPIKE µCi/g		(S+S)	3.83E+02	3.81E+02
AVERAGE or MAXIMUM µCi/g in SAMPLE			1.5090E+02	

Type	SPK
Work List	9501
A1 or TB ?	TB
Test Code	@BETA-01
Matrix	SOLID
Batch Number	96005667
# Rerun ?	0
Sample Prep	FUSION01
Sample #	S96T000870
Instrument Code	WB27809
Prepared By	MCB
Chemist	SLF
Analyst	SCL
Date Complete	06/06/96
Analysis Date	06/05/96
Analysis Time	11:30 AM
Sample Point	S-102

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	=	1.92E-01
QC FOUND	=	1.70E-01
AVG. PERCENT SPIKE RECOVERY	=	88.6%

Analyst:		MCB	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

TB : 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)	336870	328026
9501	COUNT TIME in MINUTES	(CT)	30	30
Alpha By	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Digest Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8708	1.8708
Matrix	EFFICIENCY FACTOR	(EFF)	0.4260	0.4260
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11219.000	10924.200

Blank Concentration in µCi/g	1.40E+02
Replicate Concentration in µCi/g	1.36E+02
Average Concentration in µCi/g	1.3767E+02

Batch Number: 96005667
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T000871
Instrument Code: WB27809
Prepared By: MCB
Chemist: SLF
Analyst: SCL
Date Complete: 06/06/96
Analysis Date: 06/05/96
Analysis Time: 11:30 AM
Sample Point: S-102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average) =	1.38E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.3%	3.46E-02 µCi/g

Analyst:		SCL	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

TB : 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)	350986	338631
9501	COUNT TIME in MINUTES	(CT)	30	30
Analyte 2	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Digest Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.916	1.916
Matrix	EFFICIENCY FACTOR	(EFF)	0.4260	0.4260
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11689.533	11277.700

Blank Concentration in µCi/g	1.42E+02
Replicate Concentration in µCi/g	1.37E+02
Average Concentration in µCi/g	1.3943E+02

Batch Number: 96005667
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T000871
Instrument Code: WB27809
Prepared By: MCB
Chemist: SLF
Analyst: SCL
Date Complete: 06/06/96
Analysis Date: 06/05/96
Analysis Time: 11:30 AM
Sample Point: S-102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	1.39E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	3.38E-02 µCi/g

Analyst:	SCL		Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 9502

Analyst: s.c.L **Instrument:** AB00 13 **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				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S96T000874	0	F	@BETA-01	SOLID	96000030	S102
	Analytes Requested: BETA-01 , BETA-01E							
5	DUP	S96T000874	0	F	@BETA-01	SOLID		
6	SPK	S96T000874	0	F	@BETA-01	SOLID		
7	SAMPLE	S96T000875	0	F	@BETA-01	SOLID	96000030	S102
	Analytes Requested: BETA-01 , BETA-01E							
8	DUP	S96T000875	0	F	@BETA-01	SOLID		

Final page for worklist # 9502

Sue Lai 6-5-96
Analyst Signature **Date**

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

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9502

Analyst: scl **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		@BETA-01	BETA-01	SOLID	1.80E-03	1.85E-3	102.778	% Recovery
1	STD		0		@BETA-01	BETA-01E	SOLID	1.00	8.06E-01	0.806	% Ct. Erro
2	BLNK-PREP		0		@BETA-01	BETA-01	SOLID	1	<6.40E-2		uCi/g
2	BLNK-PREP		0		@BETA-01	BETA-01E	SOLID	1.00	1.52E+02	152.000	uCi/g
3	BLNK/BKG		0		@BETA-01	BETA-01	SOLID	1.00E+00	1.21E+00	1.210	BLNK/BKG
4	SAMPLE	S96T000874	0	F	@BETA-01	BETA-01	SOLID	N/A	2.26E+02	524.0e-004	uCi/g
4	SAMPLE	S96T000874	0	F	@BETA-01	BETA-01E	SOLID	N/A	3.24E-01	0.0e+000	% Ct. Error
5	DUP	S96T000874	0	F	@BETA-01	BETA-01	SOLID	2.26E+2	2.21E+2	2.237	RPD
5	DUP	S96T000874	0	F	@BETA-01	BETA-01E	SOLID	1.00	3.27E-01	0.327	% Ct. Erro
6	SPK	S96T000874	0	F	@BETA-01	BETA-01	SOLID	1.92E-01	1.81E-01	94.271	% Recovery
7	SAMPLE	S96T000875	0	F	@BETA-01	BETA-01	SOLID	N/A	1.62E+02	559.0e-004	uCi/g
7	SAMPLE	S96T000875	0	F	@BETA-01	BETA-01E	SOLID	N/A	3.91E-01	0.0e+000	% Ct. Error
8	DUP	S96T000875	0	F	@BETA-01	BETA-01	SOLID	1.62E+2	1.63E+2	0.615	RPD
8	DUP	S96T000875	0	F	@BETA-01	BETA-01E	SOLID	1.00	4.06E-01	0.406	% Ct. Erro

Final page for worklist# 9502

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

6/7/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

TB : 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)	60088	61025
9502	COUNT TIME in MINUTES	(CT)	30	30
Analyte	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
Dilution	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1991.933	2023.167
Batch Number	Standard Value in µCi/mL		1.80E-03	
96005668	Concentration in µCi/L	=	1.83E+00	
Replicate	Replicate Concentration in µCi/L	=	1.86E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	1.8485E+00	

Sample Prep

N/A

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

Sample

WL9502

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

TOTAL BETA µCi/mL = TOTAL BETA µCi/L / 1000mL/L

Instrument Code

WB27810

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

MCB

Chemist

SLF

				DETECTION LEVEL
TOTAL BETA CONCENTRATION in µCi/mL	=	1.85E-03		
RELATIVE COUNTING ERROR	=	0.8%		2.69E-06 µCi/mL

Analyst

SCL

Date Complete

06/06/96

Analysis Date

06/05/96

Analysis Time

02:00 PM

Sample Point

S-102

Analyst:		MCB	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

TB : 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)	437	364
9502	COUNT TIME in MINUTES	(CT)	30	30
Aliquot B	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2564	2.2564
Matrix	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.567	2.582

Blank Concentration in µCi/g			6.40E-02
Replicate Concentration in µCi/g		<	4.64E-02
Maximum Concentration in µCi/g		<	6.4041E-02

Batch Number: 96005668
Rerun: 0
Sample Prep: N/A
Sample #: WL9502
Instrument Code: WB27810
Prepared By: MCB
Chemist: SLF
Analyst: SCL
Date Complete: 06/06/96
Analysis Date: 06/05/96
Analysis Time: 02:00 PM
Sample Point: S-102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g	(Maximum)	=	< 6.40E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rs.				5.24E-02 µCi/g
RELATIVE COUNTING ERROR			151.9%	

Analyst:		SCL	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

BLANK.WB1 Rev. 1.0 508101ML

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WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worklist	GROSS COUNTS	(GC)	367767	389689
9502	COUNT TIME in MINUTES	(CT)	30	30
?A1 or ?B ?	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2564	2.2564
Matrix	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12247.900	12978.633

Blank Concentration in µCi/g	2.20E+02
Replicate Concentration in µCi/g	2.33E+02
Average Concentration in µCi/g	2.2648E+02

Batch Number: 96005668

Rerun: 0

Sample Prep: FUSION01

Sample #: S96T000874

Instrument Code: WB27810

Prepared By: MCB

Chemist: SLF

Analyst: SCL

Date Complete: 06/06/96

Analysis Date: 06/05/96

Analysis Time: 02:00 PM

Sample Point: S-102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	2.26E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	5.24E-02 µCi/g

Analyst:		SCL	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

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WORKBOOK PAGE: DUP5

TB : 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)	361569	360084
9502	COUNT TIME in MINUTES	(CT)	30	30
A1 or TB ?	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2016	2.2016
Matrix	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12041.300	11991.800

Batch Number	
96005668	Blank Concentration in µCi/g 2.22E+02
Rerun	Replicate Concentration in µCi/g 2.21E+02
0	Average Concentration in µCi/g 2.2113E+02
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T000874	
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	
MCB	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 2.21E+02
Analyst	
SCL	
Date Complete	
06/06/96	RELATIVE COUNTING ERROR 0.3%
Analysis Date	
06/05/96	
Analysis Time	
02:00 PM	
Sample Point	
S-102	

DETECTION LEVEL
5.37E-02 µCi/g

Analyst:		SCL	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

TB : 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)	321219	324030
9502	COUNT TIME in MINUTES	(CT)	10	10
AT or TB ?	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.250	0.250
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2564	2.2564
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96005668	SPIKE VALUE in µCi/mL	(SVal)	1.9159E-01	1.9159E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
0	SAMPLE + SPIKE µCi/g	(S+S)	5.77E+02	5.82E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.2648E+02	
FUSION01				
Sample #				
S96T000874	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27810	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
MCB	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
06/06/96				
Analysis Date				
06/05/96	QC ACTUAL	=	1.92E-01	
Analysis Time	QC FOUND	=	1.81E-01	
02:00 PM	AVG. PERCENT SPIKE RECOVERY	=	94.4%	
Sample Point				
S-102				

Analyst:		MCB	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

TB : 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)	252675	254157
9502	COUNT TIME in MINUTES	(CT)	30	30
SA or TB?	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1136	2.1136
Matrix	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8411.500	8460.900

Batch Number	
96005668	Blank Concentration in µCi/g 1.61E+02
Rerun	Replicate Concentration in µCi/g 1.62E+02
0	Average Concentration in µCi/g 1.6171E+02

Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T000875	
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	
MCB	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 1.62E+02
Analyst	
SCL	
Date Complete	
06/06/96	RELATIVE COUNTING ERROR 0.4%
Analysis Date	
06/05/96	
Analysis Time	
02:00 PM	
Sample Point	
S-102	

DETECTION LEVEL
5.59E-02 µCi/g

Analyst:		SCL	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

1960

WORKBOOK PAGE: DUP8

TB : 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)	234199	247100
9502	COUNT TIME in MINUTES	(CT)	30	30
Appr/TB	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9876	1.9876
Matrix	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7795.633	8225.667

Batch Number	
96005668	Blank Concentration in µCi/g 1.59E+02
Rerun	Replicate Concentration in µCi/g 1.68E+02
0	Average Concentration in µCi/g 1.6329E+02

Sample Prep: FUSION01

Sample #: S96T000875

Instrument Code: WB27810

Prepared By: MCB

Chemist: SLF

Analyst: SCL

Date Complete: 06/06/96

Analysis Date: 06/05/96

Analysis Time: 02:00 PM

Sample Point: S-102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	1.63E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.4%	5.95E-02 µCi/g

Analyst:		SCL	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 9503

Analyst: S.C.L. **Instrument:** AB00 15 **Book#** 47056

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

Worklist Comment: Determine sample size using ludlum. For spike use: 0.1ml.new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S96T001468	0	F	@BETA-01	SOLID	96000094	S102
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S96T001468	0	F	@BETA-01	SOLID		
6	SPK	S96T001468	0	F	@BETA-01	SOLID		

Final page for worklist # 9503

Su Lai 6-4-96
Analyst Signature **Date**

Sharon L Hulsl 6.5.96
Analyst Signature **Date**

Sue E Hogan 6/5/96

Data Entry Comments: BLNK shows contamination but at insignificant levels compared to sample. No rerun requested.

6/6/96

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

LABCORE Completed RadChem Report for Worklist#: 9503

Analyst: scl **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		@BETA-01	BETA-01	SOLID	1.80E-03	1.96E-3	108.889	% Recovery
1	STD		0		@BETA-01	BETA-01E	SOLID	1.00	8.49E-01	0.849	% Ct. Erro
2	BLNK-PREP		0		@BETA-01	BETA-01	SOLID	1	1.65E+0	1.650	uCi/g
2	BLNK-PREP		0		@BETA-01	BETA-01E	SOLID	1.00	3.28E+00	3.280	uCi/g
3	BLNK/BKG		0		@BETA-01	BETA-01	SOLID	1.00E+00	1.78E+01	17.800	BLNK/BKG
4	SAMPLE	S96T001468	0	F	@BETA-01	BETA-01	SOLID	N/A	1.39E+02	308.0e-004	uCi/g
4	SAMPLE	S96T001468	0	F	@BETA-01	BETA-01E	SOLID	N/A	3.41E-01	0.0e+000	% Ct. Error
5	DUP	S96T001468	0	F	@BETA-01	BETA-01	SOLID	1.39E+2	1.31E+2	5.926	RPD
5	DUP	S96T001468	0	F	@BETA-01	BETA-01E	SOLID	1.00	3.29E-01	0.329	% Ct. Erro
6	SPK	S96T001468	0	F	@BETA-01	BETA-01	SOLID	1.92E-01	1.72E-01	89.583	% Recovery

Final page for worklist# 9503

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

6/5/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

TB : 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)	56048	54048
9503	COUNT TIME in MINUTES	(CT)	30	30
Type/TB	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1860.267	1793.600
Batch Number	Standard Value in µCi/mL		1.80E-03	
96005669	Concentration in µCi/L	=	1.99E+00	
Replicate	Replicate Concentration in µCi/L	=	1.92E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	1.9561E+00	

Sample Prep
N/A

Sample#
WL9503

Instrument Code
WB26872

Prepared By
SLH2

Chemist
SLF

Analyst
SCL

Date Complete
06/05/96

Analysis Date
06/04/96

Analysis Time
03:30 PM

Sample Point
S102

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

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

TOTAL BETA µCi/mL = TOTAL BETA 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
TOTAL BETA CONCENTRATION in µCi/mL	=	1.96E-03		
RELATIVE COUNTING ERROR	=	0.8%		2.68E-06 µCi/mL

Analyst:		SLH2	Date: 05-Jun-96
Signature of Chemist:		SLF	Date: 6/5/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

WHC-SD-WM-DP-179, REV.

TB : 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)	4234	4290
9503	COUNT TIME in MINUTES	(CT)	30	30
A Lot TB	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9144	1.9144
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		133.133	135.000

Blank Concentration in µCi/g	1.64E+00
Replicate Concentration in µCi/g	1.66E+00
Average Concentration in µCi/g	1.6496E+00

Batch Number: 96005669

Rerun: 0

Sample Prep: N/A

Sample #: WL9503

Instrument Code: WB26872

Prepared By: SLH2

Chemist: SLF

Analyst: SCL

Date Complete: 06/05/96

Analysis Date: 06/04/96

Analysis Time: 03:30 PM

Sample Point: S102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	1.65E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		3.3%	3.08E-02 µCi/g

Analyst:		SCL	Date: 05-Jun-96
Signature of Chemist:		SLF	Date: 6/5/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4 WHC-SD-WM-DP-179, REV. 1

TB : 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)	348059	331434
9503	COUNT TIME in MINUTES	(CT)	30	30
Alt Dig/TB?	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9144	1.9144
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11593.967	11039.800

Blank Concentration in µCi/g	1.43E+02
Replicate Concentration in µCi/g	1.36E+02
Average Concentration in µCi/g	1.3925E+02

Batch Number: 96005669

Rerun: 0

Sample Prep: FUSION01

Sample #: S96T001468

Instrument Code: WB26872

Prepared By: SLH2

Chemist: SLF

Analyst: SCL

Date Complete: 06/05/96

Analysis Date: 06/04/96

Analysis Time: 03:30 PM

Sample Point: S102

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

TOTAL BETA 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
TOTAL BETA in µCi/g (Average) =	1.39E+02	3.08E-02 µCi/g
RELATIVE COUNTING ERROR	0.3%	

Analyst:		SCL	Date: 05-Jun-96
Signature of Chemist:		SLF	Date: 6/5/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

WHC-SD-WM-DP-173, REV. 1

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

			DUP	REPLICATE
DETECTOR NUMBER			15	15
DISH SIZE	(1 , 2 , or 5)	(MS)	2	2
GROSS COUNTS		(GC)	371533	354940
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	8	8
SAMPLE SIZE in mL		(SS)	0.500	0.500
DILUTION FACTOR		(DF)	11	11
DIGEST GRAMS of SOLIDS / L		(Dg/L)	2.1812	2.1812
EFFICIENCY FACTOR		(EFF)	0.4207	0.4207
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			12376.433	11823.333

Blank Concentration in µCi/g	1.34E+02
Replicate Concentration in µCi/g	1.28E+02
Average Concentration in µCi/g	1.3067E+02

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	1.31E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	2.70E-02 µCi/g

Type	DUP
Work List	9503
AI or LB #	TB
Test Code	@BETA-01
Matrix	SOLID
Batch Number	96005669
Rerun	0
Sample Prep	FUSION01
Sample#	S96T001468
Instrument Code	WB26872
Prepared By	SLH2
Chemist	SLF
Analyst	SCL
Date Complete	06/05/96
Analysis Date	06/04/96
Analysis Time	03:30 PM
Sample Point	S102

Analyst:	SCL	Date:	05-Jun-96
Signature of Chemist:	SLF	Date:	6/5/96

SAMPLE.WB1 Rev. 1.0 508101ML

WHC-SD-WM-DP-179, REV. 1

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

			SPIKE	REPLICATE
DETECTOR NUMBER			15	15
DISH SIZE 1 , 2 , or 5		(MS)	2	2
TOTAL COUNTS		(TC)	825246	816683
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	8	8
SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	0.500	0.500
SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	11	11
DIGEST GRAMS of SOLIDS / L		(Dg/L)	1.9144	1.9144
SPIKE VOLUME in mL		(SVol)	0.100	0.100
SPIKE DILUTION FACTOR		(SDF)	1	1
SPIKE BOOK NUMBER		(Spk BN)	42B56	42B56
SPIKE VALUE in µCi/mL		(SVal)	1.9160E-01	1.9160E-01
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.4207	0.4207
SAMPLE + SPIKE µCi/g		(S+S)	3.38E+02	3.35E+02
AVERAGE or MAXIMUM µCi/g in SAMPLE			1.3925E+02	

Type	SPK
Work List	9503
A1 or TB ?	TB
Test Code	@BETA-01
Matrix	SOLID
Batch Number	96005669
Rerun	0
Sample Prep	FUSION01
Sample #	S96T001468
Instrument Code	WB26872
Prepared By	SLH2
Chemist	SLF
Analyst	SCL
Date Complete	06/05/96
Analysis Date	06/04/96
Analysis Time	03:30 PM
Sample Point	S102

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	=	1.92E-01
QC FOUND	=	1.72E-01
AVG. PERCENT SPIKE RECOVERY	=	89.6%

Analyst:		SLH2	Date: 05-Jun-96
Signature of Chemist:		SLF	Date: 6/5/96

SPIKE.WB1 Rev. 1.0 508101ML

Ref 4

Green

LABCORE Data Entry Template for Worklist# 9504

Analyst: AKL **Instrument:** AB00 15 **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				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S96T001473	0	F	@BETA-01	SOLID	96000094	S102
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S96T001473	0	F	@BETA-01	SOLID		
6	SPK	S96T001473	0	F	@BETA-01	SOLID		
7	SAMPLE	S96T001474	0	F	@BETA-01	SOLID	96000094	S102
		Analytes Requested: BETA-01 , BETA-01E						
8	DUP	S96T001474	0	F	@BETA-01	SOLID		

Final page for worklist # 9504

G. Lewis 6/5/96
Analyst Signature **Date**

[illegible] 6/6/96
Analyst Signature **Date**
C.J. Opinen 6/6/96

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code. 1969

LABCORE Completed RadChem Report for Worklist#: 9504

Analyst: akl **Instrument:** AB15 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using ludlum.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01 BETA-01	SOLID	1.80E-03	2.00E-3	111.111	% Recovery
1	STD		0		@BETA-01 BETA-01E	SOLID	1.00	8.34E-01	0.834	% Ct. Erro
2	BLNK-PREP		0		@BETA-01 BETA-01	SOLID	1	8.57E-2	85.700e-003	uCi/g
2	BLNK-PREP		0		@BETA-01 BETA-01E	SOLID	1.00	4.00E+01	40.000	uCi/g
3	BLNK/BKG		0		@BETA-01 BETA-01	SOLID	1.00E+00	1.92E+00	1.920	BLNK/BKG
4	SAMPLE	S96T001473	0	F	@BETA-01 BETA-01	SOLID	N/A	1.59E+02	292.0e-004	uCi/g
4	SAMPLE	S96T001473	0	F	@BETA-01 BETA-01E	SOLID	N/A	3.08E-01	0.0e+000	% Ct. Error
5	DUP	S96T001473	0	F	@BETA-01 BETA-01	SOLID	1.59E+2	1.60E+2	0.627	RPD
5	DUP	S96T001473	0	F	@BETA-01 BETA-01E	SOLID	1.00	3.03E-01	0.303	% Ct. Erro
6	SPK	S96T001473	0	F	@BETA-01 BETA-01	SOLID	1.92E-01	1.80E-01	93.750	% Recovery
7	SAMPLE	S96T001474	0	F	@BETA-01 BETA-01	SOLID	N/A	1.40E+02	278.0e-004	uCi/g
7	SAMPLE	S96T001474	0	F	@BETA-01 BETA-01E	SOLID	N/A	3.19E-01	0.0e+000	% Ct. Error
8	DUP	S96T001474	0	F	@BETA-01 BETA-01	SOLID	1.40E+2	1.37E+2	2.166	RPD
8	DUP	S96T001474	0	F	@BETA-01 BETA-01E	SOLID	1.00	3.23E-01	0.323	% Ct. Erro

Final page for worklist# 9504

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

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

TB : 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
Worklist	GROSS COUNTS	(GC)	55909	56401
9504	COUNT TIME in MINUTES	(CT)	30	30
Alpha Bkg	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1855.633	1872.033
Batch Number	Standard Value in µCi/mL		1.80E-03	
96005670	Concentration in µCi/L	=	1.99E+00	
Rerun	Replicate Concentration in µCi/L	=	2.00E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	1.9956E+00	

Sample Prep:
N/A

Sample#
WL9504

Instrument Code
WB26872

Prepared By
MCB

Chemist
SLF

Analyst
AKL

Date Complete
06/06/96

Analysis Date
06/05/96

Analysis Time
03:30 PM

Sample Point
S-102

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

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

TOTAL BETA µCi/mL = TOTAL BETA 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.

