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

Document number: SD-WM-DP-189

Section 4 **of** 5

Title: Final Report for Tank 241U102 Cores 143 & 144 [Pgs 1201 Thru 1600]

Date: 08/30/1996 **Revision:** R001

Originator: Steen, FH
Co: WHC

Recipient:
Co:

References: ECN-633323

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T002762SPK Date: 08/21/96 Time: 05:08:33

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.38 ug/minute C

Analyst : JD SPELLMAN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.80	0.00
2	1.01	14.10	87.23
3	1.50	90.30	84.39
4	2.00	241.10	62.55
5	2.50	408.20	40.94
6	3.00	525.30	22.29
7	3.50	592.20	11.30
8	4.00	623.70	5.05
9	4.50	636.90	2.07
10	5.00	642.30	0.84
11	5.50	644.80	0.39
12	6.00	646.40	0.25
13	6.50	647.70	0.20
14	7.00	648.90	0.18
15	7.50	650.10	0.18
16	8.00	651.30	0.18
17	8.50	652.20	0.14
18	9.00	652.90	0.11
19	9.50	653.50	0.09
20	10.00	654.10	0.09
21	10.50	654.60	0.08
22	11.00	655.10	0.08

USER INPUT BLANK VALUE
BLANK VALUE = 37.1701 micrograms carbon
BLANK FACTOR = 37.1701 / 10.99707 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(655.1 - 37.16979)(1)/(1) = +6.179E+02 g/L Carbon
(655.1 - 37.16979)(1)/(1)(12) = +5.149E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
JD SPELLMAN 00000

WORKBOOK PAGE: BLANK1

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

			TIC	TOC
	Sample Size in mL	(SS)	0.0000	0.0000
BLNK	Dilution Factor	(DF)	1	1
	µg of Carbon in Sample	(C1)	6.1	26.9
12138	µg of Carbon from Baseline	(C2)	5.3	37.2

@TICTOC1

LIQUID

96008532

µg of Carbon = |C1-C2|

0

N/A

BLNK

CARB2#2

RTS

RWS

JDS

08/21/96

08/20/96

		TIC	TOC
	Method Detection Limit in µg/mL	5	40
	µg of Carbon	8.00E-01	1.03E+01

U-102

Data Entered By:	RTS	Date:	08/21/96
Signature of Chemist:	RW Schroeder	Date:	8/21/96

BLANK.WB1 REV 1.0 342100ML

1202

WORKBOOK PAGE: STD2

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

			TIC	TOC
	Sample Size in mL	(SS)	1.0000	0.2000
STD	Dilution Factor	(DF)	1	1
	Final Coulometer Reading in µg	(C1)	585.9	593.6
12138	µg of Carbon from Baseline	(C2)	5.3	37.2
	Standard Book Number		22N12E	24N12C
@TICTOC1	Standard Value (µg/ml)		601	3001

LIQUID

96008532

0

N/A

CARB2#2

RTS

RWS

JDS

08/21/96

08/20/96

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

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

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

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

% Recovery = QC Found / QC Actual * 100

		TIC	TOC
	Method Detection Limit in µg/mL	5	40
	QC Actual in µg/mL	6.01E+02	3.00E+03
	QC Found in µg/mL	5.81E+02	2.78E+03
U-102	Percent Standard Recovery	96.6	92.7

Data Entered By:	RTS	Date:	08/21/96
Signature of Chemist:	RW Schroeder	Date:	8/21/96

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

WHC-SD-WM-DP-189, REV. 1

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

			TIC	TOC
SAMPLE	Sample Size in mL	(SS)	0.4964	0.4964
	Dilution Factor	(DF)	1	1
12138	µg of Carbon in Sample	(C1)	10	36.9
	µg of Carbon from Baseline	(C2)	5.3	37.2
@TICTOC1				

LIQUID

96008532

0

N/A

S96T002762

CARB2#2

RTS

RWS

JDS

08/21/96

08/20/96

U-102

µg of Carbon/mL = (C1-C2) * DF / SS

µg of Carbon/mL for TIC = 5 if C1 < C2

µg of Carbon/mL for TOC = 40 if C1 < C2

NOTE: FOR TOC: The Reported Result is < 40.

			TIC	TOC
Method Detection Limit in µg/mL			5	40
µg of Carbon/mL	Note:	<	9.47E+00	4.00E+01

Data Entered By:	RTS	Date:	08/21/96
Signature of Chemist:	RW Schroeder	Date:	8/21/96

SAMPLE.WB1 REV 1.0 342100ML

1204

WORKBOOK PAGE: DUP4

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

			TIC	TOC
	Sample Size in mL	(SS)	0.4971	0.4971
DUP	Dilution Factor	(DF)	1	1
	µg of Carbon in Sample	(C1)	7.2	31.4
12138	µg of Carbon from Baseline	(C2)	5.3	37.2
	Known µg of C from Original Sample		9.47E+0	<4.00E+1
@TICTOC1				

LIQUID

96008532

µg of Carbon/mL = (C1-C2) * DF / SS

0

µg of Carbon/mL for TIC = 5 if C1 < C2

µg of Carbon/mL for TOC = 40 if C1 < C2

N/A

S96T002762

CARB2#2

RTS

Chemist

RWS

Analyst

JDS

08/21/96

NOTE: FOR TIC: The Reported Result is < 5.

NOTE: FOR TOC: The Reported Result is < 40.

08/20/96

			TIC	TOC
Method Detection Limit in µg/mL			5	40
µg of Carbon/mL	Note:	<	~~3.82E+00~~ 5.00e0	4.00E+01

U-102

RWS
8/21/96

Data Entered By:	RTS	Date:	08/21/96
Signature of Chemist:	RWS	Date:	8/21/96

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SPIKE5

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

			TIC	TOC
	Sample Vial Data			
SPK	Sample Volume in mL	(SS)	0.4964	0.4964
	Final Coulometer Reading in µg	(C1)	10	36.9
12138	**Spiked Vial Data**			
	Sample Volume in mL	(SPK SS)	0.4969	0.4969
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	1.000	0.200
	Final Coulometer Reading in µg	(C2)	583.3	655.1
LIQUID	Spike Book Number		22N12E	24N12C
	Spike Standard Value in µg/ml	(SPK CONC)	601	3001

96008532

0

N/A

S96T002762

CARB2#2

RTS

RWS

JDS

08/21/96

08/20/96

U-102

Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 1

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

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

	TIC	TOC
QC Actual in µg/mL	6.01E+02	3.00E+03
QC Found in µg/mL	5.73E+02	3.09E+03
Percent Spike Recovery	95.4	103.0

Data Entered By:	RTS	Date:	08/21/96
Signature of Chemist:	RW Schroeder	Date:	8/21/96

SPIKE.WB1 REV 1.1 342100ML

WHC-SD-WM-DP-189, REV. 1

RADIOCHEMICAL ANALYSES

WHC-SD-WM-DP-189, REV. 1

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LABCORE Data Entry Template for Worklist# 9287

Analyst: JMV **Instrument:** AB00 #13 **Book#** 47856

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

Worklist Comment: U-102 ALPHA DETERMINE SS USING LUDLUM .1ML SPIKE S.SIZE.RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	LIQUID		
2	BLNK				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S96T002323	0		@ALPHA01	LIQUID	96000536	U-102
		Analytes Requested:			ALPHA01 , ALPHA01E			
5	DUP	S96T002323	0		@ALPHA01	LIQUID		
6	SPK	S96T002323	0		@ALPHA01	LIQUID		

Final page for worklist # 9287

Joe M Umbart 5-29-96
Analyst Signature **Date**

M C Brown 5/30/96
Analyst Signature **Date**

Sue Hogan 5/30/96

Data Entry Comments:

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

worklistrad Version 0.0 04/18/96
05/30/96 15:28

LABCORE Completed RadChem Report for Worklist#: 9287

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

Method: _____ Rev/Mod _____

Worklist Comment: U-102 ALPHA DETERMINE SS USING LUDLUM .1ML SPIKE S.SIZE.RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@ALPHA01	ALPHA01	LIQUID	1.28E-04	1.43E-4	111.719	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	LIQUID	1.00	4.06E+00	4.060	% Ct. Erro
2	BLNK		0	@ALPHA01	ALPHA01	LIQUID	1	<1.24E-2		uCi/mL
2	BLNK		0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	uCi/mL
3	BLNK/BKG		0	@ALPHA01	ALPHA01	LIQUID	1.00E+00	1.75E+00	1.750	BLNK/BKG
4	SAMPLE	S96T002323	0	@ALPHA01	ALPHA01	LIQUID	N/A	2.72E-02	175.0e-004	uCi/mL
4	SAMPLE	S96T002323	0	@ALPHA01	ALPHA01E	LIQUID	N/A	5.74E+01	0.0e+000	% Ct. Error
5	DUP	S96T002323	0	@ALPHA01	ALPHA01	LIQUID	2.72E-2	2.60E-2	4.511	RPD
5	DUP	S96T002323	0	@ALPHA01	ALPHA01E	LIQUID	1.00	6.21E+01	62.100	% Ct. Erro
6	SPK	S96T002323	0	@ALPHA01	ALPHA01	LIQUID	3.59E-02	3.61E-02	100.557	% Recovery

Final page for worklist# 9287

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

Reviewer Signature **Date** 5/31/96

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		13	13
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	2353	2384
9287	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
@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		78.233	79.267
Batch Number	Standard Value in µCi/mL		1.28E-04	
96005422	Concentration in µCi/L	=	1.42E-01	
Rerun	Replicate Concentration in µCi/L	=	1.44E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4321E-01	

Sample Prep: N/A

Sample #: wl9287

Instrument Code: WB27810

Prepared By: MCB

Chemist: SLF

Analyst: JMV

Date Complete: 05/30/96

Analysis Date: 05/29/96

Analysis Time: 03:00 PM

Sample Point: U-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	=	1.43E-04	
RELATIVE COUNTING ERROR	=	4.1%	8.58E-07 µCi/mL

Analyst:		MCB	Date: 30-May-96
Signature of Chemist:		SLF	Date: 5/31/96

STANDARD.WB1 Rev. 1.0 508101MB

WORKBOOK PAGE: BLANK2

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

			BLNK	REPLICATE
Type	DETECTOR NUMBER		13	13
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	5	16
9287	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.191	0.333
Batch Number				
96005422	Blank Concentration in µCi/L	<	7.07E+00	
Rerun	Replicate Concentration in µCi/L		1.24E+01	
0	Maximum Concentration in µCi/L	<	1.2367E+01	

Sample Prep: N/A
Sample #: WL9287
Instrument Code: WB27810
Prepared By: MCB
Chemist: SLF
Analyst: JMV
Date Complete: 05/30/96
Analysis Date: 05/29/96
Analysis Time: 03:00 PM
Sample Point: U-102

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/mL (Maximum) =	< 1.24E-02	DETECTION LEVEL
LESS Than Value was Determined from Lc.		1.75E-02 µCi/mL
RELATIVE COUNTING ERROR	500.0%	

Analyst:		JMV	Date: 30-May-96
Signature of Chemist:		SLF	Date: 5/31/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	25	31
9287	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.633	0.833

Batch Number	
96005422	Blank Concentration in µCi/L 2.35E+01
Rerun	Replicate Concentration in µCi/L 3.09E+01
0	Average Concentration in µCi/L 2.7208E+01
Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
S96T002323	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/mL (Average) = 2.72E-02
Analyst	
JMV	
Date Complete	
05/30/96	RELATIVE COUNTING ERROR 57.4%
Analysis Date	
05/29/96	
Analysis Time	
03:00 PM	
Sample Point	
U-102	

DETECTION LEVEL
1.75E-02 µCi/mL

Analyst:		JMV	Date: 30-May-96
Signature of Chemist:		SLF	Date: 5/31/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	23	31
9287	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.2	0.2
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.567	0.833

Batch Number	
96005422	Blank Concentration in µCi/L 2.10E+01
Rerun	Replicate Concentration in µCi/L 3.09E+01
0	Average Concentration in µCi/L 2.5971E+01
Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
S96T002323	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
MCB	
Chemist	
SLF	ALPHA TOTAL in µCi/mL (Average) = 2.60E-02
Analyst	
JMV	
Date Complete	
05/30/96	RELATIVE COUNTING ERROR 62.1%
Analysis Date	
05/29/96	
Analysis Time	
03:00 PM	
Sample Point	
U-102	

DETECTION LEVEL
1.75E-02 µCi/mL

Analyst:		JMV	Date: 30-May-96
Signature of Chemist:		SLF	Date: 5/31/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	60967	58180
9287	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)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
LIQUID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96005422	SPIKE VALUE in µCi/mL	(SVal)	3.5889E-02	3.5889E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
0	SAMPLE + SPIKE µCi/mL	(S+S)	7.54E+01	7.19E+01
Sample Prep	AVERAGE or MAXIMUM µCi/mL in SAMPLE		2.7208E-02	
N/A				
Sample #				
S96T002323	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
WB27810	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))			
MCB	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
JMV				
Date Complete				
05/30/96				
Analysis Date				
05/29/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.61E-02	
03:00 PM	AVG. PERCENT SPIKE RECOVERY	=	100.6%	
Sample Point				
U-102				

Analyst:		MCB	Date: 30-May-96
Signature of Chemist:		SLF	Date: 5/31/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 9519

Analyst: [signature] **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	LIQUID		
2	BLNK				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S96T002549	0		@ALPHA01	LIQUID	96000569	U-102
	Analytes Requested:				ALPHA01 , ALPHA01E			
5	DUP	S96T002549	0		@ALPHA01	LIQUID		
6	SPK	S96T002549	0		@ALPHA01	LIQUID		
7	SAMPLE	S96T002762	0		@ALPHA01	LIQUID	96000569	U-102
	Analytes Requested:				ALPHA01 , ALPHA01E			
8	DUP	S96T002762	0		@ALPHA01	LIQUID		
9	SPK	S96T002762	0		@ALPHA01	LIQUID		

Final page for worklist # 9519

[signature] 6/5/96
Analyst Signature **Date**

[signature] 6/5/96
Analyst Signature **Date**
C.J. Opinion 6/5/96

Data Entry Comments:
analyst error on work list traveler - sample size for 2549 unknown. Sample will be rerun. [signature] 6/10/96

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

LABCORE Completed RadChem Report for Worklist#: 9519

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@ALPHA01 ALPHA01	LIQUID	1.28E-04	1.33E-4	103.906	% Recovery
1	STD			0	@ALPHA01 ALPHA01E	LIQUID	1.00	4.40E+00	4.400	% Ct. Erro
2	BLNK			0	@ALPHA01 ALPHA01	LIQUID	1	<4.67E-4		uCi/mL
2	BLNK			0	@ALPHA01 ALPHA01E	LIQUID	1.00	5.00E+02	500.000	uCi/mL
3	BLNK/BKG			0	@ALPHA01 ALPHA01	LIQUID	1.00E+00	2.78E-01	0.278	BLNK/BKG
4	SAMPLE	S96T002549		0	@ALPHA01 ALPHA01	LIQUID	N/A	2.57E-03	112.0e-005	uCi/mL
4	SAMPLE	S96T002549		0	@ALPHA01 ALPHA01E	LIQUID	N/A	4.16E+01	0.0e+000	% Ct. Error
5	DUP	S96T002549		0	@ALPHA01 ALPHA01	LIQUID	2.57E-3	7.04E-3	93.028	RPD
5	DUP	S96T002549		0	@ALPHA01 ALPHA01E	LIQUID	1.00	2.32E+01	23.200	% Ct. Erro
6	SPK	S96T002549		0	@ALPHA01 ALPHA01	LIQUID	3.59E-02	3.51E-02	97.772	% Recovery
7	SAMPLE	S96T002762		0	@ALPHA01 ALPHA01	LIQUID	N/A <	4.62E-06	110.0e-007	uCi/mL
7	SAMPLE	S96T002762		0	@ALPHA01 ALPHA01E	LIQUID	N/A	5.00E+02	0.0e+000	% Ct. Error
8	DUP	S96T002762		0	@ALPHA01 ALPHA01	LIQUID	<4.62E-6	<5.41E-6		RPD
8	DUP	S96T002762		0	@ALPHA01 ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Erro
9	SPK	S96T002762		0	@ALPHA01 ALPHA01	LIQUID	3.59E-02	3.29E-02	91.643	% Recovery

Final page for worklist# 9519

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

6/10/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2049	2007
9519	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		68.000	66.600
	Standard Value in µCi/mL		1.28E-04	
96005678	Concentration in µCi/L	=	1.35E-01	
	Replicate Concentration in µCi/L	=	1.32E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3331E-01	

N/A

WL9519

WB27807

SEH

SLF

KRQ

06/05/96

06/05/96

04:30 AM

U-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.

ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.33E-04		DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.4%		1.10E-06 µCi/mL

Analyst:		SEH	Date: 05-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK	REPLICATE
	DETECTOR NUMBER		14	14
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	3	2
9519	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.233	0.233

96005678	Blank Concentration in µCi/L	<	4.67E-01
	Replicate Concentration in µCi/L	<	4.67E-01
0	Maximum Concentration in µCi/L	<	4.6685E-01

Sample Date
N/A

Sample #
WL9519

Instrument Code
WB27807

Prepared By
SEH

Chemist
SLF

Analyst
KRQ

Date Complete
06/05/96

Analysis Date
06/05/96

Analysis Time
04:30 AM

Sample Point
U-102

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

				DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Maximum)	=	< 4.67E-04		
LESS Than Value was Determined from Lc.				1.12E-03 µCi/mL
RELATIVE COUNTING ERROR			500.0%	

Analyst:		KRQ	Date: 05-Jun-96
Signature of Chemist:		SLF	Date: 6/7/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	52	43
9519	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.433	1.133

96005678	Blank Concentration in µCi/L 2.87E+00
	Replicate Concentration in µCi/L 2.27E+00
0	Average Concentration in µCi/L 2.5675E+00

N/A

S96T002549

WB27807

SEH

SLF

KRQ

06/05/96

06/05/96

04:30 AM

U-102

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

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

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

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

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

		DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Average) =	2.57E-03	
RELATIVE COUNTING ERROR	41.6%	1.12E-03 µCi/mL

Analyst:		KRQ	Date: 05-Jun-96
Signature of Chemist:		SLF	Date:

SAMPLE.WB1 Rev. 1.0 508101ML

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WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	134	95
9519	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4.167	2.867

96005678	Blank Concentration in µCi/L	8.34E+00
	Replicate Concentration in µCi/L	5.74E+00
0	Average Concentration in µCi/L	7.0357E+00

N/A

S96T002549

WB27807

SEH

SLF

KRQ

06/05/96

06/05/96

04:30 AM

U-102

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

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

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

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

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

		DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Average) =	7.04E-03	
RELATIVE COUNTING ERROR	23.2%	1.12E-03 µCi/mL

Analyst:		KRQ	Date: 05-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	51973	54493
9519	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
LIQUID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96005678	SPIKE VALUE in µCi/mL	(SVal)	3.5888E-02	3.5888E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/mL	(S+S)	3.47E+00	3.63E+00
	AVERAGE or MAXIMUM µCi/mL in SAMPLE		2.5675E-03	

N/A

S96T002549

WB27807

SEH

SLF

KRQ

06/05/96

06/05/96

04:30 AM

U-102

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

SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))

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

QC ACTUAL	=	3.59E-02
QC FOUND	=	3.51E-02
AVG. PERCENT SPIKE RECOVERY	=	97.9%

Analyst:		SEH	Date: 05-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	6	7
9519	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.233	0.233

96005678	Blank Concentration in µCi/L	<	4.62E-03
	Replicate Concentration in µCi/L	<	4.62E-03
0	Maximum Concentration in µCi/L	<	4.6223E-03

N/A

S96T002762

WB27807

SEH

SLF

KRQ

06/05/96

06/05/96

04:30 AM

U-102

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

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

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

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

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

		DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Maximum) = < 4.62E-06		
LESS Than Value was Determined from Lc.		1.10E-05 µCi/mL
RELATIVE COUNTING ERROR	500.0%	

Analyst:		KRQ	Date: 05-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

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

			DUP	REPLICATE
	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1, 2, or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	10	5
9519	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.273	0.233

96005678	Blank Concentration in µCi/L	<	5.41E-03
	Replicate Concentration in µCi/L	<	4.62E-03
0	Maximum Concentration in µCi/L	<	5.4092E-03

N/A

S96T002762

WB27807

SEH

SLF

KRQ

06/05/96

06/05/96

04:30 AM

U-102

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

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

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

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

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

ALPHA TOTAL in µCi/mL (Maximum)	=	< 5.41E-06	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			1.10E-05 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst:	KRQ		Date: 05-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK9

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	50358	49457
9519	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
LIQUID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96005678	SPIKE VALUE in µCi/mL	(SVal)	3.5888E-02	3.5888E-02
	INSTRUMENT EFFICIENCY FACTOR	(EEF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/mL	(S+S)	3.32E-02	3.27E-02
	AVERAGE or MAXIMUM µCi/mL in SAMPLE	<	4.6223E-06	

Sample Prep: N/A

Sample: S96T002762

Instrument: WB27807

Operator: SEH

Chemist: SLF

Analyst: KRQ

Date Complete: 06/05/96

Analysis Date: 06/05/96

Analysis Time: 04:30 AM

Sample Point: U-102

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

SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))

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

NOTE: **Original Sample result was a LESS THAN value. Zero (0) was subtracted from the spiked value for QC found calculation.**

QC ACTUAL	=	3.59E-02
QC FOUND	=	3.29E-02
AVG. PERCENT SPIKE RECOVERY	=	91.8%

Analyst:		SEH	Date: 05-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 9637

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

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

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T002443	0	F	@ALPHA01	SOLID	96000536	U-102
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T002443	0	F	@ALPHA01	SOLID		
6	SPK	S96T002443	0	F	@ALPHA01	SOLID		

Final page for worklist # 9637

O Lewis 6/6/96
Analyst Signature **Date**

[illegible] 6/7/96
Analyst Signature **Date**

Sue E. Hogan 6/7/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9637

Analyst: akl **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	1.30E-4	101.562	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	4.50E+00	4.500	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<8.69E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01 ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01 ALPHA01	SOLID	1.00E+00	1.30E+00	1.300	BLNK/BKG
4	SAMPLE	S96T002443	0	F	@ALPHA01 ALPHA01	SOLID	N/A	5.56E-02	106.0e-004	uCi/g
4	SAMPLE	S96T002443	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	2.70E+01	0.0e+000	% Ct. Error
5	DUP	S96T002443	0	F	@ALPHA01 ALPHA01	SOLID	5.56E-2	5.91E-2	6.103	RPD
5	DUP	S96T002443	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	2.31E+01	23.100	% Ct. Erro
6	SPK	S96T002443	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.24E-02	90.251	% Recovery

Final page for worklist# 9637

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

6/10/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2035	1920
9637	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		67.603	63.770
	Standard Value in µCi/mL		1.28E-04	
96005806	Concentration in µCi/L	=	1.34E-01	
	Replicate Concentration in µCi/L	=	1.26E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3012E-01	

N/A

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

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

WL9637

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

WB27807

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

MCB

				DETECTION LEVEL
SLF	ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.30E-04	
AKL				
06/07/96	RELATIVE COUNTING ERROR	=	4.5%	9.89E-07 µCi/mL

Analyze Date

06/06/96

Analyze Time

03:00 PM

Sample Count

U-102

Analyst:		MCB	Date: 07-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		14	14
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	6	12
9637	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0528	2.0528
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.204	0.409

96005806	Blank Concentration in µCi/g	<	4.34E-03
	Replicate Concentration in µCi/g	<	8.69E-03
0	Maximum Concentration in µCi/g	<	8.6850E-03

N/A

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

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

WL9637

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.

MCB

SLF	ALPHA TOTAL in µCi/g (Maximum)	=	< 8.69E-03	DETECTION LEVEL
AKL	LESS Than Value was Determined from Lc.			
06/07/96	RELATIVE COUNTING ERROR		500.0%	1.06E-02 µCi/g

Analysis Date
06/06/96

Analysis Time
03:00 PM

Sample Point
U-102

Analyst:		AKL	Date: 07-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

BLANK.WB1 Rev. 1.0 508101MB

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	71	100
9637	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0528	2.0528
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.137	3.103

96005806	Blank Concentration in µCi/g 4.54E-02
	Replicate Concentration in µCi/g 6.59E-02
0	Average Concentration in µCi/g 5.5620E-02

FUSION01

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

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

S96T002443

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.

MCB

SLF

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	5.56E-02	1.06E-02 µCi/g
RELATIVE COUNTING ERROR		27.0%	

Analyst: AKL

Analyst Complete: 06/07/96

Analysis Date: 06/06/96

Analysis Time: 03:00 PM

Sample Loc: U-102

Analyst:	AKL		Date: 07-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	91	98
9637	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.154	2.154
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.803	3.037

96005806	Blank Concentration in µCi/g	5.67E-02
	Replicate Concentration in µCi/g	6.14E-02
0	Average Concentration in µCi/g	5.9077E-02

FUSION01

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

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

S96T002443

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.

MCB

SLF	ALPHA TOTAL in µCi/g (Average)	=	5.91E-02	DETECTION LEVEL
Analyst				
AKL				1.01E-02
Date Completed				µCi/g
06/07/96	RELATIVE COUNTING ERROR		23.1%	

Analysis Date

06/06/96

Analysis Time

03:00 PM

Sample Point

U-102

Analyst:		AKL	Date: 07-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	49140	49104
9637	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0528	2.0528
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96005806	SPIKE VALUE in µCi/mL	(SVal)	3.5888E-02	3.5888E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/g	(S+S)	3.48E+01	3.47E+01
	AVERAGE or MAXIMUM µCi/g in SAMPLE		5.5620E-02	

FUSION01

S96T002443

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

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

WB27807

QC ACTUAL = SVal

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

SLF

AKL

06/07/96

Analysis Date

06/06/96

Analysis Time

03:00 PM

Sample Point

U-102

QC ACTUAL	=	3.59E-02
QC FOUND	=	3.24E-02
AVG. PERCENT SPIKE RECOVERY	=	90.2%

Analyst:		MCB	Date: 07-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 9638

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

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	S96T002445	0	F	@ALPHA01	SOLID	96000536	U-102
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T002445	0	F	@ALPHA01	SOLID		
6	SPK	S96T002445	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T002447	0	F	@ALPHA01	SOLID	96000536	U-102
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T002447	0	F	@ALPHA01	SOLID		

Final page for worklist # 9638

S.C. Lai 6-7-96
Analyst Signature **Date**

C.J. Owen 6/10/96
Analyst Signature **Date**

M. Brown 6/10/96

Data Entry Comments:

The RPD's for the STD + SPK and their respective reps are out of control limits. Batch will be rerun.

6/10/96

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

LABCORE Completed RadChem Report for Worklist#: 9638

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		@ALPHA01	ALPHA01	SOLID	1.28E-04	9.10E-5	71.094	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	6.08E+00	6.080	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<6.49E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	5.13E-01	0.513	BLNK/BKG
4	SAMPLE	S96T002445	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.61E-01	164.0e-004	uCi/g
4	SAMPLE	S96T002445	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.07E+01	0.0e+000	% Ct. Error
5	DUP	S96T002445	0	F	@ALPHA01	ALPHA01	SOLID	1.61E-1	1.35E-1	17.568	RPD
5	DUP	S96T002445	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.14E+01	21.400	% Ct. Erro
6	SPK	S96T002445	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	2.81E-02	78.273	% Recovery
7	SAMPLE	S96T002447	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.10E-01	164.0e-004	uCi/g
7	SAMPLE	S96T002447	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.41E+01	0.0e+000	% Ct. Error
8	DUP	S96T002447	0	F	@ALPHA01	ALPHA01	SOLID	1.10E-1	1.58E-1	35.821	RPD
8	DUP	S96T002447	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.00E+01	20.000	% Ct. Erro

Final page for worklist# 9638

Analyst Signature **Date**

Analyst Signature **Date**

6/10/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	1844	1050
9638	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		61.337	34.870
	Standard Value in µCi/mL		1.28E-04	
96005808	Concentration in µCi/L	=	1.16E-01	
	Replicate Concentration in µCi/L	=	6.60E-02	
0	AVERAGE CONCENTRATION in µCi/L	=	9.1043E-02	

N/A

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

WL9638

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

WB26872

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

CJO

SLF

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	9.10E-05	
RELATIVE COUNTING ERROR	=	6.1%	7.53E-07 µCi/mL

SCL

06/10/96

06/07/96

03:30 PM

U-102

Analyst:		CJO	Date: 10-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	4	0
9638	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0256	2.0256
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.158	0.154

96005808	Blank Concentration in µCi/g	<	6.49E-03
	Replicate Concentration in µCi/g	<	6.32E-03
0	Maximum Concentration in µCi/g	<	6.4925E-03

N/A

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

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

WL9638

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.