TOTAL BETA CONCENTRATION in µCi/mL	=	2.00E-03	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	0.8%	2.68E-06 µCi/mL

Analyst:		MCB	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
Test Type	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work Plate	GROSS COUNTS	(GC)	560	360
9504	COUNT TIME in MINUTES	(CT)	30	30
WA Workbook	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0158	2.0158
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		10.667	4.000

Blank Concentration in µCi/g	1.25E-01
Replicate Concentration in µCi/g	4.67E-02
Average Concentration in µCi/g	8.5694E-02

Batch Number: 96005670
Rerun: 0
Sample Prep: N/A
Sample #: WL9504
Instrument Code: WB26872
Prepared By: MCB
Chemist: SLF
Analyst: AKL
Date Complete: 06/06/96
Analysis Date: 06/05/96
Analysis Time: 03:30 PM
Sample Point: S-102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	8.57E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		40.0%	2.92E-02 µCi/g

Analyst:	AKL	Date: 06-Jun-96	
Signature of Chemist:	SLF	Date: 6/7/96	

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

TB : 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)	404457	411568
9504	COUNT TIME in MINUTES	(CT)	30	30
Analyst	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0158	2.0158
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		13473.900	13710.933

Batch Number	
96005670	Blank Concentration in µCi/g 1.57E+02
Reruns	Replicate Concentration in µCi/g 1.60E+02
0	Average Concentration in µCi/g 1.5884E+02

Sample Prep
FUSION01

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

Sample#
S96T001473

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

Instrument Code
WB26872

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
MCB

Chemist
SLF

TOTAL BETA in µCi/g (Average)	=	1.59E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	2.92E-02 µCi/g

Analyst
AKL

Date Complete
06/06/96

Analysis Date
06/05/96

Analysis Time
03:30 PM

Sample Point
S-102

Analyst:		AKL	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

TB : 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)	420404	424674
9504	COUNT TIME in MINUTES	(CT)	30	30
Alpha/Beta	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0788	2.0788
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		14005.467	14147.800

Batch Number	
96005670	Blank Concentration in µCi/g 1.59E+02
Rerun	Replicate Concentration in µCi/g 1.60E+02
0	Average Concentration in µCi/g 1.5951E+02

Sample Prep
FUSION01

Sample #
S96T001473

Instrument Code
WB26872

Prepared By
MCB

Chemist
SLF

Analyst
AKL

Date Complete
06/06/96

Analysis Date
06/05/96

Analysis Time
03:30 PM

Sample Point
S-102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	1.60E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	2.83E-02 µCi/g

Analyst:	AKL	Date: 06-Jun-96	
Signature of Chemist:	SLF	Date: 6/7/96	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

TB : 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)	302021	306425
9504	COUNT TIME in MINUTES	(CT)	10	10
Alpha or Beta	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0158	2.0158
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96005670	SPIKE VALUE in µCi/mL	(SVal)	1.9159E-01	1.9159E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
0	SAMPLE + SPIKE µCi/g	(S+S)	3.53E+02	3.58E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.5884E+02	
FUSION01				
Sample #				
S96T001473				
Instrument Code				
WB26872				
Prepared By				
MCB				
Chemist				
SLF				
Analyst				
AKL				
Data Complete				
06/06/96				
Analysis Date				
06/05/96				
Analysis Time				
03:30 PM				
Sample Point				
S-102				

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	=	1.92E-01
QC FOUND	=	1.80E-01
AVG. PERCENT SPIKE RECOVERY	=	94.0%

Analyst:		MCB	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

TB : 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)	377720	381024
9504	COUNT TIME in MINUTES	(CT)	30	30
A1 or TB ?	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1204	2.1204
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12582.667	12692.800

Batch Number		
96005670	Blank Concentration in µCi/g	1.40E+02
Rerun	Replicate Concentration in µCi/g	1.41E+02
0	Average Concentration in µCi/g	1.4039E+02

Sample Prep
FUSION01

Sample #
S96T001474

Instrument Code
WB26872

Prepared By
MCB

Chemist
SLF

Analyst
AKL

Date Complete
06/06/96

Analysis Date
06/05/96

Analysis Time
03:30 PM

Sample Point
S-102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	1.40E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	2.78E-02 µCi/g

Analyst:	AKL		Date: 06-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

TB : 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)	377730	369434
9504	COUNT TIME in MINUTES	(CT)	30	30
Analyte	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1332	2.1332
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12583.000	12306.467

Batch Number	
96005670	Blank Concentration in µCi/g 1.39E+02
Rerun	Replicate Concentration in µCi/g 1.36E+02
0	Average Concentration in µCi/g 1.3742E+02

Sample Prep: FUSION01

Sample #: S96T001474

Instrument Code: WB26872

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 06/06/96

Analysis Date: 06/05/96

Analysis Time: 03:30 PM

Sample Point: S-102

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

TOTAL BETA 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.

TOTAL BETA in µCi/g (Average)	=	1.37E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	2.76E-02 µCi/g

Analyst:		AKL	Date: 06-Jun-96
Signature of Chemist:		SLF	Date: ~~3/7/19~~ SLF 6/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 6883

Analyst: CRG **Instrument:** GEA00 3 **Book#** 12B56

Method: LA-548-121 Rev/Mod D-1

Worklist Comment: S102, Sample size = 1.0ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-02	SOLID		
2	BLNK-PREP				@GEA-02	SOLID		
3	SAMPLE	S96T000879	0	F	@GEA-02	SOLID	96000030	S102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T000879	0	F	@GEA-02	SOLID		
5	SAMPLE	S96T000880	0	F	@GEA-02	SOLID	96000030	S102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T000880	0	F	@GEA-02	SOLID		

Final page for worklist # 6883

C Johnson 3/24/96
Analyst Signature **Date**

Eric Barclay 3/28/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 6883

Analyst: crj **Instrument:** GEA03 **Book#** 12B56

Method: LA-548-121 Rev/Mod D-1

Worklist Comment: S102, Sample size = 1.0ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@GEA-02	CO60-02	SOLID	0.0259	2.62e-02	101.160 % Recovery
1	STD		0		@GEA-02	CO60-02E	SOLID	1	1.19	1.190 % Ct. Error
1	STD		0		@GEA-02	CS13702	SOLID	0.0271	2.72e-02	100.370 % Recovery
1	STD		0		@GEA-02	CS13702E	SOLID	1	1.44	1.440 % Ct. Error
2	BLNK-PREP		0		@GEA-02	CO60-02	SOLID	1	<1.03e-2	uCi/g
2	BLNK-PREP		0		@GEA-02	CS13702	SOLID	1	3.76e-02	4.000e-002 uCi/g
2	BLNK-PREP		0		@GEA-02	EU15402	SOLID	1	<3.83e-2	uCi/g
2	BLNK-PREP		0		@GEA-02	EU15502	SOLID	1	<3.25e-2	uCi/g
2	BLNK-PREP		0		@GEA-02	AM24102	SOLID	1	<8.77e-2	uCi/g
3	SAMPLE	S96T000879	0	F	@GEA-02	CO60-02	SOLID	N/A <	1.970e-02	1.970e-002 uCi/g
3	SAMPLE	S96T000879	0	F	@GEA-02	CO60-02E	SOLID	N/A	n/a	0.000 % Ct. Error
3	SAMPLE	S96T000879	0	F	@GEA-02	CS13702	SOLID	N/A	9.950e+01	0.000 uCi/g
3	SAMPLE	S96T000879	0	F	@GEA-02	CS13702E	SOLID	N/A	0.490	0.000 % Ct. Error
3	SAMPLE	S96T000879	0	F	@GEA-02	EU15402	SOLID	N/A <	6.457e-02	6.457e-002 uCi/g
3	SAMPLE	S96T000879	0	F	@GEA-02	EU15402E	SOLID	N/A	n/a	0.000 % Ct. Error
3	SAMPLE	S96T000879	0	F	@GEA-02	EU15502	SOLID	N/A <	2.424e-01	0.242 uCi/g
3	SAMPLE	S96T000879	0	F	@GEA-02	EU15502E	SOLID	N/A	n/a	0.000 % Ct. Error
3	SAMPLE	S96T000879	0	F	@GEA-02	AM24102	SOLID	N/A <	6.338e-01	0.634 uCi/g
3	SAMPLE	S96T000879	0	F	@GEA-02	AM24102E	SOLID	N/A	n/a	0.000 % Ct. Error
4	DUP	S96T000879	0	F	@GEA-02	CO60-02	SOLID	<1.97e-2	<1.59e-2	RPD
4	DUP	S96T000879	0	F	@GEA-02	CO60-02E	SOLID	1	n/a	% Ct. Error
4	DUP	S96T000879	0	F	@GEA-02	CS13702	SOLID	9.95e+01	1.08e+02	8.190 RPD
4	DUP	S96T000879	0	F	@GEA-02	CS13702E	SOLID	1	0.470	0.470 % Ct. Error
4	DUP	S96T000879	0	F	@GEA-02	EU15402	SOLID	<6.46e-2	<5.88e-2	RPD
4	DUP	S96T000879	0	F	@GEA-02	EU15402E	SOLID	1	n/a	% Ct. Error
4	DUP	S96T000879	0	F	@GEA-02	EU15502	SOLID	<2.42e-1	<2.50e-1	RPD
4	DUP	S96T000879	0	F	@GEA-02	EU15502E	SOLID	1	n/a	% Ct. Error
4	DUP	S96T000879	0	F	@GEA-02	AM24102	SOLID	<6.34e-1	<6.56e-1	RPD
4	DUP	S96T000879	0	F	@GEA-02	AM24102E	SOLID	1	n/a	% Ct. Error
5	SAMPLE	S96T000880	0	F	@GEA-02	CO60-02	SOLID	N/A <	2.019e-02	2.019e-002 uCi/g
5	SAMPLE	S96T000880	0	F	@GEA-02	CO60-02E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S96T000880	0	F	@GEA-02	CS13702	SOLID	N/A	1.119e+02	0.000 uCi/g
5	SAMPLE	S96T000880	0	F	@GEA-02	CS13702E	SOLID	N/A	0.450	0.000 % Ct. Error
5	SAMPLE	S96T000880	0	F	@GEA-02	EU15402	SOLID	N/A	3.985e-01	0.000 uCi/g
5	SAMPLE	S96T000880	0	F	@GEA-02	EU15402E	SOLID	N/A	11.9	0.000 % Ct. Error
5	SAMPLE	S96T000880	0	F	@GEA-02	EU15502	SOLID	N/A <	2.184e-01	0.218 uCi/g
5	SAMPLE	S96T000880	0	F	@GEA-02	EU15502E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S96T000880	0	F	@GEA-02	AM24102	SOLID	N/A <	6.753e-01	0.675 uCi/g
5	SAMPLE	S96T000880	0	F	@GEA-02	AM24102E	SOLID	N/A	n/a	0.000 % Ct. Error
6	DUP	S96T000880	0	F	@GEA-02	CO60-02	SOLID	<2.02e-2	<2.48e-2	RPD
6	DUP	S96T000880	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# 6883

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
6	DUP	S96T000880	0	F	@GEA-02	CS13702	SOLID	1.12e+02	1.14e+02	1.770	RPD
6	DUP	S96T000880	0	F	@GEA-02	CS13702E	SOLID	1	0.460	0.460	% Ct. Error
6	DUP	S96T000880	0	F	@GEA-02	EU15402	SOLID	3.99e-01	4.21e-01	5.370	RPD
6	DUP	S96T000880	0	F	@GEA-02	EU15402E	SOLID	1	11.8	11.800	% Ct. Error
6	DUP	S96T000880	0	F	@GEA-02	EU15502	SOLID	<2.18e-1	<2.72e-1		RPD
6	DUP	S96T000880	0	F	@GEA-02	EU15502E	SOLID	1	n/a		% Ct. Error
6	DUP	S96T000880	0	F	@GEA-02	AM24102	SOLID	<6.75e-1	<6.89e-1		RPD
6	DUP	S96T000880	0	F	@GEA-02	AM24102E	SOLID	1	n/a		% Ct. Error

Comments Section:

Comments for sample# S96T000879 **and test** @GEA-02 .
DL=0 => n/a. Sample 2000x higher than cont. blnk. => OK.

Comments for sample# S96T000880 **and test** @GEA-02 .
DL=0 => n/a. Sample 2000x higher than cont. blnk. => OK.

Final page for worklist# 6883

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

B Bachelor 4/1/96
Reviewer Signature **Date**

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

```
*****************************************************************************
* 222-S Laboratory Counting Room   26-MAR-1996 05:53:25.92                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6883
Sample ID:               WL6883-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3925.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:09.80 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       26-MAR-1996 05:02:39.16
Decayed to:              26-MAR-1996 05:02:39.16
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
*****************************************************************************
```

WHC-SD-WM-DP-173, REV. 1

Removed by: Em Baula

Verified by: RJ Machelor 3/27/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.52*	24114	1.52	1323.23	1315	17	1.4		CS-137	27.3
0	1173.01	16385	1.88	2346.28	2337	18	1.7		CO-60	25.8
0	1332.23	15177	1.90	2664.84	2655	20	1.7		CO-60	26.6

Sample ID : WL6883-STD
Acquisition date : 26-MAR-1996 05:02:39

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

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.620E+01	2.620E+01	0.031E+01	1.19	
CS-137	30.00Y	1.000	2.725E+01	2.725E+01	0.039E+01	1.44	
		Total Activity :	5.345E+01	5.345E+01			
		Grand Total Activity :	5.345E+01	5.345E+01			

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

Sample ID : WL6883-STD
Acquisition date : 26-MAR-1996 05:02:39
WHO-CD-WM-DP-173, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1194.	477.59	1.1382E+00
NA-22	81.	1274.53	7.0771E-02
NA-24	19.	1368.55	3.7190E-02
K-40	155.	1460.75	1.0184E+00
CR-51	1201.	320.08	8.5911E-01
MN-54	727.	834.83	1.4743E-01
CO-56	729.	846.76	1.4954E-01
CO-57	1338.	122.06	6.3303E-02
CO-58	707.	810.78	1.4253E-01
FE-59	758.	1099.25	3.3762E-01
SE-75	1481.	264.66	1.4292E-01
SR-85	918.	514.01	1.1413E-01
Y-88	14.	1836.06	3.9014E-02
NB-94	841.	871.09	1.6453E-01
ZRNB-95	635.	724.18	2.7903E-01
RU-103	995.	497.08	1.2200E-01
RURH-106	616.	621.93	2.1262E+00
AG-108m	621.	722.94	1.3257E-01
CD-109	1167.	88.03	1.9576E+00
AG-110M	1113.	657.76	1.5715E-01
SN-113	1158.	391.69	1.5472E-01
TE-123m	1364.	159.00	6.5760E-02
SB-124	663.	602.73	1.0897E-01
SB-125	1255.	427.89	3.7600E-01
TE-125m	1263.	109.27	2.0023E+01
I-131	1128.	364.48	1.1418E-01
CS-134	644.	604.70	1.0791E-01
BA-140	760.	537.31	4.2447E-01
LA-140	25.	1596.21	4.9261E-02
CEPR-144	1442.	133.51	9.9381E-01
EU-152	33.	1408.01	2.3364E-01
EU-154	81.	1274.51	2.0556E-01
EU-155	1193.	105.31	2.5988E-01
HG-203	1356.	279.20	1.0199E-01
TL-208	1412.	277.36	1.3372E+00
BI-212	683.	727.18	1.9078E+00
PB-212	1582.	238.63	1.8374E-01
BI-214	698.	609.31	2.4632E-01
PB-214	1198.	351.92	4.6343E-01
RA-224	1615.	240.99	2.0614E+00
RA-226	1575.	186.10	1.8583E+00
AC-228	1027.	911.21	7.1001E-01
TH-228	1168.	84.37	6.0306E+00
TH-229	1185.	88.47	2.8596E-01
PA-233	1270.	312.17	2.2633E-01
UTH-233	1608.	245.34	7.7088E+01
PA-234M	843.	1001.03	3.1449E-01
TH-234	1097.	63.29	3.9372E+00
U-235	1549.	185.71	1.1200E-01
NP-237	1151.	86.48	5.8398E-01
NP-239	1249.	106.12	2.5263E-01

Sample ID : WL6883-STD Acquisition date : 26-MAR-1996 05:02:39

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1317.	129.30	8.2677E+02
AM-241	1079.	59.54	6.8917E-01
AM-243	1124.	74.67	1.6532E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   26-MAR-1996 07:31:38.67                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6883
Sample ID:               WL6883-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3926.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:       26-MAR-1996 06:41:00.54
Decayed to:              26-MAR-1996 06:41:00.54
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-170, REV. 1

Removed by: Inc Baula

Verified by: B Machelor 3/27/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.48*	64	1.34	1323.13	1318	10	46.8		CS-137	7.223E-02

Summary of Nuclide Activity
Sample ID : WL6883-BLK

Acquisition date : 26-MAR-1996 06:41:00

WHC-SD-WM-DP-173, REV. 1

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	7.223E-02	7.223E-02	3.382E-02	46.83	
		Total Activity :	7.223E-02	7.223E-02			
		Grand Total Activity :	7.223E-02	7.223E-02			

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

Sample ID : WL6883-BLK
Acquisition date : 26-MAR-1996 06:41:00

WHC-SD-WM-DP-170, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	35.	477.59	1.9615E-01
NA-22	10.	1274.53	2.5297E-02
NA-24	5.	1368.55	1.9456E-02
K-40	112.	1460.75	8.6716E-01
CR-51	48.	320.08	1.7182E-01
MN-54	26.	834.83	2.8093E-02
CO-56	17.	846.76	2.2781E-02
CO-57	75.	122.06	1.4996E-02
CO-58	14.	810.78	2.0028E-02
FE-59	5.	1099.25	2.7418E-02
CO-60	6.	1332.50	1.9762E-02
SE-75	49.	264.66	2.5905E-02
SR-85	46.	514.01	2.5415E-02
Y-88	4.	1836.06	2.0984E-02
NB-94	15.	871.09	2.2095E-02
ZRNB-95	11.	724.18	3.6388E-02
RU-103	35.	497.08	2.2790E-02
RURH-106	27.	621.93	4.4526E-01
AG-108m	11.	722.94	1.7941E-02
CD-109	76.	88.03	4.9986E-01
AG-110M	27.	657.76	2.4696E-02
SN-113	49.	391.69	3.1794E-02
TE-123m	82.	159.00	1.6116E-02
SB-124	24.	602.73	2.0682E-02
SB-125	44.	427.89	7.0122E-02
TE-125m	64.	109.27	4.5209E+00
I-131	46.	364.48	2.3167E-02
CS-134	20.	604.70	1.8780E-02
BA-140	25.	537.31	7.6714E-02
LA-140	7.	1596.21	2.5722E-02
CEPR-144	72.	133.51	2.2272E-01
EU-152	13.	1408.01	1.4664E-01
EU-154	10.	1274.51	7.3496E-02
EU-155	69.	105.31	6.2309E-02
HG-203	71.	279.20	2.3292E-02
TL-208	56.	277.36	2.6726E-01
BI-212	21.	727.18	3.3464E-01
PB-212	96.	238.63	4.5336E-02
BI-214	59.	609.31	7.1907E-02
PB-214	67.	351.92	1.0951E-01
RA-224	84.	240.99	4.6990E-01
RA-226	98.	186.10	4.6305E-01
AC-228	30.	911.21	1.2171E-01
TH-228	91.	84.37	1.6802E+00
TH-229	80.	88.47	7.4441E-02
PA-233	50.	312.17	4.4724E-02
UTH-233	80.	245.34	1.7208E+01
PA-234M	18.	1001.03	4.5351E-02
TH-234	60.	63.29	9.2349E-01
U-235	96.	185.71	2.7881E-02
NP-237	81.	86.48	1.5511E-01

Sample ID : WL6883-BLK Acquisition date : 26-MAR-1996 06:41:00

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	71.	106.12	6.0043E-02
PU-239	98.	129.30	2.2507E+02
AM-241	64.	59.54	1.6840E-01
AM-243	76.	74.67	4.2848E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   26-MAR-1996 08:28:00.82                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6883
Sample ID:               S96T879-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3927.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:20.76 sec
Dead Time:               0.7%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       26-MAR-1996 07:36:43.23
Decayed to:              26-MAR-1996 07:36:43.23
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-CP-WM-DP-173, REV. 1

Removed by: Eric Baeke

Verified by: Bachelor 3/27/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.51*	169380	1.56	1323.20	1315	17	0.5		CS-137	191.
0	1460.48*	12	2.14	2921.44	2914	15	205.3		K-40	0.206

Summary of Nuclide Activity
Sample ID : S96T879-SAM

Acquisition date : 26-MAR-1996 07:36:43

WHC-CD-WM-DP-179, REV. 1

Total number of lines in spectrum	2	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	2	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~2.059E-01~~	~~2.059E-01~~	~~4.228E-01~~	~~205.33~~	BKG 7/10/96
CS-137	30.00Y	1.000	1.914E+02	1.914E+02	0.009E+02	0.49	
		Total Activity :	1.917E+02	1.917E+02			
		Grand Total Activity :	1.917E+02	1.917E+02			

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

Sample ID : S96T879-SAM
Acquisition date : 26-MAR-1996 07:36:43

WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5198.	477.59	2.3751E+00
NA-22	30.	1274.53	4.2694E-02
NA-24	5.	1368.55	1.8937E-02
CR-51	3999.	320.08	1.5678E+00
MN-54	28.	834.83	2.8952E-02
CO-56	39.	846.76	3.4760E-02
CO-57	4234.	122.06	1.1260E-01
CO-58	48.	810.78	3.7149E-02
FE-59	19.	1099.25	5.2746E-02
CO-60	22.	1332.50	3.7811E-02
SE-75	4406.	264.66	2.4653E-01
SR-85	2542.	514.01	1.8992E-01
Y-88	2.	1836.06	1.4093E-02
NB-94	41.	871.09	3.6422E-02
ZRNB-95	57.	724.18	8.3630E-02
RU-103	3105.	497.08	2.1556E-01
RURH-106	864.	621.93	2.5195E+00
AG-108m	56.	722.94	3.9928E-02
CD-109	3699.	88.03	3.4854E+00
AG-110M	4043.	657.76	2.9953E-01
SN-113	4479.	391.69	3.0427E-01
TE-123m	4369.	159.00	1.1768E-01
SB-124	891.	602.73	1.2632E-01
SB-125	5209.	427.89	7.6598E-01
TE-125m	3885.	109.27	3.5121E+01
I-131	4075.	364.48	2.1698E-01
CS-134	952.	604.70	1.3117E-01
BA-140	1733.	537.31	6.4071E-01
LA-140	9.	1596.21	2.8880E-02
CEPR-144	4324.	133.51	1.7213E+00
EU-152	5.	1408.01	9.0944E-02
EU-154	30.	1274.51	1.2395E-01
EU-155	3823.	105.31	4.6528E-01
HG-203	4175.	279.20	1.7896E-01
TL-208	4173.	277.36	2.2985E+00
BI-212	49.	727.18	5.1339E-01
PB-212	4899.	238.63	3.2332E-01
BI-214	913.	609.31	2.8179E-01
PB-214	4094.	351.92	8.5829E-01
RA-224	4949.	240.99	3.6080E+00
RA-226	5708.	186.10	3.5375E+00
AC-228	46.	911.21	1.5082E-01
TH-228	3662.	84.37	1.0680E+01
TH-229	3685.	88.47	5.0421E-01
PA-233	4029.	312.17	4.0314E-01
UTH-233	4774.	245.34	1.3283E+02
PA-234M	31.	1001.03	6.0527E-02
TH-234	3340.	63.29	6.8704E+00
U-235	5642.	185.71	2.1376E-01
NP-237	3738.	86.48	1.0522E+00
NP-239	3833.	106.12	4.4266E-01

Sample ID : S96T879-SAM Acquisition date : 26-MAR-1996 07:36:43

WHC-SD-WM-DP-179, REV.1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	4266.	129.30	1.4879E+03
AM-241	3364.	59.54	1.2166E+00
AM-243	3526.	74.67	2.9276E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   26-MAR-1996 11:07:42.35                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6883
Sample ID:               S96T879-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3928.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:23.02 sec
Dead Time:               0.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       26-MAR-1996 10:16:35.68
Decayed to:              26-MAR-1996 10:16:35.68
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-179, REV. 1

Removed by: Em Bruch

Verified by: Bmachelor 3/27/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	660.96*	186819	1.61	1322.11	1314	17	0.5		CS-137	211.

Sample ID : S96T879-DUP Acquisition date : 26-MAR-1996 10:16:35

WHC-SD-WM-DP-170, REV. 1

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.112E+02	2.112E+02	0.001E+03	0.47	
		Total Activity :	2.112E+02	2.112E+02			
		Grand Total Activity :	2.112E+02	2.112E+02			

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

Sample ID : S96T879-DUP
Acquisition date : 26-MAR-1996 10:16:35

WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5591.	477.59	2.4633E+00
NA-22	25.	1274.53	3.9548E-02
NA-24	6.	1368.55	2.0441E-02
K-40	130.	1460.75	9.3437E-01
CR-51	4425.	320.08	1.6493E+00
MN-54	32.	834.83	3.1140E-02
CO-56	26.	846.76	2.8488E-02
CO-57	4707.	122.06	1.1874E-01
CO-58	31.	810.78	3.0013E-02
FE-59	16.	1099.25	4.8591E-02
CO-60	15.	1332.50	3.1040E-02
SE-75	4837.	264.66	2.5830E-01
SR-85	2716.	514.01	1.9630E-01
Y-88	3.	1836.06	1.8173E-02
NB-94	38.	871.09	3.5129E-02
ZRNB-95	56.	724.18	8.2934E-02
RU-103	3347.	497.08	2.2378E-01
RURH-106	1032.	621.93	2.7534E+00
AG-108m	60.	722.94	4.1066E-02
CD-109	3946.	88.03	3.5996E+00
AG-110M	20958.	657.76	6.8195E-01
SN-113	4853.	391.69	3.1670E-01
TE-123m	4891.	159.00	1.2452E-01
SB-124	1048.	602.73	1.3705E-01
SB-125	5767.	427.89	8.0600E-01
TE-125m	4455.	109.27	3.7608E+01
I-131	4513.	364.48	2.2835E-01
CS-134	1030.	604.70	1.3647E-01
BA-140	1972.	537.31	6.8361E-01
LA-140	4.	1596.21	1.8632E-02
CEPR-144	4669.	133.51	1.7886E+00
EU-152	10.	1408.01	1.2806E-01
EU-154	25.	1274.51	1.1490E-01
EU-155	4227.	105.31	4.8925E-01
HG-203	4601.	279.20	1.8788E-01
TL-208	4635.	277.36	2.4224E+00
BI-212	50.	727.18	5.1548E-01
PB-212	5377.	238.63	3.3874E-01
BI-214	1042.	609.31	3.0097E-01
PB-214	4519.	351.92	9.0206E-01
RA-224	5317.	240.99	3.7398E+00
RA-226	6522.	186.10	3.7814E+00
AC-228	41.	911.21	1.4256E-01
TH-228	4016.	84.37	1.1185E+01
TH-229	3992.	88.47	5.2474E-01
PA-233	4467.	312.17	4.2447E-01
UTH-233	5373.	245.34	1.4092E+02
PA-234M	25.	1001.03	5.4328E-02
TH-234	3743.	63.29	7.2726E+00
U-235	6508.	185.71	2.2958E-01
NP-237	3982.	86.48	1.0862E+00

Sample ID : S96T879-DUP Acquisition date : 26-MAR-1996 10:16:35

WHC-SD-WM-DP-170, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	4227.	106.12	4.6487E-01
PU-239	4833.	129.30	1.5837E+03
AM-241	3731.	59.54	1.2814E+00
AM-243	3890.	74.67	3.0750E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   26-MAR-1996 12:12:27.16                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6883
Sample ID:               S96T880-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3929.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:25.79 sec
Dead Time:               0.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       26-MAR-1996 11:21:24.74
Decayed to:              26-MAR-1996 11:21:24.74
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-170, REV. 1

Removed by: Eric Bradley

Verified by: B. Machelor 3/27/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	85.65	416	1.29	171.82	170	6	52.5		~~TH-228~~	15.8
									~~NP-237~~	1.54
									EU-155	0.581
0	104.58	281	0.75	209.67	208	5	67.7		EU-155	0.455
0	122.18	981	1.30	244.85	241	8	29.3		~~CO-57~~	0.365
									EU-154	0.774
0	660.87*	205774	1.54	1321.92	1314	17	0.5		CS-137	233.
0	722.36	150	1.56	1444.88	1439	11	26.3		EU-154	0.778
0	873.00	118	2.19	1746.17	1740	15	27.2		EU-154	1.19
2	995.40	66	2.08	1990.99	1986	29	37.8	1.05E+00	EU-154	0.878
2	1004.11	100	2.04	2008.43	1986	29	30.1		EU-154	0.772
0	1172.16	29	2.13	2344.60	2341	10	59.0		CO-60	4.608E-02
0	1273.38	162	1.60	2547.09	2539	17	19.6		EU-154	0.793
0	1331.21	20	1.28	2662.80	2657	14	108.9		CO-60	3.441E-02

Summary of Nuclide Activity
Sample ID : S96T880-SAM

Acquisition date : 26-MAR-1996 11:21:24

WHO-CD-WM-DP-179, REV. 1

Total number of lines in spectrum	11	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	11	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~~	~~3.653E-01~~	~~3.653E-01~~	~~1.070E-01~~	~~29.29~~	15%E
~~CO-60~~	~~5.27Y~~	~~1.000~~	~~4.206E-02~~	~~4.206E-02~~	~~2.200E-02~~	~~52.31~~	BK
CS-137	30.00Y	1.000	2.326E+02	2.326E+02	0.010E+02	0.45	
EU-154	8.59Y	1.000	8.304E-01	8.304E-01	0.988E-01	11.90	
~~EU-155~~	~~4.68Y~~	~~1.000~~	~~4.548E-01~~	~~4.548E-01~~	~~3.078E-01~~	~~67.67~~	BK
~~TH-228~~	~~1.91Y~~	~~1.000~~	~~1.578E+01~~	~~1.578E+01~~	~~0.829E+01~~	~~52.54~~	155 E
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~1.539E+00~~	~~1.539E+00~~	~~0.808E+00~~	~~52.54~~	
			---	---			
	Total Activity :		2.516E+02	2.516E+02			

7/10/96

Grand Total Activity : 2.516E+02 2.516E+02

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

Sample ID : S96T880-SAM Acquisition date : 26-MAR-1996 11:21:24

WHC-CD-WM-DP-170, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5934.	477.59	2.5379E+00
NA-22	164.	1274.53	1.0051E-01
NA-24	6.	1368.55	2.0428E-02
K-40	120.	1460.75	8.9611E-01
CR-51	4943.	320.08	1.7430E+00
MN-54	43.	834.83	3.5682E-02
CO-56	57.	846.76	4.1928E-02
CO-58	52.	810.78	3.8826E-02
FE-59	31.	1099.25	6.8756E-02
SE-75	5482.	264.66	2.7500E-01
SR-85	2882.	514.01	2.0220E-01
Y-88	1.	1836.06	1.0492E-02
NB-94	118.	871.09	6.1698E-02
ZRNB-95	185.	724.18	1.5070E-01
RU-103	3744.	497.08	2.3668E-01
RURH-106	1073.	621.93	2.8068E+00
AG-108m	202.	722.94	7.5638E-02
CD-109	4783.	88.03	3.9632E+00
AG-110M	26235.	657.76	7.6299E-01
SN-113	5408.	391.69	3.3433E-01
TE-123m	5449.	159.00	1.3143E-01
SB-124	1203.	602.73	1.4682E-01
SB-125	6212.	427.89	8.3647E-01
TE-125m	5080.	109.27	4.0162E+01
I-131	4873.	364.48	2.3730E-01
CS-134	1152.	604.70	1.4430E-01
BA-140	2249.	537.31	7.2995E-01
LA-140	10.	1596.21	3.1408E-02
CEPR-144	5466.	133.51	1.9352E+00
EU-152	16.	1408.01	1.6225E-01
HG-203	5211.	279.20	1.9994E-01
TL-208	5338.	277.36	2.5995E+00
BI-212	77.	727.18	6.4151E-01
PB-212	6185.	238.63	3.6328E-01
BI-214	1165.	609.31	3.1819E-01
PB-214	4926.	351.92	9.4226E-01
RA-224	6041.	240.99	3.9862E+00
RA-226	7097.	186.10	3.9446E+00
AC-228	60.	911.21	1.7184E-01
TH-229	4733.	88.47	5.7144E-01
PA-233	4810.	312.17	4.4048E-01
UTH-233	5949.	245.34	1.4828E+02
PA-234M	74.	1001.03	9.3043E-02
TH-234	4425.	63.29	7.9076E+00
U-235	7087.	185.71	2.3956E-01
NP-239	5143.	106.12	5.1275E-01
PU-239	5584.	129.30	1.7022E+03
AM-241	4495.	59.54	1.4065E+00
AM-243	4667.	74.67	3.3684E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   26-MAR-1996 13:56:31.98                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6883
Sample ID:               S96T880-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3930.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:25.03 sec
Dead Time:               0.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       26-MAR-1996 13:05:26.51
Decayed to:              26-MAR-1996 13:05:26.51
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-170, REV. 1

Removed by: Eric Daclan

Verified by: B Machelor 3/27/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.35	718	1.10	245.18	242	8	39.6		CO-57	0.267
									EU-154	0.566
0	660.86*	199145	1.54	1321.90	1313	18	0.5		CS-137	225.
0	721.95	142	1.49	1444.08	1439	12	28.0		EU-154	0.737
0	872.46	93	1.13	1745.10	1740	12	37.2		EU-154	0.936
0	995.22	51	1.28	1990.63	1985	11	55.3		EU-154	0.668
0	1004.05	125	1.57	2008.30	2002	12	25.7		EU-154	0.962
0	1172.68	29	1.84	2345.63	2340	14	75.3			
0	1273.57	172	1.90	2547.47	2540	17	17.1		EU-154	0.841

Sample ID : S96T880-DUP Acquisition date : 26-MAR-1996 13:05:26

Total number of lines in spectrum 8 WHC-SD-WM-DP-179, REV. 1
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~~	~~2.671E-01~~	~~2.671E-01~~	~~1.057E-01~~	~~39.56~~	~~154Eu~~
CS-137	30.00Y	1.000	2.251E+02	2.251E+02	0.010E+02	0.46	
EU-154	8.59Y	1.000	8.320E-01	8.321E-01	0.983E-01	11.81	
			---	---			
	Total Activity :		2.262E+02	2.262E+02			

7/10/96

Grand Total Activity : 2.262E+02 2.262E+02

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

Sample ID : S96T880-DUP Acquisition date : 26-MAR-1996 13:05:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5670.	477.59	2.4807E+00
NA-22	173.	1274.53	1.0324E-01
NA-24	2.	1368.55	1.1977E-02
K-40	120.	1460.75	8.9579E-01
CR-51	4744.	320.08	1.7077E+00
MN-54	53.	834.83	3.9882E-02
CO-56	49.	846.76	3.8738E-02
CO-58	64.	810.78	4.2912E-02
FE-59	17.	1099.25	5.0598E-02
CO-60	36.	1332.50	4.9060E-02
SE-75	5242.	264.66	2.6891E-01
SR-85	2998.	514.01	2.0623E-01
Y-88	2.	1836.06	1.4838E-02
NB-94	129.	871.09	6.4340E-02
ZRNB-95	169.	724.18	1.4386E-01
RU-103	3614.	497.08	2.3256E-01
RURH-106	1107.	621.93	2.8516E+00
AG-108m	191.	722.94	7.3550E-02
CD-109	4811.	88.03	3.9749E+00
AG-110M	25953.	657.76	7.5888E-01
SN-113	5191.	391.69	3.2754E-01
TE-123m	5302.	159.00	1.2964E-01
SB-124	1157.	602.73	1.4398E-01
SB-125	6097.	427.89	8.2870E-01
TE-125m	4865.	109.27	3.9301E+01
I-131	4941.	364.48	2.3895E-01
CS-134	1158.	604.70	1.4469E-01
BA-140	2142.	537.31	7.1242E-01
LA-140	9.	1596.21	2.9605E-02
CEPR-144	5335.	133.51	1.9119E+00
EU-152	12.	1408.01	1.4089E-01
EU-155	5115.	105.31	5.3820E-01
HG-203	4995.	279.20	1.9575E-01
TL-208	4998.	277.36	2.5155E+00
BI-212	72.	727.18	6.1999E-01
PB-212	5945.	238.63	3.5615E-01
BI-214	1145.	609.31	3.1544E-01
PB-214	4766.	351.92	9.2669E-01
RA-224	5797.	240.99	3.9051E+00
RA-226	7177.	186.10	3.9667E+00
AC-228	52.	911.21	1.5965E-01
TH-228	4957.	84.37	1.2427E+01
TH-229	4827.	88.47	5.7705E-01
PA-233	4781.	312.17	4.3915E-01
UTH-233	5749.	245.34	1.4577E+02
PA-234M	69.	1001.03	8.9932E-02
TH-234	4225.	63.29	7.7270E+00
U-235	7118.	185.71	2.4010E-01
NP-237	5005.	86.48	1.2177E+00
NP-239	4972.	106.12	5.0413E-01
PU-239	5269.	129.30	1.6534E+03

Sample ID : S96T880-DUP Acquisition date : 26-MAR-1996 13:05:26

WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	4219.	59.54	1.3626E+00
AM-243	4446.	74.67	3.2875E-01

LABCORE Data Entry Template for Worklist# 8162

Analyst: CRJ **Instrument:** GEA00 2 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: S102. Sample sizes are on traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-02	SOLID		
2	BLNK-PREP				@GEA-02	SOLID		
3	SAMPLE	S96T001583	0	F	@GEA-02	SOLID	96000094	S102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T001583	0	F	@GEA-02	SOLID		
5	SAMPLE	S96T001584	0	F	@GEA-02	SOLID	96000094	S102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T001584	0	F	@GEA-02	SOLID		
7	SAMPLE	S96T001585	0	F	@GEA-02	SOLID	96000094	S102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
8	DUP	S96T001585	0	F	@GEA-02	SOLID		

Final page for worklist # 8162

C Johnson 5/3/96
Analyst Signature **Date**

MB 5/7/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8162

Analyst: crj **Instrument:** GEA02 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: S102. Sample sizes are on traveler. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-02 CO60-02	SOLID	2.551e-02		2.50e-02	98.001	% Recovery
1	STD		0		@GEA-02 CO60-02E	SOLID	1		1.39	1.390	% Ct. Error
1	STD		0		@GEA-02 CS13702	SOLID	2.707e-02		2.64e-02	97.525	% 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		<1.62e-2		uCi/g
2	BLNK-PREP		0		@GEA-02 CS13702	SOLID	1		<3.82e-2		uCi/g
2	BLNK-PREP		0		@GEA-02 EU15402	SOLID	1		<3.63e-2		uCi/g
2	BLNK-PREP		0		@GEA-02 EU15502	SOLID	1		<3.90e-2		uCi/g
2	BLNK-PREP		0		@GEA-02 AM24102	SOLID	1		<7.22e-2		uCi/g
3	SAMPLE	S96T001583	0	F	@GEA-02 CO60-02	SOLID	N/A	<	1.473e-02	147.3e-004	uCi/g
3	SAMPLE	S96T001583	0	F	@GEA-02 CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001583	0	F	@GEA-02 CS13702	SOLID	N/A		8.588e+01	0.0e+000	uCi/g
3	SAMPLE	S96T001583	0	F	@GEA-02 CS13702E	SOLID	N/A		0.570	0.0e+000	% Ct. Error
3	SAMPLE	S96T001583	0	F	@GEA-02 EU15402	SOLID	N/A	<	6.592e-02	659.2e-004	uCi/g
3	SAMPLE	S96T001583	0	F	@GEA-02 EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001583	0	F	@GEA-02 EU15502	SOLID	N/A	<	2.779e-01	278.0e-003	uCi/g
3	SAMPLE	S96T001583	0	F	@GEA-02 EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001583	0	F	@GEA-02 AM24102	SOLID	N/A	<	5.833e-01	583.0e-003	uCi/g
3	SAMPLE	S96T001583	0	F	@GEA-02 AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
4	DUP	S96T001583	0	F	@GEA-02 CO60-02	SOLID	<1.47e-2		<1.70e-2		RPD
4	DUP	S96T001583	0	F	@GEA-02 CO60-02E	SOLID	1		n/a		% Ct. Error
4	DUP	S96T001583	0	F	@GEA-02 CS13702	SOLID	8.59e+01		8.11e+01	5.749	RPD
4	DUP	S96T001583	0	F	@GEA-02 CS13702E	SOLID	1		0.590	0.590	% Ct. Error
4	DUP	S96T001583	0	F	@GEA-02 EU15402	SOLID	<6.59e-2		<5.40e-2		RPD
4	DUP	S96T001583	0	F	@GEA-02 EU15402E	SOLID	1		n/a		% Ct. Error
4	DUP	S96T001583	0	F	@GEA-02 EU15502	SOLID	<2.78e-1		<2.65e-1		RPD
4	DUP	S96T001583	0	F	@GEA-02 EU15502E	SOLID	1		n/a		% Ct. Error
4	DUP	S96T001583	0	F	@GEA-02 AM24102	SOLID	<5.83e-1		<5.71e-1		RPD
4	DUP	S96T001583	0	F	@GEA-02 AM24102E	SOLID	1		n/a		% Ct. Error
5	SAMPLE	S96T001584	0	F	@GEA-02 CO60-02	SOLID	N/A	<	4.184e-02	418.4e-004	uCi/g
5	SAMPLE	S96T001584	0	F	@GEA-02 CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T001584	0	F	@GEA-02 CS13702	SOLID	N/A		1.084e+02	0.0e+000	uCi/g
5	SAMPLE	S96T001584	0	F	@GEA-02 CS13702E	SOLID	N/A		0.710	0.0e+000	% Ct. Error
5	SAMPLE	S96T001584	0	F	@GEA-02 EU15402	SOLID	N/A		2.947e-01	0.0e+000	uCi/g
5	SAMPLE	S96T001584	0	F	@GEA-02 EU15402E	SOLID	N/A		25.3	0.0e+000	% Ct. Error
5	SAMPLE	S96T001584	0	F	@GEA-02 EU15502	SOLID	N/A	<	4.558e-01	456.0e-003	uCi/g
5	SAMPLE	S96T001584	0	F	@GEA-02 EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T001584	0	F	@GEA-02 AM24102	SOLID	N/A	<	9.354e-01	935.0e-003	uCi/g
5	SAMPLE	S96T001584	0	F	@GEA-02 AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
6	DUP	S96T001584	0	F	@GEA-02 CO60-02	SOLID	<4.18e-2		<4.45e-2		RPD
6	DUP	S96T001584	0	F	@GEA-02 CO60-02E	SOLID	1		n/a		% Ct. Error

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

LABCORE Completed RadChem Report for Worklist#: 8162

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
6	DUP	S96T001584	0	F	@GEA-02	CS13702	SOLID	1.08e+02		1.08e+02	0.000	RPD
6	DUP	S96T001584	0	F	@GEA-02	CS13702E	SOLID	1		0.710	0.710	% Ct. Error
6	DUP	S96T001584	0	F	@GEA-02	EU15402	SOLID	2.95e-01		2.21e-01	28.682	RPD
6	DUP	S96T001584	0	F	@GEA-02	EU15402E	SOLID	1		33.2	33.200	% Ct. Error
6	DUP	S96T001584	0	F	@GEA-02	EU15502	SOLID	<4.56e-1		<4.56e-1		RPD
6	DUP	S96T001584	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct. Error
6	DUP	S96T001584	0	F	@GEA-02	AM24102	SOLID	<9.35e-1		<9.48e-1		RPD
6	DUP	S96T001584	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct. Error
7	SAMPLE	S96T001585	0	F	@GEA-02	CO60-02	SOLID	N/A	<	4.882e-02	488.2e-004	uCi/g
7	SAMPLE	S96T001585	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T001585	0	F	@GEA-02	CS13702	SOLID	N/A		1.307e+02	0.0e+000	uCi/g
7	SAMPLE	S96T001585	0	F	@GEA-02	CS13702E	SOLID	N/A		0.690	0.0e+000	% Ct. Error
7	SAMPLE	S96T001585	0	F	@GEA-02	EU15402	SOLID	N/A	<	2.310e-01	231.0e-003	uCi/g
7	SAMPLE	S96T001585	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T001585	0	F	@GEA-02	EU15502	SOLID	N/A	<	5.362e-01	536.0e-003	uCi/g
7	SAMPLE	S96T001585	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T001585	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.115e+00	111.5e-002	uCi/g
7	SAMPLE	S96T001585	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
8	DUP	S96T001585	0	F	@GEA-02	CO60-02	SOLID	<4.88e-2		<3.85e-2		RPD
8	DUP	S96T001585	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct. Error
8	DUP	S96T001585	0	F	@GEA-02	CS13702	SOLID	1.31e+02		1.40e+02	6.642	RPD
8	DUP	S96T001585	0	F	@GEA-02	CS13702E	SOLID	1		0.680	0.680	% Ct. Error
8	DUP	S96T001585	0	F	@GEA-02	EU15402	SOLID	<2.31e-1		2.93e-01		RPD
8	DUP	S96T001585	0	F	@GEA-02	EU15402E	SOLID	1		26.1	26.100	% Ct. Error
8	DUP	S96T001585	0	F	@GEA-02	EU15502	SOLID	<5.36e-1		<5.48e-1		RPD
8	DUP	S96T001585	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct. Error
8	DUP	S96T001585	0	F	@GEA-02	AM24102	SOLID	<1.11e0		<1.16e0		RPD
8	DUP	S96T001585	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct. Error

Comments Section:

Comments for sample# S96T001583 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T001584 **and test** @GEA-02 .
DL=0 => n/a. RPD Eu-154 < % Ct. Err. => OK.

Comments for sample# S96T001585 **and test** @GEA-02 .
DL=0 => n/a.