CJO

SLF

ALPHA TOTAL in µCi/g (Maximum)	=	< 6.49E-03
LESS THAN Value was Determined from Rmax.		
RELATIVE COUNTING ERROR		500.0%

DETECTION LEVEL

1.64E-02 µCi/g

SCL

Date Complete

06/10/96

06/07/96

03:30 PM

U-102

Analyst:		SCL	Date: 10-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	142	101
9638	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0256	2.0256
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4.603	3.237

96005808	Blank Concentration in µCi/g 1.89E-01
	Replicate Concentration in µCi/g 1.33E-01
0	Average Concentration in µCi/g 1.6116E-01

FUSION01

S96T002445

WB26872

CJO

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.

SLF	ALPHA TOTAL in µCi/g (Average) =	1.61E-01	DETECTION LEVEL
SCL			1.64E-02 µCi/g
06/10/96	RELATIVE COUNTING ERROR	20.7%	

Analysis Date: 06/07/96

Analysis Time: 03:30 PM

Sample Point: U-102

Analyst:		SCL	Date: 10-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	95	115
9638	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0728	2.0728
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.037	3.703

96005808	Blank Concentration in µCi/g 1.22E-01
	Replicate Concentration in µCi/g 1.49E-01
0	Average Concentration in µCi/g 1.3539E-01

FUSION01

S96T002445

WB26872

CJO

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.

SLF

SCL

06/10/96

06/07/96

03:30 PM

U-102

ALPHA TOTAL in µCi/g (Average)	=	1.35E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		21.4%	1.60E-02 µCi/g

Analyst:		SCL	Date: 10-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	49829	39445
9638	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.250	0.250
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0256	2.0256
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96005808	SPIKE VALUE in µCi/mL	(SVal)	3.5887E-02	3.5887E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
0	SAMPLE + SPIKE µCi/g	(S+S)	6.83E+01	5.41E+01
	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.6116E-01	

FUSION01

S96T002445

WB26872

CJO

SLF

SCL

06/10/96

06/07/96

03:30 PM

U-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	=	3.59E-02
QC FOUND	=	2.81E-02
AVG. PERCENT SPIKE RECOVERY	=	78.3%

Analyst:		CJO	Date: 10-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

WHC-SD-WM-DP-189, REV. 1

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	91	77
9638	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0168	2.0168
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.903	2.437

96005808	Blank Concentration in µCi/g	1.20E-01
	Replicate Concentration in µCi/g	1.01E-01
0	Average Concentration in µCi/g	1.1025E-01

FUSION01

S96T002447

WB26872

CJO

SLF

SCL

06/10/96

06/07/96

03:30 PM

U-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)	=	1.10E-01	
RELATIVE COUNTING ERROR			24.1%	1.64E-02 µCi/g

Analyst:		SCL	Date: 10-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

SAMPLE.WB1 Rev. 1. 508101ML

:\508101\OUT\AT9638.WB1 06/10/96 10:52:57

WORKBOOK PAGE: DUP8

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

			DUP	REPLICATE
	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	107	134
9638	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0536	2.0536
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.437	4.337

96005808	Blank Concentration in µCi/g 1.39E-01
	Replicate Concentration in µCi/g 1.76E-01
0	Average Concentration in µCi/g 1.5761E-01

FUSION01

S96T002447

WB26872

CJO

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.

SLF

ALPHA TOTAL in µCi/g (Average) = 1.58E-01		DETECTION LEVEL
RELATIVE COUNTING ERROR	20.0%	1.61E-02 µCi/g

Analyst: SCL

Date Complete: 06/10/96

Analysis Date: 06/07/96

Analysis Time: 03:30 PM

Sample Count: U-102

Analyst:		SCL	Date: 10-Jun-96
Signature of Chemist:		SLF	Date: 6/10/96

SAMPLE.WB1 Rev. 1. 508101ML

06/10/96 10:17
A-0004-1

LABCORE Data Entry Template for Worklist# 9774

Analyst: AL/GM **Instrument:** AB00 15 **Book#** 47656

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

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T002449	0	F	@ALPHA01	SOLID	96000536	U-102
	Analytes Requested:				ALPHA01 , ALPHA01E			
5	DUP	S96T002449	0	F	@ALPHA01	SOLID		
6	SAMPLE	S96T002518	0	F	@ALPHA01	SOLID	96000536	U-102
	Analytes Requested:				ALPHA01 , ALPHA01E			
7	DUP	S96T002518	0	F	@ALPHA01	SOLID		
8	SPK	S96T002518	0	F	@ALPHA01	SOLID		

Final page for worklist # 9774

G Lewis 6/11/96
Analyst Signature **Date**

Susie M. Dulton 6-11-96

Jeo E. Hogan 6-12-96
Analyst Signature **Date**

M C Brown 6/12/96

Data Entry Comments: The RPD for 2518 is acceptable due to low sample alpha activity. AL GM 6/12/96

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

LABCORE Completed RadChem Report for Worklist#: 9774

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.40E-4	109.375	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.19E+00	4.190	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<5.25E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	2.38E+00	2.380	BLNK/BKG
4	SAMPLE	S96T002449	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.13E-01	722.0e-005	uCi/g
4	SAMPLE	S96T002449	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.20E+01	0.0e+000	% Ct. Error
5	DUP	S96T002449	0	F	@ALPHA01	ALPHA01	SOLID	2.13E-1	2.36E-1	10.245	RPD
5	DUP	S96T002449	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.23E+01	12.300	% Ct. Erro
6	SAMPLE	S96T002518	0	F	@ALPHA01	ALPHA01	SOLID	N/A	8.31E-02	695.0e-005	uCi/g
6	SAMPLE	S96T002518	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.90E+01	0.0e+000	% Ct. Error
7	DUP	S96T002518	0	F	@ALPHA01	ALPHA01	SOLID	8.31E-2	6.54E-2	23.838	RPD
7	DUP	S96T002518	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.10E+01	21.000	% Ct. Erro
8	SPK	S96T002518	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.35E-02	93.315	% Recovery

Final page for worklist# 9774

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date 6/12/96

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2191	2252
9774	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		72.963	74.997
	Standard Value in µCi/mL		1.28E-04	
96005949	Concentration in µCi/L	=	1.38E-01	
	Replicate Concentration in µCi/L	=	1.42E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4002E-01	

N/A

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

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

WL9774 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

WB26872 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SEH

SLF	ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.40E-04	DETECTION LEVEL
AKL				
06/12/96	RELATIVE COUNTING ERROR	=	4.2%	5.98E-07 µCi/mL

06/11/96

11:00 AM

U-102

Analyst:		SEH	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	1	9
9774	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.824	1.824
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.113	0.230

96005949	Blank Concentration in µCi/g	<	2.57E-03
	Replicate Concentration in µCi/g		5.25E-03
0	Maximum Concentration in µCi/g	<	5.2504E-03

N/A

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

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

WL9774

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.

SEH

SLF

ALPHA TOTAL in µCi/g	(Maximum)	=	< 5.25E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.				7.22E-03 µCi/g
RELATIVE COUNTING ERROR			500.0%	

AKL

Date Complete: 06/12/96

Analysis Date: 06/11/96

Analysis Time: 11:00 AM

Sample Point: U-102

Analyst:	AKL	Date: 12-Jun-96	
Signature of Chemist:	SLF	Date: 6/12/96	

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	275	288
9774	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.824	1.824
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.097	9.530

96005949	Blank Concentration in µCi/g 2.08E-01
	Replicate Concentration in µCi/g 2.18E-01
0	Average Concentration in µCi/g 2.1260E-01

FUSION01

S96T002449

WB26872

SEH

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.

SLF	ALPHA TOTAL in µCi/g (Average) =	2.13E-01	DETECTION LEVEL
AKL			7.22E-03 µCi/g
06/12/96	RELATIVE COUNTING ERROR	12.0%	

Date Complete: 06/12/96

Analysis Date: 06/11/96

Analysis Time: 11:00 AM

Sample Point: U-102

Analyst:		AKL	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	259	334
9774	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.7316	1.7316
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8.563	11.063

96005949	Blank Concentration in µCi/g	2.06E-01
	Replicate Concentration in µCi/g	2.66E-01
0	Average Concentration in µCi/g	2.3597E-01

FUSION01

S96T002449

WB26872

SEH

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.

SLF

AKL

06/12/96

06/11/96

11:00 AM

U-102

ALPHA TOTAL in µCi/g (Average)	=	2.36E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		12.3%	7.60E-03 µCi/g

Analyst:	AKL		Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM6

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	118	113
9774	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8936	1.8936
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.863	3.697

96005949	Blank Concentration in µCi/g	8.50E-02
	Replicate Concentration in µCi/g	8.13E-02
0	Average Concentration in µCi/g	8.3118E-02

FUSION01

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

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

S96T002518

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.

SEH

SLF	ALPHA TOTAL in µCi/g (Average)	=	8.31E-02	DETECTION LEVEL
AKL				6.95E-03 µCi/g
06/12/96	RELATIVE COUNTING ERROR		19.0%	

06/11/96

11:00 AM

U-102

Analyst:		AKL	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP7

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

			DUP	REPLICATE
	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	110	93
9774	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.11	2.11
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.597	3.030

96005949	Blank Concentration in µCi/g	7.10E-02
	Replicate Concentration in µCi/g	5.98E-02
0	Average Concentration in µCi/g	6.5385E-02

FUSION01

S96T002518

WB26872

SEH

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.

SLF	ALPHA TOTAL in µCi/g (Average)	=	6.54E-02	DETECTION LEVEL
AKL				
06/12/96	RELATIVE COUNTING ERROR		21.0%	6.24E-03 µCi/g

06/11/96

11:00 AM

U-102

Analyst:	AKL		Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK8

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	52672	53751
9774	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8936	1.8936
	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
96005949	SPIKE VALUE in µCi/mL	(SVal)	3.5887E-02	3.5887E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
0	SAMPLE + SPIKE µCi/g	(S+S)	3.86E+01	3.94E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		8.3118E-02	
FUSION01				
Sample Number				
S96T002518	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				
06/12/96				
Analysis Date				
06/11/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.35E-02	
11:00 AM	AVG. PERCENT SPIKE RECOVERY	=	93.3%	
Sample Point				
U-102				

Analyst:		SEH	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

SPIKE.WB1 Rev. 1.0 508101ML

1250

06/10/96 10:23
A-0004-1

LABCORE Data Entry Template for Worklist# 9777

Analyst: AKL **Instrument:** AB00 15 **Book#** 97B52

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	S96T002672	0	F	@ALPHA01	SOLID	96000536	U-102
		Analytes Requested:			ALPHA01 , ALPHA01E			
5	DUP	S96T002672	0	F	@ALPHA01	SOLID		
6	SPK	S96T002672	0	F	@ALPHA01	SOLID		

Final page for worklist # 9777

A. Ferris 6/11/96
Analyst Signature **Date**

[illegible] 6/12/96
Analyst Signature **Date**

Joe E. Hogan 6/12/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9777

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01 ALPHA01	SOLID	1.28E-04	1.45E-4	113.281	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	4.13E+00	4.130	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<2.74E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01 ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01 ALPHA01	SOLID	1.00E+00	6.67E-01	0.667	BLNK/BKG
4	SAMPLE	S96T002672	0	F	@ALPHA01 ALPHA01	SOLID	N/A	1.06E-01	733.0e-005	uCi/g
4	SAMPLE	S96T002672	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	1.72E+01	0.0e+000	% Ct. Error
5	DUP	S96T002672	0	F	@ALPHA01 ALPHA01	SOLID	1.06E-1	1.21E-1	13.216	RPD
5	DUP	S96T002672	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	1.61E+01	16.100	% Ct. Erro
6	SPK	S96T002672	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.71E-02	103.343	% Recovery

Final page for worklist# 9777

Analyst Signature Date

Analyst Signature Date

6/12/96

Reviewer Signature Date

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2332	2260
9777	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		77.633	75.233
	Standard Value in µCi/mL		1.28E-04	
96005953	Concentration in µCi/L	=	1.47E-01	
	Replicate Concentration in µCi/L	=	1.42E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4466E-01	

N/A

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

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

WL9777

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

WB26872

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

MCB

SLF	ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.45E-04	DETECTION LEVEL
AKL				6.82E-07 µCi/mL
06/12/96	RELATIVE COUNTING ERROR	=	4.1%	

Analysis Date: 06/11/96

Analysis Time: 02:30 PM

Sample Point: U-102

Analyst:		MCB	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	1	3
9777	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0448	2.0448
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.135	0.135

96005953	Blank Concentration in µCi/g	<	2.74E-03
	Replicate Concentration in µCi/g	<	2.74E-03
0	Maximum Concentration in µCi/g	<	2.7433E-03

N/A

WL9777

WB26872

MCB

SLF

AKL

06/12/96

06/11/96

02:30 PM

U-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)	=	< 2.74E-03		DETECTION LEVEL
LESS Than Value was Determined from Lc.				7.33E-03 µCi/g
RELATIVE COUNTING ERROR		500.0%		

Analyst:	AKL	Date: 12-Jun-96	
Signature of Chemist:	SLF	Date: 6/12/96	

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	179	138
9777	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0448	2.0448
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		5.867	4.500

96005953	Blank Concentration in µCi/g	1.19E-01
	Replicate Concentration in µCi/g	9.16E-02
0	Average Concentration in µCi/g	1.0555E-01

FUSION01

S96T002672

WB26872

MCB

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.

SLF	ALPHA TOTAL in µCi/g (Average)	=	1.06E-01	DETECTION LEVEL
AKL				
06/12/96	RELATIVE COUNTING ERROR		17.2%	7.33E-03 µCi/g

Analysis Date: 06/11/96

Analysis Time: 02:30 PM

Sample Point: U-102

Analyst:	AKL	Date: 12-Jun-96	
Signature of Chemist:	SLF	Date: 6/12/96	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	157	206
9777	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.042	2.042
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		5.133	6.767

96005953	Blank Concentration in µCi/g	1.05E-01
	Replicate Concentration in µCi/g	1.38E-01
0	Average Concentration in µCi/g	1.2133E-01

FUSION01

S96T002672

WB26872

MCB

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.

SLF

AKL

06/12/96

06/11/96

02:30 PM

U-102

ALPHA TOTAL in µCi/g (Average)	=	1.21E-01	DETECTION LEVEL	
RELATIVE COUNTING ERROR		16.1%	7.34E-03 µCi/g	

Analyst:		AKL	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work Order	TOTAL COUNTS	(TC)	57714	60222
9777	COUNT TIME in MINUTES	(CT)	30	30
Background	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Dilution	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0448	2.0448
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Spike Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96005953	SPIKE VALUE in µCi/mL	(SVal)	3.5887E-02	3.5887E-02
Volume	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
0	SAMPLE + SPIKE µCi/g	(S+S)	3.92E+01	4.09E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.0555E-01	
FUSION01				
Sample #				
S96T002672				
Instrument Code				
WB26872				
Prepared By				
MCB				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
06/12/96				
Analysis Date				
06/11/96				
Analysis Time				
02:30 PM				
Sample Point				
U-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	=	3.59E-02
QC FOUND	=	3.71E-02
AVG. PERCENT SPIKE RECOVERY	=	103.4%

Analyst:		MCB	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

SPIKE.WB1 Rev. 1.0 508101ML

06/10/96 13:21
A-0004-1

LABCORE Data Entry Template for Worklist# 9810

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

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

Worklist Comment: Determine sample size using Ludlum. SLF (Rerun #1).

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	LIQUID		
2	BLNK				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S96T002549	0		@ALPHA01	LIQUID	96000569	U-102
		Analytes Requested:			ALPHA01 , ALPHA01E			
5	DUP	S96T002549	0		@ALPHA01	LIQUID		
6	SPK	S96T002549	0		@ALPHA01	LIQUID		

Final page for worklist # 9810

G Jewis 6/11/96
Analyst Signature **Date**

Sharon L Udel 6/12/96
Analyst Signature **Date**

Sue E. Hogan 6-12-96

Data Entry Comments: The RPD for 2549 is acceptable due to low sample alpha activity.

AKL 6/12/96

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

worklistrad Version 0.0 04/18/96
06/12/96 09:00

LABCORE Completed RadChem Report for Worklist#: 9810

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

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using Ludlum. SLF (Rerun #1).

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@ALPHA01	ALPHA01	LIQUID	1.28E-04	1.44E-4	112.500	% Recovery
1	STD		0	@ALPHA01	ALPHA01E	LIQUID	1.00	4.39E+00	4.390	% Ct. Erro
2	BLNK		0	@ALPHA01	ALPHA01	LIQUID	1	<7.43E-3		uCi/mL
2	BLNK		0	@ALPHA01	ALPHA01E	LIQUID	1.00	5.00E+02	500.000	uCi/mL
3	BLNK/BKG		0	@ALPHA01	ALPHA01	LIQUID	1.00E+00	1.67E+00	1.670	BLNK/BKG
4	SAMPLE	S96T002549	0	@ALPHA01	ALPHA01	LIQUID	N/A	2.93E-02	174.0e-004	uCi/mL
4	SAMPLE	S96T002549	0	@ALPHA01	ALPHA01E	LIQUID	N/A	6.51E+01	0.0e+000	% Ct. Error
5	DUP	S96T002549	0	@ALPHA01	ALPHA01	LIQUID	2.93E-2	4.24E-2	36.541	RPD
5	DUP	S96T002549	0	@ALPHA01	ALPHA01E	LIQUID	1.00	4.72E+01	47.200	% Ct. Erro
6	SPK	S96T002549	0	@ALPHA01	ALPHA01	LIQUID	3.59E-02	4.60E-02	128.134	% Recovery

Final page for worklist# 9810

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

6/12/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2035	2008
9810	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		67.703	66.803
	Standard Value in µCi/mL		1.28E-04	
96005985	Concentration in µCi/L	=	1.45E-01	
	Replicate Concentration in µCi/L	=	1.43E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4398E-01	

N/A

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

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

WL9810

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

WB27806

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

SLH2

SLF

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.44E-04	
RELATIVE COUNTING ERROR	=	4.4%	8.52E-07 µCi/mL

AKL

06/12/96

06/11/96

01:00 PM

U-102

Analyst:		SLH2	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

WMD-GD-WM-DP-109, REV. 1

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

			BLNK	REPLICATE
	DETECTOR NUMBER		16	16
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	4	9
9810	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.158	0.170

96005985	Blank Concentration in µCi/L	<	6.90E+00
	Replicate Concentration in µCi/L		7.43E+00
0	Maximum Concentration in µCi/L	<	7.4255E+00

Sample Group
N/A

Sample
WL9810

Instrument Code
WB27806

Prepared By
SLH2

Chemist
SLF

Analyst
AKL

Date Complete
06/12/96

Analysis Date
06/11/96

Analysis Time
01:00 PM

Sample Point
U-102

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

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

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

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

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

		DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Maximum) =	< 7.43E-03	1.74E-02 µCi/mL
LESS THAN Value was Determined from Rmax.		
RELATIVE COUNTING ERROR	500.0%	

Analyst:		AKL	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

BLANK.WB1 Rev. 1.0 508101ML

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	18	30
9810	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.470	0.870

96005985	Blank Concentration in µCi/L 2.05E+01
	Replicate Concentration in µCi/L 3.80E+01
0	Average Concentration in µCi/L 2.9265E+01

N/A

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

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

S96T002549 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

WB27806 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLH2

SLF	ALPHA TOTAL in µCi/mL (Average)	=	2.93E-02	DETECTION LEVEL
AKL				
06/12/96	RELATIVE COUNTING ERROR		65.1%	1.74E-02 µCi/mL

06/11/96

01:00 PM

U-102

Analyst:		AKL	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

MWG-SD-WM-DP-109, REV. 1

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

			DUP	REPLICATE
	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	27	39
9810	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.770	1.170

96005985	Blank Concentration in µCi/L 3.36E+01
	Replicate Concentration in µCi/L 5.11E+01
0	Average Concentration in µCi/L 4.2369E+01

N/A

S96T002549

WB27806

SLH2

SLF

AKL

06/12/96

06/11/96

01:00 PM

U-102

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

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

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

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

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

		DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Average) =	4.24E-02	1.74E-02 µCi/mL
RELATIVE COUNTING ERROR	47.2%	

Analyst:		AKL	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

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

			SPIKE	REPLICATE
[illegible]	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
[illegible]	TOTAL COUNTS	(TC)	65033	63845
9810	COUNT TIME in MINUTES	(CT)	30	30
[illegible]	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
[illegible]	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
[illegible]	SPIKE VOLUME in mL	(SVol)	0.100	0.100
LIQUID	SPIKE DILUTION FACTOR	(SDF)	1	1
[illegible]	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96005985	SPIKE VALUE in µCi/mL	(SVal)	3.5887E-02	3.5887E-02
[illegible]	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/mL	(S+S)	9.47E+01	9.30E+01
[illegible]	AVERAGE or MAXIMUM µCi/mL in SAMPLE		2.9265E-02	

N/A

[illegible]

S96T002549

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

[illegible]

WB27806

SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)

QC ACTUAL = SVal

[illegible]

SLH2

QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))

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

[illegible]

SLF

[illegible]

AKL

[illegible]

06/12/96

[illegible]

06/11/96

QC ACTUAL	=	3.59E-02
QC FOUND	=	4.60E-02
AVG. PERCENT SPIKE RECOVERY	=	128.1%

Analysis Time

01:00 PM

Sample Point

U-102

Analyst:		SLH2	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

SPIKE.WB1 Rev. 1.0 508101ML

06/10/96 16:02
A-0004-1

LABCORE Data Entry Template for Worklist# 9819

Analyst: AKL **Instrument:** AB00 16 **Book#** 47656

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

Worklist Comment: Use 1-10-.250 mL sample size. Rerun #1. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T002445	0	F	@ALPHA01	SOLID	96000536	U-102
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T002445	0	F	@ALPHA01	SOLID		
6	SPK	S96T002445	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T002447	0	F	@ALPHA01	SOLID	96000536	U-102
		Analytes Requested: ALPHA01 , ALPHA01E						
8	DUP	S96T002447	0	F	@ALPHA01	SOLID		

Final page for worklist # 9819

Analyst Signature: [illegible] Date: 6/11/96
Analyst Signature: [illegible] Date: 6-11-96

Analyst Signature: [illegible] Date: 6-12-96
Analyst Signature: [illegible] Date: 6/12/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9819

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

Method: _____ Rev/Mod _____

Worklist Comment: Use 1-10-.250 mL sample size. Rerun #1. SLF

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.48E-4	115.625	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.33E+00	4.330	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<9.50E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	4.35E-01	0.435	BLNK/BKG
4	SAMPLE	S96T002445	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.33E-01	232.0e-004	uCi/g
4	SAMPLE	S96T002445	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.39E+01	0.0e+000	% Ct. Error
5	DUP	S96T002445	0	F	@ALPHA01	ALPHA01	SOLID	1.33E-1	1.48E-1	10.676	RPD
5	DUP	S96T002445	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.18E+01	21.800	% Ct. Erro
6	SPK	S96T002445	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.58E-02	99.721	% Recovery
7	SAMPLE	S96T002447	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.47E-01	233.0e-004	uCi/g
7	SAMPLE	S96T002447	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.28E+01	0.0e+000	% Ct. Error
8	DUP	S96T002447	0	F	@ALPHA01	ALPHA01	SOLID	1.47E-1	1.54E-1	4.651	RPD
8	DUP	S96T002447	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.28E+01	22.800	% Ct. Erro

Final page for worklist# 9819

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

Reviewer Signature 6/12/96 **Date**

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

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2088	2068
9819	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		69.370	68.703
	Standard Value in µCi/mL		1.28E-04	
96005994	Concentration in µCi/L	=	1.49E-01	
	Replicate Concentration in µCi/L	=	1.47E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4780E-01	

N/A

WL9819

WB27806

SLH2

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.

SLF

AKL

06/12/96

ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.48E-04		DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.3%		1.07E-06 µCi/mL

Analysis Date
06/11/96

Analysis Time
11:00 AM

Sample Point
U-102

Analyst:		SLH2	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

AWD-RD-WM-DP-189, REV.

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		16	16
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	5	1
9819	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0256	2.0256
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.204	0.204

96005994	Blank Concentration in µCi/g	<	9.50E-03
	Replicate Concentration in µCi/g	<	9.50E-03
0	Maximum Concentration in µCi/g	<	9.5017E-03

Sample Prep
N/A

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

Standard
WL9819

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

Instrument Code
WB27806

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

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

Reviewed By
SLH2

Chemist
SLF

ALPHA TOTAL in µCi/g (Maximum)	=	< 9.50E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			2.32E-02 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst
AKL

Date Complete
06/12/96

Analysis Date
06/11/96

Analysis Time
11:00 AM

Sample Point
U-102

Analyst:	AKL		Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	99	86
9819	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0256	2.0256
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.070	2.637

96005994	Blank Concentration in µCi/g 1.43E-01
	Replicate Concentration in µCi/g 1.23E-01
1	Average Concentration in µCi/g 1.3269E-01

FUSION01

S96T002445

WB27806

SLH2

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.

SLF	ALPHA TOTAL in µCi/g (Average) =	1.33E-01	DETECTION LEVEL
AKL			N/A
06/12/96	RELATIVE COUNTING ERROR	23.9%	2.32E-02 µCi/g

06/11/96

11:00 AM

U-102

Analyst:	AKL		Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

SAMPLE.WB1 Rev. 1. 508101ML

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

			DUP	REPLICATE
	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	100	109
9819	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0728	2.0728
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.103	3.403

96005994	Blank Concentration in µCi/g 1.41E-01
	Replicate Concentration in µCi/g 1.55E-01
1	Average Concentration in µCi/g 1.4785E-01

FUSION01

S96T002445

WB27806

SLH2

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.

SLF	ALPHA TOTAL in µCi/g (Average)	=	1.48E-01	DETECTION LEVEL
AKL				2.27E-02 µCi/g
06/12/96	RELATIVE COUNTING ERROR		21.8%	

Analysis Date: 06/11/96

Analysis Time: 11:00 AM

Sample Point: U-102

Analyst:	AKL		Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
Workbook	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Workunit	TOTAL COUNTS	(TC)	51553	48908
9819	COUNT TIME in MINUTES	(CT)	30	30
Counter	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.250	0.250
Protocol	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0256	2.0256
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Spike Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96005994	SPIKE VALUE in µCi/mL	(SVal)	3.5887E-02	3.5887E-02
Program	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
1	SAMPLE + SPIKE µCi/g	(S+S)	7.99E+01	7.58E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.3269E-01	
FUSION01				
Sample #				
S96T002445				
Instrument Code				
WB27806				
Prepared By				
SLH2				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
06/12/96				
Analysis Date				
06/11/96				
Analysis Time				
11:00 AM				
Sample Point				
U-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	=	3.59E-02
QC FOUND	=	3.58E-02
AVG. PERCENT SPIKE RECOVERY	=	99.7%

Analyst:		SLH2	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

SPIKE.WB1 Rev. 1.0 508101ML

WMC-SD-WM-DP-189, REV.

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		16	16
	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	110	93
	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.23	0.23
	SAMPLE SIZE in mL	(SS)	0.250	0.250
	DILUTION FACTOR	(DF)	11	11
	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0168	2.0168
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.437	2.870

Blank Concentration in µCi/g	1.61E-01
Replicate Concentration in µCi/g	1.34E-01
Average Concentration in µCi/g	1.4729E-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)	=	1.47E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		22.8%	2.33E-02 µCi/g

Matrix	SAMPLE
Workbook	9819
Analyst	AT
Digestion	@ALPHA01
Matrix	SOLID
Batch Number	96005994
Replicate	1
Sample Prep	FUSION01
Sample #	S96T002447
Instrument Code	WB27806
Prepared By	SLH2
Chemist	SLF
Analyst	AKL
Date Complete	06/12/96
Analysis Date	06/11/96
Analysis Time	11:00 AM
Sample Point	U-102

Analyst:		AKL	Date: 12-Jun-96
Signature of Chemist:		SLF	Date: 6/12/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP8

WMC-SD-WM-DP-189, REV. 1

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

			DUP	REPLICATE
	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	122	93
9819	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0536	2.0536
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.837	2.870

Blank Number	
96005994	Blank Concentration in µCi/g 1.76E-01
	Replicate Concentration in µCi/g 1.32E-01
1	Average Concentration in µCi/g 1.5382E-01

Sample Prep
FUSION01

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

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

Lot Number
S96T002447

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

Instrument Code
WB27806

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

Prepared By
SLH2

Chemist
SLF

ALPHA TOTAL in µCi/g (Average)	=	1.54E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		22.8%	2.29E-02 µCi/g

Analyst
AKL

Date Complete
06/12/96

Analysis Date
06/11/96

Analysis Time
11:00 AM

Sample Point
U-102

Analyst:	AKL	Date: 12-Jun-96	
Signature of Chemist:	SLF	Date: 6/12/96	

SAMPLE.WB1 Rev. 1. 508101ML

LABCORE Data Entry Template for Worklist# 9939

Analyst: AKL **Instrument:** AB00 15 **Book#** 47856

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

Worklist Comment: U-102 DETERMINE SS USING LUDLUM,SPIKE SS .1ML. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T002648	0	F	@ALPHA01	SOLID	96000569	U-102
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T002648	0	F	@ALPHA01	SOLID		
6	SPK	S96T002648	0	F	@ALPHA01	SOLID		

Final page for worklist # 9939

G Lewis 6/14/96
Analyst Signature **Date**

[illegible] 6/17/96
Analyst Signature **Date**
Sharon Hilliard 6/17/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9939

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

Method: _____ Rev/Mod _____

Worklist Comment: U-102 DETERMINE SS USING LUDLUM,SPIKE SS .1ML. RCJ

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.35E-4	105.469	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.30E+00	4.300	% Ct. Erro
2	BLNK		0		@ALPHA01	ALPHA01	SOLID	1	<1.33E-2		uCi/g
2	BLNK		0		@ALPHA01	ALPHA01E	SOLID	1.00	1.96E+02	196.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	2.00E+00	2.000	BLNK/BKG
4	SAMPLE	S96T002648	0	F	@ALPHA01	ALPHA01	SOLID	N/A	6.24E-01	181.0e-004	uCi/g
4	SAMPLE	S96T002648	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.03E+01	0.0e+000	% Ct. Error
5	DUP	S96T002648	0	F	@ALPHA01	ALPHA01	SOLID	6.24E-1	6.44E-1	3.155	RPD
5	DUP	S96T002648	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.07E+01	10.700	% Ct. Erro
6	SPK	S96T002648	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.22E-02	89.694	% Recovery

Final page for worklist# 9939

Analyst Signature Date

Analyst Signature Date

Reviewer Signature 18 Jun 96 Date

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2184	2088
9939	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		72.700	69.500
	Standard Value in µCi/mL		1.28E-04	
96006118	Concentration in µCi/L	=	1.38E-01	
	Replicate Concentration in µCi/L	=	1.32E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3457E-01	

N/A

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

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

WL9939

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

WB26872

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

MCB

				DETECTION LEVEL
SLF	ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.35E-04	
AKL				
06/17/96	RELATIVE COUNTING ERROR	=	4.3%	6.82E-07 µCi/mL

Analyzed Date:

06/14/96

Analyzed Time:

02:00 PM

Sample Point:

U-102

Analyst:		MCB	Date: 17-Jun-96
Signature of Chemist:	for Scot Fitzgerald 8/23/96 SLF		Date:

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK	REPLICATE
	DETECTOR NUMBER		15	15
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	6	6
9939	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0756	2.0756
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.265	0.265

96006118	Blank Concentration in µCi/g	<	1.33E-02
	Replicate Concentration in µCi/g	<	1.33E-02
0	Maximum Concentration in µCi/g	<	1.3290E-02

N/A

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

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

WL9939

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.

MCB

SLF	ALPHA TOTAL in µCi/g (Maximum)	=	< 1.33E-02	DETECTION LEVEL
AKL	LESS THAN Value was Determined from Rmax.			1.81E-02 µCi/g
06/17/96	RELATIVE COUNTING ERROR		196.0%	

Analysis Date: 06/14/96

Analysis Time: 02:00 PM

Sample Point: U-102

Analyst:		AKL	Date: 17-Jun-96
Signature of Chemist:	for Scott Fitzgerald 8/23/96	SLF	Date:

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BL_BKG3

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

	AVG TOTAL COUNTS (BLANK+REP)/2	(TC)	6
BLNK/BKG	COUNT TIME in minutes	(CT)	30
Worksheet	BACKGROUND in cpm	(BKG)	0.1
9939			
Sample Box			
AT			
Sample Code	Result = (Total Counts (TC) / Count Time (CT)) / (Background in cpm (BKG))		
@ALPHA01			
Matrix			
SOLID	RESULT	=	2.00
Batch Number			
96006118			
Replicate			
0			
Sample Prep			
N/A			
Sample ID			
WL9939			
Instrument Code			
WB26872			
Prepared By			
MCB			
Chemist			
SLF			
Analyst			
AKL			
Date Complete			
06/17/96			
Analysis Date			
06/14/96			
Analysis Time			
02:00 PM			
Sample Point			
U-102			

Analyst:	MCB		Date: 17-Jun-96
Signature of Chemist: for Scott Fitzgerald 8/23/96	SLF		Date:

BL_BKG.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	374	379
9939	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0756	2.0756
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12.367	12.533

96006118	Blank Concentration in µCi/g	6.20E-01
	Replicate Concentration in µCi/g	6.29E-01
0	Average Concentration in µCi/g	6.2439E-01

FUSION01

S96T002648

WB26872

MCB

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.

SLF	ALPHA TOTAL in µCi/g (Average)	=	6.24E-01	DETECTION LEVEL
AKL				
06/17/96	RELATIVE COUNTING ERROR		10.3%	1.81E-02 µCi/g

Analyst: AKL

Date Complete: 06/17/96

Analysis Date: 06/14/96

Analysis Time: 02:00 PM

Sample Point: U-102

Analyst:	AKL		Date: 17-Jun-96
Signature of Chemist: C. Stern for Scot Fitzgerald 8/23/96	SLF		Date:

SAMPLE.WB1 Rev. 1.0 508101ML

WHC-SD-WM-DP-109, REV. 1

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	343	418
9939	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.200	0.200
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0344	2.0344
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11.333	13.833

96006118	Blank Concentration in µCi/g 5.80E-01
	Replicate Concentration in µCi/g 7.08E-01
0	Average Concentration in µCi/g 6.4386E-01

FUSION01

S96T002648

WB26872

MCB

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.

SLF

AKL

06/17/96

06/14/96

02:00 PM

U-102

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	6.44E-01	
RELATIVE COUNTING ERROR		10.7%	1.84E-02 µCi/g

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	50333	52640
9939	COUNT TIME in MINUTES	(CT)	30	30
Port/B ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.200	0.200
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0756	2.0756
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
96006118	SPIKE VALUE in µCi/mL	(SVal)	3.5886E-02	3.5886E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
0	SAMPLE + SPIKE µCi/g	(S+S)	8.41E+01	8.80E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		6.2439E-01	
FUSION01				
Sample #				
S96T002648				
Instrument Code				
WB26872				
Prepared By				
MCB				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
06/17/96				
Analysis Date				
06/14/96				
Analysis Time				
02:00 PM				
Sample Point				
U-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	=	3.59E-02	
QC FOUND	=	3.22E-02	
AVG. PERCENT SPIKE RECOVERY	=	89.9%	

Analyst:	MCB		Date: 17-Jun-96
Signature of Chemist: (Stephen Scott Fitzgerald) 8/23/96	SLF		Date:

SPIKE.WB1 Rev. 1.0 508101ML

06/13/96 13:56
A-0004-1

LABCORE Data Entry Template for Worklist# 9940

Analyst: AKL **Instrument:** AB00 13 **Book#** 47B56

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

Worklist Comment: U-102 DETERMINE SS USING LUDLUM, SPIKE SS. .1ML. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T002649	0	F	@ALPHA01	SOLID	96000569	U-102
		Analytes Requested:			ALPHA01 , ALPHA01E			
5	DUP	S96T002649	0	F	@ALPHA01	SOLID		
6	SPK	S96T002649	0	F	@ALPHA01	SOLID		

Final page for worklist # 9940

A Lewis 6/14/96
Analyst Signature **Date**

Sue E. Hogan 6-17-96
Analyst Signature **Date**
Sharon Hlatki 6-17-96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9940

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

Method: _____ Rev/Mod _____

Worklist Comment: U-102 DETERMINE SS USING LUDLUM, SPIKE SS. .1ML. RCJ

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.43E-4	111.719	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.05E+00	4.050	% Ct. Erro
2	BLNK		0		@ALPHA01	ALPHA01	SOLID	1	<3.88E-3		uCi/g
2	BLNK		0		@ALPHA01	ALPHA01E	SOLID	1.00	2.55E+02	255.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	2.38E+00	2.380	BLNK/BKG
4	SAMPLE	S96T002649	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.63E-01	616.0e-005	uCi/g
4	SAMPLE	S96T002649	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.29E+01	0.0e+000	% Ct. Error
5	DUP	S96T002649	0	F	@ALPHA01	ALPHA01	SOLID	1.63E-1	1.58E-1	3.115	RPD
5	DUP	S96T002649	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.32E+01	13.200	% Ct. Erro
5	SPK	S96T002649	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.13E-02	87.187	% Recovery

Final page for worklist# 9940

Analyst Signature Date

Analyst Signature Date

S. Cattaw 18 Jun 96
Reviewer Signature Date

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		13	13
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2343	2385
9940	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		78.030	79.430
	Standard Value in µCi/mL		1.28E-04	
96006119	Concentration in µCi/L	=	1.42E-01	
	Replicate Concentration in µCi/L	=	1.44E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4317E-01	

N/A

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

Sample #

WL9940

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

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.43E-04	5.75E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.1%	

Analyst

AKL

Date Complete

06/17/96

Analysis Date

06/14/96

Analysis Time

01:30 PM

Sample Point

U-102

Analyst:	SEH		Date: 17-Jun-96
Signature of Chemist: for Scot F Hagenold 5/23/96	SLF		Date:

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK	REPLICATE
	DETECTOR NUMBER		13	13
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	6	4
9940	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0528	2.0528
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.130	0.199

Batch Number			
96006119	Blank Concentration in µCi/g		2.53E-03
Rerun	Replicate Concentration in µCi/g	<	3.88E-03
0	Maximum Concentration in µCi/g	<	3.8818E-03

Sample Prep
N/A

Sample #
WL9940

Instrument Code
WB27810

Prepared By
SEH

Chemist
SLF

Analyst
AKL

Date Complete
06/17/96

Analysis Date
06/14/96

Analysis Time
01:30 PM

Sample Point
U-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)	=	< 3.88E-03	DETECTION LEVEL
LESS THAN Value was Determined from Rs.				6.16E-03 µCi/g
RELATIVE COUNTING ERROR			254.8%	

Analyst:		AKL	Date: 17-Jun-96
Signature of Chemist:	cf Stevens for Scott Fitzgerald 8/23/96	SLF	Date:

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	268	238
9940	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0528	2.0528
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8.863	7.863

Calibration ID		
96006119	Blank Concentration in µCi/g	1.73E-01
Batch	Replicate Concentration in µCi/g	1.53E-01
0	Average Concentration in µCi/g	1.6300E-01

Sample Prep
FUSION01

Sample
S96T002649

Instrument Code
WB27810

Prepared By
SEH

Chemist
SLF

Analyst
AKL

Date Complete
06/17/96

Analysis Date
06/14/96

Analysis Time
01:30 PM

Sample Point
U-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)	=	1.63E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		12.9%	6.16E-03 µCi/g

Analyst:	AKL		Date: 17-Jun-96
Signature of Chemist:	for Scot Fitzgerald 8/23/96	SLF	Date:

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	281	226
9940	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1196	2.1196
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.297	7.463

Blank Number		
96006119	Blank Concentration in µCi/g	1.75E-01
Replicate	Replicate Concentration in µCi/g	1.41E-01
0	Average Concentration in µCi/g	1.5817E-01

Sample Prep
FUSION01

Sample #
S96T002649

Instrument Code
WB27810

Prepared By
SEH

Chemist
SLF

Analyst
AKL

Date Complete
06/17/96

Analysis Date
06/14/96

Analysis Time
01:30 PM

Sample Point
U-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)	=	1.58E-01	
RELATIVE COUNTING ERROR		13.2%	5.97E-03 µCi/g

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	49160	54622
9940	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0528	2.0528
	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
96006119	SPIKE VALUE in µCi/mL	(SVal)	3.5886E-02	3.5886E-02
Form	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
0	SAMPLE + SPIKE µCi/g	(S+S)	3.19E+01	3.55E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.6300E-01	
FUSION01				
Sample #				
S96T002649	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				
06/17/96				
Analysis Date				
06/14/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.13E-02	
01:30 PM	AVG. PERCENT SPIKE RECOVERY	=	87.2%	
Sample Point				
U-102				

Analyst:		SEH	Date: 17-Jun-96
Signature of Chemist:	for Scott Fitzgerald 8/05/96	SLF	Date:

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 9942

Analyst: AKL **Instrument:** AB00 16 **Book#** 47656

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

Worklist Comment: U-102 DETERMINE SS USING LUDLUM, SPIKE SS .1ML. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T002796	0	F	@ALPHA01	SOLID	96000569	U-102
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T002796	0	F	@ALPHA01	SOLID		
6	SPK	S96T002796	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T002797	0	F	@ALPHA01	SOLID	96000569	U-102
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T002797	0	F	@ALPHA01	SOLID		

Final page for worklist # 9942

C Luis 6/14/96
Analyst Signature **Date**

6/17/96
Analyst Signature **Date**
Shirley L Ludlum 6-17-96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9942

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

Method: _____ Rev/Mod _____

Worklist Comment: U-102 DETERMINE SS USING LUDLUM, SPIKE SS .1ML. RCJ

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.47E-4	114.844	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.33E+00	4.330	% Ct. Erro
2	BLNK		0		@ALPHA01	ALPHA01	SOLID	1	<6.39E-3		uCi/g
2	BLNK		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	8.33E-01	0.833	BLNK/BKG
4	SAMPLE	S96T002796	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.45E-01	129.0e-004	uCi/g
4	SAMPLE	S96T002796	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.19E+01	0.0e+000	% Ct. Error
5	DUP	S96T002796	0	F	@ALPHA01	ALPHA01	SOLID	3.45E-1	3.47E-1	0.578	RPD
5	DUP	S96T002796	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.18E+01	11.800	% Ct. Erro
6	SPK	S96T002796	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.57E-02	99.443	% Recovery
7	SAMPLE	S96T002797	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.66E-01	130.0e-004	uCi/g
7	SAMPLE	S96T002797	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.72E+01	0.0e+000	% Ct. Error
8	DUP	S96T002797	0	F	@ALPHA01	ALPHA01	SOLID	1.66E-1	1.67E-1	0.601	RPD
8	DUP	S96T002797	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.69E+01	16.900	% Ct. Erro

Final page for worklist# 9942

Analyst Signature Date

Analyst Signature Date

Reviewer Signature 18 Jun 96 Date

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2063	2054
9942	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		68.667	68.367
	Standard Value in µCi/mL		1.28E-04	
96006121	Concentration in µCi/L	=	1.47E-01	
	Replicate Concentration in µCi/L	=	1.46E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4669E-01	

N/A

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

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

wl9942 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

WB27806 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

MCB

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-102

ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.47E-04	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.3%	7.71E-07 µCi/mL

Analyst:	MCB	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK	REPLICATE
	DETECTOR NUMBER		16	16
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	1	4
9942	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	34.33	34.33
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0572	2.0572
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.135	0.179

Batch Number			
96006121	Blank Concentration in µCi/g	<	4.81E-03
Replicate	Replicate Concentration in µCi/g	<	6.39E-03
0	Maximum Concentration in µCi/g	<	6.3898E-03

Sample Prep
N/A

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

Sample #
WL9942

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

Instrument Code
WB27806

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

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

Prepared By
MCB

Chemist
SLF

Analyst
AKL

Date Complete
06/17/96

Analysis Date
06/14/96

Analysis Time
03:00 PM

Sample Point
U-102

ALPHA TOTAL in µCi/g (Maximum) = < 6.39E-03		DETECTION LEVEL
LESS Than Value was Determined from Lc.		
RELATIVE COUNTING ERROR	500.0%	1.29E-02 µCi/g

Analyst:	AKL	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BL_BKG3

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

	AVG TOTAL COUNTS (BLANK+REP)/2	(TC)	2.5
BLNK/BKG	COUNT TIME in minutes	(CT)	30
	BACKGROUND in cpm	(BKG)	0.1

9942

AT

Result = (Total Counts (TC) / Count Time (CT)) / (Background in cpm (BKG))

@ALPHA01

SOLID	RESULT	=	0.83

96006121

0

N/A

WL9942

WB27806

MCB

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-102

Analyst:	MCB	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

BL_BKG.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	279	306
9942	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	34.33	34.33
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0572	2.0572
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.200	10.100

96006121	Blank Concentration in µCi/g	3.29E-01
	Replicate Concentration in µCi/g	3.61E-01
0	Average Concentration in µCi/g	3.4477E-01

FUSION01

S96T002796

WB27806

MCB

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.

SLF	ALPHA TOTAL in µCi/g (Average)	=	3.45E-01	DETECTION LEVEL
AKL				1.29E-02 µCi/g
06/17/96	RELATIVE COUNTING ERROR		11.9%	

Analysis Date

06/14/96

Analysis Time

03:00 PM

Sample Point

U-102

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	321	283
9942	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	34.33	34.33
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1128	2.1128
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		10.600	9.333

Blank Concentration in µCi/g	3.69E-01
Replicate Concentration in µCi/g	3.25E-01
Average Concentration in µCi/g	3.4671E-01

96006121

0

FUSION01

S96T002796

WB27806

MCB

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.

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-102

ALPHA TOTAL in µCi/g (Average) =	3.47E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR	11.8%	1.25E-02 µCi/g

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	52271	48403
9942	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	34.33	34.33
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0572	2.0572
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96006121	SPIKE VALUE in µCi/mL	(SVal)	3.5886E-02	3.5886E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/g	(S+S)	6.22E+01	5.76E+01
	AVERAGE or MAXIMUM µCi/g in SAMPLE		3.7490E-01	

FUSION01

Sample #

S96T002796

Instrument Code

WB27806

Prepared By

MCB

Chemist

SLF

Analyst

AKL

Date Complete

06/17/96

Analysis Date

06/14/96

Analysis Time

03:00 PM

Sample Point

U-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	=	3.59E-02	
QC FOUND	=	3.57E-02	
AVG. PERCENT SPIKE RECOVERY	=	99.5%	

Analyst:	MCB	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	143	139
9942	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	34.33	34.33
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.036	2.036
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4.667	4.533

Blank Concentration in µCi/g	1.68E-01
Replicate Concentration in µCi/g	1.64E-01
Average Concentration in µCi/g	1.6606E-01

96006121

0

FUSION01

S96T002797

WB27806

MCB

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-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) =	1.66E-01	
RELATIVE COUNTING ERROR	17.2%	1.30E-02 µCi/g

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

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

			DUP	REPLICATE
	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	143	152
9942	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	34.33	34.33
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1212	2.1212
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4.667	4.967

96006121	Blank Concentration in µCi/g	1.62E-01
	Replicate Concentration in µCi/g	1.72E-01
0	Average Concentration in µCi/g	1.6689E-01

FUSION01

S96T002797

WB27806

MCB

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.

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-102

ALPHA TOTAL in µCi/g (Average)	=	1.67E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		16.9%	1.25E-02 µCi/g

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

SAMPLE.WB1 Rev. 1.0 508101ML

06/13/96 14:00
A-0004-1

LABCORE Data Entry Template for Worklist# 9943

Analyst: AKL **Instrument:** AB00 13 **Book#** 47B56

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

Worklist Comment: U-102 DETERMINE SS USING LUDLUM, SPIKE SS .1ML. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T002798	0	F	@ALPHA01	SOLID	96000569	U-102
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T002798	0	F	@ALPHA01	SOLID		
6	SPK	S96T002798	0	F	@ALPHA01	SOLID		

Final page for worklist # 9943

A Lewis 6/14/96
Analyst Signature **Date**

Sharon L Hulsh 6-17-96
Analyst Signature **Date**

M G Brown 6/17/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9943

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

Method: _____ Rev/Mod _____

Worklist Comment: U-102 DETERMINE SS USING LUDLUM, SPIKE SS .1ML. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01 ALPHA01	SOLID	1.28E-04	1.40E-4	109.375	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	4.15E+00	4.150	% Ct. Erro
2	BLNK		0		@ALPHA01 ALPHA01	SOLID	1	<3.98E-3		uCi/g
2	BLNK		0		@ALPHA01 ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01 ALPHA01	SOLID	1.00E+00	8.82E-01	0.882	BLNK/BKG
4	SAMPLE	S96T002798	0	F	@ALPHA01 ALPHA01	SOLID	N/A	8.49E-02	100.0e-004	uCi/g
4	SAMPLE	S96T002798	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	2.07E+01	0.0e+000	% Ct. Error
5	DUP	S96T002798	0	F	@ALPHA01 ALPHA01	SOLID	8.49E-2	8.18E-2	3.719	RPD
5	DUP	S96T002798	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	2.02E+01	20.200	% Ct. Erro
6	SPK	S96T002798	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.33E-02	92.758	% Recovery

Final page for worklist# 9943

Analyst Signature Date

Analyst Signature Date

D.R. Cathers 17 Jun 96
Reviewer Signature Date

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		13	13
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2382	2251
9943	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		79.230	74.863
	Standard Value in µCi/mL		1.28E-04	
96006122	Concentration in µCi/L	=	1.44E-01	
	Replicate Concentration in µCi/L	=	1.36E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4011E-01	

N/A

WL9943

WB27810

SLH2

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.

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-102

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.40E-04	
RELATIVE COUNTING ERROR	=	4.1%	8.04E-07 µCi/mL

Analyst:	SLH2	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK	REPLICATE
	DETECTOR NUMBER		13	13
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	4	5
9943	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	26	26
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0856	2.0856
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.176	0.176

96006122	Blank Concentration in µCi/g	<	3.98E-03
	Replicate Concentration in µCi/g	<	3.98E-03
0	Maximum Concentration in µCi/g	<	3.9822E-03

N/A

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

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

WL9943

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.

SLH2

SLF

ALPHA TOTAL in µCi/g (Maximum)	=	< 3.98E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			1.00E-02 µCi/g
RELATIVE COUNTING ERROR		500.0%	

AKL

06/17/96

06/14/96

03:00 PM

U-102

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BL_BKG3

WHC-SD-WM-DP-189, REV. 1

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

BLNK/BKG	AVG TOTAL COUNTS (BLANK+REP)/2	(TC)	4.5
	COUNT TIME in minutes	(CT)	30
	BACKGROUND in cpm	(BKG)	0.17

9943
AT
@ALPHA01
SOLID
96006122
0
N/A
WL9943
WB27810
SLH2
SLF
AKL
06/17/96
06/14/96
03:00 PM
U-102

Result = (Total Counts (TC) / Count Time (CT)) / (Background in cpm (BKG))

RESULT	=	0.88

Analyst:	SLH2	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

BL_BKG.WB1 Rev. 1.0 508101ML

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	104	131
9943	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	26	26
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0856	2.0856
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.297	4.197

96006122	Blank Concentration in µCi/g 7.47E-02
	Replicate Concentration in µCi/g 9.51E-02
0	Average Concentration in µCi/g 8.4939E-02

FUSION01

S96T002798

WB27810

SLH2

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-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)	=	8.49E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		20.7%	1.00E-02 µCi/g

Analyst:	AKL		Date: 17-Jun-96
Signature of Chemist:		SLF	Date:

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

WAD-SD-WM-DP-103, REV. 1

			DUP	REPLICATE
	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	115	109
9943	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	26	26
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.06	2.06
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.663	3.463

Blank Concentration in µCi/g	8.41E-02
Replicate Concentration in µCi/g	7.95E-02
Average Concentration in µCi/g	8.1787E-02

96006122

0

FUSION01

S96T002798

WB27810

SLH2

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-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)	=	8.18E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		20.2%	1.01E-02 µCi/g

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

SAMPLE.WB1 Rev. 1.0 508101ML

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	54860	55341
9943	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	26	26
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0856	2.0856
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96006122	SPIKE VALUE in µCi/mL	(SVal)	3.5886E-02	3.5886E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
0	SAMPLE + SPIKE µCi/g	(S+S)	4.15E+01	4.18E+01
	AVERAGE or MAXIMUM µCi/g in SAMPLE		8.4939E-02	

FUSION01

S96T002798

WB27810

SLH2

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-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	=	3.59E-02
QC FOUND	=	3.33E-02
AVG. PERCENT SPIKE RECOVERY	=	92.9%

Analyst:	SLH2	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

SPIKE.WB1 Rev. 1.0 508101ML

Sheet 5

06/13/96 13:57
A-0004-1

LABCORE Data Entry Template for Worklist# 9941

Analyst: AKL **Instrument:** AB00 14 **Book#** 47B56

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

Worklist Comment: U-102 DETERMINE SS USING LUDLUM, SPIKE SS .1ML. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T002662	0	F	@ALPHA01	SOLID	96000569	U-102
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T002662	0	F	@ALPHA01	SOLID		
6	SPK	S96T002662	0	F	@ALPHA01	SOLID		

Final page for worklist # 9941

A. Lewis 6/14/96
Analyst Signature **Date**

[signature] 6/17/96
Analyst Signature **Date**
Sharon L Ulrich 6-17-96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9941

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

Method: _____ Rev/Mod _____

Worklist Comment: U-102 DETERMINE SS USING LUDLUM, SPIKE SS .1ML. RCJ

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.31E-4	102.344	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.54E+00	4.540	% Ct. Erro
2	BLNK		0		@ALPHA01	ALPHA01	SOLID	1	<2.93E-3		uCi/g
2	BLNK		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	9.88E-01	0.988	BLNK/BKG
4	SAMPLE	S96T002662	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.21E-01	526.0e-005	uCi/g
4	SAMPLE	S96T002662	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.06E+01	0.0e+000	% Ct. Error
5	DUP	S96T002662	0	F	@ALPHA01	ALPHA01	SOLID	1.21E-1	1.29E-1	6.400	RPD
5	DUP	S96T002662	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.02E+01	10.200	% Ct. Erro
6	SPK	S96T002662	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	2.78E-02	77.437	% Recovery

Final page for worklist# 9941

Analyst Signature Date

Analyst Signature Date

Reviewer Signature 18 June 96 Date

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2085	1886
9941	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		69.230	62.597
	Standard Value in µCi/mL		1.28E-04	
96006120	Concentration in µCi/L	=	1.37E-01	
	Replicate Concentration in µCi/L	=	1.24E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3057E-01	

N/A

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

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

WL9941

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

WB27807

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

MCB

SLF

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.31E-04	
RELATIVE COUNTING ERROR	=	4.5%	1.06E-06 µCi/mL

AKL

06/17/96

06/14/96

01:30 PM

U-102

Analyst:	MCB	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK	REPLICATE
	DETECTOR NUMBER		14	14
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	10	6
9941	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2112	2.2112
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.297	0.221

96006120	Blank Concentration in µCi/g	<	2.93E-03
	Replicate Concentration in µCi/g	<	2.18E-03
0	Maximum Concentration in µCi/g	<	2.9299E-03

N/A

WL9941

WB27807

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.

Prepared By: MCB

Chemist: SLF

Analyst: AKL

Date Complete: 06/17/96

Analysis Date: 06/14/96

Analysis Time: 01:30 PM

Sample Point: U-102

ALPHA TOTAL in µCi/g (Maximum) =	< 2.93E-03	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.		
RELATIVE COUNTING ERROR	500.0%	5.26E-03 µCi/g

Analyst:	AKL	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BL_BKG3

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

	AVG TOTAL COUNTS (BLANK+REP)/2	(TC)	8
BLNK/BKG	COUNT TIME in minutes	(CT)	30
	BACKGROUND in cpm	(BKG)	0.27

9941

AT

Result = (Total Counts (TC) / Count Time (CT)) / (Background in cpm (BKG))

@ALPHA01

SOLID	RESULT	=	0.99

96006120

0

N/A

WL9941

WB27807

MCB

SLF

AKL

06/17/96

06/14/96

01:30 PM

U-102

Analyst:	MCB		Date: 17-Jun-96
Signature of Chemist:		SLF	Date:

BL_BKG.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	367	385
9941	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2112	2.2112
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11.963	12.563

Sample Number		
96006120	Blank Concentration in µCi/g	1.18E-01
Replicate Number	Replicate Concentration in µCi/g	1.24E-01
0	Average Concentration in µCi/g	1.2085E-01

Sample Type
FUSION01

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.