Final page for worklist# 8162

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

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

LABCORE Completed RadChem Report for Worklist#: 8162

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit

Reviewer Signature Date 5/8/96

```
*****************************************************************************
* 222-S Laboratory Counting Room    3-MAY-1996 15:44:57.89                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8162
Sample ID:               WL8162-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2632.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.52 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-MAY-1996 14:54:08.82
Decayed to:              3-MAY-1996 14:54:08.82
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
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-179, REV. 1

Removed by: D H Rubin

Verified by: B Bachelor 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.50*	19030	1.53	1323.01	1316	16	1.6		CS-137	26.4
0	1172.93	12626	1.90	2345.91	2336	21	2.0		CO-60	24.8
0	1332.15	11584	1.99	2664.46	2655	18	1.9		CO-60	25.2
0	1460.53*	16	2.18	2921.32	2915	14	166.5		K-40	0.351

Summary of Nuclide Activity
Sample ID : WL8162-STD

Acquisition date : 3-MAY-1996 14:54:08

WHC-SD-WM-DP-179, 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 :

for P Bachelor 7/11/96

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~3.507E-01~~	~~3.507E-01~~	~~5.839E-01~~	~~166.47~~	OK 9
CO-60	5.27Y	1.000	2.501E+01	2.501E+01	0.035E+01	1.39	
CS-137	30.00Y	1.000	2.641E+01	2.641E+01	0.043E+01	1.64	
		Total Activity :	5.177E+01	5.177E+01			
		Grand Total Activity :	5.177E+01	5.177E+01			

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

Sample ID : WL8162-STD Acquisition date : 3-MAY-1996 14:54:08

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1099.	477.59	1.3448E+00
NA-22	111.	1274.53	1.0301E-01
NA-24	21.	1368.55	4.7752E-02
CR-51	1058.	320.08	9.8424E-01
MN-54	639.	834.83	1.6932E-01
CO-56	671.	846.76	1.7571E-01
CO-57	1226.	122.06	7.8293E-02
CO-58	628.	810.78	1.6461E-01
FE-59	669.	1099.25	3.9329E-01
SE-75	1236.	264.66	1.6058E-01
SR-85	753.	514.01	1.2784E-01
Y-88	16.	1836.06	5.2255E-02
NB-94	709.	871.09	1.8499E-01
ZRNB-95	514.	724.18	3.0808E-01
RU-103	838.	497.08	1.3827E-01
RURH-106	575.	621.93	2.5270E+00
AG-108m	530.	722.94	1.5023E-01
CD-109	1099.	88.03	2.5452E+00
AG-110M	1082.	657.76	1.9023E-01
SN-113	976.	391.69	1.7192E-01
TE-123m	1349.	159.00	8.2161E-02
SB-124	555.	602.73	1.2273E-01
SB-125	1080.	427.89	4.2433E-01
TE-125m	1169.	109.27	2.5339E+01
I-131	958.	364.48	1.2759E-01
CS-134	562.	604.70	1.2399E-01
BA-140	664.	537.31	4.9059E-01
LA-140	15.	1596.21	4.7987E-02
CEPR-144	1299.	133.51	1.2047E+00
EU-152	14.	1408.01	1.9093E-01
EU-154	111.	1274.51	2.9926E-01
EU-155	1146.	105.31	3.3699E-01
HG-203	1166.	279.20	1.1607E-01
TL-208	1236.	277.36	1.5355E+00
BI-212	472.	727.18	1.9457E+00
PB-212	1416.	238.63	2.1470E-01
BI-214	645.	609.31	2.9135E-01
PB-214	1044.	351.92	5.2544E-01
RA-224	1392.	240.99	2.3630E+00
RA-226	1374.	186.10	2.1621E+00
AC-228	785.	911.21	7.6028E-01
TH-228	1092.	84.37	7.7912E+00
TH-229	1120.	88.47	3.7252E-01
PA-233	1129.	312.17	2.6076E-01
UTH-233	1366.	245.34	8.7664E+01
PA-234M	655.	1001.03	3.4170E-01
TH-234	1004.	63.29	4.3515E+00
U-235	1385.	185.71	1.3196E-01
NP-237	1113.	86.48	7.6869E-01
NP-239	1151.	106.12	3.2056E-01
PU-239	1298.	129.30	1.0519E+03

Sample ID : WL8162-STD Acquisition date : 3-MAY-1996 14:54:08

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	1058.	59.54	7.1112E-01
AM-243	1100.	74.67	2.1251E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    3-MAY-1996 16:37:59.49                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8162
Sample ID:               WL8162-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2633.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.48 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-MAY-1996 15:47:19.84
Decayed to:              3-MAY-1996 15:47:19.84
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
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-179, REV. 1

Removed by: D.7/9? [illegible]

Verified by: [illegible] 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.51*	58	1.49	1323.04	1315	16	61.9		CS-137	8.063E-02

Sample ID : WL8162-BLK Acquisition date : 3-MAY-1996 15:47:19

WHC-SD-WM-DP-179, REV. 1

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~8.063E-02~~	~~8.063E-02~~	~~4.988E-02~~	~~61.87~~	BKG
Total Activity :			8.063E-02	8.063E-02			
Grand Total Activity :			8.063E-02	8.063E-02			

KKJ for P Bachelor 7/11/96

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

Minimum Detectable Activity Report
Sample ID : WL8162-BLK

Acquisition date : 3-MAY-1996 15:47:19

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	30.	477.59	2.2175E-01
NA-22	7.	1274.53	2.6385E-02
NA-24	6.	1368.55	2.4787E-02
K-40	110.	1460.75	1.0717E+00
CR-51	44.	320.08	2.0079E-01
MN-54	18.	834.83	2.8364E-02
CO-56	14.	846.76	2.5393E-02
CO-57	85.	122.06	2.0622E-02
CO-58	13.	810.78	2.3546E-02
FE-59	10.	1099.25	4.9270E-02
CO-60	11.	1332.50	3.4108E-02
SE-75	66.	264.66	3.7089E-02
SR-85	41.	514.01	2.9876E-02
Y-88	3.	1836.06	2.2817E-02
NB-94	18.	871.09	2.9539E-02
ZRNB-95	18.	724.18	5.8134E-02
RU-103	25.	497.08	2.3898E-02
RURH-106	19.	621.93	4.6431E-01
AG-108m	19.	722.94	2.8142E-02
CD-109	64.	88.03	6.1313E-01
AG-110M	28.	657.76	3.0813E-02
SN-113	42.	391.69	3.5474E-02
TE-123m	72.	159.00	1.8997E-02
SB-124	21.	602.73	2.4029E-02
SB-125	41.	427.89	8.3001E-02
TE-125m	76.	109.27	6.4669E+00
I-131	42.	364.48	2.6570E-02
CS-134	27.	604.70	2.7274E-02
BA-140	26.	537.31	9.6461E-02
LA-140	9.	1596.21	3.6396E-02
CEPR-144	90.	133.51	3.1628E-01
EU-152	7.	1408.01	1.3582E-01
EU-154	7.	1274.51	7.6447E-02
EU-155	68.	105.31	8.2221E-02
HG-203	74.	279.20	2.9295E-02
TL-208	68.	277.36	3.5938E-01
BI-212	20.	727.18	3.9598E-01
PB-212	79.	238.63	5.0801E-02
BI-214	52.	609.31	8.2714E-02
PB-214	68.	351.92	1.3389E-01
RA-224	62.	240.99	4.9777E-01
RA-226	79.	186.10	5.1736E-01
AC-228	30.	911.21	1.4860E-01
TH-228	55.	84.37	1.7468E+00
TH-229	67.	88.47	9.1275E-02
PA-233	55.	312.17	5.7455E-02
UTH-233	59.	245.34	1.8214E+01
PA-234M	13.	1001.03	4.8258E-02
TH-234	61.	63.29	1.0747E+00
U-235	77.	185.71	3.1179E-02
NP-237	59.	86.48	1.7708E-01

Sample ID : WL8162-BLK Acquisition date : 3-MAY-1996 15:47:19

WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	67.	106.12	7.7422E-02
PU-239	98.	129.30	2.8903E+02
AM-241	48.	59.54	1.5210E-01
AM-243	84.	74.67	5.8884E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room    3-MAY-1996 18:16:14.51                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8162
Sample ID:               S96T1583-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2634.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:17.68 sec
Dead Time:               0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-MAY-1996 17:25:16.26
Decayed to:              3-MAY-1996 17:25:16.26
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
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-179, REV. 1

Removed by: Em Barclay

Verified by: Bmachelor 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.46*	130797	1.53	1322.94	1314	17	0.6		CS-137	182.
0	1120.81*	15	4.51	2241.65	2235	15	106.3			

Sample ID : S96T1583-SAM
Acquisition date : 3-MAY-1996 17:25:16

WHC-SD-WM-DP-179, REV. 1

Total number of lines in spectrum	2	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	2	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.815E+02	1.815E+02	0.010E+02	0.57	
		Total Activity :	1.815E+02	1.815E+02			
		Grand Total Activity :	1.815E+02	1.815E+02			

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

Sample ID : S96T1583-SAM Acquisition date : 3-MAY-1996 17:25:16

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3927.	477.59	2.5419E+00
NA-22	24.	1274.53	4.7780E-02
NA-24	5.	1368.55	2.3484E-02
K-40	123.	1460.75	1.1297E+00
CR-51	3458.	320.08	1.7796E+00
MN-54	25.	834.83	3.3824E-02
CO-56	21.	846.76	3.1135E-02
CO-57	3953.	122.06	1.4058E-01
CO-58	30.	810.78	3.5793E-02
FE-59	12.	1099.25	5.2191E-02
CO-60	9.	1332.50	3.1039E-02
SE-75	3814.	264.66	2.8213E-01
SR-85	2199.	514.01	2.1847E-01
Y-88	1.	1836.06	1.3173E-02
NB-94	31.	871.09	3.8620E-02
ZRNB-95	48.	724.18	9.4192E-02
RU-103	2593.	497.08	2.4329E-01
RURH-106	884.	621.93	3.1316E+00
AG-108m	58.	722.94	4.9538E-02
CD-109	3311.	88.03	4.4182E+00
AG-110M	4580.	657.76	3.9144E-01
SN-113	3670.	391.69	3.3339E-01
TE-123m	3893.	159.00	1.3959E-01
SB-124	889.	602.73	1.5529E-01
SB-125	4269.	427.89	8.4381E-01
TE-125m	3641.	109.27	4.4724E+01
I-131	3559.	364.48	2.4591E-01
CS-134	925.	604.70	1.5917E-01
BA-140	1496.	537.31	7.3644E-01
LA-140	3.	1596.21	2.2617E-02
CEPR-144	3771.	133.51	2.0521E+00
EU-152	7.	1408.01	1.3401E-01
EU-154	24.	1274.51	1.3893E-01
EU-155	3462.	105.31	5.8572E-01
HG-203	3654.	279.20	2.0546E-01
TL-208	3681.	277.36	2.6498E+00
BI-212	39.	727.18	5.5898E-01
PB-212	4201.	238.63	3.6984E-01
BI-214	951.	609.31	3.5371E-01
PB-214	3461.	351.92	9.5824E-01
RA-224	4218.	240.99	4.1133E+00
RA-226	4904.	186.10	4.0852E+00
AC-228	40.	911.21	1.7250E-01
TH-228	3340.	84.37	1.3625E+01
TH-229	3307.	88.47	6.3998E-01
PA-233	3443.	312.17	4.5535E-01
UTH-233	4238.	245.34	1.5443E+02
PA-234M	26.	1001.03	6.7648E-02
TH-234	3243.	63.29	7.8208E+00
U-235	4845.	185.71	2.4680E-01
NP-237	3356.	86.48	1.3348E+00

Sample ID : S96T1583-SAM Acquisition date : 3-MAY-1996 17:25:16

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	3519.	106.12	5.6040E-01
PU-239	3747.	129.30	1.7872E+03
AM-241	3162.	59.54	1.2294E+00
AM-243	3145.	74.67	3.5934E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     3-MAY-1996 19:55:31.02                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-179, REV. 1

```
Worklist #:              8162
Sample ID:               S96T1583-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00
```

Removed by: Eric Bailey

```
      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2635.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:16.39 sec
Dead Time:               0.5%
```

Verified by: B Bachelor 5/6/96

```
      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-MAY-1996 19:04:36.52
Decayed to:              3-MAY-1996 19:04:36.52
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	661.45*	120735	1.53	1322.92	1314	18	0.6		CS-137	168.
0	1274.85	13	0.85	2549.81	2542	15	108.7			

Sample ID : S96T1583-DUP
Acquisition date : 3-MAY-1996 19:04:36

WHC-SD-WM-DP-179, REV. 1

Total number of lines in spectrum	2	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	2	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.675E+02	1.675E+02	0.001E+03	0.59	
		Total Activity :	1.675E+02	1.675E+02			
		Grand Total Activity :	1.675E+02	1.675E+02			

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

Sample ID : S96T1583-DUP
Acquisition date : 3-MAY-1996 19:04:36

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3833.	477.59	2.5112E+00
NA-22	16.	1274.53	3.8571E-02
NA-24	9.	1368.55	3.2316E-02
K-40	97.	1460.75	1.0028E+00
CR-51	3221.	320.08	1.7175E+00
MN-54	27.	834.83	3.4582E-02
CO-56	32.	846.76	3.8379E-02
CO-57	3494.	122.06	1.3217E-01
CO-58	21.	810.78	3.0093E-02
FE-59	18.	1099.25	6.3716E-02
CO-60	12.	1332.50	3.5188E-02
SE-75	3563.	264.66	2.7266E-01
SR-85	2010.	514.01	2.0887E-01
Y-88	6.	1836.06	3.2268E-02
NB-94	26.	871.09	3.5757E-02
ZRNB-95	45.	724.18	9.0969E-02
RU-103	2392.	497.08	2.3364E-01
RURH-106	821.	621.93	3.0175E+00
AG-108m	50.	722.94	4.6047E-02
CD-109	3195.	88.03	4.3395E+00
AG-110M	4420.	657.76	3.8454E-01
SN-113	3461.	391.69	3.2373E-01
TE-123m	3490.	159.00	1.3217E-01
SB-124	826.	602.73	1.4972E-01
SB-125	3908.	427.89	8.0736E-01
TE-125m	3185.	109.27	4.1831E+01
I-131	3265.	364.48	2.3554E-01
CS-134	857.	604.70	1.5315E-01
BA-140	1454.	537.31	7.2609E-01
LA-140	2.	1596.21	1.9149E-02
CEPR-144	3543.	133.51	1.9892E+00
EU-152	10.	1408.01	1.5646E-01
EU-154	16.	1274.51	1.1177E-01
EU-155	3034.	105.31	5.4837E-01
HG-203	3438.	279.20	1.9929E-01
TL-208	3343.	277.36	2.5252E+00
BI-212	35.	727.18	5.3056E-01
PB-212	3950.	238.63	3.5862E-01
BI-214	906.	609.31	3.4529E-01
PB-214	3249.	351.92	9.2822E-01
RA-224	3882.	240.99	3.9461E+00
RA-226	4526.	186.10	3.9246E+00
AC-228	26.	911.21	1.3834E-01
TH-228	3024.	84.37	1.2965E+01
TH-229	3121.	88.47	6.2174E-01
PA-233	3107.	312.17	4.3256E-01
UTH-233	3797.	245.34	1.4617E+02
PA-234M	16.	1001.03	5.4035E-02
TH-234	2906.	63.29	7.4038E+00
U-235	4496.	185.71	2.3776E-01
NP-237	3143.	86.48	1.2916E+00

Sample ID : S96T1583-DUP Acquisition date : 3-MAY-1996 19:04:36

WHC-SD-WM-DP-173, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	3072.	106.12	5.2361E-01
PU-239	3645.	129.30	1.7627E+03
AM-241	2919.	59.54	1.1812E+00
AM-243	3108.	74.67	3.5723E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     3-MAY-1996 21:05:22.78                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                8162
Sample ID:                 S96T1584-SAM
Sample Size:               1.00000E-03 L
Dilution Factor:           2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:               dka300:[spec.GEA2]2g2636.cnf
Geometry:                  42
Count Time:                0 00:50:00.00 sec
Real Time:                 0 00:50:11.51 sec
Dead Time:                 0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:         3-MAY-1996 20:14:28.03
Decayed to:                3-MAY-1996 20:14:28.03
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
*****************************************************************************
```

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

Removed by: Em Baeler

Verified by: B Machelor 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.88	218	1.00	246.19	244	6	71.0		CO-57	0.209
									EU-154	0.443
0	661.46*	83070	1.54	1322.93	1314	17	0.7		CS-137	231.
0	723.63	64	1.61	1447.26	1442	12	34.4		EU-154	0.815
0	1004.17	34	1.98	2008.34	2004	10	42.2		EU-154	0.646
0	1274.11	36	0.74	2548.34	2543	15	62.9		EU-154	0.434

Sample ID : S96T1584-SAM Acquisition date : 3-MAY-1996 20:14:28

WHC-SD-WM-DP-179, REV. 1

Total number of lines in spectrum	5	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	5	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.093E-01~~	~~2.093E-01~~	~~1.487E-01~~	~~71.04~~	~~OK~~
CS-137	30.00Y	1.000	2.306E+02	2.306E+02	0.016E+02	0.71	
EU-154	8.59Y	1.000	6.284E-01	6.284E-01	1.589E-01	25.29	7/10/96
			---	---			
Total Activity :			2.314E+02	2.314E+02			
Grand Total Activity :			2.314E+02	2.314E+02			

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

Sample ID : S96T1584-SAM Acquisition date : 3-MAY-1996 20:14:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2557.	477.59	4.1024E+00
NA-22	53.	1274.53	1.4202E-01
NA-24	6.	1368.55	5.1614E-02
K-40	118.	1460.75	2.2166E+00
CR-51	2235.	320.08	2.8613E+00
MN-54	31.	834.83	7.5000E-02
CO-56	25.	846.76	6.7790E-02
CO-58	17.	810.78	5.3398E-02
FE-59	13.	1099.25	1.1024E-01
CO-60	19.	1332.50	8.9156E-02
SE-75	2439.	264.66	4.5124E-01
SR-85	1367.	514.01	3.4453E-01
Y-88	3.	1836.06	4.5633E-02
NB-94	47.	871.09	9.5618E-02
ZRNB-95	70.	724.18	2.2712E-01
RU-103	1642.	497.08	3.8717E-01
RURH-106	544.	621.93	4.9157E+00
AG-108m	73.	722.94	1.1136E-01
CD-109	2225.	88.03	7.2437E+00
AG-110M	2940.	657.76	6.2720E-01
SN-113	2369.	391.69	5.3566E-01
TE-123m	2565.	159.00	2.2664E-01
SB-124	585.	602.73	2.5194E-01
SB-125	2762.	427.89	1.3575E+00
TE-125m	2378.	109.27	7.2291E+01
I-131	2251.	364.48	3.9115E-01
CS-134	609.	604.70	2.5833E-01
BA-140	1022.	537.31	1.2173E+00
LA-140	6.	1596.21	5.8930E-02
CEPR-144	2535.	133.51	3.3653E+00
EU-152	12.	1408.01	3.5185E-01
EU-155	2380.	105.31	9.7119E-01
HG-203	2358.	279.20	3.3006E-01
TL-208	2445.	277.36	4.3189E+00
BI-212	26.	727.18	9.1182E-01
PB-212	2775.	238.63	6.0115E-01
BI-214	603.	609.31	5.6314E-01
PB-214	2208.	351.92	1.5291E+00
RA-224	2799.	240.99	6.7007E+00
RA-226	3242.	186.10	6.6432E+00
AC-228	29.	911.21	2.9433E-01
TH-228	2258.	84.37	2.2403E+01
TH-229	2183.	88.47	1.0401E+00
PA-233	2303.	312.17	7.4472E-01
UTH-233	2718.	245.34	2.4734E+02
PA-234M	21.	1001.03	1.2184E-01
TH-234	2048.	63.29	1.2431E+01
U-235	3193.	185.71	4.0074E-01
NP-237	2321.	86.48	2.2201E+00
NP-239	2359.	106.12	9.1765E-01
PU-239	2566.	129.30	2.9578E+03

Sample ID : S96T1584-SAM Acquisition date : 3-MAY-1996 20:14:28

WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	2077.	59.54	1.9931E+00
AM-243	2163.	74.67	5.9597E-01

****
* 222-S Laboratory Counting Room 3-MAY-1996 22:12:07.39 *
****

WHC-SD-WM-DP-179, REV. 1

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

Worklist #: 8162
Sample ID: S96T1584-DUP
Sample Size: 1.00000E-03 L
Dilution Factor: 2.00000E+00

Removed by: Em Barclay

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

Detector ID:
File Number: dka300:[spec.GEA2]2g2637.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:11.68 sec
Dead Time: 0.4%

Verified by: Bachelor 5/6/96

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

Sample Count Time: 3-MAY-1996 21:21:16.36
Decayed to: 3-MAY-1996 21:21:16.36
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	122.87	219	0.98	246.16	243	7	80.2		CO-57	0.211
									EU-154	0.446
0	661.47*	83853	1.50	1322.95	1314	16	0.7		CS-137	233.
0	723.44	26	1.35	1446.88	1442	12	108.7		EU-154	0.336
0	872.29	24	1.35	1744.56	1738	13	81.0		EU-154	0.588
0	1004.53	23	1.31	2009.05	2006	9	72.8		EU-154	0.444
0	1273.74	43	2.35	2547.59	2543	17	44.3		EU-154	0.523

Summary of Nuclide Activity
Sample ID : S96T1584-DUP Acquisition date : 3-MAY-1996 21:21:16

WHC-SD-WM-DP-170, REV. 1

Total number of lines in spectrum	6	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	6	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~~	~~2.107E-01~~	~~2.107E-01~~	~~1.691E-01~~	~~80.22~~	~~MLG~~
CS-137	30.00Y	1.000	2.327E+02	2.327E+02	0.016E+02	0.71	
EU-154	8.59Y	1.000	4.763E-01	4.763E-01	1.579E-01	33.16	
			---	---			
Total Activity :			2.334E+02	2.334E+02			
Grand Total Activity :			2.334E+02	2.334E+02			

7/10/96

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

Sample ID : S96T1584-DUP Acquisition date : 3-MAY-1996 21:21:16

WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2669.	477.59	4.1912E+00
NA-22	52.	1274.53	1.4108E-01
NA-24	5.	1368.55	4.4718E-02
K-40	106.	1460.75	2.1009E+00
CR-51	2303.	320.08	2.9045E+00
MN-54	18.	834.83	5.6481E-02
CO-56	21.	846.76	6.2186E-02
CO-58	22.	810.78	6.1313E-02
FE-59	17.	1099.25	1.2542E-01
CO-60	22.	1332.50	9.5697E-02
SE-75	2546.	264.66	4.6101E-01
SR-85	1417.	514.01	3.5081E-01
Y-88	4.	1836.06	5.2693E-02
NB-94	35.	871.09	8.2326E-02
ZRNB-95	63.	724.18	2.1650E-01
RU-103	1662.	497.08	3.8960E-01
RURH-106	612.	621.93	5.2130E+00
AG-108m	64.	722.94	1.0459E-01
CD-109	2283.	88.03	7.3370E+00
AG-110M	2963.	657.76	6.2973E-01
SN-113	2392.	391.69	5.3826E-01
TE-123m	2472.	159.00	2.2248E-01
SB-124	621.	602.73	2.5951E-01
SB-125	2795.	427.89	1.3655E+00
TE-125m	2429.	109.27	7.3062E+01
I-131	2263.	364.48	3.9222E-01
CS-134	655.	604.70	2.6780E-01
BA-140	1004.	537.31	1.2066E+00
LA-140	5.	1596.21	5.5171E-02
CEPR-144	2556.	133.51	3.3790E+00
EU-152	8.	1408.01	2.8653E-01
EU-155	2429.	105.31	9.8132E-01
HG-203	2388.	279.20	3.3215E-01
TL-208	2379.	277.36	4.2605E+00
BI-212	29.	727.18	9.6305E-01
PB-212	2765.	238.63	6.0012E-01
BI-214	622.	609.31	5.7215E-01
PB-214	2272.	351.92	1.5510E+00
RA-224	2759.	240.99	6.6524E+00
RA-226	3223.	186.10	6.6231E+00
AC-228	27.	911.21	2.8415E-01
TH-228	2273.	84.37	2.2480E+01
TH-229	2241.	88.47	1.0537E+00
PA-233	2282.	312.17	7.4144E-01
UTH-233	2742.	245.34	2.4842E+02
PA-234M	25.	1001.03	1.3294E-01
TH-234	2137.	63.29	1.2696E+01
U-235	3209.	185.71	4.0171E-01
NP-237	2306.	86.48	2.2129E+00
NP-239	2401.	106.12	9.2586E-01
PU-239	2609.	129.30	2.9826E+03

Minimum Detectable Activity Report (continued)

Sample ID : S96T1584-DUP

Acquisition date : 3-MAY-1996 21:21:16

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	2176.	59.54	2.0399E+00
AM-243	2135.	74.67	5.9209E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     3-MAY-1996 23:15:12.31                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                8162
Sample ID:                 S96T1585-SAM
Sample Size:               1.00000E-03 L
Dilution Factor:           2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:               dka300:[spec.GEA2]2g2638.cnf
Geometry:                  42
Count Time:                0 00:50:00.00 sec
Real Time:                 0 00:50:12.23 sec
Dead Time:                 0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:         3-MAY-1996 22:24:19.48
Decayed to:                3-MAY-1996 22:24:19.48
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
*****************************************************************************
```

WHC-CD-WM-DP-179, REV. 1

Removed by: [signature]