Sample Number
S96T002662

Instrument Code
WB27807

Prepared By
MCB

Chemist
SLF

ALPHA TOTAL in µCi/g (Average) =	1.21E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR	10.6%	5.26E-03 µCi/g

Analyst
AKL

Date Complete
06/17/96

Analysis Date
06/14/96

Analysis Time
01:30 PM

Sample Point
U-102

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	414	392
9941	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2268	2.2268
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		13.530	12.797

96006120	Blank Concentration in µCi/g 1.32E-01
	Replicate Concentration in µCi/g 1.25E-01
0	Average Concentration in µCi/g 1.2881E-01

FUSION01

S96T002662

WB27807

MCB

SLF

AKL

06/17/96

06/14/96

01:30 PM

U-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)	=	1.29E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		10.2%	5.22E-03 µCi/g

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	43420	41391
9941	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2112	2.2112
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96006120	SPIKE VALUE in µCi/mL	(SVal)	3.5886E-02	3.5886E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/g	(S+S)	1.43E+01	1.36E+01
	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.2085E-01	

FUSION01

S96T002662

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

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

WB27807

QC ACTUAL = SVal

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

SLF

AKL

06/17/96

06/14/96

QC ACTUAL	=	3.59E-02
QC FOUND	=	2.78E-02
AVG. PERCENT SPIKE RECOVERY	=	77.3%

01:30 PM

U-102

Analyst:	MCB	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 10503

Analyst: AKL **Instrument:** AB00 15 **Book#** 47656

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

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T003610	0	F	@ALPHA01	SOLID	96000569	U-102
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T003610	0	F	@ALPHA01	SOLID		
6	SPK	S96T003610	0	F	@ALPHA01	SOLID		

Final page for worklist # 10503

G Lewis 7/2/96
Analyst Signature **Date**

C.J. Owen 7/3/96
Analyst Signature **Date**

Sharon L Walsh 7-3-96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 10503

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.36E-4	106.250	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.28E+00	4.280	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<2.28E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	3.54E-01	0.354	BLNK/BKG
4	SAMPLE	S96T003610	0	F	@ALPHA01	ALPHA01	SOLID	N/A	6.53E-02	540.0e-005	uCi/g
4	SAMPLE	S96T003610	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.46E+01	0.0e+000	% Ct. Error
5	DUP	S96T003610	0	F	@ALPHA01	ALPHA01	SOLID	6.53E-2	7.03E-2	7.375	RPD
5	DUP	S96T003610	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.46E+01	14.600	% Ct. Erro
6	SPK	S96T003610	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	2.82E-02	78.552	% Recovery

Final page for worklist# 10503

Analyst Signature Date

Analyst Signature Date

7/8/96

Reviewer Signature Date

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2127	2217
10503	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		70.570	73.570
	Standard Value in µCi/mL		1.28E-04	
96006762	Concentration in µCi/L	=	1.34E-01	
	Replicate Concentration in µCi/L	=	1.39E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3640E-01	

N/A

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

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

WL10503

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

WB26872

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

CJO

SLF

				DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.36E-04		
RELATIVE COUNTING ERROR	=	4.3%		1.10E-06 µCi/mL

AKL

07/03/96

07/02/96

02:00 PM

U-102

Analyst:		CJO	Date: 03-Jul-96
Signature of Chemist:		SLF	Date: 7/8/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	4	3
10503	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0352	2.0352
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.245	0.245

96006762	Blank Concentration in µCi/g	<	2.28E-03
	Replicate Concentration in µCi/g	<	2.28E-03
0	Maximum Concentration in µCi/g	<	2.2759E-03

N/A

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

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

WL10503

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.

CJO

SLF

ALPHA TOTAL in µCi/g (Maximum)	=	< 2.28E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			5.40E-03 µCi/g
RELATIVE COUNTING ERROR		500.0%	

AKL

07/03/96

07/02/96

02:00 PM

U-102

Analyst:		AKL	Date: 03-Jul-96
Signature of Chemist:		SLF	Date: 7/8/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	233	208
10503	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0352	2.0352
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7.437	6.603

96006762	Blank Concentration in µCi/g	6.92E-02
	Replicate Concentration in µCi/g	6.14E-02
0	Average Concentration in µCi/g	6.5283E-02

FUSION01

S96T003610

WB26872

CJO

SLF

AKL

07/03/96

07/02/96

02:00 PM

U-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)	=	6.53E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		14.6%	5.40E-03 µCi/g

Analyst:	AKL		Date: 03-Jul-96
Signature of Chemist:		SLF	Date: 7/8/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	208	258
10503	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0008	2.0008
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.603	8.270

Batch Number	
96006762	Blank Concentration in µCi/g 6.25E-02
Dup	Replicate Concentration in µCi/g 7.82E-02
0	Average Concentration in µCi/g 7.0347E-02

Sample Prep
FUSION01

Sample #
S96T003610

Instrument Code
WB26872

Prepared By
CJO

Chemist
SLF

Analyst
AKL

Date Complete
07/03/96

Analysis Date
07/02/96

Analysis Time
02:00 PM

Sample Point
U-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)	=	7.03E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		14.6%	5.49E-03 µCi/g

Analyst:		AKL	Date: 03-Jul-96
Signature of Chemist:		SLF	Date: 7/8/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	46321	43671
10503	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0352	2.0352
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96006762	SPIKE VALUE in µCi/mL	(SVal)	3.5883E-02	3.5883E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
0	SAMPLE + SPIKE µCi/g	(S+S)	1.44E+01	1.35E+01
	AVERAGE or MAXIMUM µCi/g in SAMPLE		6.5283E-02	

FUSION01

S96T003610

WB26872

CJO

SLF

AKL

07/03/96

07/02/96

02:00 PM

U-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	=	3.59E-02
QC FOUND	=	2.82E-02
AVG. PERCENT SPIKE RECOVERY	=	78.7%

Analyst:		CJO	Date: 03-Jul-96
Signature of Chemist:		SLF	Date: 7/8/96

SPIKE.WB1 Rev. 1.0 508101ML

THE FOLLOWING ANALYSES WERE RERUN AND INCLUDED IN THE DATA PACKAGE, BUT THE RESULTS HAVE NOT BEEN REPORTED IN THE FINAL SUMMARY REPORTS.

LABCORE Completed RadChem Report for Worklist#: 11362

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

Method: _____ Rev/Mod _____

Worklist Comment: DETERMINE SS USING LUDLUM .1ML FOR SPIKE

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@AB-01	ALPHA01	SOLID	1.28E-04	1.41E-4	110.156	% Recovery
1	STD		0		@AB-01	ALPHA01E	SOLID	1	4.16E+00	4.160	% Ct. Erro
1	STD		0		@AB-01	BETA-01	SOLID	1.79E-03	1.98E-3	110.615	% Recovery
1	STD		0		@AB-01	BETA-01E	SOLID	1	8.39E-01	0.839	% Ct. Erro
2	BLNK-PREP		0		@AB-01	ALPHA01	SOLID	1	<6.91E-3		uCi/g
2	BLNK-PREP		0		@AB-01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
2	BLNK-PREP		0		@AB-01	BETA-01	SOLID	1	1.94E-1	0.194	uCi/g
2	BLNK-PREP		0		@AB-01	BETA-01E	SOLID	1.00	2.57E+01	25.700	uCi/g
3	BLNK/BKG		0		@AB-01	ALPHA01	SOLID	1.00E+00	1.19E+00	1.190	BLNK/BKG
3	BLNK/BKG		0		@AB-01	BETA-01	SOLID	1.00E+00	1.69E+00	1.690	BLNK/BKG
4	SAMPLE	S96T003675	0	F	@AB-01	ALPHA01	SOLID	N/A	1.78E-01	142.0e-004	uCi/g
4	SAMPLE	S96T003675	0	F	@AB-01	ALPHA01E	SOLID	N/A	1.92E+01	0.0e+000	% Ct. Error
4	SAMPLE	S96T003675	0	F	@AB-01	BETA-01	SOLID	N/A	2.91E+02	740.0e-004	uCi/g
4	SAMPLE	S96T003675	0	F	@AB-01	BETA-01E	SOLID	N/A	3.35E-01	0.0e+000	% Ct. Error
5	DUP	S96T003675	0	F	@AB-01	ALPHA01	SOLID	1.78E-1	1.62E-1	9.412	RPD
5	DUP	S96T003675	0	F	@AB-01	ALPHA01E	SOLID	1.00	1.91E+01	19.100	% Ct. Erro
5	DUP	S96T003675	0	F	@AB-01	BETA-01	SOLID	2.91E+2	2.54E+2	13.578	RPD
5	DUP	S96T003675	0	F	@AB-01	BETA-01E	SOLID	1.00	3.48E-01	0.348	% Ct. Erro
6	SPK	S96T003675	0	F	@AB-01	ALPHA01	SOLID	3.59E-02	3.49E-02	97.214	% Recovery
6	SPK	S96T003675	0	F	@AB-01	BETA-01	SOLID	1.52E-01	1.50E-01	98.684	% Recovery
7	SAMPLE	S96T003680	0	F	@AB-01	ALPHA01	SOLID	N/A	1.90E-01	142.0e-004	uCi/g
7	SAMPLE	S96T003680	0	F	@AB-01	ALPHA01E	SOLID	N/A	1.84E+01	0.0e+000	% Ct. Error
7	SAMPLE	S96T003680	0	F	@AB-01	BETA-01	SOLID	N/A	2.85E+02	743.0e-004	uCi/g
7	SAMPLE	S96T003680	0	F	@AB-01	BETA-01E	SOLID	N/A	3.40E-01	0.0e+000	% Ct. Error
8	DUP	S96T003680	0	F	@AB-01	ALPHA01	SOLID	1.90E-1	1.74E-1	8.791	RPD
8	DUP	S96T003680	0	F	@AB-01	ALPHA01E	SOLID	1.00	1.87E+01	18.700	% Ct. Erro
8	DUP	S96T003680	0	F	@AB-01	BETA-01	SOLID	2.85E+2	2.75E+2	3.571	RPD
8	DUP	S96T003680	0	F	@AB-01	BETA-01E	SOLID	1.00	3.46E-01	0.346	% Ct. Erro

Final page for worklist# 11362

Analyst Signature Date

Analyst Signature Date

Reviewer Signature 8/7/96 Date

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

07/30/96 13:41
A-0004-1

LABCORE Data Entry Template for Worklist# 11362

Analyst: S.C.L **Instrument:** AB00 15 **Book#** 47B5-6

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

Worklist Comment: DETERMINE SS USING LUDLUM .1ML FOR SPIKE

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	S96T003675	0	F	@AB-01	SOLID	96000569	U-102
	Analytes Requested: ALPHA01 , ALPHA01E, BETA-01 , BETA-01E							
5	DUP	S96T003675	0	F	@AB-01	SOLID		
6	SPK	S96T003675	0	F	@AB-01	SOLID		
7	SAMPLE	S96T003680	0	F	@AB-01	SOLID	96000536	U-102
	Analytes Requested: ALPHA01 , ALPHA01E, BETA-01 , BETA-01E							
8	DUP	S96T003680	0	F	@AB-01	SOLID		

Final page for worklist # 11362

Sue C Lai 8-1-96
Analyst Signature **Date**

Lucy E. Hogan
Analyst Signature **Date**
C.J. Quinn 8/6/96

Data Entry Comments:

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
VOL	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
[illegible]	GROSS COUNTS	(GC)	56282	55524
11362	COUNT TIME in MINUTES	(CT)	30	30
[illegible]	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
[illegible]	DILUTION FACTOR	(DF)	1	1
@AB-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
[illegible]	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1865.067	1839.800
Batch Number	Standard Value in µCi/mL		1.79E-03	
96007678	Concentration in µCi/L	=	2.00E+00	
[illegible]	Replicate Concentration in µCi/L	=	1.97E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	1.9834E+00	

Sample Size
N/A

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

[illegible]
WL11362

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

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

[illegible]
WS26872

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

TOTAL BETA CONCENTRATION in µCi/mL	=	1.98E-03	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	0.8%	3.12E-06 µCi/mL

Analyst
SCL

Date Complete
08/05/96

Analysis Date
08/01/96

Analysis Time
03:30 PM

Sample Point
U-102

Analyst:	SEH	Date: 05-Aug-96	
Signature of Chemist:	SLF	Date: 8/7/96	

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: STD2

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

			STANDARD	REPLICATE
[illegible]	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
[illegible]	GROSS COUNTS	(GC)	2260	2226
11362	COUNT TIME in MINUTES	(CT)	30	30
[illegible]	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
[illegible]	DILUTION FACTOR	(DF)	1	1
@AB-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
[illegible]	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		75.263	74.130
[illegible]	Standard Value in µCi/mL		1.28E-04	
96007678	Concentration in µCi/L	=	1.42E-01	
[illegible]	Replicate Concentration in µCi/L	=	1.40E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4137E-01	

[illegible]
N/A

[illegible]

[illegible]
WB26872

Prepared By
SEH

Chemist
SLF

Analyst
SCL

Date Complete
08/05/96

Analysis Date
08/01/96

Analysis Time
03:30 PM

Sample Point
U-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	=	1.41E-04		5.98E-07 µCi/mL
RELATIVE COUNTING ERROR	=	4.2%		

Analyst:		SEH	Date: 05-Aug-96
Signature of Chemist:		SLF	Date: 8/7/96

STANDARD.WB1 Rev. 1.0 508101ML

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
Vial Count	GROSS COUNTS	(GC)	557	561
11362	COUNT TIME in MINUTES	(CT)	30	30
Background	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Dilution Factor	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8576	1.8576
Efficiency	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7.567	7.700

Count Number		
96007678	Blank Concentration in µCi/g	1.92E-01
Replicate	Replicate Concentration in µCi/g	1.95E-01
0	Average Concentration in µCi/g	1.9359E-01

Sample Point
N/A

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

Sample #
WL11362

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
SEH

Chemist
SLF

TOTAL BETA in µCi/g (Average)	=	1.94E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		25.7%	7.40E-02 µCi/g

Analyst
SCL

Date Complete
08/05/96

Analysis Date
08/01/96

Analysis Time
03:30 PM

Sample Point
U-102

Analyst:	SCL	Date: 05-Aug-96	
Signature of Chemist:	SLF	Date: 8/7/96	

BLANK.WB1 Rev. 1.0 508101ML

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 Order	GROSS COUNTS	(GC)	2	3
11362	COUNT TIME in MINUTES	(CT)	30	30
Background	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.260	0.260
Dilution	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8576	1.8576
Efficiency	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.113	0.164

Batch Number			
96007678	Blank Concentration in µCi/g	<	5.05E-03
Rerun	Replicate Concentration in µCi/g	<	6.91E-03
0	Maximum Concentration in µCi/g	<	6.9132E-03

Sample Prep
N/A

Sample #
WL11362

Instrument Records
WB26872

Prepared By
SEH

Chemist
SLF

Analyst
SCL

Date Complete
08/05/96

Analysis Date
08/01/96

Analysis Time
03:30 PM

Sample Point
U-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)	=	< 6.91E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.				1.42E-02 µCi/g
RELATIVE COUNTING ERROR			500.0%	

Analyst:		SCL	Date: 05-Aug-96
Signature of Chemist:		SLF	Date: 8/7/96

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)	343001	345140
11362	COUNT TIME in MINUTES	(CT)	30	30
Y or N?	BACKGROUND in cpm	(BKG)	11	11
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)	1.8576	1.8576
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11422.367	11493.667

Batch Number		
96007678	Blank Concentration in µCi/g	2.90E+02
Rerun	Replicate Concentration in µCi/g	2.91E+02
0	Average Concentration in µCi/g	2.9059E+02

Sample Prep: FUSION01

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

Sample #: S96T003675

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: SEH

Chemist: SLF

TOTAL BETA in µCi/g (Average)	=	2.91E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	7.40E-02 µCi/g

Analyst: SCL

Date Complete: 08/05/96

Analysis Date: 08/01/96

Analysis Time: 03:30 PM

Sample Point: U-102

{/ system,exit}yes~

Analyst:	SCL		Date: 05-Aug-96
Signature of Chemist:		SLF	Date: 8/7/96

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 Book	GROSS COUNTS	(GC)	110	132
11362	COUNT TIME in MINUTES	(CT)	30	30
Analyte	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Dilution	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8576	1.8576
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.597	4.330

Blank Number		
96007678	Blank Concentration in µCi/g	1.61E-01
Replicate	Replicate Concentration in µCi/g	1.94E-01
0	Average Concentration in µCi/g	1.7768E-01

Sample Prep
FUSION01

Sample #
S96T003675

Instrument Code
WB26872

Prepared By
SEH

Chemist
SLF

Analyst
SCL

Date Complete
08/05/96

Analysis Date
08/01/96

Analysis Time
03:30 PM

Sample Point
U-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)	=	1.78E-01	
RELATIVE COUNTING ERROR		19.2%	1.42E-02 µCi/g

{/ system;exit}yes~

Analyst:		SCL	Date: 05-Aug-96
Signature of Chemist:		SLF	Date: 8/7/96

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 Log	GROSS COUNTS	(GC)	318332	323680
11362	COUNT TIME in MINUTES	(CT)	30	30
Matrix	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Collector	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9844	1.9844
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		10600.067	10778.333

Blank Number		
96007678	Blank Concentration in µCi/g	2.62E+02
Replicate	Replicate Concentration in µCi/g	2.56E+02
0	Average Concentration in µCi/g	2.5377E+02

Sample Prep
FUSION01

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

Sample #
S96T003675

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
SEH

Chemist
SLF

TOTAL BETA in µCi/g (Average)	=	2.54E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	6.92E-02 µCi/g

Analyst
SCL

Date Complete
08/05/96

Analysis Date
08/01/96

Analysis Time
03:30 PM

Sample Point
U-102

(/ system;exit)yes~

Analyst:		SCL	Date: 05-Aug-96
Signature of Chemist:		SLF	Date: 8/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP10

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

			DUP	REPLICATE
AT	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worksheet	GROSS COUNTS	(GC)	111	125
11362	COUNT TIME in MINUTES	(CT)	30	30
Alpha Blank	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Calcs	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9844	1.9844
Alpha	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.630	4.097

Blank Rmax		
96007678	Blank Concentration in µCi/g	1.52E-01
Replicate	Replicate Concentration in µCi/g	1.72E-01
0	Average Concentration in µCi/g	1.6213E-01

Sample Prep
FUSION01

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

Sample #
S96T003675

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

Uncertainty Calc
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
SEH

Chemist
SLF

ALPHA TOTAL in µCi/g (Average) =	1.62E-01	DETECTION LEVEL
		1.33E-02 µCi/g
RELATIVE COUNTING ERROR	19.1%	

Analyst
SCL

Date Complete
08/05/96

Analysis Date
08/01/96

Analysis Time
03:30 PM

Sample Point
U-102

(/ system.exit)yes-

Analyst:		SCL	Date: 05-Aug-96
Signature of Chemist:		SLF	Date: 8/7/96

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		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work Log	TOTAL COUNTS	(TC)	766224	761030
11362	COUNT TIME in MINUTES	(CT)	30	30
Analyst	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.250	0.250
Dilution	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8576	1.8576
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	58B56	58B56
96007678	SPIKE VALUE in µCi/mL	(SVal)	1.5246E-01	1.5246E-01
Batch	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
0	SAMPLE + SPIKE µCi/g	(S+S)	6.47E+02	6.43E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.9059E+02	
FUSION01				
Sample #				
S96T003675	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				
SCL				
Date Complete				
08/05/96				
Analysis Date				
08/01/96	QC ACTUAL	=	1.52E-01	
Analysis Time	QC FOUND	=	1.50E-01	
03:30 PM	AVG. PERCENT SPIKE RECOVERY	=	98.2%	
Sample Point				
U-102				

Analyst:	SEH		Date: 05-Aug-96
Signature of Chemist:		SLF	Date: 8/7/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK12

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

			SPIKE	REPLICATE
VT	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Workbook	TOTAL COUNTS	(TC)	55948	54966
11362	COUNT TIME in MINUTES	(CT)	30	30
Vial	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.250	0.250
Dilution	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8576	1.8576
Spike	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Spike Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96007678	SPIKE VALUE in µCi/mL	(SVal)	3.5879E-02	3.5879E-02
Efficiency	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
0	SAMPLE + SPIKE µCi/g	(S+S)	8.36E+01	8.21E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.7768E-01	
FUSION01				
Sample				
S96T003675	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Id	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				
SCL				
Date Complete				
08/05/96				
Analysis Date				
08/01/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.49E-02	
03:30 PM	AVG. PERCENT SPIKE RECOVERY	=	97.3%	
Sample Point				
U-102				

Analyst:	SEH		Date: 05-Aug-96
Signature of Chemist:		SLF	Date: 8/7/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM13

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	338804	332566
11362	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8496	1.8496
	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11282.467	11074.200

Sample Number		
96007678	Blank Concentration in µCi/g	2.87E+02
Replicate	Replicate Concentration in µCi/g	2.82E+02
0	Average Concentration in µCi/g	2.8473E+02

Sample Prep
FUSION01

Sample #
S96T003680

Instrument Code
WB26872

Prepared By
SEH

Chemist
SLF

Analyst
SCL

Date Complete
08/05/96

Analysis Date
08/01/96

Analysis Time
03:30 PM

Sample Point
U-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)	=	2.85E+02	
RELATIVE COUNTING ERROR		0.3%	7.43E-02 µCi/g

(/ system.exit)yes~

Analyst:	SCL		Date: 05-Aug-96
Signature of Chemist:		SLF	Date: 8/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM14

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Total Counts	GROSS COUNTS	(GC)	137	120
11362	COUNT TIME in MINUTES	(CT)	30	30
Background	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Dilution Factor	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8496	1.8496
Efficiency	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4.497	3.930

Blank Count Number		
96007678	Blank Concentration in µCi/g	2.02E-01
Replicate	Replicate Concentration in µCi/g	1.77E-01
0	Average Concentration in µCi/g	1.8970E-01

Sample Prep
FUSION01

Sample #
S96T003680

Instrument Code
WB26872

Prepared By
SEH

Chemist
SLF

Analyst
SCL

Date Complete
08/06/96

Analysis Date
08/01/96

Analysis Time
03:30 PM

Sample Point
U-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)	=	1.90E-01	
RELATIVE COUNTING ERROR		18.4%	1.42E-02 µCi/g

(/ system;exit)yes~

Analyst:	SCL		Date: 05-Aug-96
Signature of Chemist:		SLF	Date: 8/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP15

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worksheet	GROSS COUNTS	(GC)	328524	321711
11362	COUNT TIME in MINUTES	(CT)	30	30
Analyst	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Cost Code	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8548	1.8548
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		10939.800	10712.700

Batch Number		
96007678	Blank Concentration in µCi/g	2.78E+02
Rerun	Replicate Concentration in µCi/g	2.72E+02
0	Average Concentration in µCi/g	2.7498E+02

Sample Path: FUSION01

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

Sample #: S96T003680

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: SEH

Chemist: SLF

			DETECTION LEVEL
TOTAL BETA in µCi/g (Average)	=	2.75E+02	
RELATIVE COUNTING ERROR		0.3%	7.41E-02 µCi/g

Analyst: SCL

Date Complete: 08/06/96

Analysis Date: 08/01/96

Analysis Time: 03:30 PM

Sample Point: U-102

(/ system;exit)yes~

Analyst:	SCL	Date: 05-Aug-96	
Signature of Chemist:	SLF	Date: 8/7/96	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP16

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

			DUP	REPLICATE
	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	121	116
11362	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.07	0.07
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
	DILUTION FACTOR	(DF)	11	11
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8548	1.8548
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.963	3.797

	Blank Concentration in µCi/g	1.78E-01
	Replicate Concentration in µCi/g	1.70E-01
0	Average Concentration in µCi/g	1.7420E-01

Sample Point: FUSION01

Sample #: S96T003680

Instrument Code: WB26972

Prepared By: SEH

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.

Chemist: SLF

Analyst: SCL

Date Complete: 08/05/96

Analysis Date: 08/01/96

Analysis Time: 03:30 PM

Sample Point: U-102

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	1.74E-01	1.42E-02 µCi/g
RELATIVE COUNTING ERROR		18.7%	

(/ system;exit)yes~

Analyst:	SCL		Date: 05-Aug-96
Signature of Chemist:		SLF	Date: 8/7/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 9467

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

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U102. Sample size is on traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S96T002524	0		@GEA-01	LIQUID	96000536	U-102
		Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
4	DUP	S96T002524	0		@GEA-01	LIQUID		

Final page for worklist # 9467

Jessie S Lisby 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#: 9467

Analyst: jlf **Instrument:** GEA03 **Book#** 12856

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

Worklist Comment: U102. Sample size is on traveler. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@GEA-01	CO60-02	LIQUID	2.523e-02	2.50e-02	99.088	% Recovery
1	STD		0	@GEA-01	CO60-02E	LIQUID	1	1.23	1.230	% Ct Error
1	STD		0	@GEA-01	CS13702	LIQUID	2.702e-02	2.72e-02	100.666	% Recovery
1	STD		0	@GEA-01	CS13702E	LIQUID	1	1.43	1.430	% Ct Error
2	BLNK		0	@GEA-01	CO60-02	LIQUID	1	<2.65e-3		uCi/mL
2	BLNK		0	@GEA-01	CS13702	LIQUID	1	<6.31e-3		uCi/mL
3	SAMPLE	S96T002524	0	@GEA-01	CO60-02	LIQUID	N/A	3.020e-02	0.0e+000	uCi/mL
3	SAMPLE	S96T002524	0	@GEA-01	CO60-02E	LIQUID	N/A	39.4	0.0e+000	% Ct. Error
3	SAMPLE	S96T002524	0	@GEA-01	CS13702	LIQUID	N/A	3.730e+02	0.0e+000	uCi/mL
3	SAMPLE	S96T002524	0	@GEA-01	CS13702E	LIQUID	N/A	0.220	0.0e+000	% Ct. Error
4	DUP	S96T002524	0	@GEA-01	CO60-02	LIQUID	3.02e-02	<2.47e-2		RPD
4	DUP	S96T002524	0	@GEA-01	CO60-02E	LIQUID	1	n/a		% Ct Error
4	DUP	S96T002524	0	@GEA-01	CS13702	LIQUID	3.73e+02	3.71e+02	0.538	RPD
4	DUP	S96T002524	0	@GEA-01	CS13702E	LIQUID	1	0.230	0.230	% Ct Error

Comments Section:

Comments for sample# S96T002524 **and test** @GEA-01 .
DL=0 => n/a.

Final page for worklist# 9467

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

BBachelor 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 21:36:58.34                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9467
Sample ID:               WL9467-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3612.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:09.58 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-JUN-1996 20:45:47.90
Decayed to:              3-JUN-1996 20:45:47.90
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-189, REV. 1

Removed by: Eva Baeb

Verified by: B Bachelor 6/17/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.66*	24046	1.61	1323.49	1315	17	1.4		CS-137	27.2
0	1173.29	15690	1.92	2346.85	2338	18	1.8		CO-60	24.7
0	1332.57	14410	2.05	2665.51	2656	19	1.7		CO-60	25.2
0	1524.91	14	1.24	3050.37	3047	7	71.2			

Summary of Nuclide Activity
Sample ID : WL9467-STD

Acquisition date : 3-JUN-1996 20:45:47

Total number of lines in spectrum	4	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	3	75.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.498E+01	2.498E+01	0.031E+01	1.23	
CS-137	30.00Y	1.000	2.718E+01	2.718E+01	0.039E+01	1.43	
			---	---			
Total Activity :			5.216E+01	5.216E+01			
Grand Total Activity :			5.216E+01	5.216E+01			

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

Sample ID : WL9467-STD Acquisition date : 3-JUN-1996 20:45:47

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1259.	477.59	1.1691E+00
NA-22	94.	1274.53	7.6213E-02
NA-24	33.	1368.55	4.8349E-02
K-40	130.	1460.75	9.3263E-01
CR-51	1261.	320.08	8.8028E-01
MN-54	749.	834.83	1.4962E-01
CO-56	740.	846.76	1.5059E-01
CO-57	1295.	122.06	6.2275E-02
CO-58	739.	810.78	1.4573E-01
FE-59	766.	1099.25	3.3938E-01
SE-75	1421.	264.66	1.4002E-01
SR-85	887.	514.01	1.1216E-01
Y-88	12.	1836.06	3.6082E-02
NB-94	831.	871.09	1.6361E-01
ZRNB-95	569.	724.18	2.6423E-01
RU-103	960.	497.08	1.1988E-01
RURH-106	636.	621.93	2.1608E+00
AG-108m	574.	722.94	1.2746E-01
CD-109	1154.	88.03	1.9470E+00
AG-110M	959.	657.76	1.4585E-01
SN-113	1206.	391.69	1.5789E-01
TE-123m	1409.	159.00	6.6831E-02
SB-124	693.	602.73	1.1142E-01
SB-125	1284.	427.89	3.8032E-01
TE-125m	1184.	109.27	1.9387E+01
I-131	1143.	364.48	1.1493E-01
CS-134	678.	604.70	1.1070E-01
BA-140	747.	537.31	4.2059E-01
LA-140	18.	1596.21	4.2162E-02
CEPR-144	1337.	133.51	9.5721E-01
EU-152	24.	1408.01	1.9787E-01
EU-154	94.	1274.51	2.2123E-01
EU-155	1222.	105.31	2.6311E-01
HG-203	1314.	279.20	1.0039E-01
TL-208	1363.	277.36	1.3136E+00
BI-212	633.	727.18	1.8372E+00
PB-212	1662.	238.63	1.8830E-01
BI-214	704.	609.31	2.4741E-01
PB-214	1178.	351.92	4.5941E-01
RA-224	1655.	240.99	2.0865E+00
RA-226	1621.	186.10	1.8851E+00
AC-228	954.	911.21	6.8429E-01
TH-228	1080.	84.37	5.7999E+00
TH-229	1167.	88.47	2.8378E-01
PA-233	1237.	312.17	2.2336E-01
UTH-233	1471.	245.34	7.3729E+01
PA-234M	781.	1001.03	3.0273E-01
TH-234	1008.	63.29	3.7742E+00
U-235	1594.	185.71	1.1360E-01
NP-237	1123.	86.48	5.7677E-01
NP-239	1232.	106.12	2.5092E-01

Sample ID : WL9467-STD Acquisition date : 3-JUN-1996 20:45:47

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1341.	129.30	8.3417E+02
AM-241	1102.	59.54	6.9642E-01
AM-243	1146.	74.67	1.6692E-01

****
* 222-S Laboratory Counting Room 3-JUN-1996 22:36:35.11 *
****

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

Worklist #:	9467
Sample ID:	WL9467-BLK
Sample Size:	5.00000E-04 L
Dilution Factor:	5.10000E+01

Removed by: Em Barela

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

Detector ID:	
File Number:	dka300:[spec.GEA3]3g3613.cnf
Geometry:	42
Count Time:	0 00:50:00.00 sec
Real Time:	0 00:50:00.44 sec
Dead Time:	0.0%

Verified by: BMachelor 6/4/96

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

Sample Count Time:	3-JUN-1996 21:45:15.98
Decayed to:	3-JUN-1996 21:45:15.98
Standard Deviations:	2
Analysis Library:	ENVGEA
Analyst:	EMB
Background Subtract:	DKA300:[SPEC.GEA3]3GBACK

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

Date of last energy calibration: 11-MAR-1994 11:47:01.11
Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	608.65*	30	1.50	1217.49	1210	15	75.2			

Summary of Nuclide Activity
Sample ID : WL9467-BLK Acquisition date : 3-JUN-1996 21:45:15

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

**** 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 : WL9467-BLK Acquisition date : 3-JUN-1996 21:45:15

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	36.	477.59	2.0076E+01
NA-22	8.	1274.53	2.2910E+00
NA-24	11.	1368.55	2.8646E+00
K-40	119.	1460.75	9.1055E+01
CR-51	55.	320.08	1.8827E+01
MN-54	20.	834.83	2.5175E+00
CO-56	15.	846.76	2.1762E+00
CO-57	71.	122.06	1.4891E+00
CO-58	13.	810.78	1.9502E+00
FE-59	13.	1099.25	4.5808E+00
CO-60	10.	1332.50	2.6507E+00
SE-75	59.	264.66	2.8993E+00
SR-85	38.	514.01	2.3761E+00
Y-88	2.	1836.06	1.5135E+00
NB-94	24.	871.09	2.8267E+00
ZRNB-95	20.	724.18	5.1073E+00
RU-103	39.	497.08	2.4579E+00
RURH-106	22.	621.93	4.1385E+01
AG-108m	18.	722.94	2.2977E+00
CD-109	55.	88.03	4.3372E+01
AG-110M	26.	657.76	2.4542E+00
SN-113	43.	391.69	3.0306E+00
TE-123m	69.	159.00	1.5112E+00
SB-124	26.	602.73	2.2037E+00
SB-125	35.	427.89	6.3949E+00
TE-125m	65.	109.27	4.6197E+02
I-131	61.	364.48	2.6988E+00
CS-134	31.	604.70	2.3964E+00
CS-137	139.	661.66	6.3093E+00
BA-140	40.	537.31	9.9454E+00
LA-140	6.	1596.21	2.4654E+00
CEPR-144	67.	133.51	2.1850E+01
EU-152	11.	1408.01	1.3547E+01
EU-154	8.	1274.51	6.6723E+00
EU-155	85.	105.31	7.0905E+00
HG-203	62.	279.20	2.2184E+00
TL-208	52.	277.36	2.6229E+01
BI-212	23.	727.18	3.5383E+01
PB-212	99.	238.63	4.6860E+00
BI-214	54.	609.31	6.9772E+00
PB-214	68.	351.92	1.1283E+01
RA-224	81.	240.99	4.6953E+01
RA-226	94.	186.10	4.6315E+01
AC-228	31.	911.21	1.2674E+01
TH-228	78.	84.37	1.5931E+02
TH-229	60.	88.47	6.5577E+00
PA-233	52.	312.17	4.6727E+00
UTH-233	62.	245.34	1.5462E+03
PA-234M	13.	1001.03	4.0044E+00
TH-234	46.	63.29	8.2231E+01
U-235	97.	185.71	2.8614E+00

Sample ID : WL9467-BLK Acquisition date : 3-JUN-1996 21:45:15

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	68.	86.48	1.4489E+01
NP-239	83.	106.12	6.6273E+00
PU-239	55.	129.30	1.7294E+04
AM-241	50.	59.54	1.5107E+01
AM-243	80.	74.67	4.5056E+00

32

WHC-SD-WM-DP-169, REV. 1

06/13/96 13:58
A-0004-1

LABCORE Data Entry Template for Worklist# 9942

Analyst: AKL **Instrument:** AB00 16 **Book#** 47656

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

Worklist Comment: U-102 DETERMINE SS USING LUDLUM, SPIKE SS .1ML. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T002796	0	F	@ALPHA01	SOLID	96000569	U-102
	Analytes Requested:	ALPHA01 , ALPHA01E						
5	DUP	S96T002796	0	F	@ALPHA01	SOLID		
6	SPK	S96T002796	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T002797	0	F	@ALPHA01	SOLID	96000569	U-102
	Analytes Requested:	ALPHA01 , ALPHA01E						
8	DUP	S96T002797	0	F	@ALPHA01	SOLID		

Final page for worklist # 9942

C Luis 6/14/96
Analyst Signature **Date**

6/17/96
Analyst Signature **Date**
Sharon L Uhlde 6-17-96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9942

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

Method: _____ Rev/Mod _____

Worklist Comment: U-102 DETERMINE SS USING LUDLUM, SPIKE SS .1ML. RCJ

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.47E-4	114.844	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.33E+00	4.330	% Ct. Erro
2	BLNK		0		@ALPHA01	ALPHA01	SOLID	1	<6.39E-3		uCi/g
2	BLNK		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	8.33E-01	0.833	BLNK/BKG
4	SAMPLE	S96T002796	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.45E-01	129.0e-004	uCi/g
4	SAMPLE	S96T002796	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.19E+01	0.0e+000	% Ct. Error
5	DUP	S96T002796	0	F	@ALPHA01	ALPHA01	SOLID	3.45E-1	3.47E-1	0.578	RPD
5	DUP	S96T002796	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.18E+01	11.800	% Ct. Erro
6	SPK	S96T002796	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.57E-02	99.443	% Recovery
7	SAMPLE	S96T002797	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.66E-01	130.0e-004	uCi/g
7	SAMPLE	S96T002797	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.72E+01	0.0e+000	% Ct. Error
8	DUP	S96T002797	0	F	@ALPHA01	ALPHA01	SOLID	1.66E-1	1.67E-1	0.601	RPD
8	DUP	S96T002797	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.69E+01	16.900	% Ct. Erro

Final page for worklist# 9942

Analyst Signature Date

Analyst Signature Date

Reviewer Signature 18 Jun 96 Date

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2063	2054
9942	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		68.667	68.367
	Standard Value in µCi/mL		1.28E-04	
96006121	Concentration in µCi/L	=	1.47E-01	
	Replicate Concentration in µCi/L	=	1.46E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4669E-01	

N/A

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

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

wl9942

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

WB27806

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

MCB

SLF

ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.47E-04	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.3%	7.71E-07 µCi/mL

AKL

06/17/96

06/14/96

03:00 PM

U-102

Analyst:	MCB	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK	REPLICATE
	DETECTOR NUMBER		16	16
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	1	4
9942	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	34.33	34.33
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0572	2.0572
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.135	0.179

Blank Concentration in µCi/g	<	4.81E-03
Replicate Concentration in µCi/g	<	6.39E-03
Maximum Concentration in µCi/g	<	6.3898E-03

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)	=	< 6.39E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			1.29E-02 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Sample Number	96006121
Replicate	0
Sample Prep	N/A
Sampler	WL9942
Instrument Code	WB27806
Prepared By	MCB
Chemist	SLF
Analyst	AKL
Date Complete	06/17/96
Analysis Date	06/14/96
Analysis Time	03:00 PM
Sample Point	U-102

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BL_BKG3

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

	AVG TOTAL COUNTS (BLANK+REP)/2	(TC)	2.5
BLNK/BKG	COUNT TIME in minutes	(CT)	30
	BACKGROUND in cpm	(BKG)	0.1

9942

AT

Result = (Total Counts (TC) / Count Time (CT)) / (Background in cpm (BKG))

@ALPHA01

SOLID	RESULT	=	0.83

96006121

0

N/A

WL9942

WB27806

MCB

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-102

Analyst:	MCB		Date: 17-Jun-96
Signature of Chemist:		SLF	Date:

BL_BKG.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	279	306
9942	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	34.33	34.33
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0572	2.0572
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9.200	10.100

96006121	Blank Concentration in µCi/g 3.29E-01
	Replicate Concentration in µCi/g 3.61E-01
0	Average Concentration in µCi/g 3.4477E-01

FUSION01

S96T002796

WB27806

MCB

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.

SLF

AKL

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ALPHA TOTAL in µCi/g (Average)	=	3.45E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		11.9%	1.29E-02 µCi/g

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	321	283
9942	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	34.33	34.33
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1128	2.1128
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		10.600	9.333

96006121	Blank Concentration in µCi/g 3.69E-01
	Replicate Concentration in µCi/g 3.25E-01
0	Average Concentration in µCi/g 3.4671E-01

FUSION01

S96T002796

WB27806

MCB

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.

SLF

AKL

06/17/96

06/14/96

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U-102

ALPHA TOTAL in µCi/g (Average) =	3.47E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR	11.8%	1.25E-02 µCi/g

Analyst:	AKL	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	52271	48403
9942	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	34.33	34.33
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0572	2.0572
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96006121	SPIKE VALUE in µCi/mL	(SVal)	3.5886E-02	3.5886E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/g	(S+S)	6.22E+01	5.76E+01
	AVERAGE or MAXIMUM µCi/g in SAMPLE		3.7490E-01	

Sample Prep
FUSION01

Sample #
S96T002796

Instrument Code
WB27806

Prepared By
MCB

Chemist
SLF

Analyst
AKL

Date Complete
06/17/96

Analysis Date
06/14/96

Analysis Time
03:00 PM

Sample Point
U-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	=	3.59E-02
QC FOUND	=	3.57E-02
AVG. PERCENT SPIKE RECOVERY	=	99.5%

Analyst:	MCB	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	143	139
9942	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	34.33	34.33
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.036	2.036
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4.667	4.533

96006121	Blank Concentration in µCi/g	1.68E-01
	Replicate Concentration in µCi/g	1.64E-01
0	Average Concentration in µCi/g	1.6606E-01

FUSION01

S96T002797

WB27806

MCB

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.

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-102

ALPHA TOTAL in µCi/g (Average) =	1.66E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR	17.2%	1.30E-02 µCi/g

Analyst:	AKL	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

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

			DUP	REPLICATE
	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	143	152
9942	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	34.33	34.33
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1212	2.1212
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4.667	4.967

96006121	Blank Concentration in µCi/g	1.62E-01
	Replicate Concentration in µCi/g	1.72E-01
0	Average Concentration in µCi/g	1.6689E-01

FUSION01

S96T002797

WB27806

MCB

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.

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-102

ALPHA TOTAL in µCi/g (Average)	=	1.67E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		16.9%	1.25E-02 µCi/g

Analyst:	AKL		Date: 17-Jun-96
Signature of Chemist:		SLF	Date:

SAMPLE.WB1 Rev. 1.0 508101ML

06/13/96 14:00
A-0004-1

LABCORE Data Entry Template for Worklist# 9943

Analyst: AKL **Instrument:** AB00 13 **Book#** 47B56

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

Worklist Comment: U-102 DETERMINE SS USING LUDLUM, SPIKE SS .1ML. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T002798	0	F	@ALPHA01	SOLID	96000569	U-102
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T002798	0	F	@ALPHA01	SOLID		
6	SPK	S96T002798	0	F	@ALPHA01	SOLID		

Final page for worklist # 9943

A Lewis 6/14/96
Analyst Signature **Date**

Sharon L Walsh 6-17-96
Analyst Signature **Date**

M G Brown 6/17/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9943

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

Method: _____ Rev/Mod _____

Worklist Comment: U-102 DETERMINE SS USING LUDLUM, SPIKE SS .1ML. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01 ALPHA01	SOLID	1.28E-04	1.40E-4	109.375	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	4.15E+00	4.150	% Ct. Erro
2	BLNK		0		@ALPHA01 ALPHA01	SOLID	1	<3.98E-3		uCi/g
2	BLNK		0		@ALPHA01 ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01 ALPHA01	SOLID	1.00E+00	8.82E-01	0.882	BLNK/BKG
4	SAMPLE	S96T002798	0	F	@ALPHA01 ALPHA01	SOLID	N/A	8.49E-02	100.0e-004	uCi/g
4	SAMPLE	S96T002798	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	2.07E+01	0.0e+000	% Ct. Error
5	DUP	S96T002798	0	F	@ALPHA01 ALPHA01	SOLID	8.49E-2	8.18E-2	3.719	RPD
5	DUP	S96T002798	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	2.02E+01	20.200	% Ct. Erro
6	SPK	S96T002798	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.33E-02	92.758	% Recovery

Final page for worklist# 9943

Analyst Signature Date

Analyst Signature Date

R.J. Cattoni 17 Jun 96
Reviewer Signature Date

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		13	13
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2382	2251
9943	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		79.230	74.863
	Standard Value in µCi/mL		1.28E-04	
96006122	Concentration in µCi/L	=	1.44E-01	
	Replicate Concentration in µCi/L	=	1.36E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4011E-01	

N/A

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

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

WL9943

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

WB27810

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

SLH2

SLF

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.40E-04	
RELATIVE COUNTING ERROR	=	4.1%	8.04E-07 µCi/mL

Analyst

AKL

Date Completed

06/17/96

Analysis Date

06/14/96

Analysis Time

03:00 PM

Sample Point

U-102

Analyst:	SLH2	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK	REPLICATE
	DETECTOR NUMBER		13	13
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	4	5
9943	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	26	26
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0856	2.0856
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.176	0.176

96006122	Blank Concentration in µCi/g	<	3.98E-03
	Replicate Concentration in µCi/g	<	3.98E-03
0	Maximum Concentration in µCi/g	<	3.9822E-03

N/A

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

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

WL9943

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.

SLH2

SLF

ALPHA TOTAL in µCi/g	(Maximum)	=	< 3.98E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.				
RELATIVE COUNTING ERROR			500.0%	1.00E-02 µCi/g

AKL

06/17/96

06/14/96

03:00 PM

U-102

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BL_BKG3

WHC-SD-WM-DP-189, REV. 1

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

	AVG TOTAL COUNTS (BLANK+REP)/2	(TC)	4.5
BLNK/BKG	COUNT TIME in minutes	(CT)	30
	BACKGROUND in cpm	(BKG)	0.17

9943

AT

Result = (Total Counts (TC) / Count Time (CT)) / (Background in cpm (BKG))

@ALPHA01

SOLID	RESULT =	0.88

96006122

0

N/A

WL9943

WB27810

SLH2

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-102

Analyst:	SLH2	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

BL_BKG.WB1 Rev. 1.0 508101ML

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	104	131
9943	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	26	26
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0856	2.0856
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.297	4.197

96006122	Blank Concentration in µCi/g 7.47E-02
	Replicate Concentration in µCi/g 9.51E-02
0	Average Concentration in µCi/g 8.4939E-02

FUSION01

S96T002798

WB27810

SLH2

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-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) =	8.49E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR	20.7%	1.00E-02 µCi/g

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

WAD-SD-WM-DP-199, REV. 1

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

			DUP	REPLICATE
	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	115	109
9943	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	26	26
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.06	2.06
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.663	3.463

Blank Concentration in µCi/g	8.41E-02
Replicate Concentration in µCi/g	7.95E-02
Average Concentration in µCi/g	8.1787E-02

96006122

0

FUSION01

S96T002798

WB27810

SLH2

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)	=	8.18E-02	
RELATIVE COUNTING ERROR		20.2%	1.01E-02 µCi/g

SLF

AKL

06/17/96

06/14/96

03:00 PM

U-102

Analyst:	AKL	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

SAMPLE.WB1 Rev. 1.0 508101ML

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

			SPIKE	REPLICATE
Detector	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Total Counts	TOTAL COUNTS	(TC)	54860	55341
9943	COUNT TIME in MINUTES	(CT)	30	30
Background	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
Dilution	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	26	26
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0856	2.0856
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Book Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96006122	SPIKE VALUE in µCi/mL	(SVal)	3.5886E-02	3.5886E-02
Reagent	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
0	SAMPLE + SPIKE µCi/g	(S+S)	4.15E+01	4.18E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		8.4939E-02	
FUSION01				
Sample #				
S96T002798				
Instrument Code				
WB27810				
Prepared By				
SLH2				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
06/17/96				
Analysis Date				
06/14/96				
Analysis Time				
03:00 PM				
Sample Point				
U-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	=	3.59E-02
QC FOUND	=	3.33E-02
AVG. PERCENT SPIKE RECOVERY	=	92.9%

Analyst:	SLH2	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

SPIKE.WB1 Rev. 1.0 508101ML

Sheet 5

06/13/96 13:57
A-0004-1

LABCORE Data Entry Template for Worklist# 9941

Analyst: AKL **Instrument:** AB00 14 **Book#** 47B56

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

Worklist Comment: U-102 DETERMINE SS USING LUDLUM, SPIKE SS .1ML. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T002662	0	F	@ALPHA01	SOLID	96000569	U-102
		Analytes Requested:			ALPHA01 , ALPHA01E			
5	DUP	S96T002662	0	F	@ALPHA01	SOLID		
6	SPK	S96T002662	0	F	@ALPHA01	SOLID		

Final page for worklist # 9941

A. Lewis 6/14/96
Analyst Signature **Date**

6/17/96
Analyst Signature **Date**
Sharon L Udell 6-17-96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9941

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

Method: _____ Rev/Mod _____

Worklist Comment: U-102 DETERMINE SS USING LUDLUM, SPIKE SS .1ML. RCJ

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.31E-4	102.344	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.54E+00	4.540	% Ct. Erro
2	BLNK		0		@ALPHA01	ALPHA01	SOLID	1	<2.93E-3		uCi/g
2	BLNK		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	9.88E-01	0.988	BLNK/BKG
4	SAMPLE	S96T002662	0	F	@ALPHA01	ALPHA01	SOLID	N/A	1.21E-01	526.0e-005	uCi/g
4	SAMPLE	S96T002662	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.06E+01	0.0e+000	% Ct. Error
5	DUP	S96T002662	0	F	@ALPHA01	ALPHA01	SOLID	1.21E-1	1.29E-1	6.400	RPD
5	DUP	S96T002662	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.02E+01	10.200	% Ct. Erro
6	SPK	S96T002662	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	2.78E-02	77.437	% Recovery

Final page for worklist# 9941

Analyst Signature Date

Analyst Signature Date

Reviewer Signature 18 June 96 Date

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2085	1886
9941	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		69.230	62.597
	Standard Value in µCi/mL		1.28E-04	
96006120	Concentration in µCi/L	=	1.37E-01	
	Replicate Concentration in µCi/L	=	1.24E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3057E-01	

N/A

WL9941

WB27807

MCB

SLF

AKL

06/17/96

06/14/96

01:30 PM

U-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	=	1.31E-04		
RELATIVE COUNTING ERROR	=	4.5%		1.06E-06 µCi/mL

Analyst:	MCB	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK	REPLICATE
	DETECTOR NUMBER		14	14
BLNK	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	10	6
9941	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2112	2.2112
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.297	0.221

96006120	Blank Concentration in µCi/g	<	2.93E-03
	Replicate Concentration in µCi/g	<	2.18E-03
0	Maximum Concentration in µCi/g	<	2.9299E-03

N/A

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

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

WL9941

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.

MCB

SLF

ALPHA TOTAL in µCi/g (Maximum)	=	< 2.93E-03
LESS THAN Value was Determined from Rmax.		
RELATIVE COUNTING ERROR		500.0%

DETECTION LEVEL 5.26E-03 µCi/g

AKL

06/17/96

06/14/96

01:30 PM

U-102

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BL_BKG3

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

	AVG TOTAL COUNTS (BLANK+REP)/2	(TC)	8
BLNK/BKG	COUNT TIME in minutes	(CT)	30
	BACKGROUND in cpm	(BKG)	0.27

9941

AT

Result = (Total Counts (TC) / Count Time (CT)) / (Background in cpm (BKG))

@ALPHA01

SOLID	RESULT	=	0.99

96006120

0

N/A

WL9941

WB27807

MCB

SLF

AKL

06/17/96

06/14/96

01:30 PM

U-102

Analyst:	MCB	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

BL_BKG.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	367	385
9941	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2112	2.2112
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11.963	12.563

Blank Concentration in µCi/g	1.18E-01
Replicate Concentration in µCi/g	1.24E-01
Average Concentration in µCi/g	1.2085E-01

96006120

0

FUSION01

S96T002662

WB27807

MCB

SLF

AKL

06/17/96

06/14/96

01:30 PM

U-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)	=	1.21E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		10.6%	5.26E-03 µCi/g

Analyst:	AKL	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	414	392
9941	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2268	2.2268
	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		13.530	12.797

Blank Concentration in µCi/g	1.32E-01
Replicate Concentration in µCi/g	1.25E-01
Average Concentration in µCi/g	1.2881E-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)	=	1.29E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		10.2%	5.22E-03 µCi/g

Lot Number	96006120
Batch	0
Sample Prep	FUSION01
Sample #	S96T002662
Instrument Code	WB27807
Prepared By	MCB
Chemist	SLF
Analyst	AKL
Date Complete	06/17/96
Analysis Date	06/14/96
Analysis Time	01:30 PM
Sample Point	U-102

Analyst:	AKL	Date: 17-Jun-96	
Signature of Chemist:	SLF	Date:	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	43420	41391
9941	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2112	2.2112
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96006120	SPIKE VALUE in µCi/mL	(SVal)	3.5886E-02	3.5886E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/g	(S+S)	1.43E+01	1.36E+01
	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.2085E-01	

FUSION01

S96T002662

WB27807

MCB

SLF

AKL

06/17/96

06/14/96

01:30 PM

U-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	=	3.59E-02	
QC FOUND	=	2.78E-02	
AVG. PERCENT SPIKE RECOVERY	=	77.3%	

Analyst:	MCB	Date: 17-Jun-96
Signature of Chemist:	SLF	Date:

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 10503

Analyst: AKL **Instrument:** AB00 15 **Book#** 47656

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

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T003610	0	F	@ALPHA01	SOLID	96000569	U-102
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T003610	0	F	@ALPHA01	SOLID		
6	SPK	S96T003610	0	F	@ALPHA01	SOLID		

Final page for worklist # 10503

G Lewis 7/2/96
Analyst Signature **Date**

C.J. Oanen 7/3/96
Analyst Signature **Date**
Sharon L Walsh 7-3-96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 10503

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.36E-4	106.250	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.28E+00	4.280	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<2.28E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	3.54E-01	0.354	BLNK/BKG
4	SAMPLE	S96T003610	0	F	@ALPHA01	ALPHA01	SOLID	N/A	6.53E-02	540.0e-005	uCi/g
4	SAMPLE	S96T003610	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	1.46E+01	0.0e+000	% Ct. Error
5	DUP	S96T003610	0	F	@ALPHA01	ALPHA01	SOLID	6.53E-2	7.03E-2	7.375	RPD
5	DUP	S96T003610	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	1.46E+01	14.600	% Ct. Erro
6	SPK	S96T003610	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	2.82E-02	78.552	% Recovery

Final page for worklist# 10503

Analyst Signature Date

Analyst Signature Date

Reviewer Signature 7/8/96 Date

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2127	2217
10503	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		70.570	73.570
	Standard Value in µCi/mL		1.28E-04	
96006762	Concentration in µCi/L	=	1.34E-01	
	Replicate Concentration in µCi/L	=	1.39E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3640E-01	

N/A

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

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

WL10503

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

WB26872

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

CJO

SLF

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.36E-04	
RELATIVE COUNTING ERROR	=	4.3%	1.10E-06 µCi/mL

AKL

07/03/96

07/02/96

02:00 PM

U-102

Analyst:		CJO	Date: 03-Jul-96
Signature of Chemist:		SLF	Date: 7/8/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	4	3
10503	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0352	2.0352
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.245	0.245

96006762	Blank Concentration in µCi/g	<	2.28E-03
	Replicate Concentration in µCi/g	<	2.28E-03
0	Maximum Concentration in µCi/g	<	2.2759E-03

N/A

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

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

WL10503

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.