Verified by: [signature] 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.46*	88420	1.53	1322.94	1314	18	0.7		CS-137	245.
0	722.87	44	1.52	1445.74	1439	14	67.7			
0	911.54*	16	1.07	1823.07	1818	12	108.0			
0	1004.90	35	1.38	2009.81	2004	12	55.3			
0	1274.13	41	1.52	2548.37	2540	16	57.7			

Sample ID : S96T1585-SAM Acquisition date : 3-MAY-1996 22:24:19

WHC-CD-WM-DP-179, REV. 1

Total number of lines in spectrum	5	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	5	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.454E+02	2.454E+02	0.017E+02	0.69	
		Total Activity :	2.454E+02	2.454E+02			
		Grand Total Activity :	2.454E+02	2.454E+02			

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

Sample ID : S96T1585-SAM Acquisition date : 3-MAY-1996 22:24:19

WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2780.	477.59	4.2771E+00
NA-22	58.	1274.53	1.4909E-01
NA-24	6.	1368.55	5.1614E-02
K-40	116.	1460.75	2.1940E+00
CR-51	2271.	320.08	2.8846E+00
MN-54	27.	834.83	6.9588E-02
CO-56	19.	846.76	5.9197E-02
CO-57	2862.	122.06	2.3923E-01
CO-58	18.	810.78	5.5572E-02
FE-59	16.	1099.25	1.2082E-01
CO-60	20.	1332.50	9.1530E-02
SE-75	2627.	264.66	4.6823E-01
SR-85	1437.	514.01	3.5323E-01
Y-88	0.	1836.06	0.0000E+00
NB-94	38.	871.09	8.5455E-02
ZRNB-95	69.	724.18	2.2568E-01
RU-103	1787.	497.08	4.0396E-01
RURH-106	644.	621.93	5.3484E+00
AG-108m	69.	722.94	1.0871E-01
CD-109	2424.	88.03	7.5594E+00
AG-110M	3119.	657.76	6.4606E-01
SN-113	2413.	391.69	5.4067E-01
TE-123m	2622.	159.00	2.2912E-01
SB-124	667.	602.73	2.6908E-01
SB-125	2804.	427.89	1.3678E+00
TE-125m	2515.	109.27	7.4342E+01
I-131	2309.	364.48	3.9613E-01
CS-134	642.	604.70	2.6512E-01
BA-140	1031.	537.31	1.2230E+00
LA-140	7.	1596.21	6.5279E-02
CEPR-144	2812.	133.51	3.5443E+00
EU-152	8.	1408.01	2.8653E-01
EU-154	58.	1274.51	4.3300E-01
EU-155	2549.	105.31	1.0052E+00
HG-203	2549.	279.20	3.4318E-01
TL-208	2533.	277.36	4.3962E+00
BI-212	32.	727.18	1.0109E+00
PB-212	3019.	238.63	6.2703E-01
BI-214	650.	609.31	5.8476E-01
PB-214	2392.	351.92	1.5917E+00
RA-224	2960.	240.99	6.8916E+00
RA-226	3408.	186.10	6.8110E+00
AC-228	35.	911.21	3.2102E-01
TH-228	2328.	84.37	2.2752E+01
TH-229	2412.	88.47	1.0931E+00
PA-233	2311.	312.17	7.4612E-01
UTH-233	2827.	245.34	2.5227E+02
PA-234M	17.	1001.03	1.1170E-01
TH-234	2175.	63.29	1.2809E+01
U-235	3360.	185.71	4.1107E-01
NP-237	2460.	86.48	2.2854E+00

Sample ID : S96T1585-SAM Acquisition date : 3-MAY-1996 22:24:19

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2556.	106.12	9.5528E-01
PU-239	2696.	129.30	3.0317E+03
AM-241	2285.	59.54	2.0903E+00
AM-243	2339.	74.67	6.1974E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    4-MAY-1996 00:18:53.85                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8162
Sample ID:               S96T1585-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2639.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:12.54 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-MAY-1996 23:28:00.28
Decayed to:              3-MAY-1996 23:28:00.28
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
*****************************************************************************
```

WHC-SD-WM-DP-179, REV. 1

Removed by: Em Baker

Verified by: B Bachelor 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.83	236	1.11	246.08	243	8	86.0		CO-57	0.227
									EU-154	0.481
0	661.47*	91639	1.51	1322.96	1314	17	0.7		CS-137	254.
0	722.98	48	1.68	1445.96	1441	11	47.6		EU-154	0.611
0	872.14	16	0.47	1744.25	1739	9	98.6		EU-154	0.406
3	1262.79	23	2.49	2525.69	2519	44	43.3	6.78E-01		
3	1274.42	43	2.50	2548.96	2519	44	32.6		EU-154	0.528

Summary of Nuclide Activity
Sample ID : S96T1585-DUP

Acquisition date : 3-MAY-1996 23:28:00

WHC-SD-WM-DP-179, REV. 1

Total number of lines in spectrum	6	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	5	83.33%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~2.271E-01~~	~~2.271E-01~~	~~1.953E-01~~	~~86.02~~	BKG
CS-137	30.00Y	1.000	2.543E+02	2.543E+02	0.017E+02	0.68	
EU-154	8.59Y	1.000	5.326E-01	5.326E-01	1.391E-01	26.13	
		Total Activity :	2.551E+02	2.551E+02			
		Grand Total Activity :	2.551E+02	2.551E+02			

7/10/96

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

Sample ID : S96T1585-DUP Acquisition date : 3-MAY-1996 23:28:00

WHC-CD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2879.	477.59	4.3525E+00
NA-22	49.	1274.53	1.3661E-01
NA-24	8.	1368.55	5.7997E-02
K-40	118.	1460.75	2.2141E+00
CR-51	2402.	320.08	2.9662E+00
MN-54	26.	834.83	6.7808E-02
CO-56	20.	846.76	6.0641E-02
CO-58	13.	810.78	4.7208E-02
FE-59	16.	1099.25	1.1995E-01
CO-60	12.	1332.50	7.0100E-02
SE-75	2652.	264.66	4.7054E-01
SR-85	1590.	514.01	3.7151E-01
Y-88	1.	1836.06	2.6346E-02
NB-94	32.	871.09	7.8747E-02
ZRNB-95	66.	724.18	2.2003E-01
RU-103	1808.	497.08	4.0633E-01
RURH-106	619.	621.93	5.2428E+00
AG-108m	67.	722.94	1.0700E-01
CD-109	2492.	88.03	7.6648E+00
AG-110M	3051.	657.76	6.3897E-01
SN-113	2553.	391.69	5.5615E-01
TE-123m	2838.	159.00	2.3838E-01
SB-124	637.	602.73	2.6284E-01
SB-125	2983.	427.89	1.4107E+00
TE-125m	2564.	109.27	7.5060E+01
I-131	2485.	364.48	4.1102E-01
CS-134	616.	604.70	2.5977E-01
BA-140	1130.	537.31	1.2802E+00
LA-140	7.	1596.21	6.5279E-02
CEPR-144	2726.	133.51	3.4897E+00
EU-152	6.	1408.01	2.4814E-01
EU-155	2504.	105.31	9.9636E-01
HG-203	2616.	279.20	3.4765E-01
TL-208	2606.	277.36	4.4590E+00
BI-212	24.	727.18	8.7034E-01
PB-212	3058.	238.63	6.3107E-01
BI-214	665.	609.31	5.9172E-01
PB-214	2436.	351.92	1.6065E+00
RA-224	2957.	240.99	6.8878E+00
RA-226	3409.	186.10	6.8116E+00
AC-228	34.	911.21	3.1738E-01
TH-228	2398.	84.37	2.3088E+01
TH-229	2441.	88.47	1.0997E+00
PA-233	2381.	312.17	7.5723E-01
UTH-233	2969.	245.34	2.5849E+02
PA-234M	25.	1001.03	1.3485E-01
TH-234	2277.	63.29	1.3106E+01
U-235	3375.	185.71	4.1196E-01
NP-237	2550.	86.48	2.3267E+00
NP-239	2502.	106.12	9.4518E-01
PU-239	2827.	129.30	3.1050E+03

Sample ID : S96T1585-DUP Acquisition date : 3-MAY-1996 23:28:00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	2320.	59.54	2.1064E+00
AM-243	2352.	74.67	6.2150E-01

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

LABCORE Data Entry Template for Worklist# 9465

Analyst: JLF **Instrument:** GEA00 2 **Book#** 12856

Method: LA-548-121 Rev/Mod F-0

Worklist Comment: S102. Sample size is on traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-02	SOLID		
2	BLNK-PREP				@GEA-02	SOLID		
3	SAMPLE	S96T000870	0	F	@GEA-02	SOLID	96000030	S102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T000870	0	F	@GEA-02	SOLID		
5	SAMPLE	S96T000871	0	F	@GEA-02	SOLID	96000030	S102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T000871	0	F	@GEA-02	SOLID		

Final page for worklist # 9465

Jessie S Jusby 6-3-96
Analyst Signature **Date**

Leo E. Hogan 6/4/96
Analyst Signature **Date**

Data Entry Comments:

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

worklistrad Version 0.0 04/18/96
06/04/96 10:54

LABCORE Completed RadChem Report for Worklist#: 9465

Analyst: jlf **Instrument:** GEA02 **Book#** 12B56

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

Worklist Comment: S102. Sample size is on traveler. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-02	CO60-02	SOLID	2.523e-02		2.51e-02	99.485	% Recovery
1	STD		0		@GEA-02	CO60-02E	SOLID	1		1.38	1.380	% Ct Error
1	STD		0		@GEA-02	CS13702	SOLID	2.702e-02		2.68e-02	99.186	% Recovery
1	STD		0		@GEA-02	CS13702E	SOLID	1		1.61	1.610	% Ct Error
2	BLNK-PREP		0		@GEA-02	CO60-02	SOLID	1		<1.37e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	CS13702	SOLID	1		1.76e+00	1.760	uCi/g
2	BLNK-PREP		0		@GEA-02	EU15402	SOLID	1		<4.73e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15502	SOLID	1		<6.61e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	AM24102	SOLID	1		<1.44e-1		uCi/g
3	SAMPLE	S96T000870	0	F	@GEA-02	CO60-02	SOLID	N/A	<	2.016e-02	201.6e-004	uCi/g
3	SAMPLE	S96T000870	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T000870	0	F	@GEA-02	CS13702	SOLID	N/A		1.461e+02	0.0e+000	uCi/g
3	SAMPLE	S96T000870	0	F	@GEA-02	CS13702E	SOLID	N/A		0.500	0.0e+000	% Ct. Error
3	SAMPLE	S96T000870	0	F	@GEA-02	EU15402	SOLID	N/A	<	9.452e-02	945.2e-004	uCi/g
3	SAMPLE	S96T000870	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T000870	0	F	@GEA-02	EU15502	SOLID	N/A	<	4.074e-01	407.0e-003	uCi/g
3	SAMPLE	S96T000870	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T000870	0	F	@GEA-02	AM24102	SOLID	N/A	<	8.462e-01	846.0e-003	uCi/g
3	SAMPLE	S96T000870	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
4	DUP	S96T000870	0	F	@GEA-02	CO60-02	SOLID	<2.02e-2		<1.92e-2		RPD
4	DUP	S96T000870	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T000870	0	F	@GEA-02	CS13702	SOLID	1.46e+02		1.43e+02	2.076	RPD
4	DUP	S96T000870	0	F	@GEA-02	CS13702E	SOLID	1		0.480	0.480	% Ct Error
4	DUP	S96T000870	0	F	@GEA-02	EU15402	SOLID	<9.45e-2		<7.74e-2		RPD
4	DUP	S96T000870	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
4	DUP	S96T000870	0	F	@GEA-02	EU15502	SOLID	<4.07e-1		<3.86e-1		RPD
4	DUP	S96T000870	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
4	DUP	S96T000870	0	F	@GEA-02	AM24102	SOLID	<8.46e-1		<8.06e-1		RPD
4	DUP	S96T000870	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
5	SAMPLE	S96T000871	0	F	@GEA-02	CO60-02	SOLID	N/A	<	1.798e-02	179.8e-004	uCi/g
5	SAMPLE	S96T000871	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T000871	0	F	@GEA-02	CS13702	SOLID	N/A		1.406e+02	0.0e+000	uCi/g
5	SAMPLE	S96T000871	0	F	@GEA-02	CS13702E	SOLID	N/A		0.470	0.0e+000	% Ct. Error
5	SAMPLE	S96T000871	0	F	@GEA-02	EU15402	SOLID	N/A	<	7.659e-02	765.9e-004	uCi/g
5	SAMPLE	S96T000871	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T000871	0	F	@GEA-02	EU15502	SOLID	N/A	<	3.788e-01	379.0e-003	uCi/g
5	SAMPLE	S96T000871	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T000871	0	F	@GEA-02	AM24102	SOLID	N/A	<	7.752e-01	775.0e-003	uCi/g
5	SAMPLE	S96T000871	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
6	DUP	S96T000871	0	F	@GEA-02	CO60-02	SOLID	<1.80e-2		<2.09e-2		RPD
6	DUP	S96T000871	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error

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

LABCORE Completed RadChem Report for Worklist#: 9465

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
6	DUP	S96T000871	0	F	@GEA-02	CS13702	SOLID	1.41e+02	1.48e+02	4.844	RPD
6	DUP	S96T000871	0	F	@GEA-02	CS13702E	SOLID	1	0.450	0.450	% Ct Error
6	DUP	S96T000871	0	F	@GEA-02	EU15402	SOLID	<7.66e-2	<6.98e-2		RPD
6	DUP	S96T000871	0	F	@GEA-02	EU15402E	SOLID	1	n/a		% Ct Error
6	DUP	S96T000871	0	F	@GEA-02	EU15502	SOLID	<3.79e-1	<3.83e-1		RPD
6	DUP	S96T000871	0	F	@GEA-02	EU15502E	SOLID	1	n/a		% Ct Error
6	DUP	S96T000871	0	F	@GEA-02	AM24102	SOLID	<7.75e-1	<7.97e-1		RPD
6	DUP	S96T000871	0	F	@GEA-02	AM24102E	SOLID	1	n/a		% Ct Error

Comments Section:

Comments for sample# S96T000870 **and test** @GEA-02 .
DL=0 => n/a. Sample 100x higher than blank => OK.

Comments for sample# S96T000871 **and test** @GEA-02 .
DL=0 => n/a. Sample 100x higher than blank => OK.

Final page for worklist# 9465

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

[signature] 6/4/96
Reviewer Signature **Date**

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

```
*****************************************************************************
* 222-S Laboratory Counting Room     3-JUN-1996 17:39:45.49                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9465
Sample ID:               WL9465-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2873.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.59 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-JUN-1996 16:48:58.23
Decayed to:              3-JUN-1996 16:48:58.23
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-178, REV. 1

Removed by: EM Barber

Verified by: BJ Bachelor 6/4/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.87*	19318	1.53	1323.76	1315	16	1.6		CS-137	26.8
0	1173.54	12916	1.90	2347.14	2337	19	2.0		CO-60	25.4
0	1332.83	11384	1.93	2665.81	2656	19	1.9		CO-60	24.8

Sample ID : WL9465-STD Acquisition date : 3-JUN-1996 16:48:58

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

WHC-SD-WM-DP-179, REV. 1

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.506E+01	2.506E+01	0.035E+01	1.38	
CS-137	30.00Y	1.000	2.681E+01	2.681E+01	0.043E+01	1.61	
		Total Activity :	5.187E+01	5.187E+01			
		Grand Total Activity :	5.187E+01	5.187E+01			

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

Sample ID : WL9465-STD Acquisition date : 3-JUN-1996 16:48:58

WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1032.	477.59	1.3029E+00
NA-22	117.	1274.53	1.0556E-01
NA-24	17.	1368.55	4.2800E-02
K-40	111.	1460.75	1.0740E+00
CR-51	1129.	320.08	1.0167E+00
MN-54	653.	834.83	1.7116E-01
CO-56	646.	846.76	1.7243E-01
CO-57	1248.	122.06	7.8998E-02
CO-58	603.	810.78	1.6135E-01
FE-59	632.	1099.25	3.8223E-01
SE-75	1287.	264.66	1.6385E-01
SR-85	806.	514.01	1.3226E-01
Y-88	4.	1836.06	2.5047E-02
NB-94	701.	871.09	1.8388E-01
ZRNB-95	547.	724.18	3.1773E-01
RU-103	838.	497.08	1.3831E-01
RURH-106	598.	621.93	2.5764E+00
AG-108m	524.	722.94	1.4940E-01
CD-109	1119.	88.03	2.5687E+00
AG-110M	808.	657.76	1.6446E-01
SN-113	1037.	391.69	1.7723E-01
TE-123m	1286.	159.00	8.0226E-02
SB-124	607.	602.73	1.2832E-01
SB-125	1098.	427.89	4.2799E-01
TE-125m	1183.	109.27	2.5490E+01
I-131	1059.	364.48	1.3412E-01
CS-134	635.	604.70	1.3185E-01
BA-140	685.	537.31	4.9839E-01
LA-140	18.	1596.21	5.2599E-02
CEPR-144	1295.	133.51	1.2028E+00
EU-152	23.	1408.01	2.4487E-01
EU-154	117.	1274.51	3.0714E-01
EU-155	1186.	105.31	3.4278E-01
HG-203	1229.	279.20	1.1915E-01
TL-208	1227.	277.36	1.5295E+00
BI-212	519.	727.18	2.0409E+00
PB-212	1508.	238.63	2.2156E-01
BI-214	625.	609.31	2.8662E-01
PB-214	1040.	351.92	5.2444E-01
RA-224	1464.	240.99	2.4232E+00
RA-226	1391.	186.10	2.1760E+00
AC-228	768.	911.21	7.5205E-01
TH-228	1121.	84.37	7.8930E+00
TH-229	1114.	88.47	3.7153E-01
PA-233	1121.	312.17	2.5984E-01
UTH-233	1388.	245.34	8.8387E+01
PA-234M	671.	1001.03	3.4597E-01
TH-234	1040.	63.29	4.4283E+00
U-235	1377.	185.71	1.3158E-01
NP-237	1117.	86.48	7.6990E-01
NP-239	1154.	106.12	3.2099E-01

Sample ID : WL9465-STD Acquisition date : 3-JUN-1996 16:48:58

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1261.	129.30	1.0366E+03
AM-241	1052.	59.54	7.0926E-01
AM-243	1057.	74.67	2.0829E-01

WHC-SD-WM-DP-179, REV. 1

****
* 222-S Laboratory Counting Room 3-JUN-1996 19:16:22.38 *
****

WHC-SD-WM-DP-179, REV. 1

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

Worklist #: 9465
Sample ID: WL9465-BLK
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

Removed by: Em Barber

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

Detector ID:
File Number: dka300:[spec.GEA2]2g2874.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:00.76 sec
Dead Time: 0.0%

Verified by: B Bachelor 6/4/96

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

Sample Count Time: 3-JUN-1996 18:25:45.98
Decayed to: 3-JUN-1996 18:25:45.98
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	34.67	132	2.03	69.89	66	10	43.7			
0	661.93*	2053	1.50	1323.88	1316	16	4.8		CS-137	2.85
0	970.37*	14	0.75	1940.73	1936	13	102.8			

Sample ID : WL9465-BLK Acquisition date : 3-JUN-1996 18:25:45

Total number of lines in spectrum	3	WHC-CD-WM-DP-179, REV. 1
Number of unidentified lines	1	
Number of lines tentatively identified by NID	2	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.849E+00	2.849E+00	0.136E+00	4.77	
		Total Activity :	2.849E+00	2.849E+00			
		Grand Total Activity :	2.849E+00	2.849E+00			

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

Sample ID : WL9465-BLK
Acquisition date : 3-JUN-1996 18:25:45
WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	92.	477.59	3.8844E-01
NA-22	7.	1274.53	2.6385E-02
NA-24	9.	1368.55	3.1605E-02
K-40	120.	1460.75	1.1189E+00
CR-51	95.	320.08	2.9552E-01
MN-54	19.	834.83	2.9050E-02
CO-56	24.	846.76	3.3219E-02
CO-57	139.	122.06	2.6348E-02
CO-58	8.	810.78	1.8583E-02
FE-59	15.	1099.25	5.9060E-02
CO-60	5.	1332.50	2.2217E-02
SE-75	110.	264.66	4.7930E-02
SR-85	97.	514.01	4.5891E-02
Y-88	3.	1836.06	2.2817E-02
NB-94	16.	871.09	2.8182E-02
ZRNB-95	20.	724.18	6.1451E-02
RU-103	74.	497.08	4.0975E-02
RURH-106	37.	621.93	6.4140E-01
AG-108m	25.	722.94	3.2751E-02
CD-109	136.	88.03	8.9487E-01
AG-110M	42.	657.76	3.7665E-02
SN-113	93.	391.69	5.3199E-02
TE-123m	138.	159.00	2.6265E-02
SB-124	34.	602.73	3.0306E-02
SB-125	94.	427.89	1.2538E-01
TE-125m	136.	109.27	8.6454E+00
I-131	103.	364.48	4.1869E-02
CS-134	38.	604.70	3.2119E-02
BA-140	58.	537.31	1.4493E-01
LA-140	4.	1596.21	2.4673E-02
CEPR-144	107.	133.51	3.4533E-01
EU-152	10.	1408.01	1.5749E-01
EU-154	7.	1274.51	7.6447E-02
EU-155	115.	105.31	1.0676E-01
HG-203	87.	279.20	3.1674E-02
TL-208	105.	277.36	4.4668E-01
BI-212	20.	727.18	4.0517E-01
PB-212	144.	238.63	6.8439E-02
BI-214	56.	609.31	8.6142E-02
PB-214	127.	351.92	1.8269E-01
RA-224	126.	240.99	7.1201E-01
RA-226	169.	186.10	7.5829E-01
AC-228	23.	911.21	1.3131E-01
TH-228	145.	84.37	2.8420E+00
TH-229	129.	88.47	1.2650E-01
PA-233	111.	312.17	8.1708E-02
UTH-233	122.	245.34	2.6158E+01
PA-234M	18.	1001.03	5.6798E-02
TH-234	104.	63.29	1.4028E+00
U-235	159.	185.71	4.4715E-02
NP-237	159.	86.48	2.9008E-01