CJO

SLF

				DETECTION LEVEL
ALPHA TOTAL in µCi/g	(Maximum)	=	< 2.28E-03	
LESS Than Value was Determined from Lc.				
RELATIVE COUNTING ERROR			500.0%	5.40E-03 µCi/g

AKL

07/03/96

07/02/96

02:00 PM

U-102

Analyst:		AKL	Date: 03-Jul-96
Signature of Chemist:		SLF	Date: 7/8/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	233	208
10503	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0352	2.0352
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7.437	6.603

Blank Number		
96006762	Blank Concentration in µCi/g	6.92E-02
Replicate	Replicate Concentration in µCi/g	6.14E-02
0	Average Concentration in µCi/g	6.5283E-02

Sample Map
FUSION01

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

Sample
S96T003610

ALPHA TOTAL 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
CJO

Chemist
SLF

ALPHA TOTAL in µCi/g (Average) =	6.53E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR	14.6%	5.40E-03 µCi/g

Analyst
AKL

Date Complete
07/03/96

Analysis Date
07/02/96

Analysis Time
02:00 PM

Sample Point
U-102

Analyst:	AKL		Date: 03-Jul-96
Signature of Chemist:		SLF	Date: 7/8/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	208	258
10503	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0008	2.0008
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.603	8.270

Item Number	
96006762	Blank Concentration in µCi/g 6.25E-02
Replicate	Replicate Concentration in µCi/g 7.82E-02
0	Average Concentration in µCi/g 7.0347E-02

Sample Prep
FUSION01

Sample #
S96T003610

Instrument Code
WB26872

Prepared By
CJO

Chemist
SLF

Analyst
AKL

Date Complete
07/03/96

Analysis Date
07/02/96

Analysis Time
02:00 PM

Sample Point
U-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)	=	7.03E-02	DETECTION LEVEL	
RELATIVE COUNTING ERROR		14.6%	5.49E-03 µCi/g	

Analyst:		AKL	Date: 03-Jul-96
Signature of Chemist:		SLF	Date: 7/8/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	46321	43671
10503	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.33	0.33
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0352	2.0352
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96006762	SPIKE VALUE in µCi/mL	(SVal)	3.5883E-02	3.5883E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
0	SAMPLE + SPIKE µCi/g	(S+S)	1.44E+01	1.35E+01
	AVERAGE or MAXIMUM µCi/g in SAMPLE		6.5283E-02	

Sample/Prep
FUSION01
Sample #
S96T003610
Instrument Code
WB26872
Prepared By
CJO
Chemist
SLF
Analyst
AKL
Date Complete
07/03/96
Analysis Date
07/02/96
Analysis Time
02:00 PM
Sample Point
U-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	=	3.59E-02
QC FOUND	=	2.82E-02
AVG. PERCENT SPIKE RECOVERY	=	78.7%

Analyst:		CJO	Date: 03-Jul-96
Signature of Chemist:		SLF	Date: 7/8/96

SPIKE.WB1 Rev. 1.0 508101ML

```
*****************************************************************************
* 222-S Laboratory Counting Room    3-JUN-1996 23:40:03.69                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-189, REV. 1

```
Worklist #:              9467
Sample ID:               S96T2524-SAM
Sample Size:             5.00000E-04 L
Dilution Factor:         5.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3614.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:49.33 sec
Dead Time:               3.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-JUN-1996 22:47:33.42
Decayed to:              3-JUN-1996 22:47:33.42
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 10:11:20.05
*****************************************************************************
```

Removed by: Em Bauche

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	661.62*	829023	1.59	1323.43	1315	17	0.2		CS-137	3.727E+05
0	1173.12	58	1.67	2346.52	2343	9	49.9		CO-60	34.9
0	1274.14	59	1.68	2548.60	2543	12	62.3			
0	1322.81	157	1.62	2645.98	2638	16	35.5			
0	1332.47	39	1.63	2665.32	2660	14	62.2		CO-60	26.0

Sample ID : S96T2524-SAM Acquisition date : 3-JUN-1996 22:47:33

Total number of lines in spectrum	5	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	4	80.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	3.017E+01	3.017E+01	1.187E+01	39.35	
CS-137	30.00Y	1.000	3.726E+05	3.727E+05	0.008E+05	0.22	
			---	---			
Total Activity :			3.727E+05	3.727E+05			
Grand Total Activity :			3.727E+05	3.727E+05			

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

```
*****************************************************************************
* 222-S Laboratory Counting Room     4-JUN-1996 00:59:03.68                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9467
Sample ID:               S96T2524-DUP
Sample Size:             5.00000E-04 L
Dilution Factor:         5.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3615.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:51:48.92 sec
Dead Time:               3.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       4-JUN-1996 00:06:36.19
Decayed to:              4-JUN-1996 00:06:36.19
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 10:11:20.05
*****************************************************************************
```

Removed by: Em Baeler

Verified by: R Bachelor 6/4/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.63*	826234	1.59	1323.44	1315	17	0.2		CS-137	3.714E+05
0	1322.90	125	2.26	2646.17	2641	14	41.0			

Minimum Detectable Activity Report
Sample ID : S96T2524-SAM

Acquisition date : 3-JUN-1996 22:47:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	24858.	477.59	2.1308E+03
NA-22	129.	1274.53	3.3839E+01
NA-24	10.	1368.55	9.9728E+00
K-40	123.	1460.75	3.4184E+02
CR-51	21872.	320.08	1.5059E+03
MN-54	427.	834.83	4.4763E+01
CO-56	396.	846.76	4.3634E+01
CO-57	23525.	122.06	1.1009E+02
CO-58	479.	810.78	4.6502E+01
FE-59	142.	1099.25	5.6040E+01
SE-75	24924.	264.66	2.4501E+02
SR-85	12931.	514.01	1.7670E+02
Y-88	5.	1836.06	8.4742E+00
NB-94	335.	871.09	4.1140E+01
ZRNB-95	683.	724.18	1.1497E+02
RU-103	15699.	497.08	1.9971E+02
RURH-106	4570.	621.93	2.3198E+03
AG-108m	692.	722.94	5.5582E+01
CD-109	19255.	88.03	3.4952E+03
AG-110M	18060.	657.76	2.5187E+02
SN-113	22505.	391.69	2.7288E+02
TE-123m	23870.	159.00	1.2066E+02
SB-124	4824.	602.73	1.1835E+02
SB-125	26010.	427.89	6.8939E+02
TE-125m	21070.	109.27	3.4423E+04
I-131	21497.	364.48	2.0061E+02
CS-134	4835.	604.70	1.1897E+02
BA-140	9044.	537.31	6.0219E+02
LA-140	6.	1596.21	9.0376E+00
CEPR-144	24196.	133.51	1.7001E+03
EU-152	9.	1408.01	4.5450E+01
EU-154	129.	1274.51	9.8235E+01
EU-155	20720.	105.31	4.5951E+02
HG-203	23610.	279.20	1.7739E+02
TL-208	23941.	277.36	2.2955E+03
BI-212	682.	727.18	7.5707E+02
PB-212	26363.	238.63	3.1641E+02
BI-214	4740.	609.31	2.5793E+02
PB-214	21423.	351.92	8.0617E+02
RA-224	26269.	240.99	3.5019E+03
RA-226	32157.	186.10	3.7563E+03
AC-228	307.	911.21	1.5338E+02
TH-228	19120.	84.37	1.0767E+04
TH-229	19193.	88.47	5.0546E+02
PA-233	22083.	312.17	3.8902E+02
UTH-233	26126.	245.34	1.3059E+05
PA-234M	193.	1001.03	5.8577E+01
TH-234	16840.	63.29	6.3430E+03
U-235	31714.	185.71	2.2676E+02
NP-237	19302.	86.48	1.0531E+03
NP-239	20734.	106.12	4.3604E+02

Sample ID : S96T2524-SAM Acquisition date : 3-JUN-1996 22:47:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	23860.	129.30	1.4627E+06
AM-241	16910.	59.54	1.0491E+03
AM-243	17782.	74.67	2.8870E+02

Summary of Nuclide Activity

Sample ID : S96T2524-DUP Acquisition date : 4-JUN-1996 00:06:36

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	3.714E+05	3.714E+05	0.008E+05	0.23	
		Total Activity :	3.714E+05	3.714E+05			
		Grand Total Activity :	3.714E+05	3.714E+05			

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

Sample ID : S96T2524-DUP Acquisition date : 4-JUN-1996 00:06:36

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	24782.	477.59	2.1275E+03
NA-22	111.	1274.53	3.1395E+01
NA-24	4.	1368.55	6.4202E+00
K-40	137.	1460.75	3.6065E+02
CR-51	21937.	320.08	1.5081E+03
MN-54	429.	834.83	4.4830E+01
CO-56	426.	846.76	4.5262E+01
CO-57	23220.	122.06	1.0937E+02
CO-58	448.	810.78	4.4984E+01
FE-59	152.	1099.25	5.8016E+01
CO-60	64.	1332.50	2.4696E+01
SE-75	24436.	264.66	2.4260E+02
SR-85	12830.	514.01	1.7601E+02
Y-88	3.	1836.06	6.4896E+00
NB-94	376.	871.09	4.3579E+01
ZRNB-95	691.	724.18	1.1558E+02
RU-103	15546.	497.08	1.9873E+02
RURH-106	4554.	621.93	2.3157E+03
AG-108m	715.	722.94	5.6499E+01
CD-109	19064.	88.03	3.4778E+03
AG-110M	17522.	657.76	2.4809E+02
SN-113	22422.	391.69	2.7238E+02
TE-123m	23935.	159.00	1.2082E+02
SB-124	4833.	602.73	1.1847E+02
SB-125	25931.	427.89	6.8835E+02
TE-125m	20885.	109.27	3.4272E+04
I-131	21530.	364.48	2.0076E+02
CS-134	4800.	604.70	1.1854E+02
BA-140	9335.	537.31	6.1178E+02
LA-140	7.	1596.21	9.4535E+00
CEPR-144	24008.	133.51	1.6935E+03
EU-152	9.	1408.01	4.5450E+01
EU-154	111.	1274.51	9.1245E+01
EU-155	20355.	105.31	4.5544E+02
HG-203	23679.	279.20	1.7765E+02
TL-208	23684.	277.36	2.2832E+03
BI-212	668.	727.18	7.4963E+02
PB-212	26273.	238.63	3.1587E+02
BI-214	4710.	609.31	2.5712E+02
PB-214	21361.	351.92	8.0495E+02
RA-224	26098.	240.99	3.4904E+03
RA-226	31882.	186.10	3.7402E+03
AC-228	323.	911.21	1.5735E+02
TH-228	19054.	84.37	1.0749E+04
TH-229	19108.	88.47	5.0433E+02
PA-233	22181.	312.17	3.8988E+02
UTH-233	25931.	245.34	1.3010E+05
PA-234M	210.	1001.03	6.1039E+01
TH-234	16765.	63.29	6.3287E+03
U-235	31515.	185.71	2.2605E+02
NP-237	19225.	86.48	1.0510E+03

Sample ID : S96T2524-DUP Acquisition date : 4-JUN-1996 00:06:36

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	20499.	106.12	4.3357E+02
PU-239	23401.	129.30	1.4486E+06
AM-241	16688.	59.54	1.0422E+03
AM-243	17940.	74.67	2.8999E+02

LABCORE Data Entry Template for Worklist# 9640

Analyst: CLG **Instrument:** GEA00 #1 **Book#** ~~2B56~~ 54B56 6/7/96

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-102. 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	S96T002438	0	F	@GEA-02	SOLID	96000536	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T002438	0	F	@GEA-02	SOLID		
5	SAMPLE	S96T002443	0	F	@GEA-02	SOLID	96000536	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T002443	0	F	@GEA-02	SOLID		
7	SAMPLE	S96T002444	0	F	@GEA-02	SOLID	96000536	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
8	DUP	S96T002444	0	F	@GEA-02	SOLID		

Final page for worklist # 9640

C Johnson 6/07/96
Analyst Signature **Date**

Sue E. Hogan 6/14/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9640

Analyst: crj **Instrument:** GEA01 **Book#** 54856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-102. 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	2.437e-02	2.64e-02	108.330	% Recovery
1	STD		0		@GEA-02	CO60-02E	SOLID	1	1.28	1.280	% Ct Error
1	STD		0		@GEA-02	CS13702	SOLID	2.218e-02	2.26e-02	101.894	% Recovery
1	STD		0		@GEA-02	CS13702E	SOLID	1	1.67	1.670	% Ct Error
2	BLNK-PREP		0		@GEA-02	CO60-02	SOLID	1	<8.61e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	CS13702	SOLID	1	<5.22e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15402	SOLID	1	<2.75e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15502	SOLID	1	<2.21e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	AM24102	SOLID	1	<1.15e-1		uCi/g
3	SAMPLE	S96T002438	0	F	@GEA-02	CO60-02	SOLID	N/A <	9.320e-02	932.0e-004	uCi/g
3	SAMPLE	S96T002438	0	F	@GEA-02	CO60-02E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002438	0	F	@GEA-02	CS13702	SOLID	N/A	1.230e+02	0.0e+000	uCi/g
3	SAMPLE	S96T002438	0	F	@GEA-02	CS13702E	SOLID	N/A	0.880	0.0e+000	% Ct. Error
3	SAMPLE	S96T002438	0	F	@GEA-02	EU15402	SOLID	N/A <	3.833e-01	383.0e-003	uCi/g
3	SAMPLE	S96T002438	0	F	@GEA-02	EU15402E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002438	0	F	@GEA-02	EU15502	SOLID	N/A <	4.300e-01	430.0e-003	uCi/g
3	SAMPLE	S96T002438	0	F	@GEA-02	EU15502E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002438	0	F	@GEA-02	AM24102	SOLID	N/A <	2.138e-01	214.0e-003	uCi/g
3	SAMPLE	S96T002438	0	F	@GEA-02	AM24102E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
4	DUP	S96T002438	0	F	@GEA-02	CO60-02	SOLID	<9.32e-2	<1.10e-1		RPD
4	DUP	S96T002438	0	F	@GEA-02	CO60-02E	SOLID	1	n/a		% Ct Error
4	DUP	S96T002438	0	F	@GEA-02	CS13702	SOLID	1.23e+02	1.21e+02	1.639	RPD
4	DUP	S96T002438	0	F	@GEA-02	CS13702E	SOLID	1	0.900	0.900	% Ct Error
4	DUP	S96T002438	0	F	@GEA-02	EU15402	SOLID	<3.83e-1	<3.96e-1		RPD
4	DUP	S96T002438	0	F	@GEA-02	EU15402E	SOLID	1	n/a		% Ct Error
4	DUP	S96T002438	0	F	@GEA-02	EU15502	SOLID	<4.30e-1	<4.28e-1		RPD
4	DUP	S96T002438	0	F	@GEA-02	EU15502E	SOLID	1	n/a		% Ct Error
4	DUP	S96T002438	0	F	@GEA-02	AM24102	SOLID	<2.14e-1	<2.36e-1		RPD
4	DUP	S96T002438	0	F	@GEA-02	AM24102E	SOLID	1	n/a		% Ct Error
5	SAMPLE	S96T002443	0	F	@GEA-02	CO60-02	SOLID	N/A <	5.346e-02	534.6e-004	uCi/g
5	SAMPLE	S96T002443	0	F	@GEA-02	CO60-02E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002443	0	F	@GEA-02	CS13702	SOLID	N/A	1.028e+02	0.0e+000	uCi/g
5	SAMPLE	S96T002443	0	F	@GEA-02	CS13702E	SOLID	N/A	0.700	0.0e+000	% Ct. Error
5	SAMPLE	S96T002443	0	F	@GEA-02	EU15402	SOLID	N/A <	1.626e-01	163.0e-003	uCi/g
5	SAMPLE	S96T002443	0	F	@GEA-02	EU15402E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002443	0	F	@GEA-02	EU15502	SOLID	N/A <	2.599e-01	260.0e-003	uCi/g
5	SAMPLE	S96T002443	0	F	@GEA-02	EU15502E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002443	0	F	@GEA-02	AM24102	SOLID	N/A <	1.439e-01	144.0e-003	uCi/g
5	SAMPLE	S96T002443	0	F	@GEA-02	AM24102E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
5	DUP	S96T002443	0	F	@GEA-02	CO60-02	SOLID	<5.35e-2	<5.49e-2		RPD
5	DUP	S96T002443	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#: 9640

Seq	Type	Sample#	R	A	Test		Matrix	Actual		Found	DL or Yield	Unit
6	DUP	S96T002443	0	F	@GEA-02	CS13702	SOLID	1.03e+02		9.61e+01	6.931	RPD
6	DUP	S96T002443	0	F	@GEA-02	CS13702E	SOLID	1		0.710	0.710	% Ct Error
6	DUP	S96T002443	0	F	@GEA-02	EU15402	SOLID	<1.63e-1		<1.70e-1		RPD
6	DUP	S96T002443	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002443	0	F	@GEA-02	EU15502	SOLID	<2.60e-1		<2.45e-1		RPD
6	DUP	S96T002443	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002443	0	F	@GEA-02	AM24102	SOLID	<1.44e-1		<1.34e-1		RPD
6	DUP	S96T002443	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
7	SAMPLE	S96T002444	0	F	@GEA-02	CO60-02	SOLID	N/A	<	4.689e-02	468.9e-004	uCi/g
7	SAMPLE	S96T002444	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002444	0	F	@GEA-02	CS13702	SOLID	N/A		1.298e+02	0.0e+000	uCi/g
7	SAMPLE	S96T002444	0	F	@GEA-02	CS13702E	SOLID	N/A		0.630	0.0e+000	% Ct. Error
7	SAMPLE	S96T002444	0	F	@GEA-02	EU15402	SOLID	N/A	<	1.871e-01	187.0e-003	uCi/g
7	SAMPLE	S96T002444	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002444	0	F	@GEA-02	EU15502	SOLID	N/A	<	2.923e-01	292.0e-003	uCi/g
7	SAMPLE	S96T002444	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002444	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.594e-01	159.0e-003	uCi/g
7	SAMPLE	S96T002444	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
8	DUP	S96T002444	0	F	@GEA-02	CO60-02	SOLID	<4.69e-2		<4.18e-2		RPD
8	DUP	S96T002444	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002444	0	F	@GEA-02	CS13702	SOLID	1.30e+02		1.40e+02	7.407	RPD
8	DUP	S96T002444	0	F	@GEA-02	CS13702E	SOLID	1		0.600	0.600	% Ct Error
8	DUP	S96T002444	0	F	@GEA-02	EU15402	SOLID	<1.87e-1		<1.83e-1		RPD
8	DUP	S96T002444	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002444	0	F	@GEA-02	EU15502	SOLID	<2.92e-1		<2.92e-1		RPD
8	DUP	S96T002444	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002444	0	F	@GEA-02	AM24102	SOLID	<1.59e-1		<1.63e-1		RPD
8	DUP	S96T002444	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error

Comments Section:

Comments for sample# S96T002438 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002443 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002444 **and test** @GEA-02 .
DL=0 => n/a.

Final page for worklist# 9640

Analyst Signature **Date**

Analyst Signature **Date**

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

LABCORE Completed RadChem Report for Worklist#: 9640

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

Reviewer Signature: B J Michelor Date: 6/11/96

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

```
*****************************************************************************
* 222-S Laboratory Counting Room    7-JUN-1996 20:25:17.70                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9640
Sample ID:               WL9640-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1089.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:27.20 sec
Dead Time:               0.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       7-JUN-1996 19:34:12.50
Decayed to:              7-JUN-1996 19:34:12.50
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
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-189, REV. 1

Removed by: R

Verified by: Bachelor 6/10/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.80	3346	1.08	64.25	59	11	7.2			
0	36.42	951	1.00	73.48	70	9	17.4			
0	661.64*	18636	1.44	1323.91	1316	14	1.7		CS-137	22.6
0	1173.06	15472	1.79	2347.00	2337	20	1.8		CO-60	26.6
0	1332.27	13743	1.86	2665.57	2656	19	1.8		CO-60	26.2

Summary of Nuclide Activity
Sample ID : WL9640-STD

Acquisition date : 7-JUN-1996 19:34:12

Total number of lines in spectrum	5	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	3	60.00%

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	2.642E+01	2.642E+01	0.034E+01	1.28	
CS-137	30.00Y	1.000	2.256E+01	2.256E+01	0.038E+01	1.67	
		Total Activity :	4.898E+01	4.898E+01			
		Grand Total Activity :	4.898E+01	4.898E+01			

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

Minimum Detectable Activity Report

Sample ID : WL9640-STD Acquisition date : 7-JUN-1996 19:34:12

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1231.	477.59	1.2015E+00
NA-22	123.	1274.53	9.4963E-02
NA-24	39.	1368.55	5.7292E-02
K-40	626.	1460.75	2.2337E+00
CR-51	1240.	320.08	8.6540E-01
MN-54	793.	834.83	1.6730E-01
CO-56	842.	846.76	1.7474E-01
CO-57	1417.	122.06	5.6764E-02
CO-58	751.	810.78	1.5939E-01
FE-59	818.	1099.25	3.8317E-01
SE-75	1283.	264.66	1.2948E-01
SR-85	951.	514.01	1.2183E-01
Y-88	33.	1836.06	6.5210E-02
NB-94	872.	871.09	1.8244E-01
ZRNB-95	683.	724.18	3.1204E-01
RU-103	958.	497.08	1.2507E-01
RURH-106	728.	621.93	2.4638E+00
AG-108m	676.	722.94	1.4909E-01
CD-109	1267.	88.03	1.1533E+00
AG-110M	1145.	657.76	1.7065E-01
SN-113	1158.	391.69	1.5725E-01
TE-123m	1399.	159.00	6.5922E-02
SB-124	726.	602.73	1.2123E-01
SB-125	1281.	427.89	3.9005E-01
TE-125m	1410.	109.27	1.6521E+01
I-131	1170.	364.48	1.1702E-01
CS-134	746.	604.70	1.2345E-01
BA-140	806.	537.31	4.6034E-01
LA-140	34.	1596.21	6.2341E-02
CEPR-144	1523.	133.51	9.4853E-01
EU-152	49.	1408.01	3.1100E-01
EU-154	123.	1274.51	2.7594E-01
EU-155	1292.	105.31	2.0203E-01
HG-203	1266.	279.20	9.6503E-02
TL-208	1307.	277.36	1.2586E+00
BI-212	659.	727.18	2.0206E+00
PB-212	1504.	238.63	1.7347E-01
BI-214	836.	609.31	2.8677E-01
PB-214	1317.	351.92	4.8794E-01
RA-224	1455.	240.99	1.8939E+00
RA-226	1603.	186.10	1.8674E+00
AC-228	1020.	911.21	7.7169E-01
TH-228	1331.	84.37	3.3458E+00
TH-229	1227.	88.47	1.6608E-01
PA-233	1255.	312.17	2.2259E-01
UTH-233	1390.	245.34	6.9416E+01
PA-234M	827.	1001.03	3.4027E-01
TH-234	1143.	63.29	8.6317E-01
U-235	1569.	185.71	1.1231E-01
NP-237	1318.	86.48	3.4139E-01
NP-239	1308.	106.12	1.9499E-01

Minimum Detectable Activity Report (continued)

Sample ID : WL9640-STD Acquisition date : 7-JUN-1996 19:34:12

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1474.	129.30	7.9576E+02
AM-241	1118.	59.54	1.0778E-01
AM-243	1336.	74.67	6.9800E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room     7-JUN-1996 22:12:10.31                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9640
Sample ID:               WL9640-BLK
Sample Size:             2.50000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1090.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:11.35 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       7-JUN-1996 21:21:19.58
Decayed to:              7-JUN-1996 21:21:19.58
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
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
*****************************************************************************
```

Removed by: R

Verified by: B Machelor 6/10/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	15.96	118	1.62	32.56	29	8	63.2			
0	661.86*	24	1.34	1324.36	1321	7114.5			CS-137	0.115
0	1460.65*	28	1.92	2922.46	2913	20191.0			K-40	2.13

Summary of Nuclide Activity
Sample ID : WL9640-BLK Acquisition date : 7-JUN-1996 21:21:19

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~2.129E+00~~	~~2.129E+00~~	~~4.066E+00~~	~~191.01~~	BKG
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~1.149E-01~~	~~1.149E-01~~	~~1.316E-01~~	~~114.53~~	BKG
			---	---			
Total Activity :			2.244E+00	2.244E+00			
Grand Total Activity :			2.244E+00	2.244E+00			

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

Minimum Detectable Activity Report
Sample ID : WL9640-BLK Acquisition date : 7-JUN-1996 21:21:19

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	106.	477.59	1.4085E+00
NA-22	37.	1274.53	2.0853E-01
NA-24	20.	1368.55	1.6634E-01
CR-51	204.	320.08	1.4037E+00
MN-54	52.	834.83	1.7139E-01
CO-56	45.	846.76	1.6073E-01
CO-57	480.	122.06	1.3210E-01
CO-58	49.	810.78	1.6221E-01
FE-59	49.	1099.25	3.7420E-01
CO-60	29.	1332.50	1.8976E-01
SE-75	320.	264.66	2.5861E-01
SR-85	118.	514.01	1.7166E-01
Y-88	13.	1836.06	1.6295E-01
NB-94	54.	871.09	1.8183E-01
ZRNB-95	82.	724.18	4.3141E-01
RU-103	97.	497.08	1.5930E-01
RURH-106	79.	621.93	3.2462E+00
AG-108m	82.	722.94	2.0750E-01
CD-109	437.	88.03	2.7092E+00
AG-110M	77.	657.76	1.7678E-01
SN-113	134.	391.69	2.1399E-01
TE-123m	480.	159.00	1.5437E-01
SB-124	85.	602.73	1.6591E-01
SB-125	147.	427.89	5.2887E-01
TE-125m	462.	109.27	3.7809E+01
I-131	186.	364.48	1.8651E-01
CS-134	83.	604.70	1.6451E-01
BA-140	86.	537.31	6.0231E-01
LA-140	13.	1596.21	1.5400E-01
CEPR-144	526.	133.51	2.2296E+00
EU-152	27.	1408.01	9.2668E-01
EU-154	37.	1274.51	6.0552E-01
EU-155	468.	105.31	4.8660E-01
HG-203	247.	279.20	1.7042E-01
TL-208	258.	277.36	2.2381E+00
BI-212	91.	727.18	3.0055E+00
PB-212	453.	238.63	3.8072E-01
BI-214	254.	609.31	6.3253E-01
PB-214	312.	351.92	9.4758E-01
RA-224	377.	240.99	3.8562E+00
RA-226	470.	186.10	4.0440E+00
AC-228	147.	911.21	1.1724E+00
TH-228	483.	84.37	8.0591E+00
TH-229	435.	88.47	3.9547E-01
PA-233	235.	312.17	3.8553E-01
UTH-233	313.	245.34	1.3180E+02
PA-234M	57.	1001.03	3.5633E-01
TH-234	371.	63.29	1.9664E+00
U-235	473.	185.71	2.4675E-01
NP-237	451.	86.48	7.9830E-01
NP-239	484.	106.12	4.7449E-01

Minimum Detectable Activity Report (continued)

Sample ID : WL9640-BLK Acquisition date : 7-JUN-1996 21:21:19

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	529.	129.30	1.9061E+03
AM-241	384.	59.54	2.5273E-01
AM-243	521.	74.67	1.7434E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     7-JUN-1996 23:15:09.66                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9640
Sample ID:               S96T2438-SAM                    Removed by:
Sample Size:             2.50000E-04 L                   R
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                             Verified by:
File Number:             dka300:[spec.GEA1]lg1091.cnf    BBMachelor 6/10/96
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:25.34 sec
Dead Time:               0.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       7-JUN-1996 22:24:05.87
Decayed to:              7-JUN-1996 22:24:05.87
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
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	21.65	304	1.15	43.95	41	7	48.9			
0	31.86	9755	1.06	64.36	60	9	3.2			
0	36.34	2779	1.02	73.32	69	9	8.0			
0	59.71	170	0.84	120.07	118	6	77.2		AM-241	0.471
0	123.02	314	1.11	246.66	243	8	53.1		CO-57	0.408
0	661.63*	55869	1.46	1323.90	1316	16	0.9		CS-137	271.
0	723.53	43	0.80	1447.72	1443	10	83.1			
0	1460.58*	39	2.02	2922.31	2913	16	138.5		K-40	3.00

Sample ID : S96T2438-SAM Acquisition date : 7-JUN-1996 22:24:05

Total number of lines in spectrum	8	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	5	62.50%

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~~	~~3.002E+00~~	~~3.002E+00~~	~~4.158E+00~~	~~138.48~~	~~BRG~~
~~CO-57~~	~~271.80D~~	~~1.000~~	~~4.078E-01~~	~~4.078E-01~~	~~2.166E-01~~	~~53.11~~	~~BRG~~
CS-137	30.00Y	1.000	2.706E+02	2.706E+02	0.024E+02	0.88	
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~4.707E-01~~	~~4.707E-01~~	~~3.633E-01~~	~~77.18~~	~~BRG~~
	Total Activity :		2.745E+02	2.745E+02			
	Grand Total Activity :		2.745E+02	2.745E+02			

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

Minimum Detectable Activity Report
Sample ID : S96T2438-SAM Acquisition date : 7-JUN-1996 22:24:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1833.	477.59	5.8638E+00
NA-22	72.	1274.53	2.9061E-01
NA-24	20.	1368.55	1.6614E-01
CR-51	1583.	320.08	3.9113E+00
MN-54	70.	834.83	1.9839E-01
CO-56	40.	846.76	1.5310E-01
CO-58	61.	810.78	1.8103E-01
FE-59	40.	1099.25	3.3729E-01
CO-60	33.	1332.50	2.0534E-01
SE-75	1674.	264.66	5.9164E-01
SR-85	974.	514.01	4.9330E-01
Y-88	6.	1836.06	1.0953E-01
NB-94	54.	871.09	1.8236E-01
ZRNB-95	120.	724.18	5.2212E-01
RU-103	1129.	497.08	5.4326E-01
RURH-106	346.	621.93	6.7909E+00
AG-108m	121.	722.94	2.5239E-01
CD-109	1651.	88.03	5.2664E+00
AG-110M	1606.	657.76	8.0849E-01
SN-113	1726.	391.69	7.6783E-01
TE-123m	1731.	159.00	2.9327E-01
SB-124	353.	602.73	3.3820E-01
SB-125	1927.	427.89	1.9130E+00
TE-125m	1670.	109.27	7.1925E+01
I-131	1614.	364.48	5.4968E-01
CS-134	372.	604.70	3.4862E-01
BA-140	725.	537.31	1.7464E+00
LA-140	17.	1596.21	1.7708E-01
CEPR-144	1842.	133.51	4.1726E+00
EU-152	24.	1408.01	8.7553E-01
EU-154	72.	1274.51	8.4453E-01
EU-155	1775.	105.31	9.4739E-01
HG-203	1608.	279.20	4.3492E-01
TL-208	1622.	277.36	5.6078E+00
BI-212	72.	727.18	2.6780E+00
PB-212	1867.	238.63	7.7293E-01
BI-214	503.	609.31	8.9016E-01
PB-214	1743.	351.92	2.2449E+00
RA-224	1760.	240.99	8.3321E+00
RA-226	2396.	186.10	9.1312E+00
AC-228	126.	911.21	1.0854E+00
TH-228	1818.	84.37	1.5641E+01
TH-229	1589.	88.47	7.5595E-01
PA-233	1561.	312.17	9.9300E-01
UTH-233	1637.	245.34	3.0135E+02
PA-234M	45.	1001.03	3.1760E-01
TH-234	1505.	63.29	3.9617E+00
U-235	2376.	185.71	5.5273E-01
NP-237	1797.	86.48	1.5945E+00
NP-239	1767.	106.12	9.0673E-01
PU-239	1765.	129.30	3.4830E+03

Sample ID : S96T2438-SAM Acquisition date : 7-JUN-1996 22:24:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-243	1711.	74.67	3.1602E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     8-JUN-1996 00:15:14.69                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9640
Sample ID:               S96T2438-DUP
Sample Size:             2.50000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]lg1092.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:24.53 sec
Dead Time:               0.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       7-JUN-1996 23:24:09.37
Decayed to:              7-JUN-1996 23:24:09.37
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA1]lGBACK

      >>>>>>>>>> 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
*****************************************************************************
```