Sample ID : WL9465-BLK Acquisition date : 3-JUN-1996 18:25:45

WHO-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	112.	106.12	1.0001E-01
PU-239	129.	129.30	3.3207E+02
AM-241	113.	59.54	2.3282E-01
AM-243	134.	74.67	7.4236E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room    3-JUN-1996 20:17:37.06                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9465
Sample ID:               S96T870-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2875.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:23.07 sec
Dead Time:               0.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-JUN-1996 19:25:46.79
Decayed to:              3-JUN-1996 19:25:46.79
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
*****************************************************************************
```

WHC-SD-WM-DP-170, REV. 1

Removed by: Eric Bracke

Verified by: B Bachelor 6/4/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.84*	169995	1.53	1323.71	1315	17	0.5		CS-137	236.
0	910.85*	20	2.63	1821.69	1817	10	89.9			
0	1275.05	13	0.62	2550.23	2547	11	122.4			
0	1461.24*	16	2.23	2922.74	2916	14	156.4		K-40	0.356

Sample ID : S96T870-SAM
Acquisition date : 3-JUN-1996 19:25:46

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	3.558E-01	3.558E-01	5.564E-01	156.39	
CS-137	30.00Y	1.000	2.359E+02	2.359E+02	0.012E+02	0.50	
			---	---			
Total Activity :			2.363E+02	2.363E+02			
Grand Total Activity :			2.363E+02	2.363E+02			

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

Minimum Detectable Activity Report
Sample ID : S96T870-SAM

Acquisition date : 3-JUN-1996 19:25:46

WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5351.	477.59	2.9671E+00
NA-22	29.	1274.53	5.2489E-02
NA-24	9.	1368.55	3.1609E-02
CR-51	4414.	320.08	2.0105E+00
MN-54	28.	834.83	3.5246E-02
CO-56	35.	846.76	4.0129E-02
CO-57	5110.	122.06	1.5984E-01
CO-58	35.	810.78	3.9130E-02
FE-59	20.	1099.25	6.8628E-02
CO-60	10.	1332.50	3.2572E-02
SE-75	4946.	264.66	3.2128E-01
SR-85	2817.	514.01	2.4728E-01
Y-88	4.	1836.06	2.5995E-02
NB-94	39.	871.09	4.3218E-02
ZRNB-95	59.	724.18	1.0406E-01
RU-103	3299.	497.08	2.7440E-01
RURH-106	1137.	621.93	3.5524E+00
AG-108m	54.	722.94	4.8125E-02
CD-109	4489.	88.03	5.1438E+00
AG-110M	3158.	657.76	3.2503E-01
SN-113	4753.	391.69	3.7940E-01
TE-123m	4980.	159.00	1.5788E-01
SB-124	1167.	602.73	1.7796E-01
SB-125	5650.	427.89	9.7076E-01
TE-125m	4512.	109.27	4.9789E+01
I-131	4528.	364.48	2.7740E-01
CS-134	1182.	604.70	1.7990E-01
BA-140	1962.	537.31	8.4352E-01
LA-140	5.	1596.21	2.7766E-02
CEPR-144	4947.	133.51	2.3506E+00
EU-152	10.	1408.01	1.5749E-01
EU-154	29.	1274.51	1.5271E-01
EU-155	4371.	105.31	6.5815E-01
HG-203	4767.	279.20	2.3467E-01
TL-208	4811.	277.36	3.0292E+00
BI-212	54.	727.18	6.5812E-01
PB-212	5617.	238.63	4.2765E-01
BI-214	1211.	609.31	3.9910E-01
PB-214	4428.	351.92	1.0848E+00
RA-224	5443.	240.99	4.6723E+00
RA-226	6428.	186.10	4.6768E+00
AC-228	49.	911.21	1.9033E-01
TH-228	4254.	84.37	1.5377E+01
TH-229	4447.	88.47	7.4218E-01
PA-233	4525.	312.17	5.2200E-01
UTH-233	5362.	245.34	1.7370E+02
PA-234M	13.	1001.03	4.8258E-02
TH-234	4101.	63.29	8.7950E+00
U-235	6360.	185.71	2.8278E-01
NP-237	4411.	86.48	1.5302E+00
NP-239	4433.	106.12	6.2898E-01

Sample ID : S96T870-SAM Acquisition date : 3-JUN-1996 19:25:46

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	5110.	129.30	2.0870E+03
AM-241	3910.	59.54	1.3672E+00
AM-243	4288.	74.67	4.1957E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    3-JUN-1996 21:36:36.91                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9465
Sample ID:               S96T870-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2876.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:24.74 sec
Dead Time:               0.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-JUN-1996 20:44:56.65
Decayed to:              3-JUN-1996 20:44:56.65
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
*****************************************************************************
```

WHC-SD-WM-DP-179, REV. 1

Removed by: Em Barela

Verified by: B Bachelor 6/4/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.84*	182749	1.53	1323.70	1315	17	0.5		CS-137	254.
0	1275.48	15	1.35	2551.07	2546	13	111.8			

Sample ID : S96T870-DUP
Acquisition date : 3-JUN-1996 20:44:56

WHC-SD-WM-DP-179, REV. 1

Total number of lines in spectrum	2	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	2	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.536E+02	2.536E+02	0.012E+02	0.48	
		Total Activity :	2.536E+02	2.536E+02			
		Grand Total Activity :	2.536E+02	2.536E+02			

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

Sample ID : S96T870-DUP
Acquisition date : 3-JUN-1996 20:44:56

WHC-CD-WM-DP-179, REV.1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5804.	477.59	3.0902E+00
NA-22	24.	1274.53	4.7436E-02
NA-24	6.	1368.55	2.5809E-02
K-40	117.	1460.75	1.1036E+00
CR-51	4806.	320.08	2.0979E+00
MN-54	45.	834.83	4.4881E-02
CO-56	30.	846.76	3.7156E-02
CO-57	5437.	122.06	1.6487E-01
CO-58	43.	810.78	4.3026E-02
FE-59	21.	1099.25	7.0013E-02
CO-60	11.	1332.50	3.4108E-02
SE-75	5290.	264.66	3.3225E-01
SR-85	2847.	514.01	2.4860E-01
Y-88	2.	1836.06	2.0136E-02
NB-94	29.	871.09	3.7568E-02
ZRNB-95	65.	724.18	1.0937E-01
RU-103	3505.	497.08	2.8283E-01
RURH-106	1266.	621.93	3.7479E+00
AG-108m	64.	722.94	5.2257E-02
CD-109	4628.	88.03	5.2229E+00
AG-110M	3364.	657.76	3.3547E-01
SN-113	5211.	391.69	3.9724E-01
TE-123m	5343.	159.00	1.6354E-01
SB-124	1318.	602.73	1.8910E-01
SB-125	5982.	427.89	9.9886E-01
TE-125m	4826.	109.27	5.1489E+01
I-131	4946.	364.48	2.8992E-01
CS-134	1310.	604.70	1.8941E-01
BA-140	2140.	537.31	8.8096E-01
LA-140	3.	1596.21	2.1770E-02
CEPR-144	5608.	133.51	2.5025E+00
EU-152	10.	1408.01	1.6068E-01
EU-154	24.	1274.51	1.3758E-01
EU-155	4753.	105.31	6.8631E-01
HG-203	5139.	279.20	2.4364E-01
TL-208	5124.	277.36	3.1264E+00
BI-212	52.	727.18	6.4807E-01
PB-212	6013.	238.63	4.4249E-01
BI-214	1214.	609.31	3.9964E-01
PB-214	4822.	351.92	1.1324E+00
RA-224	5841.	240.99	4.8401E+00
RA-226	6986.	186.10	4.8758E+00
AC-228	35.	911.21	1.6100E-01
TH-228	4580.	84.37	1.5954E+01
TH-229	4588.	88.47	7.5384E-01
PA-233	4798.	312.17	5.3752E-01
UTH-233	5933.	245.34	1.8272E+02
PA-234M	15.	1001.03	5.1030E-02
TH-234	4400.	63.29	9.1096E+00
U-235	6890.	185.71	2.9432E-01
NP-237	4702.	86.48	1.5798E+00

Sample ID : S96T870-DUP Acquisition date : 3-JUN-1996 20:44:56

WHC-SD-WM-DP-179, REV.1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	4757.	106.12	6.5158E-01
PU-239	5296.	129.30	2.1248E+03
AM-241	4293.	59.54	1.4326E+00
AM-243	4463.	74.67	4.2804E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    3-JUN-1996 22:36:15.98                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9465
Sample ID:               S96T871-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2877.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:25.62 sec
Dead Time:               0.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-JUN-1996 21:44:26.30
Decayed to:              3-JUN-1996 21:44:26.30
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
*****************************************************************************
```

WHC-SD-WM-DP-179, REV. 1

Removed by: Eric Barelle

Verified by: RJ Bachelor 6/4/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.85*	189751	1.53	1323.72	1315	17	0.5		CS-137	263.

Sample ID : S96T871-SAM
Acquisition date : 3-JUN-1996 21:44:26

WHC-SD-WM-DP-179, REV. 1

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.633E+02	2.633E+02	0.012E+02	0.47	
		Total Activity :	2.633E+02	2.633E+02			
		Grand Total Activity :	2.633E+02	2.633E+02			

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

Sample ID : S96T871-SAM
Acquisition date : 3-JUN-1996 21:44:26
WHC-CD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5969.	477.59	3.1340E+00
NA-22	26.	1274.53	4.9359E-02
NA-24	5.	1368.55	2.3485E-02
K-40	109.	1460.75	1.0668E+00
CR-51	4923.	320.08	2.1233E+00
MN-54	41.	834.83	4.3096E-02
CO-56	32.	846.76	3.8349E-02
CO-57	5454.	122.06	1.6514E-01
CO-58	29.	810.78	3.5198E-02
FE-59	24.	1099.25	7.5067E-02
CO-60	11.	1332.50	3.3630E-02
SE-75	5636.	264.66	3.4296E-01
SR-85	3066.	514.01	2.5796E-01
Y-88	2.	1836.06	1.8630E-02
NB-94	29.	871.09	3.7598E-02
ZRNB-95	54.	724.18	9.9450E-02
RU-103	3769.	497.08	2.9332E-01
RURH-106	1280.	621.93	3.7686E+00
AG-108m	52.	722.94	4.7268E-02
CD-109	4716.	88.03	5.2727E+00
AG-110M	3399.	657.76	3.3724E-01
SN-113	5396.	391.69	4.0426E-01
TE-123m	5434.	159.00	1.6494E-01
SB-124	1355.	602.73	1.9176E-01
SB-125	6184.	427.89	1.0156E+00
TE-125m	4997.	109.27	5.2396E+01
I-131	4985.	364.48	2.9104E-01
CS-134	1332.	604.70	1.9098E-01
BA-140	2259.	537.31	9.0501E-01
LA-140	4.	1596.21	2.4674E-02
CEPR-144	5545.	133.51	2.4886E+00
EU-152	6.	1408.01	1.1923E-01
EU-154	26.	1274.51	1.4329E-01
EU-155	5069.	105.31	7.0873E-01
HG-203	5206.	279.20	2.4523E-01
TL-208	5307.	277.36	3.1816E+00
BI-212	59.	727.18	6.9004E-01
PB-212	6278.	238.63	4.5213E-01
BI-214	1368.	609.31	4.2414E-01
PB-214	5024.	351.92	1.1561E+00
RA-224	6066.	240.99	4.9327E+00
RA-226	7112.	186.10	4.9196E+00
AC-228	43.	911.21	1.7759E-01
TH-228	4760.	84.37	1.6266E+01
TH-229	4727.	88.47	7.6517E-01
PA-233	5085.	312.17	5.5335E-01
UTH-233	5996.	245.34	1.8369E+02
PA-234M	18.	1001.03	5.6889E-02
TH-234	4590.	63.29	9.3039E+00
U-235	7015.	185.71	2.9697E-01
NP-237	4762.	86.48	1.5899E+00

Sample ID : S96T871-SAM Acquisition date : 3-JUN-1996 21:44:26

WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	5110.	106.12	6.7532E-01
PU-239	5514.	129.30	2.1680E+03
AM-241	4400.	59.54	1.4502E+00
AM-243	4513.	74.67	4.3042E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    3-JUN-1996 23:38:12.42                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<   WHC-SD-WM-DP-175, REV.
Worklist #:              9465
Sample ID:               S96T871-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2878.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:27.68 sec
Dead Time:               0.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-JUN-1996 22:46:44.10
Decayed to:              3-JUN-1996 22:46:44.10
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
*****************************************************************************
```

Removed by: Em Baclie

Verified by: B Bachelor 6/4/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.85*	204654	1.53	1323.72	1315	17	0.5		CS-137	284.

Sample ID : S96T871-DUP Acquisition date : 3-JUN-1996 22:46:44

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

WHC-SD-WM-DP-179, REV. 1

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.840E+02	2.840E+02	0.013E+02	0.45	
		Total Activity :	2.840E+02	2.840E+02			
		Grand Total Activity :	2.840E+02	2.840E+02			

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

Sample ID : S96T871-DUP
Acquisition date : 3-JUN-1996 22:46:44

WHC-SD-WM-DP-179, REV. /

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	6533.	477.59	3.2785E+00
NA-22	22.	1274.53	4.6010E-02
NA-24	7.	1368.55	2.7814E-02
K-40	114.	1460.75	1.0903E+00
CR-51	5304.	320.08	2.2039E+00
MN-54	40.	834.83	4.2262E-02
CO-56	36.	846.76	4.0709E-02
CO-57	5870.	122.06	1.7132E-01
CO-58	35.	810.78	3.9039E-02
FE-59	18.	1099.25	6.4868E-02
CO-60	16.	1332.50	4.0125E-02
SE-75	5999.	264.66	3.5382E-01
SR-85	3313.	514.01	2.6818E-01
Y-88	4.	1836.06	2.6171E-02
NB-94	33.	871.09	3.9628E-02
ZRNB-95	65.	724.18	1.0938E-01
RU-103	4049.	497.08	3.0400E-01
RURH-106	1381.	621.93	3.9145E+00
AG-108m	60.	722.94	5.0359E-02
CD-109	5276.	88.03	5.5769E+00
AG-110M	3652.	657.76	3.4956E-01
SN-113	5779.	391.69	4.1834E-01
TE-123m	6031.	159.00	1.7375E-01
SB-124	1427.	602.73	1.9674E-01
SB-125	6766.	427.89	1.0623E+00
TE-125m	5368.	109.27	5.4303E+01
I-131	5452.	364.48	3.0439E-01
CS-134	1440.	604.70	1.9858E-01
BA-140	2419.	537.31	9.3653E-01
LA-140	6.	1596.21	3.0220E-02
CEPR-144	6056.	133.51	2.6006E+00
EU-152	10.	1408.01	1.6018E-01
EU-154	22.	1274.51	1.3379E-01
EU-155	5444.	105.31	7.3452E-01
HG-203	5731.	279.20	2.5729E-01
TL-208	5709.	277.36	3.3000E+00
BI-212	68.	727.18	7.3847E-01
PB-212	6697.	238.63	4.6698E-01
BI-214	1420.	609.31	4.3225E-01
PB-214	5406.	351.92	1.1996E+00
RA-224	6661.	240.99	5.1687E+00
RA-226	7620.	186.10	5.0921E+00
AC-228	39.	911.21	1.7001E-01
TH-228	5219.	84.37	1.7031E+01
TH-229	5308.	88.47	8.1083E-01
PA-233	5417.	312.17	5.7116E-01
UTH-233	6508.	245.34	1.9137E+02
PA-234M	31.	1001.03	7.4905E-02
TH-234	4808.	63.29	9.5228E+00
U-235	7567.	185.71	3.0844E-01
NP-237	5134.	86.48	1.6508E+00

Sample ID : S96T871-DUP Acquisition date : 3-JUN-1996 22:46:44

WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	5484.	106.12	6.9961E-01
PU-239	5920.	129.30	2.2464E+03
AM-241	4882.	59.54	1.5276E+00
AM-243	5167.	74.67	4.6055E-01

LABCORE Data Entry Template for Worklist# 9466

Analyst: JLF **Instrument:** GEA00 1 **Book#** 12856

Method: LA-548-121 Rev/Mod E - 0

Worklist Comment: S102. Sample size is on traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-02	SOLID		
2	BLNK-PREP				@GEA-02	SOLID		
3	SAMPLE	S96T000874	0	F	@GEA-02	SOLID	96000030	S102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T000874	0	F	@GEA-02	SOLID		
5	SAMPLE	S96T000875	0	F	@GEA-02	SOLID	96000030	S102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T000875	0	F	@GEA-02	SOLID		

Final page for worklist # 9466

Jessie J Justy 6-3-96
Analyst Signature **Date**

[illegible] 6/4/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9466

Analyst: jlf **Instrument:** GEA01 **Book#** 12856

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

Worklist Comment: S102. Sample size is on traveler. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-02 CO60-02	SOLID	2.523e-02		2.59e-02	102.656	% Recovery
1	STD		0		@GEA-02 CO60-02E	SOLID	1		1.29	1.290	% Ct Error
1	STD		0		@GEA-02 CS13702	SOLID	2.702e-02		2.79e-02	103.257	% Recovery
1	STD		0		@GEA-02 CS13702E	SOLID	1		1.46	1.460	% Ct Error
2	BLNK-PREP		0		@GEA-02 CO60-02	SOLID	1		<2.13e-2		uCi/g
2	BLNK-PREP		0		@GEA-02 CS13702	SOLID	1		<2.37e-2		uCi/g
2	BLNK-PREP		0		@GEA-02 EU15402	SOLID	1		<6.43e-2		uCi/g
2	BLNK-PREP		0		@GEA-02 EU15502	SOLID	1		<5.44e-2		uCi/g
2	BLNK-PREP		0		@GEA-02 AM24102	SOLID	1		<2.75e-2		uCi/g
3	SAMPLE	S96T000874	0	F	@GEA-02 CO60-02	SOLID	N/A	<	2.643e-02	264.3e-004	uCi/g
3	SAMPLE	S96T000874	0	F	@GEA-02 CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T000874	0	F	@GEA-02 CS13702	SOLID	N/A		1.179e+02	0.0e+000	uCi/g
3	SAMPLE	S96T000874	0	F	@GEA-02 CS13702E	SOLID	N/A		0.440	0.0e+000	% Ct. Error
3	SAMPLE	S96T000874	0	F	@GEA-02 EU15402	SOLID	N/A		6.869e-01	0.0e+000	uCi/g
3	SAMPLE	S96T000874	0	F	@GEA-02 EU15402E	SOLID	N/A		9.39	0.0e+000	% Ct. Error
3	SAMPLE	S96T000874	0	F	@GEA-02 EU15502	SOLID	N/A		5.052e-01	0.0e+000	uCi/g
3	SAMPLE	S96T000874	0	F	@GEA-02 EU15502E	SOLID	N/A		31.8	0.0e+000	% Ct. Error
3	SAMPLE	S96T000874	0	F	@GEA-02 AM24102	SOLID	N/A		5.363e-01	0.0e+000	uCi/g
3	SAMPLE	S96T000874	0	F	@GEA-02 AM24102E	SOLID	N/A		18.0	0.0e+000	% Ct. Error
4	DUP	S96T000874	0	F	@GEA-02 CO60-02	SOLID	<2.64e-2		<3.14e-2		RPD
4	DUP	S96T000874	0	F	@GEA-02 CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T000874	0	F	@GEA-02 CS13702	SOLID	1.18e+02		1.12e+02	5.217	RPD
4	DUP	S96T000874	0	F	@GEA-02 CS13702E	SOLID	1		0.460	0.460	% Ct Error
4	DUP	S96T000874	0	F	@GEA-02 EU15402	SOLID	6.87e-01		6.13e-01	11.385	RPD
4	DUP	S96T000874	0	F	@GEA-02 EU15402E	SOLID	1		11.5	11.500	% Ct Error
4	DUP	S96T000874	0	F	@GEA-02 EU15502	SOLID	5.05e-01		4.68e-01	7.605	RPD
4	DUP	S96T000874	0	F	@GEA-02 EU15502E	SOLID	1		30.5	30.500	% Ct Error
4	DUP	S96T000874	0	F	@GEA-02 AM24102	SOLID	5.36e-01		5.27e-01	1.693	RPD
4	DUP	S96T000874	0	F	@GEA-02 AM24102E	SOLID	1		17.9	17.900	% Ct Error
5	SAMPLE	S96T000875	0	F	@GEA-02 CO60-02	SOLID	N/A	<	2.792e-02	279.2e-004	uCi/g
5	SAMPLE	S96T000875	0	F	@GEA-02 CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T000875	0	F	@GEA-02 CS13702	SOLID	N/A		1.287e+02	0.0e+000	uCi/g
5	SAMPLE	S96T000875	0	F	@GEA-02 CS13702E	SOLID	N/A		0.440	0.0e+000	% Ct. Error
5	SAMPLE	S96T000875	0	F	@GEA-02 EU15402	SOLID	N/A	<	1.129e-01	113.0e-003	uCi/g
5	SAMPLE	S96T000875	0	F	@GEA-02 EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T000875	0	F	@GEA-02 EU15502	SOLID	N/A	<	1.934e-01	193.0e-003	uCi/g
5	SAMPLE	S96T000875	0	F	@GEA-02 EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T000875	0	F	@GEA-02 AM24102	SOLID	N/A	<	1.418e-01	142.0e-003	uCi/g
5	SAMPLE	S96T000875	0	F	@GEA-02 AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
6	DUP	S96T000875	0	F	@GEA-02 CO60-02	SOLID	<2.79e-2		<2.45e-2		RPD
6	DUP	S96T000875	0	F	@GEA-02 CO60-02E	SOLID	1		n/a		% Ct Error

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

LABCORE Completed RadChem Report for Worklist#: 9466

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
6	DUP	S96T000875	0	F	@GEA-02	CS13702	SOLID	1.29e+02	1.23e+02	4.762	RPD
6	DUP	S96T000875	0	F	@GEA-02	CS13702E	SOLID	1	0.460	0.460	% Ct Error
6	DUP	S96T000875	0	F	@GEA-02	EU15402	SOLID	<1.13e-1	<1.32e-1		RPD
6	DUP	S96T000875	0	F	@GEA-02	EU15402E	SOLID	1	n/a		% Ct Error
6	DUP	S96T000875	0	F	@GEA-02	EU15502	SOLID	<1.93e-1	<1.95e-1		RPD
6	DUP	S96T000875	0	F	@GEA-02	EU15502E	SOLID	1	n/a		% Ct Error
6	DUP	S96T000875	0	F	@GEA-02	AM24102	SOLID	<1.42e-1	1.75e-01		RPD
6	DUP	S96T000875	0	F	@GEA-02	AM24102E	SOLID	1	49.0	49.000	% Ct Error

Comments Section:

Comments for sample# S96T000874 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T000875 **and test** @GEA-02 .
DL=0 => n/a.

Final page for worklist# 9466

Analyst Signature **Date**

Analyst Signature **Date**

B Machelor 6/4/96
Reviewer Signature **Date**

```
*****************************************************************************
* 222-S Laboratory Counting Room    4-JUN-1996 08:34:50.28                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9466
Sample ID:               WL9466-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             NI3AF:2.cnf Det 1  1056
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:28.03 sec
Dead Time:               0.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-JUN-1996 16:46:42.43
Decayed to:              3-JUN-1996 16:46:42.43
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-170, REV. 1

Removed by:

ALJ 6-3-96

Verified by:

B Machelor 6/4/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.89	3885	1.06	64.43	60	10	6.2			
0	36.32	1049	1.07	73.28	70	9	16.9			
0	661.58*	23070	1.42	1323.80	1316	15	1.5		CS-137	27.9
0	1173.00	15230	1.73	2346.89	2337	19	1.8		CO-60	26.2
0	1332.20	13373	1.88	2665.42	2655	20	1.8		CO-60	25.5
0	1764.22*	53	1.57	3529.95	3521	17	38.5			

Sample ID : WL9466-STD Acquisition date : 3-JUN-1996 16:46:42

Total number of lines in spectrum 6
Number of unidentified lines 2
Number of lines tentatively identified by NID 4 66.67%

WHC-SD-WM-DP-179, REV. 1

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.585E+01	2.585E+01	0.033E+01	1.29	
CS-137	30.00Y	1.000	2.793E+01	2.793E+01	0.041E+01	1.46	
		Total Activity :	5.378E+01	5.378E+01			
		Grand Total Activity :	5.378E+01	5.378E+01			

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

Sample ID : WL9466-STD
Acquisition date : 3-JUN-1996 16:46:42
WHC-CD-WM-DP-170, REV.)

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1352.	477.59	1.2590E+00
NA-22	107.	1274.53	8.8602E-02
NA-24	41.	1368.55	5.8876E-02
K-40	587.	1460.75	2.1634E+00
CR-51	1337.	320.08	8.9872E-01
MN-54	801.	834.83	1.6815E-01
CO-56	802.	846.76	1.7054E-01
CO-57	1519.	122.06	5.8764E-02
CO-58	751.	810.78	1.5947E-01
FE-59	774.	1099.25	3.7283E-01
SE-75	1436.	264.66	1.3703E-01
SR-85	981.	514.01	1.2377E-01
Y-88	21.	1836.06	5.2306E-02
NB-94	902.	871.09	1.8554E-01
ZRNB-95	660.	724.18	3.0669E-01
RU-103	1028.	497.08	1.2959E-01
RURH-106	745.	621.93	2.4926E+00
AG-108m	667.	722.94	1.4811E-01
CD-109	1345.	88.03	1.1883E+00
AG-110M	1255.	657.76	1.7864E-01
SN-113	1326.	391.69	1.6825E-01
TE-123m	1537.	159.00	6.9098E-02
SB-124	703.	602.73	1.1926E-01
SB-125	1356.	427.89	4.0121E-01
TE-125m	1402.	109.27	1.6477E+01
I-131	1265.	364.48	1.2166E-01
CS-134	720.	604.70	1.2129E-01
BA-140	849.	537.31	4.7273E-01
LA-140	29.	1596.21	5.7398E-02
CEPR-144	1560.	133.51	9.5995E-01
EU-152	52.	1408.01	3.1839E-01
EU-154	107.	1274.51	2.5742E-01
EU-155	1438.	105.31	2.1316E-01
HG-203	1394.	279.20	1.0124E-01
TL-208	1393.	277.36	1.2994E+00
BI-212	706.	727.18	2.0914E+00
PB-212	1681.	238.63	1.8339E-01
BI-214	886.	609.31	2.9528E-01
PB-214	1360.	351.92	4.9595E-01
RA-224	1594.	240.99	1.9828E+00
RA-226	1745.	186.10	1.9481E+00
AC-228	1060.	911.21	7.8678E-01
TH-228	1465.	84.37	3.5108E+00
TH-229	1326.	88.47	1.7264E-01
PA-233	1337.	312.17	2.2973E-01
UTH-233	1479.	245.34	7.1602E+01
PA-234M	838.	1001.03	3.4254E-01
TH-234	1190.	63.29	8.8068E-01
U-235	1720.	185.71	1.1759E-01
NP-237	1414.	86.48	3.5351E-01
NP-239	1419.	106.12	2.0313E-01

Sample ID : WL9466-STD Acquisition date : 3-JUN-1996 16:46:42

WHC-CD-WM-DP-170, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1500.	129.30	8.0276E+02
AM-241	1212.	59.54	1.1219E-01
AM-243	1442.	74.67	7.2520E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room    3-JUN-1996 19:15:39.97                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9466
Sample ID:               WL9466-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1057.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:10.52 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-JUN-1996 18:24:52.09
Decayed to:              3-JUN-1996 18:24:52.09
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-CP-WM-DP-176, REV. 1

Removed by: Em Barcelo

Verified by: Bmachelor 6/4/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	15.90	130	0.77	32.44	29	8	57.6			
0	663.32	44	0.69	1327.28	1321	15	102.2			

Sample ID : WL9466-BLK Acquisition date : 3-JUN-1996 18:24:52

Total number of lines in spectrum	2	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	0	0.00%

WHC-SD-WM-DP-170, REV. 1

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

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

Sample ID : WL9466-BLK
Acquisition date : 3-JUN-1996 18:24:52

WHC-SD-WM-DP-176, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	109.	477.59	3.5791E-01
NA-22	34.	1274.53	4.9916E-02
NA-24	21.	1368.55	4.1829E-02
K-40	579.	1460.75	2.1472E+00
CR-51	210.	320.08	3.5576E-01
MN-54	55.	834.83	4.4168E-02
CO-56	62.	846.76	4.7558E-02
CO-57	517.	122.06	3.4281E-02
CO-58	60.	810.78	4.4882E-02
FE-59	31.	1099.25	7.4351E-02
CO-60	29.	1332.50	4.7944E-02
SE-75	278.	264.66	6.0313E-02
SR-85	119.	514.01	4.3071E-02
Y-88	6.	1836.06	2.8672E-02
NB-94	48.	871.09	4.2865E-02
ZRNB-95	72.	724.18	1.0126E-01
RU-103	118.	497.08	4.3868E-02
RURH-106	69.	621.93	7.5766E-01
AG-108m	70.	722.94	4.7832E-02
CD-109	427.	88.03	6.6972E-01
AG-110M	81.	657.76	4.5385E-02
SN-113	150.	391.69	5.6543E-02
TE-123m	462.	159.00	3.7860E-02
SB-124	82.	602.73	4.0800E-02
SB-125	149.	427.89	1.3295E-01
TE-125m	475.	109.27	9.5889E+00
I-131	185.	364.48	4.6521E-02
CS-134	82.	604.70	4.0815E-02
CS-137	90.	661.66	5.3510E-02
BA-140	107.	537.31	1.6807E-01
LA-140	12.	1596.21	3.7621E-02
CEPR-144	492.	133.51	5.3895E-01
EU-152	22.	1408.01	2.0872E-01
EU-154	34.	1274.51	1.4514E-01
EU-155	476.	105.31	1.2264E-01
HG-203	242.	279.20	4.2165E-02
TL-208	258.	277.36	5.5915E-01
BI-212	74.	727.18	6.7801E-01
PB-212	410.	238.63	9.0607E-02
BI-214	238.	609.31	1.5308E-01
PB-214	292.	351.92	2.2926E-01
RA-224	342.	240.99	9.1790E-01
RA-226	484.	186.10	1.0266E+00
AC-228	141.	911.21	2.8715E-01
TH-228	478.	84.37	2.0051E+00
TH-229	406.	88.47	9.5545E-02
PA-233	237.	312.17	9.6622E-02
UTH-233	320.	245.34	3.3325E+01
PA-234M	41.	1001.03	7.5823E-02
TH-234	406.	63.29	5.1435E-01
U-235	482.	185.71	6.2245E-02

Sample ID : WL9466-BLK Acquisition date : 3-JUN-1996 18:24:52

WHC-SD-WM-DP-173, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	488.	86.48	2.0776E-01
NP-239	475.	106.12	1.1754E-01
PU-239	540.	129.30	4.8165E+02
AM-241	369.	59.54	6.1943E-02
AM-243	537.	74.67	4.4268E-02

****
* 222-S Laboratory Counting Room 3-JUN-1996 20:17:20.99 *
****

>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<< WHC-SD-WM-DP-173, REV. 1

Worklist #: 9466
Sample ID: S96T874-SAM
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

Removed by: Em Bauer

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

Detector ID:
File Number: dka300:[spec.GEA1]1g1058.cnf
Geometry: 41
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:51:08.64 sec
Dead Time: 2.2%

Verified by: B Machelor 6/4/96

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

Sample Count Time: 3-JUN-1996 19:24:55.51
Decayed to: 3-JUN-1996 19:24:55.51
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: EMB
Background Subtract: DKA300:[SPEC.GEA1]1GBACK

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

Date of last energy calibration: 20-MAR-1996 09:10:33.62
Date of last efficiency calibration: 20-MAR-1996 09:10:52.48

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.77	1069	1.05	44.19	40	9	32.8			
0	31.82	38681	1.09	64.28	59	10	1.7			
0	36.44	10181	1.03	73.52	70	9	4.3			
0	42.42	2015	1.56	85.49	80	11	20.5			
0	48.85	386	1.03	98.35	95	7	72.3			
0	59.46	1739	0.99	119.56	116	8	18.0		~~AM-241~~	1.21
									EU-155	35.7
0	86.23*	1757	0.98	173.09	168	11	22.2		~~NP-237~~	3.55
									EU-155	1.34
0	105.19	943	0.90	211.01	207	8	31.8		EU-155	1.14
0	123.00	2163	1.03	246.61	243	9	15.6		~~CO-57~~	0.701
									EU-154	1.50
0	661.59*	219327	1.44	1323.80	1316	16	0.4		CS-137	266.
4	723.21	265	1.91	1447.07	1442	17	16.5	1.43E+00	EU-154	1.48
0	756.55	66	1.81	1513.77	1509	10	57.2			
0	873.39	162	1.47	1747.49	1742	13	25.4		EU-154	1.78
5	995.86	111	2.39	1992.50	1987	32	32.8	2.47E+00	EU-154	1.61
5	1004.50	188	2.05	2009.77	1987	32	23.5		EU-154	1.58
0	1172.98	50	1.10	2346.85	2343	9	51.0			
0	1274.19	283	1.54	2549.35	2540	16	17.1		EU-154	1.51
0	1460.47*	33	1.80	2922.08	2912	20	164.1		~~K-40~~	0.635
0	1764.36*	7	2.87	3530.23	3523	14	220.4			

Sample ID : S96T874-SAM
Acquisition date : 3-JUN-1996 19:24:55

WHO-GD-WM-DP-178, REV. (

Total number of lines in spectrum	19	
Number of unidentified lines	6	
Number of lines tentatively identified by NID	13	68.42%

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~~	~~6.352E-01~~	~~6.352E-01~~	~~10.42E-01~~	~~164.10~~	BKG
~~CO-57~~	~~271.80D~~	~~1.000~~	~~7.013E-01~~	~~7.013E-01~~	~~1.095E-01~~	~~15.61~~	^{137}Eu
CS-137	30.00Y	1.000	2.655E+02	2.655E+02	0.012E+02	0.44	7/10/96
EU-154	8.59Y	1.000	1.548E+00	1.548E+00	0.145E+00	9.39	
EU-155	4.68Y	1.000	1.140E+00	1.140E+00	0.362E+00	31.80	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~3.554E+00~~	~~3.554E+00~~	~~0.790E+00~~	~~22.24~~	^{155}Eu
AM-241	432.20Y	1.000	1.205E+00	1.205E+00	0.217E+00	18.04	
		Total Activity :	2.743E+02	2.743E+02			

Grand Total Activity : 2.743E+02 2.743E+02

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

Sample ID : S96T874-SAM
Acquisition date : 3-JUN-1996 19:24:55
WHC-SD-WM-DP-173, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	7025.	477.59	2.8701E+00
NA-22	328.	1274.53	1.5508E-01
NA-24	21.	1368.55	4.2270E-02
CR-51	5546.	320.08	1.8303E+00
MN-54	94.	834.83	5.7654E-02
CO-56	88.	846.76	5.6530E-02
CO-58	77.	810.78	5.1009E-02
FE-59	52.	1099.25	9.6730E-02
CO-60	45.	1332.50	5.9643E-02
SE-75	5637.	264.66	2.7146E-01
SR-85	3507.	514.01	2.3402E-01
Y-88	7.	1836.06	3.0777E-02
NB-94	163.	871.09	7.8885E-02
ZRNB-95	329.	724.18	2.1660E-01
RU-103	4214.	497.08	2.6236E-01
RURH-106	1176.	621.93	3.1307E+00
AG-108m	322.	722.94	1.0295E-01
CD-109	5803.	88.03	2.4684E+00
AG-110M	6875.	657.76	4.1820E-01
SN-113	6300.	391.69	3.6677E-01
TE-123m	5532.	159.00	1.3108E-01
SB-124	1150.	602.73	1.5253E-01
SB-125	7346.	427.89	9.3388E-01
TE-125m	5445.	109.27	3.2467E+01
I-131	5826.	364.48	2.6107E-01
CS-134	1160.	604.70	1.5395E-01
BA-140	2544.	537.31	8.1811E-01
LA-140	29.	1596.21	5.8113E-02
CEPR-144	5503.	133.51	1.8029E+00
EU-152	35.	1408.01	2.6123E-01
HG-203	5594.	279.20	2.0282E-01
TL-208	5638.	277.36	2.6139E+00
BI-212	138.	727.18	9.2493E-01
PB-212	6055.	238.63	3.4804E-01
BI-214	1266.	609.31	3.5289E-01
PB-214	5739.	351.92	1.0259E+00
RA-224	5962.	240.99	3.8344E+00
RA-226	8029.	186.10	4.1790E+00
AC-228	121.	911.21	2.6546E-01
TH-228	5468.	84.37	6.7819E+00
TH-229	5274.	88.47	3.4426E-01
PA-233	5487.	312.17	4.6539E-01
UTH-233	5894.	245.34	1.4293E+02
PA-234M	103.	1001.03	1.2034E-01
TH-234	5133.	63.29	1.8289E+00
U-235	7898.	185.71	2.5196E-01
NP-239	6224.	106.12	4.2542E-01
PU-239	5717.	129.30	1.5673E+03
AM-243	5520.	74.67	1.4189E-01

****
* 222-S Laboratory Counting Room 3-JUN-1996 21:36:03.95 *
****

>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<< WHC-CP-WM-DP-170, REV. 1

Worklist #: 9466
Sample ID: S96T874-DUP
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

Removed by: [signature]

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

Detector ID:
File Number: dka300:[spec.GEA1]1g1059.cnf
Geometry: 41
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:51:04.11 sec
Dead Time: 2.1%

Verified by: [signature] 6/4/96

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

Sample Count Time: 3-JUN-1996 20:44:03.70
Decayed to: 3-JUN-1996 20:44:03.70
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: EMB
Background Subtract: DKA300:[SPEC.GEA1]1GBACK

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

Date of last energy calibration: 20-MAR-1996 09:10:33.62
Date of last efficiency calibration: 20-MAR-1996 09:10:52.48

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	12.26	273	1.06	25.18	23	6	77.3			
0	21.62	963	1.06	43.90	41	9	35.2			
0	31.81	35941	1.09	64.26	59	10	1.7			
0	36.31	9835	1.03	73.26	69	9	4.3			
0	42.58	1318	1.35	85.80	83	8	23.6			
0	59.42	1678	1.05	119.49	116	8	17.9		AM-241	1.16
									EU-155	34.4
0	86.54*	1435	1.06	173.71	169	10	24.8		~~NP-237~~	2.90
									EU-155	1.10
									~~CD-109~~	10.0
0	105.26	849	0.94	211.14	208	7	30.5		EU-155	1.03
0	122.96	1867	1.00	246.54	243	9	17.5		~~CO-57~~	0.605
									EU-154	1.29
0	661.59*	204257	1.45	1323.82	1316	16	0.5		CS-137	247.
0	723.38	209	1.18	1447.41	1441	13	27.1		EU-154	1.17
0	873.32	137	1.89	1747.35	1739	17	34.6		EU-154	1.51
0	996.28	114	1.91	1993.34	1987	12	35.1		EU-154	1.65
0	1004.68	150	1.33	2010.14	2005	11	24.7		EU-154	1.26
0	1173.21	51	2.06	2347.32	2342	12	53.5			
0	1274.04	267	1.89	2549.05	2540	19	18.3		EU-154	1.43

Sample ID : S96T874-DUP Acquisition date : 3-JUN-1996 20:44:03

WHC-CD-WM-DP-170, REV. 1

Total number of lines in spectrum	16	
Number of unidentified lines	5	
Number of lines tentatively identified by NID	11	68.75%

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~~	~~6.055E-01~~	~~6.055E-01~~	~~1.063E-01~~	~~17.55~~	154Eu
~~CD-109~~	~~462.90D~~	~~1.000~~	~~1.000E+01~~	~~1.000E+01~~	~~0.248E+01~~	~~24.78~~	155Eu
CS-137	30.00Y	1.000	2.473E+02	2.473E+02	0.011E+02	0.46	
EU-154	8.59Y	1.000	1.348E+00	1.348E+00	0.155E+00	11.51	
EU-155	4.68Y	1.000	1.027E+00	1.027E+00	0.313E+00	30.48	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~2.902E+00~~	~~2.902E+00~~	~~0.719E+00~~	~~24.78~~	155Eu
AM-241	432.20Y	1.000	1.163E+00	1.163E+00	0.209E+00	17.94	
			---	---			
	Total Activity :		2.643E+02	2.643E+02			

7/10/96

Grand Total Activity :	2.643E+02	2.643E+02

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

Sample ID : S96T874-DUP Acquisition date : 3-JUN-1996 20:44:03

WHC-SD-WM-DP-170, REV.0

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	6520.	477.59	2.7650E+00
NA-22	292.	1274.53	1.4630E-01
NA-24	21.	1368.55	4.2772E-02
K-40	609.	1460.75	2.2033E+00
CR-51	5203.	320.08	1.7730E+00
MN-54	79.	834.83	5.2683E-02
CO-56	71.	846.76	5.0868E-02
CO-58	79.	810.78	5.1753E-02
FE-59	56.	1099.25	1.0046E-01
CO-60	61.	1332.50	6.9050E-02
SE-75	5355.	264.66	2.6458E-01
SR-85	3383.	514.01	2.2981E-01
Y-88	6.	1836.06	2.7687E-02
NB-94	140.	871.09	7.3088E-02
ZRNB-95	305.	724.18	2.0852E-01
RU-103	3915.	497.08	2.5288E-01
RURH-106	1068.	621.93	2.9842E+00
AG-108m	309.	722.94	1.0082E-01
AG-110M	6174.	657.76	3.9629E-01
SN-113	5809.	391.69	3.5218E-01
TE-123m	5227.	159.00	1.2742E-01
SB-124	1108.	602.73	1.4973E-01
SB-125	6875.	427.89	9.0344E-01
TE-125m	5091.	109.27	3.1392E+01
I-131	5435.	364.48	2.5216E-01
CS-134	1117.	604.70	1.5106E-01
BA-140	2318.	537.31	7.8095E-01
LA-140	25.	1596.21	5.3536E-02
CEPR-144	5239.	133.51	1.7592E+00
EU-152	29.	1408.01	2.3755E-01
HG-203	5290.	279.20	1.9724E-01
TL-208	5352.	277.36	2.5467E+00
BI-212	121.	727.18	8.6436E-01
PB-212	5640.	238.63	3.3591E-01
BI-214	1249.	609.31	3.5055E-01
PB-214	5524.	351.92	1.0057E+00
RA-224	5505.	240.99	3.6846E+00
RA-226	7413.	186.10	4.0156E+00
AC-228	143.	911.21	2.8868E-01
TH-228	5215.	84.37	6.6233E+00
TH-229	4949.	88.47	3.3348E-01
PA-233	5099.	312.17	4.4862E-01
UTH-233	5442.	245.34	1.3734E+02
PA-234M	81.	1001.03	1.0660E-01
TH-234	4792.	63.29	1.7671E+00
U-235	7310.	185.71	2.4239E-01
NP-239	5682.	106.12	4.0648E-01
PU-239	5170.	129.30	1.4904E+03
AM-243	5283.	74.67	1.3881E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    3-JUN-1996 22:35:59.75                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9466
Sample ID:               S96T875-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1060.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:09.23 sec
Dead Time:               2.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-JUN-1996 21:43:33.10
Decayed to:              3-JUN-1996 21:43:33.10
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-170, REV. 1

Removed by: Tm Barker

Verified by: BJ Machelor 6/4/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.66	1246	1.07	43.96	40	8	24.5			
0	31.86	38627	1.09	64.38	60	9	1.6			
0	36.36	10691	1.01	73.37	69	9	3.9			
0	59.73	433	0.92	120.10	118	6	52.7		AM-241	0.300
0	86.79*	315	1.04	174.20	172	6	73.3		NP-237	0.637
									CD-109	2.19
0	123.24	447	0.89	247.10	244	7	59.6		CO-57	0.145
0	661.59*	224437	1.45	1323.82	1316	16	0.4		CS-137	272.
0	723.13	62	0.87	1446.91	1444	7	44.4			
0	1273.57	63	0.82	2548.11	2539	15	50.6			
0	1764.34*	20	2.88	3530.18	3523	18	95.5			

Sample ID : S96T875-SAM
Acquisition date : 3-JUN-1996 21:43:33

WHC-SD-WM-DP-179, REV. 1

Total number of lines in spectrum	10	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	7	70.00%

Nuclide Type :

KJ for P Bachelor 7/11/96

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~~	~~1.449E-01~~	~~1.450E-01~~	~~0.864E-01~~	~~59.60~~	BKG
~~CD-109~~	~~462.90D~~	~~1.000~~	~~2.194E+00~~	~~2.194E+00~~	~~1.608E+00~~	~~73.31~~	BKG
CS-137	30.00Y	1.000	2.717E+02	2.717E+02	0.012E+02	0.44	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~6.365E-01~~	~~6.365E-01~~	~~4.667E-01~~	~~73.31~~	BKG
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~2.998E-01~~	~~2.998E-01~~	~~1.579E-01~~	~~52.66~~	BKG
			---	---			
	Total Activity :		2.750E+02	2.750E+02			

Grand Total Activity : 2.750E+02 2.750E+02

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

Sample ID : S96T875-SAM
Acquisition date : 3-JUN-1996 21:43:33

WHC-SD-WM-DP-170, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	6967.	477.59	2.8582E+00
NA-22	92.	1274.53	8.2105E-02
NA-24	18.	1368.55	3.8695E-02
K-40	584.	1460.75	2.1565E+00
CR-51	5692.	320.08	1.8543E+00
MN-54	62.	834.83	4.6658E-02
CO-56	68.	846.76	4.9598E-02
CO-58	66.	810.78	4.7297E-02
FE-59	44.	1099.25	8.9218E-02
CO-60	44.	1332.50	5.9018E-02
SE-75	5676.	264.66	2.7238E-01
SR-85	3659.	514.01	2.3901E-01
Y-88	6.	1836.06	2.7664E-02
NB-94	69.	871.09	5.1500E-02
ZRNB-95	134.	724.18	1.3839E-01
RU-103	4242.	497.08	2.6324E-01
RURH-106	1126.	621.93	3.0646E+00
AG-108m	126.	722.94	6.4362E-02
AG-110M	6785.	657.76	4.1546E-01
SN-113	6379.	391.69	3.6905E-01
TE-123m	5555.	159.00	1.3135E-01
SB-124	1231.	602.73	1.5782E-01
SB-125	7448.	427.89	9.4036E-01
TE-125m	5336.	109.27	3.2138E+01
I-131	5945.	364.48	2.6373E-01
CS-134	1235.	604.70	1.5887E-01
BA-140	2555.	537.31	8.1985E-01
LA-140	22.	1596.21	4.9875E-02
CEPR-144	5470.	133.51	1.7975E+00
EU-152	27.	1408.01	2.3013E-01
EU-154	92.	1274.51	2.3865E-01
EU-155	5289.	105.31	4.0877E-01
HG-203	5604.	279.20	2.0300E-01
TL-208	5649.	277.36	2.6163E+00
BI-212	108.	727.18	8.1926E-01
PB-212	5992.	238.63	3.4622E-01
BI-214	1284.	609.31	3.5534E-01
PB-214	6024.	351.92	1.0512E+00
RA-224	5986.	240.99	3.8421E+00
RA-226	8056.	186.10	4.1862E+00
AC-228	136.	911.21	2.8167E-01
TH-228	5124.	84.37	6.5652E+00
TH-229	4989.	88.47	3.3483E-01
PA-233	5592.	312.17	4.6981E-01
UTH-233	5849.	245.34	1.4239E+02
PA-234M	67.	1001.03	9.6811E-02
TH-234	4683.	63.29	1.7470E+00
U-235	7973.	185.71	2.5315E-01
NP-239	5309.	106.12	3.9292E-01
PU-239	5458.	129.30	1.5313E+03
AM-243	5112.	74.67	1.3656E-01