Removed by: R

Verified by: BMachelor 6/10/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.84	260	0.77	44.32	41	8	65.0			
0	31.87	9085	1.07	64.39	60	10	3.6			
0	36.45	2585	1.00	73.55	70	10	9.1			
0	42.87	208	1.29	86.39	82	8	79.5			
0	59.36	183	0.97	119.35	116	6	70.5		AM-241	0.507
0	122.85	324	1.58	246.33	243	8	51.5		CO-57	0.421
0	608.88*	118	1.52	1218.38	1213	11	68.0			
0	661.63*	53441	1.44	1323.89	1316	16	0.9		CS-137	259.
0	1764.78*	13	2.57	3531.05	3524	15	150.3			

Sample ID : S96T2438-DUP Acquisition date : 7-JUN-1996 23:24:09

Total number of lines in spectrum	9	
Number of unidentified lines	4	
Number of lines tentatively identified by NID	5	55.56%

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~~	~~4.206E-01~~	~~4.206E-01~~	~~2.166E-01~~	~~51.50~~	BKG
CS-137	30.00Y	1.000	2.588E+02	2.588E+02	0.023E+02	0.90	
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~5.066E-01~~	~~5.066E-01~~	~~3.573E-01~~	~~70.53~~	BKG
			---	---			
Total Activity :			2.597E+02	2.597E+02			

Grand Total Activity : 2.597E+02 2.597E+02

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1798.	477.59	5.8081E+00
NA-22	73.	1274.53	2.9242E-01
NA-24	24.	1368.55	1.8024E-01
K-40	542.	1460.75	8.3108E+00
CR-51	1507.	320.08	3.8164E+00
MN-54	61.	834.83	1.8617E-01
CO-56	58.	846.76	1.8358E-01
CO-58	58.	810.78	1.7710E-01
FE-59	43.	1099.25	3.5154E-01
CO-60	45.	1332.50	2.3696E-01
SE-75	1603.	264.66	5.7895E-01
SR-85	1043.	514.01	5.1044E-01
Y-88	8.	1836.06	1.2788E-01
NB-94	52.	871.09	1.7839E-01
ZRNB-95	115.	724.18	5.1309E-01
RU-103	1103.	497.08	5.3690E-01
RURH-106	304.	621.93	6.3643E+00
AG-108m	114.	722.94	2.4542E-01
CD-109	1644.	88.03	5.2550E+00
AG-110M	1611.	657.76	8.0967E-01
SN-113	1633.	391.69	7.4697E-01
TE-123m	1648.	159.00	2.8620E-01
SB-124	350.	602.73	3.3665E-01
SB-125	1893.	427.89	1.8963E+00
TE-125m	1603.	109.27	7.0467E+01
I-131	1542.	364.48	5.3727E-01
CS-134	317.	604.70	3.2195E-01
BA-140	728.	537.31	1.7499E+00
LA-140	18.	1596.21	1.8079E-01
CEPR-144	1761.	133.51	4.0797E+00
EU-152	24.	1408.01	8.6217E-01
EU-154	73.	1274.51	8.5021E-01
EU-155	1674.	105.31	9.1979E-01
HG-203	1599.	279.20	4.3379E-01
TL-208	1569.	277.36	5.5161E+00
BI-212	92.	727.18	3.0258E+00
PB-212	1768.	238.63	7.5229E-01
BI-214	532.	609.31	9.1539E-01
PB-214	1644.	351.92	2.1799E+00
RA-224	1689.	240.99	8.1628E+00
RA-226	2283.	186.10	8.9135E+00
AC-228	122.	911.21	1.0692E+00
TH-228	1671.	84.37	1.4998E+01
TH-229	1596.	88.47	7.5744E-01
PA-233	1497.	312.17	9.7226E-01
UTH-233	1650.	245.34	3.0249E+02
PA-234M	57.	1001.03	3.5641E-01
TH-234	1511.	63.29	3.9697E+00
U-235	2283.	185.71	5.4186E-01
NP-237	1770.	86.48	1.5823E+00
NP-239	1709.	106.12	8.9160E-01

Sample ID : S96T2438-DUP Acquisition date : 7-JUN-1996 23:24:09

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1813.	129.30	3.5307E+03
AM-243	1713.	74.67	3.1617E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     8-JUN-1996 02:26:02.82                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9640
Sample ID:               S96T2443-SAM
Sample Size:             5.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]lg1093.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:32.58 sec
Dead Time:               1.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       8-JUN-1996 01:34:51.39
Decayed to:              8-JUN-1996 01:34:51.39
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
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
*****************************************************************************
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Removed by: K

Verified by: B Machelor 6/10/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
)	22.05	546	0.95	44.75	41	8	35.8			
)	31.86	14913	1.09	64.36	60	9	2.6			
)	36.36	4132	0.90	73.37	69	9	6.4			
)	351.46*	312	1.52	703.51	698	11	70.5			
)	661.61*	87164	1.42	1323.85	1316	16	0.7		CS-137	211.

Summary of Nuclide Activity
Sample ID : S96T2443-SAM Acquisition date : 8-JUN-1996 01:34:51

Total number of lines in spectrum	5	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	2	40.00%

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	2.111E+02	2.111E+02	0.015E+02	0.70	
		Total Activity :	2.111E+02	2.111E+02			
		Grand Total Activity :	2.111E+02	2.111E+02			

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

Sample ID : S96T2443-SAM Acquisition date : 8-JUN-1996 01:34:51

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2882.	477.59	3.6766E+00
NA-22	45.	1274.53	1.1499E-01
NA-24	26.	1368.55	9.3304E-02
K-40	564.	1460.75	4.2396E+00
CR-51	2220.	320.08	2.3162E+00
MN-54	62.	834.83	9.3797E-02
CO-56	57.	846.76	9.0984E-02
CO-57	2448.	122.06	1.4921E-01
CO-58	53.	810.78	8.4520E-02
FE-59	42.	1099.25	1.7353E-01
CO-60	38.	1332.50	1.0975E-01
SE-75	2457.	264.66	3.5845E-01
SR-85	1496.	514.01	3.0563E-01
Y-88	3.	1836.06	3.9156E-02
NB-94	69.	871.09	1.0300E-01
ZRNB-95	79.	724.18	2.1284E-01
RU-103	1817.	497.08	3.4457E-01
RURH-106	477.	621.93	3.9893E+00
AG-108m	68.	722.94	9.4807E-02
CD-109	2243.	88.03	3.0691E+00
AG-110M	2562.	657.76	5.1054E-01
SN-113	2517.	391.69	4.6362E-01
TE-123m	2318.	159.00	1.6969E-01
SB-124	517.	602.73	2.0448E-01
SB-125	2882.	427.89	1.1698E+00
TE-125m	2300.	109.27	4.2201E+01
I-131	2358.	364.48	3.3220E-01
CS-134	516.	604.70	2.0546E-01
BA-140	1028.	537.31	1.0403E+00
LA-140	8.	1596.21	6.1808E-02
CEPR-144	2463.	133.51	2.4122E+00
EU-152	37.	1408.01	5.3781E-01
EU-154	45.	1274.51	3.3382E-01
EU-155	2253.	105.31	5.3355E-01
HG-203	2333.	279.20	2.6199E-01
TL-208	2349.	277.36	3.3743E+00
BI-212	103.	727.18	1.5951E+00
PB-212	2574.	238.63	4.5379E-01
BI-214	658.	609.31	5.0870E-01
PB-214	2520.	351.92	1.3514E+00
RA-224	2490.	240.99	4.9559E+00
RA-226	3337.	186.10	5.3887E+00
AC-228	124.	911.21	5.3913E-01
TH-228	2228.	84.37	8.6577E+00
TH-229	2215.	88.47	4.4623E-01
PA-233	2315.	312.17	6.0460E-01
UTH-233	2504.	245.34	1.8632E+02
PA-234M	44.	1001.03	1.5630E-01
TH-234	1960.	63.29	2.2601E+00
U-235	3288.	185.71	3.2511E-01
NP-237	2219.	86.48	8.8576E-01

Minimum Detectable Activity Report (continued)
Sample ID : S96T2443-SAM Acquisition date : 8-JUN-1996 01:34:51

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2260.	106.12	5.1263E-01
PU-239	2424.	129.30	2.0409E+03
AM-241	2101.	59.54	2.9544E-01
AM-243	2218.	74.67	1.7987E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     8-JUN-1996 04:49:46.98                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9640
Sample ID:               S96T2443-DUP                    Removed by:
Sample Size:             5.00000E-04 L
Dilution Factor:         1.00000E+00                     R

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                             Verified by:
File Number:             dka300:[spec.GEA1]1g1096.cnf
Geometry:                41                              BMachelor 6/10/96
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:32.93 sec
Dead Time:               1.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       8-JUN-1996 03:58:34.55
Decayed to:              8-JUN-1996 03:58:34.55
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
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	21.89	392	1.00	44.43	41	8	50.5			
0	31.84	14752	1.07	64.33	60	9	2.6			
0	36.32	4061	0.99	73.28	69	9	6.4			
0	661.61*	85479	1.44	1323.86	1316	16	0.7		CS-137	207.
0	1066.68	20	1.22	2134.18	2130	9	98.5			
0	1764.50*	19	2.53	3530.50	3521	23	88.4			

Sample ID : S96T2443-DUP Acquisition date : 8-JUN-1996 03:58:34

Total number of lines in spectrum	6	
Number of unidentified lines	4	
Number of lines tentatively identified by NID	2	33.33%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.070E+02	2.070E+02	0.015E+02	0.71	
		Total Activity :	2.070E+02	2.070E+02			
		Grand Total Activity :	2.070E+02	2.070E+02			

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

Sample ID : S96T2443-DUP Acquisition date : 8-JUN-1996 03:58:34

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2730.	477.59	3.5783E+00
NA-22	54.	1274.53	1.2575E-01
NA-24	26.	1368.55	9.3257E-02
K-40	582.	1460.75	4.3064E+00
CR-51	2271.	320.08	2.3424E+00
MN-54	48.	834.83	8.2550E-02
CO-56	47.	846.76	8.2893E-02
CO-57	2446.	122.06	1.4913E-01
CO-58	52.	810.78	8.4179E-02
FE-59	28.	1099.25	1.4129E-01
CO-60	44.	1332.50	1.1826E-01
SE-75	2389.	264.66	3.5340E-01
SR-85	1424.	514.01	2.9823E-01
Y-88	10.	1836.06	7.2989E-02
NB-94	61.	871.09	9.6269E-02
ZRNB-95	89.	724.18	2.2479E-01
RU-103	1722.	497.08	3.3541E-01
RURH-106	438.	621.93	3.8203E+00
AG-108m	85.	722.94	1.0602E-01
CD-109	2253.	88.03	3.0762E+00
AG-110M	2472.	657.76	5.0151E-01
SN-113	2493.	391.69	4.6141E-01
TE-123m	2267.	159.00	1.6783E-01
SB-124	531.	602.73	2.0738E-01
SB-125	3032.	427.89	1.1999E+00
TE-125m	2251.	109.27	4.1749E+01
I-131	2423.	364.48	3.3672E-01
CS-134	490.	604.70	2.0019E-01
BA-140	1067.	537.31	1.0595E+00
LA-140	4.	1596.21	4.2149E-02
CEPR-144	2425.	133.51	2.3935E+00
EU-152	30.	1408.01	4.8762E-01
EU-154	54.	1274.51	3.6573E-01
EU-155	2207.	105.31	5.2809E-01
HG-203	2250.	279.20	2.5727E-01
TL-208	2313.	277.36	3.3485E+00
BI-212	82.	727.18	1.4220E+00
PB-212	2597.	238.63	4.5587E-01
BI-214	610.	609.31	4.8977E-01
PB-214	2431.	351.92	1.3274E+00
RA-224	2496.	240.99	4.9618E+00
RA-226	3415.	186.10	5.4507E+00
AC-228	130.	911.21	5.5197E-01
TH-228	2196.	84.37	8.5963E+00
TH-229	2186.	88.47	4.4323E-01
PA-233	2206.	312.17	5.9016E-01
UTH-233	2433.	245.34	1.8367E+02
PA-234M	40.	1001.03	1.5017E-01
TH-234	1950.	63.29	2.2543E+00
U-235	3383.	185.71	3.2981E-01
NP-237	2351.	86.48	9.1187E-01

Minimum Detectable Activity Report (continued)

Sample ID : S96T2443-DUP Acquisition date : 8-JUN-1996 03:58:34

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2244.	106.12	5.1086E-01
PU-239	2387.	129.30	2.0255E+03
AM-241	1991.	59.54	2.8762E-01
AM-243	2247.	74.67	1.8108E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     8-JUN-1996 05:48:17.40                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9640
Sample ID:               S96T2444-SAM
Sample Size:             5.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1097.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:39.43 sec
Dead Time:               1.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       8-JUN-1996 04:56:56.34
Decayed to:              8-JUN-1996 04:56:56.34
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
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
*****************************************************************************
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Removed by: Tm Barela

Verified by: Bmachelor 6/10/96

Post-NID Peak Search Report

ID	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.70	567	1.14	44.04	41	7	34.7			
0	31.85	19003	1.09	64.35	60	9	2.2			
0	36.35	5318	1.01	73.35	69	9	5.5			
0	661.62*	108700	1.43	1323.86	1316	16	0.6		CS-137	263.
0	910.69*	28	1.28	1822.10	1816	13	119.9			
0	1764.52*	23	2.51	3530.53	3520	21	90.4			

Sample ID : S96T2444-SAM Acquisition date : 8-JUN-1996 04:56:56

Total number of lines in spectrum	6	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	3	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.632E+02	2.632E+02	0.017E+02	0.63	
		Total Activity :	2.632E+02	2.632E+02			
		Grand Total Activity :	2.632E+02	2.632E+02			

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

Sample ID : S96T2444-SAM Acquisition date : 8-JUN-1996 04:56:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3503.	477.59	4.0531E+00
NA-22	58.	1274.53	1.3043E-01
NA-24	21.	1368.55	8.5212E-02
K-40	567.	1460.75	4.2506E+00
CR-51	2838.	320.08	2.6187E+00
MN-54	56.	834.83	8.8637E-02
CO-56	61.	846.76	9.3822E-02
CO-57	3061.	122.06	1.6684E-01
CO-58	35.	810.78	6.8821E-02
FE-59	52.	1099.25	1.9277E-01
CO-60	29.	1332.50	9.4971E-02
SE-75	2911.	264.66	3.9015E-01
SR-85	1817.	514.01	3.3682E-01
Y-88	13.	1836.06	8.1066E-02
NB-94	54.	871.09	9.1023E-02
ZRNB-95	109.	724.18	2.4961E-01
RU-103	2150.	497.08	3.7480E-01
RURH-106	567.	621.93	4.3487E+00
AG-108m	104.	722.94	1.1693E-01
CD-109	2588.	88.03	3.2970E+00
AG-110M	3164.	657.76	5.6742E-01
SN-113	3146.	391.69	5.1840E-01
TE-123m	2918.	159.00	1.9040E-01
SB-124	653.	602.73	2.2984E-01
SB-125	3661.	427.89	1.3184E+00
TE-125m	2705.	109.27	4.5768E+01
I-131	2990.	364.48	3.7406E-01
CS-134	631.	604.70	2.2708E-01
BA-140	1230.	537.31	1.1375E+00
LA-140	19.	1596.21	9.3243E-02
CEPR-144	2883.	133.51	2.6101E+00
EU-152	19.	1408.01	3.9050E-01
EU-154	58.	1274.51	3.7898E-01
EU-155	2773.	105.31	5.9203E-01
HG-203	2894.	279.20	2.9177E-01
TL-208	2912.	277.36	3.7572E+00
BI-212	84.	727.18	1.4422E+00
PB-212	3205.	238.63	5.0644E-01
BI-214	734.	609.31	5.3758E-01
PB-214	3072.	351.92	1.4939E+00
RA-224	3165.	240.99	5.5870E+00
RA-226	4124.	186.10	5.9902E+00
AC-228	133.	911.21	5.5627E-01
TH-228	2767.	84.37	9.6484E+00
TH-229	2576.	88.47	4.8120E-01
PA-233	2828.	312.17	6.6826E-01
UTH-233	2955.	245.34	2.0242E+02
PA-234M	55.	1001.03	1.7486E-01
TH-234	2406.	63.29	2.5042E+00
U-235	4076.	185.71	3.6202E-01
NP-237	2649.	86.48	9.6784E-01

Minimum Detectable Activity Report (continued)

Sample ID : S96T2444-SAM Acquisition date : 8-JUN-1996 04:56:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2751.	106.12	5.6568E-01
PU-239	2872.	129.30	2.2217E+03
AM-241	2510.	59.54	3.2293E-01
AM-243	2711.	74.67	1.9887E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     8-JUN-1996 07:14:06.89                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9640
Sample ID:               S96T2444-DUP
Sample Size:             5.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1098.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:41.10 sec
Dead Time:               1.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       8-JUN-1996 06:22:33.76
Decayed to:              8-JUN-1996 06:22:33.76
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
*****************************************************************************
```

Removed by: Em Barker

Verified by: B Machelor 6/10/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.88	812	0.98	44.42	40	9	30.5			
0	31.84	20663	1.10	64.33	60	8	2.0			
0	36.35	5694	0.98	73.34	69	9	5.4			
0	661.61*	118695	1.44	1323.85	1316	16	0.6		CS-137	287.
0	968.72*	23	3.14	1938.21	1934	10	112.4			
0	1764.51*	12	1.85	3530.53	3524	14	133.2			

Summary of Nuclide Activity
Sample ID : S96T2444-DUP

Acquisition date : 8-JUN-1996 06:22:33

Total number of lines in spectrum	6	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	3	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.874E+02	2.874E+02	0.017E+02	0.60	
		Total Activity :	2.874E+02	2.874E+02			
		Grand Total Activity :	2.874E+02	2.874E+02			

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

Sample ID : S96T2444-DUP Acquisition date : 8-JUN-1996 06:22:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3859.	477.59	4.2542E+00
NA-22	57.	1274.53	1.2916E-01
NA-24	20.	1368.55	8.1665E-02
K-40	557.	1460.75	4.2147E+00
CR-51	3114.	320.08	2.7429E+00
MN-54	56.	834.83	8.9183E-02
CO-56	59.	846.76	9.2831E-02
CO-57	3244.	122.06	1.7176E-01
CO-58	66.	810.78	9.4350E-02
FE-59	39.	1099.25	1.6788E-01
CO-60	23.	1332.50	8.5991E-02
SE-75	3169.	264.66	4.0705E-01
SR-85	1951.	514.01	3.4907E-01
Y-88	9.	1836.06	6.9438E-02
NB-94	51.	871.09	8.8225E-02
ZRNB-95	93.	724.18	2.3040E-01
RU-103	2367.	497.08	3.9323E-01
RURH-106	607.	621.93	4.4996E+00
AG-108m	99.	722.94	1.1419E-01
CD-109	2885.	88.03	3.4810E+00
AG-110M	3431.	657.76	5.9085E-01
SN-113	3397.	391.69	5.3863E-01
TE-123m	3143.	159.00	1.9762E-01
SB-124	659.	602.73	2.3097E-01
SB-125	3918.	427.89	1.3641E+00
TE-125m	2954.	109.27	4.7823E+01
I-131	3213.	364.48	3.8773E-01
CS-134	664.	604.70	2.3291E-01
BA-140	1430.	537.31	1.2266E+00
LA-140	14.	1596.21	7.9540E-02
CEPR-144	3078.	133.51	2.6968E+00
EU-152	18.	1408.01	3.7686E-01
EU-154	57.	1274.51	3.7573E-01
EU-155	2845.	105.31	5.9964E-01
HG-203	3150.	279.20	3.0438E-01
TL-208	3151.	277.36	3.9079E+00
BI-212	98.	727.18	1.5627E+00
PB-212	3329.	238.63	5.1608E-01
BI-214	814.	609.31	5.6578E-01
PB-214	3242.	351.92	1.5350E+00
RA-224	3336.	240.99	5.7361E+00
RA-226	4434.	186.10	6.2114E+00
AC-228	117.	911.21	5.2324E-01
TH-228	2953.	84.37	9.9679E+00
TH-229	2864.	88.47	5.0735E-01
PA-233	3048.	312.17	6.9370E-01
UTH-233	3246.	245.34	2.1216E+02
PA-234M	48.	1001.03	1.6468E-01
TH-234	2654.	63.29	2.6301E+00
U-235	4357.	185.71	3.7427E-01
NP-237	2938.	86.48	1.0193E+00

Minimum Detectable Activity Report (continued)
Sample ID : S96T2444-DUP Acquisition date : 8-JUN-1996 06:22:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2888.	106.12	5.7955E-01
PU-239	3196.	129.30	2.3434E+03
AM-241	2716.	59.54	3.3594E-01
AM-243	2923.	74.67	2.0652E-01

06/05/96 12:12
A-0004-1

LABCORE Data Entry Template for Worklist# 9641

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

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-102. 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	S96T002445	0	F	@GEA-02	SOLID	96000536	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T002445	0	F	@GEA-02	SOLID		
5	SAMPLE	S96T002446	0	F	@GEA-02	SOLID	96000536	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T002446	0	F	@GEA-02	SOLID		
7	SAMPLE	S96T002447	0	F	@GEA-02	SOLID	96000536	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
8	DUP	S96T002447	0	F	@GEA-02	SOLID		

Final page for worklist # 9641

CJ Johnson 6/07/96
Analyst Signature **Date**

Sue E. Hogan 6/11/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9641

Analyst: crj **Instrument:** GEA03 **Book#** 12856

Method: LA-548-12 Rev/Mod E-0

Worklist Comment: U-102. 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	2.518e-02		2.35e-02	93.328	% Recovery
1	STD		0		@GEA-02	CO60-02E	SOLID	1		1.26	1.260	% Ct Error
1	STD		0		@GEA-02	CS13702	SOLID	2.701e-02		2.61e-02	96.631	% Recovery
1	STD		0		@GEA-02	CS13702E	SOLID	1		1.47	1.470	% Ct Error
2	BLNK-PREP		0		@GEA-02	CO60-02	SOLID	1		<2.62e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	CS13702	SOLID	1		<2.18e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15402	SOLID	1		<5.24e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15502	SOLID	1		<5.37e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	AM24102	SOLID	1		<1.58e-1		uCi/g
3	SAMPLE	S96T002445	0	F	@GEA-02	CO60-02	SOLID	N/A	<	3.356e-02	335.6e-004	uCi/g
3	SAMPLE	S96T002445	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002445	0	F	@GEA-02	CS13702	SOLID	N/A		1.545e+02	0.0e+000	uCi/g
3	SAMPLE	S96T002445	0	F	@GEA-02	CS13702E	SOLID	N/A		0.550	0.0e+000	% Ct. Error
3	SAMPLE	S96T002445	0	F	@GEA-02	EU15402	SOLID	N/A	<	1.416e-01	142.0e-003	uCi/g
3	SAMPLE	S96T002445	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002445	0	F	@GEA-02	EU15502	SOLID	N/A	<	4.203e-01	420.0e-003	uCi/g
3	SAMPLE	S96T002445	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002445	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.101e+00	110.1e-002	uCi/g
3	SAMPLE	S96T002445	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
4	DUP	S96T002445	0	F	@GEA-02	CO60-02	SOLID	<3.36e-2		<3.73e-2		RPD
4	DUP	S96T002445	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002445	0	F	@GEA-02	CS13702	SOLID	1.54e+02		1.77e+02	13.897	RPD
4	DUP	S96T002445	0	F	@GEA-02	CS13702E	SOLID	1		0.510	0.510	% Ct Error
4	DUP	S96T002445	0	F	@GEA-02	EU15402	SOLID	<1.42e-1		<1.52e-1		RPD
4	DUP	S96T002445	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002445	0	F	@GEA-02	EU15502	SOLID	<4.20e-1		<4.54e-1		RPD
4	DUP	S96T002445	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002445	0	F	@GEA-02	AM24102	SOLID	<1.10e0		<1.17e0		RPD
4	DUP	S96T002445	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
5	SAMPLE	S96T002446	0	F	@GEA-02	CO60-02	SOLID	N/A	<	3.548e-02	354.8e-004	uCi/g
5	SAMPLE	S96T002446	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002446	0	F	@GEA-02	CS13702	SOLID	N/A		1.894e+02	0.0e+000	uCi/g
5	SAMPLE	S96T002446	0	F	@GEA-02	CS13702E	SOLID	N/A		0.460	0.0e+000	% Ct. Error
5	SAMPLE	S96T002446	0	F	@GEA-02	EU15402	SOLID	N/A	<	1.112e-01	111.0e-003	uCi/g
5	SAMPLE	S96T002446	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002446	0	F	@GEA-02	EU15502	SOLID	N/A	<	4.347e-01	435.0e-003	uCi/g
5	SAMPLE	S96T002446	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002446	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.111e+00	111.1e-002	uCi/g
5	SAMPLE	S96T002446	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	DUP	S96T002446	0	F	@GEA-02	CO60-02	SOLID	<3.55e-2		<3.37e-2		RPD
5	DUP	S96T002446	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#: 9641

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
6	DUP	S96T002446	0	F	@GEA-02	CS13702	SOLID	1.89e+02		1.63e+02	14.773	RPD
6	DUP	S96T002446	0	F	@GEA-02	CS13702E	SOLID	1		0.490	0.490	% Ct Error
6	DUP	S96T002446	0	F	@GEA-02	EU15402	SOLID	<1.11e-1		<1.39e-1		RPD
6	DUP	S96T002446	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002446	0	F	@GEA-02	EU15502	SOLID	<4.35e-1		<4.08e-1		RPD
6	DUP	S96T002446	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002446	0	F	@GEA-02	AM24102	SOLID	<1.11e0		<1.03e0		RPD
6	DUP	S96T002446	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
7	SAMPLE	S96T002447	0	F	@GEA-02	CO60-02	SOLID	N/A	<	3.182e-02	318.2e-004	uCi/g
7	SAMPLE	S96T002447	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002447	0	F	@GEA-02	CS13702	SOLID	N/A		1.884e+02	0.0e+000	uCi/g
7	SAMPLE	S96T002447	0	F	@GEA-02	CS13702E	SOLID	N/A		0.500	0.0e+000	% Ct. Error
7	SAMPLE	S96T002447	0	F	@GEA-02	EU15402	SOLID	N/A	<	1.430e-01	143.0e-003	uCi/g
7	SAMPLE	S96T002447	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002447	0	F	@GEA-02	EU15502	SOLID	N/A	<	4.719e-01	472.0e-003	uCi/g
7	SAMPLE	S96T002447	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002447	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.217e+00	121.7e-002	uCi/g
7	SAMPLE	S96T002447	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
8	DUP	S96T002447	0	F	@GEA-02	CO60-02	SOLID	<3.18e-2		<3.45e-2		RPD
8	DUP	S96T002447	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002447	0	F	@GEA-02	CS13702	SOLID	1.88e+02		2.21e+02	16.137	RPD
8	DUP	S96T002447	0	F	@GEA-02	CS13702E	SOLID	1		0.460	0.460	% Ct Error
8	DUP	S96T002447	0	F	@GEA-02	EU15402	SOLID	<1.43e-1		<1.70e-1		RPD
8	DUP	S96T002447	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002447	0	F	@GEA-02	EU15502	SOLID	<4.72e-1		<5.07e-1		RPD
8	DUP	S96T002447	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002447	0	F	@GEA-02	AM24102	SOLID	<1.22e0		<1.30e0		RPD
8	DUP	S96T002447	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error

Comments Section:

Comments for sample# S96T002445 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002446 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002447 **and test** @GEA-02 .
DL=0 => n/a.

Final page for worklist# 9641

Analyst Signature **Date**

Analyst Signature **Date**

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

LABCORE Completed RadChem Report for Worklist#: 9641

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

Reviewer Signature Date

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