```
***** ***********************************************************************
* 222-S Laboratory Counting Room    3-JUN-1996 23:37:55.70                  *
***********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9466
Sample ID:               S96T875-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1061.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:02.30 sec
Dead Time:               2.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-JUN-1996 22:45:52.42
Decayed to:              3-JUN-1996 22:45:52.42
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:10:52.48
***********************************************************************
```

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

Removed by: [illegible]

Verified by: [illegible] 6/4/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.65	1319	1.23	43.95	38	10	26.4			
0	31.85	35097	1.09	64.35	60	9	1.7			
0	36.36	9784	1.02	73.36	69	9	4.1			
0	59.31	500	1.09	119.27	117	7	48.9		AM-241	0.347
0	123.06	638	1.20	246.74	244	8	43.9		CO-57	0.207
0	661.59*	201244	1.45	1323.81	1316	16	0.5		CS-137	244.
0	725.98*	78	9.40	1452.60	1443	24	91.2			
0	1274.50	88	1.41	2549.97	2544	13	33.1			
0	1376.43*	18	1.64	2753.93	2747	14	107.2			
0	1408.12	14	0.86	2817.33	2814	7	76.1			
0	1660.43	17	1.78	3322.24	3318	11	48.5			

Sample ID : S96T875-DUP Acquisition date : 3-JUN-1996 22:45:52

WHC-SD-WM-DP-179, REV. 1

Total number of lines in spectrum	11	
Number of unidentified lines	5	
Number of lines tentatively identified by NID	6	54.55%

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~~	~~2.070E-01~~	~~2.070E-01~~	~~0.909E-01~~	~~43.89~~	
CS-137	30.00Y	1.000	2.437E+02	2.437E+02	0.011E+02	0.46	
AM-241	432.20Y	1.000	3.466E-01	3.466E-01	1.696E-01	48.95	
	Total Activity :		2.442E+02	2.442E+02			
	Grand Total Activity :		2.442E+02	2.442E+02			

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

Sample ID : S96T875-DUP
Acquisition date : 3-JUN-1996 22:45:52

WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	6304.	477.59	2.7188E+00
NA-22	111.	1274.53	9.0187E-02
NA-24	15.	1368.55	3.5424E-02
K-40	584.	1460.75	2.1575E+00
CR-51	5169.	320.08	1.7670E+00
MN-54	50.	834.83	4.1974E-02
CO-56	61.	846.76	4.7165E-02
CO-58	62.	810.78	4.5930E-02
FE-59	45.	1099.25	8.9855E-02
CO-60	30.	1332.50	4.8760E-02
SE-75	5159.	264.66	2.5968E-01
SR-85	3144.	514.01	2.2155E-01
Y-88	8.	1836.06	3.2827E-02
NB-94	75.	871.09	5.3499E-02
ZRNB-95	127.	724.18	1.3476E-01
RU-103	3917.	497.08	2.5294E-01
RURH-106	992.	621.93	2.8765E+00
AG-108m	123.	722.94	6.3631E-02
CD-109	4603.	88.03	2.1986E+00
AG-110M	6043.	657.76	3.9209E-01
SN-113	5773.	391.69	3.5110E-01
TE-123m	4958.	159.00	1.2409E-01
SB-124	1128.	602.73	1.5109E-01
SB-125	6615.	427.89	8.8618E-01
TE-125m	4757.	109.27	3.0347E+01
I-131	5297.	364.48	2.4894E-01
CS-134	1109.	604.70	1.5054E-01
BA-140	2315.	537.31	7.8044E-01
LA-140	9.	1596.21	3.1701E-02
CEPR-144	5010.	133.51	1.7203E+00
EU-152	26.	1408.01	2.2610E-01
EU-154	111.	1274.51	2.6211E-01
EU-155	4767.	105.31	3.8811E-01
HG-203	5171.	279.20	1.9500E-01
TL-208	5223.	277.36	2.5158E+00
BI-212	102.	727.18	7.9655E-01
PB-212	5490.	238.63	3.3139E-01
BI-214	1235.	609.31	3.4853E-01
PB-214	5373.	351.92	9.9156E-01
RA-224	5301.	240.99	3.6156E+00
RA-226	7225.	186.10	3.9643E+00
AC-228	125.	911.21	2.6998E-01
TH-228	4653.	84.37	6.2563E+00
TH-229	4512.	88.47	3.1843E-01
PA-233	5033.	312.17	4.4574E-01
UTH-233	5292.	245.34	1.3544E+02
PA-234M	65.	1001.03	9.5187E-02
TH-234	4213.	63.29	1.6570E+00
U-235	7142.	185.71	2.3959E-01
NP-237	4921.	86.48	6.5963E-01
NP-239	4794.	106.12	3.7337E-01

Sample ID : S96T875-DUP Acquisition date : 3-JUN-1996 22:45:52

WHC-SD-WM-DP-170, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	4893.	129.30	1.4499E+03
AM-243	4730.	74.67	1.3136E-01

LABCORE Data Entry Template for Worklist# 9561

Analyst: RDM **Instrument:** GEA00 #2 **Book#** 12B56

Method: LA-548-121 Rev/Mod E-0 WHC-SD-WM-DP-170, REV. 1

Worklist Comment: S102. Sample size is on traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-02	SOLID		
2	BLNK-PREP				@GEA-02	SOLID		
3	SAMPLE	S96T001468	0	F	@GEA-02	SOLID	96000094	S102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T001468	0	F	@GEA-02	SOLID		

Final page for worklist # 9561

RDMyers 6/5/96
Analyst Signature **Date**

Sharon L Valle 6-5-96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9561

Analyst: rdm **Instrument:** GEA02 **Book#** 12856

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

Worklist Comment: S102. Sample size is on traveler. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-02	CO60-02	SOLID	2.521e-02		2.54e-02	100.754	% Recovery
1	STD		0		@GEA-02	CO60-02E	SOLID	1		1.37	1.370	% Ct Error
1	STD		0		@GEA-02	CS13702	SOLID	2.702e-02		2.70e-02	99.926	% Recovery
1	STD		0		@GEA-02	CS13702E	SOLID	1		1.60	1.600	% Ct Error
2	BLNK-PREP		0		@GEA-02	CO60-02	SOLID	1		<1.19e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	CS13702	SOLID	1		<1.97e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15402	SOLID	1		<3.99e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15502	SOLID	1		<4.29e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	AM24102	SOLID	1		<8.41e-2		uCi/g
3	SAMPLE	S96T001468	0	F	@GEA-02	CO60-02	SOLID	N/A	<	1.885e-02	188.5e-004	uCi/g
3	SAMPLE	S96T001468	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001468	0	F	@GEA-02	CS13702	SOLID	N/A		1.290e+02	0.0e+000	uCi/g
3	SAMPLE	S96T001468	0	F	@GEA-02	CS13702E	SOLID	N/A		0.490	0.0e+000	% Ct. Error
3	SAMPLE	S96T001468	0	F	@GEA-02	EU15402	SOLID	N/A	<	7.143e-02	714.3e-004	uCi/g
3	SAMPLE	S96T001468	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001468	0	F	@GEA-02	EU15502	SOLID	N/A	<	3.564e-01	356.0e-003	uCi/g
3	SAMPLE	S96T001468	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001468	0	F	@GEA-02	AM24102	SOLID	N/A	<	7.455e-01	746.0e-003	uCi/g
3	SAMPLE	S96T001468	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
4	DUP	S96T001468	0	F	@GEA-02	CO60-02	SOLID	<1.88e-2		<1.61e-2		RPD
4	DUP	S96T001468	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T001468	0	F	@GEA-02	CS13702	SOLID	1.29e+02		1.26e+02	2.353	RPD
4	DUP	S96T001468	0	F	@GEA-02	CS13702E	SOLID	1		0.460	0.460	% Ct Error
4	DUP	S96T001468	0	F	@GEA-02	EU15402	SOLID	<7.14e-2		<6.63e-2		RPD
4	DUP	S96T001468	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
4	DUP	S96T001468	0	F	@GEA-02	EU15502	SOLID	<3.56e-1		<3.31e-1		RPD
4	DUP	S96T001468	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
4	DUP	S96T001468	0	F	@GEA-02	AM24102	SOLID	<7.46e-1		<6.84e-1		RPD
4	DUP	S96T001468	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error

Comments Section:

Comments for sample# S96T001468 **and test** @GEA-02 .
DL=0 => n/a.

Final page for worklist# 9561

LABCORE Completed RadChem Report for Worklist#: 9561

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit

Analyst Signature Date Analyst Signature Date

Bachelor 6/6/96

Reviewer Signature Date

```
*****************************************************************************
* 222-S Laboratory Counting Room    5-JUN-1996 10:14:25.73                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9561
Sample ID:               WL9561-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2884.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.67 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       5-JUN-1996 09:23:27.67
Decayed to:              5-JUN-1996 09:23:27.67
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 SEH
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-179, REV. 1

Removed by:

6-5-96

Verified by:

6/5/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.87*	19479	1.52	1323.76	1316	16	1.6		CS-137	27.0
0	1173.52	12797	1.79	2347.10	2337	20	2.0		CO-60	25.1
0	1332.84	11788	1.94	2665.83	2656	21	1.9		CO-60	25.7

Sample ID : WL9561-STD
Acquisition date : 5-JUN-1996 09:23:27

WHC-SD-WM-DP-179, REV. 1

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.540E+01	2.540E+01	0.035E+01	1.37	
CS-137	30.00Y	1.000	2.703E+01	2.703E+01	0.043E+01	1.60	
		Total Activity :	5.243E+01	5.243E+01			
		Grand Total Activity :	5.243E+01	5.243E+01			

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

Sample ID : WL9561-STD
Acquisition date : 5-JUN-1996 09:23:27
WHC-SD-WM-DP-170, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1082.	477.59	1.3342E+00
NA-22	97.	1274.53	9.6245E-02
NA-24	17.	1368.55	4.4038E-02
K-40	105.	1460.75	1.0441E+00
CR-51	1112.	320.08	1.0089E+00
MN-54	630.	834.83	1.6815E-01
CO-56	648.	846.76	1.7259E-01
CO-57	1232.	122.06	7.8474E-02
CO-58	643.	810.78	1.6657E-01
FE-59	619.	1099.25	3.7827E-01
SE-75	1310.	264.66	1.6536E-01
SR-85	807.	514.01	1.3234E-01
Y-88	13.	1836.06	4.7497E-02
NB-94	740.	871.09	1.8898E-01
ZRNB-95	542.	724.18	3.1624E-01
RU-103	785.	497.08	1.3385E-01
RURH-106	611.	621.93	2.6044E+00
AG-108m	554.	722.94	1.5369E-01
CD-109	1133.	88.03	2.5846E+00
AG-110M	795.	657.76	1.6310E-01
SN-113	1051.	391.69	1.7844E-01
TE-123m	1267.	159.00	7.9636E-02
SB-124	637.	602.73	1.3142E-01
SB-125	1116.	427.89	4.3138E-01
TE-125m	1147.	109.27	2.5106E+01
I-131	1053.	364.48	1.3376E-01
CS-134	640.	604.70	1.3240E-01
BA-140	676.	537.31	4.9511E-01
LA-140	18.	1596.21	5.2434E-02
CEPR-144	1298.	133.51	1.2041E+00
EU-152	18.	1408.01	2.1350E-01
EU-154	97.	1274.51	2.7951E-01
EU-155	1168.	105.31	3.4021E-01
HG-203	1207.	279.20	1.1810E-01
TL-208	1239.	277.36	1.5375E+00
BI-212	507.	727.18	2.0179E+00
PB-212	1458.	238.63	2.1789E-01
BI-214	591.	609.31	2.7874E-01
PB-214	1079.	351.92	5.3415E-01
RA-224	1424.	240.99	2.3902E+00
RA-226	1418.	186.10	2.1963E+00
AC-228	817.	911.21	7.7539E-01
TH-228	1064.	84.37	7.6884E+00
TH-229	1121.	88.47	3.7268E-01
PA-233	1148.	312.17	2.6293E-01
UTH-233	1393.	245.34	8.8531E+01
PA-234M	670.	1001.03	3.4557E-01
TH-234	1036.	63.29	4.4194E+00
U-235	1421.	185.71	1.3368E-01
NP-237	1120.	86.48	7.7110E-01
NP-239	1182.	106.12	3.2475E-01

Sample ID : WL9561-STD Acquisition date : 5-JUN-1996 09:23:27

WHC-SD-WM-DP-170, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1288.	129.30	1.0477E+03
AM-241	1050.	59.54	7.0842E-01
AM-243	1149.	74.67	2.1719E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    5-JUN-1996 11:06:35.25                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9561
Sample ID:               WL9561-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2885.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.49 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       5-JUN-1996 10:15:55.06
Decayed to:              5-JUN-1996 10:15:55.06
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-173, REV. 1

Removed by: 6-5-96

Verified by: RAJones 6/5/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	35.71	45	1.43	71.96	70	6	71.5			
0	608.83*	19	1.50	1217.70	1212	13	111.2			
0	661.90*	27	1.73	1323.82	1320	11	121.7		CS-137	3.772E-02
0	1461.28*	8	2.01	2922.82	2915	18	283.3		K-40	0.171

Sample ID : WL9561-BLK Acquisition date : 5-JUN-1996 10:15:55

WHO-SOP-WM-DP-170, REV. 1

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
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~1.706E-01~~	~~1.706E-01~~	~~4.833E-01~~	~~283.31~~	Bkg RAJ
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~3.772E-02~~	~~3.772E-02~~	~~4.591E-02~~	~~121.73~~	Bkg RAJ
			---	---			
Total Activity :			2.083E-01	2.083E-01			
Grand Total Activity :			2.083E-01	2.083E-01			

7/11/96

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

Sample ID : WL9561-BLK
Acquisition date : 5-JUN-1996 10:15:55
WHC-SD-WM-DP-170, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	26.	477.59	2.0842E-01
NA-22	7.	1274.53	2.6302E-02
NA-24	12.	1368.55	3.6445E-02
CR-51	51.	320.08	2.1585E-01
MN-54	11.	834.83	2.2424E-02
CO-56	12.	846.76	2.3499E-02
CO-57	66.	122.06	1.8224E-02
CO-58	18.	810.78	2.7770E-02
FE-59	12.	1099.25	5.2314E-02
CO-60	5.	1332.50	2.2732E-02
SE-75	62.	264.66	3.6112E-02
SR-85	47.	514.01	3.1848E-02
Y-88	0.	1836.06	0.0000E+00
NB-94	18.	871.09	2.9539E-02
ZRNB-95	16.	724.18	5.3642E-02
RU-103	25.	497.08	2.3840E-02
RURH-106	22.	621.93	4.9649E-01
AG-108m	15.	722.94	2.5424E-02
CD-109	68.	88.03	6.3312E-01
AG-110M	23.	657.76	2.8001E-02
SN-113	29.	391.69	2.9528E-02
TE-123m	76.	159.00	1.9475E-02
SB-124	24.	602.73	2.5667E-02
SB-125	32.	427.89	7.3582E-02
TE-125m	78.	109.27	6.5662E+00
I-131	46.	364.48	2.7811E-02
CS-134	22.	604.70	2.4624E-02
BA-140	21.	537.31	8.7338E-02
LA-140	4.	1596.21	2.4673E-02
CEPR-144	69.	133.51	2.7798E-01
EU-152	7.	1408.01	1.3017E-01
EU-154	7.	1274.51	7.6414E-02
EU-155	68.	105.31	8.2211E-02
HG-203	62.	279.20	2.6727E-02
TL-208	51.	277.36	3.1248E-01
BI-212	20.	727.18	4.0319E-01
PB-212	69.	238.63	4.7318E-02
BI-214	51.	609.31	8.2227E-02
PB-214	61.	351.92	1.2665E-01
RA-224	63.	240.99	5.0276E-01
RA-226	90.	186.10	5.5271E-01
AC-228	22.	911.21	1.2786E-01
TH-228	61.	84.37	1.8482E+00
TH-229	69.	88.47	9.2326E-02
PA-233	56.	312.17	5.8308E-02
UTH-233	62.	245.34	1.8651E+01
PA-234M	15.	1001.03	5.1677E-02
TH-234	60.	63.29	1.0674E+00
U-235	86.	185.71	3.2811E-02
NP-237	56.	86.48	1.7179E-01
NP-239	74.	106.12	8.1261E-02

Sample ID : WL9561-BLK Acquisition date : 5-JUN-1996 10:15:55

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	82.	129.30	2.6461E+02
AM-241	54.	59.54	1.6109E-01
AM-243	79.	74.67	5.6901E-02

WHC-SD-WM-DP-179, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room    5-JUN-1996 11:58:07.28                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9561
Sample ID:               S96T001468-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2886.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:24.11 sec
Dead Time:               0.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       5-JUN-1996 11:07:06.10
Decayed to:              5-JUN-1996 11:07:06.10
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-179, REV. 1

Removed by:

Verified by: 6/5/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.83*	178210	1.53	1323.69	1315	17	0.5		CS-137	247.

Sample ID : S96T001468-SAM Acquisition date : 5-JUN-1996 11:07:06

WHC-SD-WM-DP-179, REV. 1

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.473E+02	2.473E+02	0.012E+02	0.49	
		Total Activity :	2.473E+02	2.473E+02			
		Grand Total Activity :	2.473E+02	2.473E+02			

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

Sample ID : S96T001468-SAM Acquisition date : 5-JUN-1996 11:07:06

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5503.	477.59	3.0091E+00
NA-22	23.	1274.53	4.6988E-02
NA-24	4.	1368.55	1.9813E-02
K-40	95.	1460.75	9.9443E-01
CR-51	4663.	320.08	2.0665E+00
MN-54	37.	834.83	4.0924E-02
CO-56	29.	846.76	3.6532E-02
CO-57	5233.	122.06	1.6175E-01
CO-58	31.	810.78	3.6416E-02
FE-59	22.	1099.25	7.0696E-02
CO-60	13.	1332.50	3.6096E-02
SE-75	5342.	264.66	3.3389E-01
SR-85	2900.	514.01	2.5091E-01
Y-88	5.	1836.06	2.9456E-02
NB-94	27.	871.09	3.5787E-02
ZRNB-95	60.	724.18	1.0513E-01
RU-103	3449.	497.08	2.8058E-01
RURH-106	1229.	621.93	3.6934E+00
AG-108m	59.	722.94	5.0075E-02
CD-109	4579.	88.03	5.1953E+00
AG-110M	3268.	657.76	3.3066E-01
SN-113	5053.	391.69	3.9120E-01
TE-123m	5283.	159.00	1.6263E-01
SB-124	1319.	602.73	1.8920E-01
SB-125	5811.	427.89	9.8450E-01
TE-125m	4908.	109.27	5.1926E+01
I-131	4734.	364.48	2.8363E-01
CS-134	1263.	604.70	1.8593E-01
BA-140	2078.	537.31	8.6796E-01
LA-140	8.	1596.21	3.4389E-02
CEPR-144	5313.	133.51	2.4359E+00
EU-152	9.	1408.01	1.4803E-01
EU-154	23.	1274.51	1.3675E-01
EU-155	4698.	105.31	6.8231E-01
HG-203	4899.	279.20	2.3790E-01
TL-208	4888.	277.36	3.0534E+00
BI-212	55.	727.18	6.6132E-01
PB-212	5746.	238.63	4.3255E-01
BI-214	1231.	609.31	4.0248E-01
PB-214	4775.	351.92	1.1268E+00
RA-224	5825.	240.99	4.8337E+00
RA-226	6653.	186.10	4.7582E+00
AC-228	42.	911.21	1.7627E-01
TH-228	4453.	84.37	1.5732E+01
TH-229	4576.	88.47	7.5284E-01
PA-233	4797.	312.17	5.3745E-01
UTH-233	5655.	245.34	1.7839E+02
PA-234M	27.	1001.03	6.9358E-02
TH-234	4288.	63.29	8.9925E+00
U-235	6539.	185.71	2.8673E-01
NP-237	4596.	86.48	1.5619E+00

Sample ID : S96T001468-SAM Acquisition date : 5-JUN-1996 11:07:06

WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	4735.	106.12	6.5009E-01
PU-239	5222.	129.30	2.1098E+03
AM-241	4261.	59.54	1.4272E+00
AM-243	4403.	74.67	4.2515E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    5-JUN-1996 13:33:39.74                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9561
Sample ID:               S96T1468-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2887.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:26.65 sec
Dead Time:               0.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       5-JUN-1996 12:42:35.09
Decayed to:              5-JUN-1996 12:42:35.09
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
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WHC-SD-WM-DP-178, REV. 1

Removed by: MCB

Verified by: RA Jones 6/5/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.83*	197729	1.52	1323.67	1315	17	0.5		CS-137	274.

Sample ID : S96T1468-DUP
Acquisition date : 5-JUN-1996 12:42:35

WHC-SD-WM-DP-179, REV. 1

Total number of lines in spectrum	1	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.744E+02	2.744E+02	0.013E+02	0.46	
		Total Activity :	2.744E+02	2.744E+02			
		Grand Total Activity :	2.744E+02	2.744E+02			

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

Sample ID : S96T1468-DUP
Acquisition date : 5-JUN-1996 12:42:35
WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	6210.	477.59	3.1965E+00
NA-22	26.	1274.53	4.9691E-02
NA-24	4.	1368.55	2.1262E-02
K-40	112.	1460.75	1.0797E+00
CR-51	5218.	320.08	2.1859E+00
MN-54	47.	834.83	4.6047E-02
CO-56	51.	846.76	4.8463E-02
CO-57	5662.	122.06	1.6826E-01
CO-58	36.	810.78	3.9221E-02
FE-59	19.	1099.25	6.5506E-02
CO-60	12.	1332.50	3.5050E-02
SE-75	5862.	264.66	3.4974E-01
SR-85	3134.	514.01	2.6080E-01
Y-88	3.	1836.06	2.1518E-02
NB-94	47.	871.09	4.7551E-02
ZRNB-95	70.	724.18	1.1354E-01
RU-103	3840.	497.08	2.9607E-01
RURH-106	1303.	621.93	3.8019E+00
AG-108m	67.	722.94	5.3238E-02
CD-109	5050.	88.03	5.4563E+00
AG-110M	3586.	657.76	3.4639E-01
SN-113	5586.	391.69	4.1129E-01
TE-123m	5896.	159.00	1.7179E-01
SB-124	1321.	602.73	1.8932E-01
SB-125	6360.	427.89	1.0299E+00
TE-125m	5281.	109.27	5.3865E+01
I-131	5249.	364.48	2.9866E-01
CS-134	1301.	604.70	1.8875E-01
BA-140	2337.	537.31	9.2047E-01
LA-140	4.	1596.21	2.4674E-02
CEPR-144	5802.	133.51	2.5455E+00
EU-152	5.	1408.01	1.0868E-01
EU-154	26.	1274.51	1.4459E-01
EU-155	5252.	105.31	7.2140E-01
HG-203	5496.	279.20	2.5197E-01
TL-208	5521.	277.36	3.2451E+00
BI-212	61.	727.18	7.0238E-01
PB-212	6461.	238.63	4.5868E-01
BI-214	1352.	609.31	4.2175E-01
PB-214	5251.	351.92	1.1820E+00
RA-224	6294.	240.99	5.0243E+00
RA-226	7373.	186.10	5.0090E+00
AC-228	51.	911.21	1.9416E-01
TH-228	4947.	84.37	1.6581E+01
TH-229	5087.	88.47	7.9378E-01
PA-233	5263.	312.17	5.6296E-01
UTH-233	6184.	245.34	1.8655E+02
PA-234M	36.	1001.03	7.9876E-02
TH-234	4642.	63.29	9.3564E+00
U-235	7315.	185.71	3.0325E-01
NP-237	4976.	86.48	1.6252E+00

Sample ID : S96T1468-DUP Acquisition date : 5-JUN-1996 12:42:35

WHC-SD-WM-DP-179, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	5260.	106.12	6.8520E-01
PU-239	5703.	129.30	2.2049E+03
AM-241	4661.	59.54	1.4928E+00
AM-243	4850.	74.67	4.4622E-01