```
*****************************************************************************
* 222-S Laboratory Counting Room    8-JUN-1996 22:22:04.24                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9641
Sample ID:               WL9641-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3674.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:09.13 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       8-JUN-1996 21:31:05.25
Decayed to:              8-JUN-1996 21:31:05.25
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Removed by: R

Verified by: B Machelor 6/10/96

Post-NID Peak Search Report

Id	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.66*	23109	1.55	1323.50	1315	17	1.5		CS-137	26.1
0	1173.33	14918	1.96	2346.92	2339	17	1.8		CO-60	23.5
0	1332.61	13456	2.04	2665.60	2656	19	1.8		CO-60	23.6

Sample ID : WL9641-STD Acquisition date : 8-JUN-1996 21:31:05

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	2.354E+01	2.354E+01	0.030E+01	1.26	
CS-137	30.00Y	1.000	2.612E+01	2.612E+01	0.038E+01	1.47	
		Total Activity :	4.966E+01	4.966E+01			
		Grand Total Activity :	4.966E+01	4.966E+01			

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

Minimum Detectable Activity Report

Sample ID : WL9641-STD Acquisition date : 8-JUN-1996 21:31:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1189.	477.59	1.1358E+00
NA-22	89.	1274.53	7.4247E-02
NA-24	23.	1368.55	4.1024E-02
K-40	121.	1460.75	8.9922E-01
CR-51	1132.	320.08	8.3400E-01
MN-54	699.	834.83	1.4459E-01
CO-56	700.	846.76	1.4655E-01
CO-57	1235.	122.06	6.0813E-02
CO-58	644.	810.78	1.3600E-01
FE-59	680.	1099.25	3.1969E-01
SE-75	1442.	264.66	1.4102E-01
SR-85	868.	514.01	1.1098E-01
Y-88	14.	1836.06	3.8672E-02
NB-94	757.	871.09	1.5610E-01
ZRNB-95	575.	724.18	2.6561E-01
RU-103	918.	497.08	1.1722E-01
RURH-106	686.	621.93	2.2448E+00
AG-108m	603.	722.94	1.3062E-01
CD-109	1085.	88.03	1.8873E+00
AG-110M	928.	657.76	1.4351E-01
SN-113	1096.	391.69	1.5048E-01
TE-123m	1289.	159.00	6.3924E-02
SB-124	629.	602.73	1.0614E-01
SB-125	1160.	427.89	3.6141E-01
TE-125m	1214.	109.27	1.9633E+01
I-131	1112.	364.48	1.1333E-01
CS-134	622.	604.70	1.0605E-01
BA-140	715.	537.31	4.1171E-01
LA-140	16.	1596.21	3.9472E-02
CEPR-144	1304.	133.51	9.4525E-01
EU-152	25.	1408.01	2.0537E-01
EU-154	89.	1274.51	2.1547E-01
EU-155	1159.	105.31	2.5622E-01
HG-203	1230.	279.20	9.7120E-02
TL-208	1271.	277.36	1.2684E+00
BI-212	537.	727.18	1.6920E+00
PB-212	1533.	238.63	1.8089E-01
BI-214	660.	609.31	2.3949E-01
PB-214	1106.	351.92	4.4512E-01
RA-224	1569.	240.99	2.0316E+00
RA-226	1511.	186.10	1.8201E+00
AC-228	890.	911.21	6.6083E-01
TH-228	1065.	84.37	5.7598E+00
TH-229	1083.	88.47	2.7339E-01
PA-233	1220.	312.17	2.2179E-01
UTH-233	1548.	245.34	7.5638E+01
PA-234M	711.	1001.03	2.8885E-01
TH-234	1015.	63.29	3.7880E+00
U-235	1504.	185.71	1.1036E-01
NP-237	1104.	86.48	5.7190E-01
NP-239	1146.	106.12	2.4205E-01

Sample ID : WL9641-STD Acquisition date : 8-JUN-1996 21:31:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1303.	129.30	8.2225E+02
AM-241	1066.	59.54	6.8499E-01
AM-243	1125.	74.67	1.6538E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     8-JUN-1996 23:21:31.75                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9641
Sample ID:               WL9641-BLK                          Removed by:
Sample Size:             5.00000E-04 L
Dilution Factor:         1.00000E+00                         R

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                                 Verified by:
File Number:             dka300:[spec.GEA3]3g3675.cnf
Geometry:                42                                  BMacheler 6/10/96
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.45 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       8-JUN-1996 22:30:51.00
Decayed to:              8-JUN-1996 22:30:51.00
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Post-NID Peak Search Report

I	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.72*	20	1.39	1323.61	1319	13	149.5		CS-137	4.410E-02
0	969.44*	23	1.02	1939.06	1934	12	57.8			

Summary of Nuclide Activity

Sample ID : WL9641-BLK Acquisition date : 8-JUN-1996 22:30:51

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~~	~~4.410E-02~~	~~4.410E-02~~	~~6.593E-02~~	~~149.49~~	BKG
Total Activity :			4.410E-02	4.410E-02			
Grand Total Activity :			4.410E-02	4.410E-02			

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

Sample ID : WL9641-BLK Acquisition date : 8-JUN-1996 22:30:51

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	34.	477.59	3.8520E-01
NA-22	8.	1274.53	4.3284E-02
NA-24	10.	1368.55	5.2592E-02
K-40	131.	1460.75	1.8732E+00
CR-51	65.	320.08	3.9853E-01
MN-54	14.	834.83	4.0442E-02
CO-56	18.	846.76	4.6599E-02
CO-57	71.	122.06	2.9065E-02
CO-58	14.	810.78	4.0394E-02
FE-59	10.	1099.25	7.8350E-02
CO-60	11.	1332.50	5.3119E-02
SE-75	55.	264.66	5.5303E-02
SR-85	50.	514.01	5.3003E-02
Y-88	5.	1836.06	4.6815E-02
NB-94	21.	871.09	5.1924E-02
ZRNB-95	21.	724.18	1.0085E-01
RU-103	24.	497.08	3.7663E-02
RURH-106	32.	621.93	9.6722E-01
AG-108m	23.	722.94	5.1560E-02
CD-109	61.	88.03	8.9808E-01
AG-110M	22.	657.76	4.3974E-02
SN-113	38.	391.69	5.5774E-02
TE-123m	72.	159.00	3.0302E-02
SB-124	26.	602.73	4.3310E-02
SB-125	38.	427.89	1.3139E-01
TE-125m	70.	109.27	9.4405E+00
I-131	43.	364.48	4.4532E-02
CS-134	24.	604.70	4.1555E-02
BA-140	24.	537.31	1.5001E-01
LA-140	8.	1596.21	5.4281E-02
CEPR-144	73.	133.51	4.4726E-01
EU-152	4.	1408.01	1.6269E-01
EU-154	8.	1274.51	1.2641E-01
EU-155	52.	105.31	1.0878E-01
HG-203	73.	279.20	4.7214E-02
TL-208	75.	277.36	6.1647E-01
BI-212	13.	727.18	5.3577E-01
PB-212	81.	238.63	8.3094E-02
BI-214	42.	609.31	1.2118E-01
PB-214	59.	351.92	2.0515E-01
RA-224	68.	240.99	8.4449E-01
RA-226	92.	186.10	9.0036E-01
AC-228	23.	911.21	2.1276E-01
TH-228	70.	84.37	2.9482E+00
TH-229	66.	88.47	1.3537E-01
PA-233	47.	312.17	8.6969E-02
UTH-233	56.	245.34	2.8780E+01
PA-234M	12.	1001.03	7.3716E-02
TH-234	51.	63.29	1.6971E+00
U-235	97.	185.71	5.5982E-02
NP-237	70.	86.48	2.8813E-01

Sample ID : WL9641-BLK Acquisition date : 8-JUN-1996 22:30:51

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	54.	106.12	1.0543E-01
PU-239	84.	129.30	4.1660E+02
AM-241	58.	59.54	3.2087E-01
AM-243	66.	74.67	8.0320E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room     9-JUN-1996 00:18:24.42                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9641
Sample ID:               S96T2445-SAM                    Removed by:
Sample Size:             5.00000E-04 L
Dilution Factor:         1.00000E+00                     K

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                             Verified by:
File Number:             dka300:[spec.GEA3]3g3676.cnf
Geometry:                42                              Bmacheler 6/10/96
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:17.16 sec
Dead Time:               0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       8-JUN-1996 23:27:28.78
Decayed to:              8-JUN-1996 23:27:28.78
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.65*	138522	1.59	1323.47	1315	17	0.5		CS-137	313.
0	1274.84	22	1.71	2550.02	2541	15	104.7			

Sample ID : S96T2445-SAM Acquisition date : 8-JUN-1996 23:27:28

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	3.131E+02	3.131E+02	0.017E+02	0.55	
		Total Activity :	3.131E+02	3.131E+02			
		Grand Total Activity :	3.131E+02	3.131E+02			

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

Minimum Detectable Activity Report
Sample ID : S96T2445-SAM Acquisition date : 8-JUN-1996 23:27:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4181.	477.59	4.2604E+00
NA-22	40.	1274.53	9.8769E-02
NA-24	3.	1368.55	2.7498E-02
K-40	129.	1460.75	1.8616E+00
CR-51	3259.	320.08	2.8307E+00
MN-54	35.	834.83	6.4451E-02
CO-56	39.	846.76	6.9028E-02
CO-57	3713.	122.06	2.1092E-01
CO-58	34.	810.78	6.2881E-02
FE-59	16.	1099.25	9.7012E-02
CO-60	17.	1332.50	6.7979E-02
SE-75	3615.	264.66	4.4664E-01
SR-85	2030.	514.01	3.3939E-01
Y-88	0.	1836.06	0.0000E+00
NB-94	35.	871.09	6.7605E-02
ZRNB-95	55.	724.18	1.6483E-01
RU-103	2537.	497.08	3.8971E-01
RURH-106	779.	621.93	4.7825E+00
AG-108m	52.	722.94	7.6629E-02
CD-109	3109.	88.03	6.3907E+00
AG-110M	2815.	657.76	4.9982E-01
SN-113	3495.	391.69	5.3751E-01
TE-123m	3610.	159.00	2.1395E-01
SB-124	755.	602.73	2.3257E-01
SB-125	4250.	427.89	1.3838E+00
TE-125m	3244.	109.27	6.4183E+01
I-131	3466.	364.48	4.0024E-01
CS-134	739.	604.70	2.3117E-01
BA-140	1488.	537.31	1.1877E+00
LA-140	7.	1596.21	5.3434E-02
CEPR-144	3539.	133.51	3.1141E+00
EU-152	9.	1408.01	2.4170E-01
EU-154	40.	1274.51	2.8681E-01
EU-155	3200.	105.31	8.5140E-01
HG-203	3519.	279.20	3.2860E-01
TL-208	3454.	277.36	4.1820E+00
BI-212	49.	727.18	1.0250E+00
PB-212	4124.	238.63	5.9326E-01
BI-214	774.	609.31	5.1870E-01
PB-214	3283.	351.92	1.5361E+00
RA-224	4158.	240.99	6.6140E+00
RA-226	4715.	186.10	6.4302E+00
AC-228	38.	911.21	2.7378E-01
TH-228	3150.	84.37	1.9810E+01
TH-229	3106.	88.47	9.2574E-01
PA-233	3335.	312.17	7.3349E-01
UTH-233	3973.	245.34	2.4235E+02
PA-234M	18.	1001.03	9.2316E-02
TH-234	2779.	63.29	1.2532E+01
U-235	4638.	185.71	3.8762E-01
NP-237	3177.	86.48	1.9403E+00

Sample ID : S96T2445-SAM Acquisition date : 8-JUN-1996 23:27:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	3224.	106.12	8.1198E-01
PU-239	3556.	129.30	2.7168E+03
AM-241	2825.	59.54	2.2300E+00
AM-243	2958.	74.67	5.3632E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     9-JUN-1996 02:45:54.88                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9641
Sample ID:               S96T2445-DUP                    Removed by:
Sample Size:             5.00000E-04 L                   R
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                             Verified by:
File Number:             dka300:[spec.GEA3]3g3677.cnf    BMacheler 6/10/96
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:20.04 sec
Dead Time:               0.7%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-JUN-1996 01:54:27.23
Decayed to:              9-JUN-1996 01:54:27.23
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.64*	161858	1.58	1323.45	1315	17	0.5		CS-137	366.
0	1004.78	35	1.43	2009.75	2005	11	46.1			
0	1173.46	28	1.95	2347.19	2338	20	96.7			
0	1273.58	29	1.83	2547.48	2541	18	91.2			
0	1460.86*	15	1.64	2922.20	2913	17	165.1		K-40	0.517

Summary of Nuclide Activity
Sample ID : S96T2445-DUP Acquisition date : 9-JUN-1996 01:54:27

Total number of lines in spectrum	5	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	5	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~5.174E-01~~	~~5.174E-01~~	~~8.543E-01~~	~~165.12~~	BKG
CS-137	30.00Y	1.000	3.659E+02	3.659E+02	0.019E+02	0.51	
		Total Activity :	3.664E+02	3.664E+02			
		Grand Total Activity :	3.664E+02	3.664E+02			

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

Sample ID : S96T2445-DUP Acquisition date : 9-JUN-1996 01:54:27

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4863.	477.59	4.5950E+00
NA-22	48.	1274.53	1.0873E-01
NA-24	6.	1368.55	4.0881E-02
CR-51	3765.	320.08	3.0424E+00
MN-54	37.	834.83	6.6329E-02
CO-56	21.	846.76	5.0660E-02
CO-57	4288.	122.06	2.2666E-01
CO-58	31.	810.78	5.9614E-02
FE-59	14.	1099.25	9.3195E-02
CO-60	23.	1332.50	7.7288E-02
SE-75	4298.	264.66	4.8701E-01
SR-85	2371.	514.01	3.6680E-01
Y-88	3.	1836.06	3.6345E-02
NB-94	42.	871.09	7.3614E-02
ZRNB-95	74.	724.18	1.9097E-01
RU-103	2937.	497.08	4.1928E-01
RURH-106	916.	621.93	5.1873E+00
AG-108m	72.	722.94	9.0603E-02
CD-109	3604.	88.03	6.8809E+00
AG-110M	3452.	657.76	5.5356E-01
SN-113	4293.	391.69	5.9577E-01
TE-123m	4114.	159.00	2.2839E-01
SB-124	937.	602.73	2.5908E-01
SB-125	4949.	427.89	1.4932E+00
TE-125m	3751.	109.27	6.9016E+01
I-131	4005.	364.48	4.3022E-01
CS-134	944.	604.70	2.6131E-01
BA-140	1764.	537.31	1.2929E+00
LA-140	6.	1596.21	4.8344E-02
CEPR-144	4144.	133.51	3.3700E+00
EU-152	10.	1408.01	2.5613E-01
EU-154	48.	1274.51	3.1576E-01
EU-155	3906.	105.31	9.4057E-01
HG-203	4105.	279.20	3.5490E-01
TL-208	4084.	277.36	4.5478E+00
BI-212	52.	727.18	1.0505E+00
PB-212	4780.	238.63	6.3876E-01
BI-214	922.	609.31	5.6636E-01
PB-214	3888.	351.92	1.6725E+00
RA-224	4730.	240.99	7.0547E+00
RA-226	5493.	186.10	6.9408E+00
AC-228	51.	911.21	3.1531E-01
TH-228	3593.	84.37	2.1158E+01
TH-229	3568.	88.47	9.9220E-01
PA-233	3961.	312.17	7.9943E-01
UTH-233	4514.	245.34	2.5834E+02
PA-234M	22.	1001.03	1.0085E-01
TH-234	3284.	63.29	1.3624E+01
U-235	5469.	185.71	4.2090E-01
NP-237	3777.	86.48	2.1157E+00
NP-239	3796.	106.12	8.8098E-01

Sample ID : S96T2445-DUP Acquisition date : 9-JUN-1996 01:54:27

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	4248.	129.30	2.9694E+03
AM-241	3317.	59.54	2.4162E+00
AM-243	3479.	74.67	5.8160E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     9-JUN-1996 03:44:13.96                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9641
Sample ID:               S96T2446-SAM                    Removed by:
Sample Size:             5.00000E-04 L
Dilution Factor:         1.00000E+00                     R

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                             Verified by:
File Number:             dka300:[spec.GEA3]3g3678.cnf
Geometry:                42                              BBrachelor 6/10/96
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:24.25 sec
Dead Time:               0.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-JUN-1996 02:53:01.12
Decayed to:              9-JUN-1996 02:53:01.12
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.63*	195801	1.58	1323.45	1315	17	0.5		CS-137	443.
0	723.21	49	1.80	1446.59	1442	9	55.6			
0	940.13	26	4.75	1880.44	1875	13	93.5			
0	996.28	22	1.56	1992.76	1988	10	89.6			
0	1004.98	39	1.75	2010.17	2004	16	68.0			
0	1274.39	29	1.59	2549.11	2545	13	45.8			
0	1332.72	20	1.36	2665.82	2657	14	71.8			
0	1460.92*	12	2.13	2922.33	2915	17	205.3		K-40	0.412

Summary of Nuclide Activity
Sample ID : S96T2446-SAM Acquisition date : 9-JUN-1996 02:53:01

Total number of lines in spectrum	8	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	7	87.50%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~4.118E-01~~	~~4.118E-01~~	~~8.456E-01~~	~~205.33~~	BKG
CS-137	30.00Y	1.000	4.426E+02	4.426E+02	0.020E+02	0.46	
		Total Activity :	4.430E+02	4.430E+02			
		Grand Total Activity :	4.430E+02	4.430E+02			

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

Sample ID : S96T2446-SAM Acquisition date : 9-JUN-1996 02:53:01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5912.	477.59	5.0662E+00
NA-22	33.	1274.53	8.9612E-02
NA-24	8.	1368.55	4.6805E-02
CR-51	4737.	320.08	3.4125E+00
MN-54	34.	834.83	6.4207E-02
CO-56	34.	846.76	6.4580E-02
CO-57	5147.	122.06	2.4832E-01
CO-58	35.	810.78	6.3395E-02
FE-59	25.	1099.25	1.2233E-01
CO-60	26.	1332.50	8.2996E-02
SE-75	5274.	264.66	5.3946E-01
SR-85	2813.	514.01	3.9951E-01
Y-88	6.	1836.06	5.1400E-02
NB-94	53.	871.09	8.2311E-02
ZRNB-95	94.	724.18	2.1484E-01
RU-103	3577.	497.08	4.6270E-01
RURH-106	1098.	621.93	5.6789E+00
AG-108m	96.	722.94	1.0419E-01
CD-109	4222.	88.03	7.4476E+00
AG-110M	4058.	657.76	6.0015E-01
SN-113	5089.	391.69	6.4866E-01
TE-123m	4930.	159.00	2.5002E-01
SB-124	1040.	602.73	2.7296E-01
SB-125	5993.	427.89	1.6433E+00
TE-125m	4554.	109.27	7.6052E+01
I-131	4881.	364.48	4.7499E-01
CS-134	1067.	604.70	2.7785E-01
BA-140	2057.	537.31	1.3962E+00
LA-140	9.	1596.21	5.9962E-02
CEPR-144	5029.	133.51	3.7126E+00
EU-152	9.	1408.01	2.4060E-01
EU-154	33.	1274.51	2.6019E-01
EU-155	4565.	105.31	1.0169E+00
HG-203	4981.	279.20	3.9095E-01
TL-208	5065.	277.36	5.0643E+00
BI-212	51.	727.18	1.0397E+00
PB-212	5830.	238.63	7.0543E-01
BI-214	1080.	609.31	6.1273E-01
PB-214	4856.	351.92	1.8705E+00
RA-224	5754.	240.99	7.7807E+00
RA-226	6716.	186.10	7.6744E+00
AC-228	41.	911.21	2.8513E-01
TH-228	4322.	84.37	2.3205E+01
TH-229	4226.	88.47	1.0799E+00
PA-233	4606.	312.17	8.6201E-01
UTH-233	5664.	245.34	2.8937E+02
PA-234M	24.	1001.03	1.0689E-01
TH-234	3927.	63.29	1.4898E+01
U-235	6608.	185.71	4.6265E-01
NP-237	4375.	86.48	2.2769E+00
NP-239	4611.	106.12	9.7097E-01

HNF-SD-WM-CP-189, REV.
Sample ID : S96T2446-SAM Acquisition date : 9-JUN-1996 02:53:01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	4868.	129.30	3.1787E+03
AM-241	3837.	59.54	2.5990E+00
AM-243	4097.	74.67	6.3120E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     9-JUN-1996 07:28:13.55                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9641
Sample ID:               S96T2446-DUP
Sample Size:             5.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3681.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:21.08 sec
Dead Time:               0.7%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-JUN-1996 06:36:40.08
Decayed to:              9-JUN-1996 06:36:40.08
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
*****************************************************************************
```

Removed by: Eric Baeche

Verified by: D Bachelor 6/10/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.64*	169275	1.58	1323.46	1316	16	0.5		CS-137	383.
0	1005.76	54	0.85	2011.71	2005	17	44.6			
0	1274.87	46	1.15	2550.08	2545	12	36.0			

Sample ID : S96T2446-DUP Acquisition date : 9-JUN-1996 06:36:40

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
CS-137	30.00Y	1.000	3.827E+02	3.827E+02	0.019E+02	0.49	
		Total Activity :	3.827E+02	3.827E+02			
		Grand Total Activity :	3.827E+02	3.827E+02			

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

Sample ID : S96T2446-DUP Acquisition date : 9-JUN-1996 06:36:40

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5333.	477.59	4.8115E+00
NA-22	52.	1274.53	1.1296E-01
NA-24	6.	1368.55	4.0210E-02
K-40	115.	1460.75	1.7586E+00
CR-51	3866.	320.08	3.0828E+00
MN-54	42.	834.83	7.0706E-02
CO-56	34.	846.76	6.4802E-02
CO-57	4455.	122.06	2.3101E-01
CO-58	45.	810.78	7.1667E-02
FE-59	20.	1099.25	1.0846E-01
CO-60	24.	1332.50	7.9395E-02
SE-75	4431.	264.66	4.9445E-01
SR-85	2582.	514.01	3.8281E-01
Y-88	4.	1836.06	4.1968E-02
NB-94	52.	871.09	8.1878E-02
ZRNB-95	100.	724.18	2.2140E-01
RU-103	3108.	497.08	4.3129E-01
RURH-106	895.	621.93	5.1262E+00
AG-108m	101.	722.94	1.0697E-01
CD-109	3783.	88.03	7.0495E+00
AG-110M	3548.	657.76	5.6116E-01
SN-113	4407.	391.69	6.0362E-01
TE-123m	4372.	159.00	2.3545E-01
SB-124	956.	602.73	2.6169E-01
SB-125	5157.	427.89	1.5243E+00
TE-125m	3971.	109.27	7.1017E+01
I-131	4240.	364.48	4.4268E-01
CS-134	998.	604.70	2.6868E-01
BA-140	1860.	537.31	1.3277E+00
LA-140	8.	1596.21	5.6274E-02
CEPR-144	4339.	133.51	3.4483E+00
EU-152	6.	1408.01	1.9783E-01
EU-154	52.	1274.51	3.2817E-01
EU-155	4065.	105.31	9.5952E-01
HG-203	4253.	279.20	3.6124E-01
TL-208	4308.	277.36	4.6706E+00
BI-212	58.	727.18	1.1147E+00
PB-212	5193.	238.63	6.6572E-01
BI-214	961.	609.31	5.7813E-01
PB-214	4095.	351.92	1.7167E+00
RA-224	5024.	240.99	7.2705E+00
RA-226	5725.	186.10	7.0853E+00
AC-228	41.	911.21	2.8364E-01
TH-228	3813.	84.37	2.1797E+01
TH-229	3746.	88.47	1.0167E+00
PA-233	3990.	312.17	8.0233E-01
UTH-233	4935.	245.34	2.7011E+02
PA-234M	21.	1001.03	9.8492E-02
TH-234	3425.	63.29	1.3914E+01
U-235	5716.	185.71	4.3029E-01
NP-237	3893.	86.48	2.1478E+00

Sample ID : S96T2446-DUP Acquisition date : 9-JUN-1996 06:36:40

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	4037.	106.12	9.0855E-01
PU-239	4389.	129.30	3.0183E+03
AM-241	3373.	59.54	2.4367E+00
AM-243	3654.	74.67	5.9605E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     9-JUN-1996 08:29:00.48                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                9641
Sample ID:                 S96T2447-SAM
Sample Size:               5.00000E-04 L
Dilution Factor:           1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:               dka300:[spec.GEA3]3g3682.cnf
Geometry:                  42
Count Time:                0 00:50:00.00 sec
Real Time:                 0 00:50:20.91 sec
Dead Time:                 0.7%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:         9-JUN-1996 07:38:01.81
Decayed to:                9-JUN-1996 07:38:01.81
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
*****************************************************************************
```

Removed by: Em Barela

Verified by: RJ Bachelor 6/10/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.63*	168083	1.59	1323.44	1315	17	0.5		CS-137	380.
0	723.58	49	2.53	1447.33	1441	12	70.5			
0	1173.58	27	1.52	2347.43	2343	9	43.4			
0	1274.56	31	1.51	2549.46	2544	12	52.2			
0	1460.72*	13	2.01	2921.93	2915	17	189.8		K-40	0.447

Summary of Nuclide Activity
Sample ID : S96T2447-SAM Acquisition date : 9-JUN-1996 07:38:01

Total number of lines in spectrum	5	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	5	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~4.470E-01~~	~~4.470E-01~~	~~8.485E-01~~	~~189.82~~	BKG
CS-137	30.00Y	1.000	3.800E+02	3.800E+02	0.019E+02	0.50	
		Total Activity :	3.804E+02	3.804E+02			
		Grand Total Activity :	3.804E+02	3.804E+02			

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

Minimum Detectable Activity Report

Sample ID : S96T2447-SAM

Acquisition date : 9-JUN-1996 07:38:01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5130.	477.59	4.7191E+00
NA-22	40.	1274.53	9.9285E-02
NA-24	7.	1368.55	4.5123E-02
CR-51	3928.	320.08	3.1077E+00
MN-54	37.	834.83	6.6363E-02
CO-56	36.	846.76	6.6882E-02
CO-57	4415.	122.06	2.2999E-01
CO-58	33.	810.78	6.1248E-02
FE-59	25.	1099.25	1.2284E-01
CO-60	16.	1332.50	6.4178E-02
SE-75	4560.	264.66	5.0160E-01
SR-85	2502.	514.01	3.7679E-01
Y-88	1.	1836.06	2.0984E-02
NB-94	51.	871.09	8.0905E-02
ZRNB-95	96.	724.18	2.1659E-01
RU-103	3168.	497.08	4.3548E-01
RURH-106	880.	621.93	5.0851E+00
AG-108m	100.	722.94	1.0668E-01
CD-109	3705.	88.03	6.9766E+00
AG-110M	3509.	657.76	5.5810E-01
SN-113	4327.	391.69	5.9812E-01
TE-123m	4233.	159.00	2.3167E-01
SB-124	996.	602.73	2.6720E-01
SB-125	5095.	427.89	1.5151E+00
TE-125m	4038.	109.27	7.1611E+01
I-131	4154.	364.48	4.3816E-01
CS-134	971.	604.70	2.6504E-01
BA-140	1829.	537.31	1.3165E+00
LA-140	6.	1596.21	4.6559E-02
CEPR-144	4437.	133.51	3.4873E+00
EU-152	6.	1408.01	1.9503E-01
EU-154	40.	1274.51	2.8845E-01
EU-155	3998.	105.31	9.5167E-01
HG-203	4273.	279.20	3.6210E-01
TL-208	4394.	277.36	4.7172E+00
BI-212	50.	727.18	1.0336E+00
PB-212	5017.	238.63	6.5439E-01
BI-214	977.	609.31	5.8289E-01
PB-214	4000.	351.92	1.6966E+00
RA-224	4905.	240.99	7.1840E+00
RA-226	5752.	186.10	7.1021E+00
AC-228	43.	911.21	2.8949E-01
TH-228	3755.	84.37	2.1631E+01
TH-229	3737.	88.47	1.0155E+00
PA-233	4038.	312.17	8.0717E-01
UTH-233	4909.	245.34	2.6940E+02
PA-234M	29.	1001.03	1.1628E-01
TH-234	3443.	63.29	1.3951E+01
U-235	5659.	185.71	4.2814E-01
NP-237	3769.	86.48	2.1132E+00
NP-239	3959.	106.12	8.9967E-01

Sample ID : S96T2447-SAM Acquisition date : 9-JUN-1996 07:38:01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	4357.	129.30	3.0071E+03
AM-241	3423.	59.54	2.4548E+00
AM-243	3678.	74.67	5.9806E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room     9-JUN-1996 09:22:44.33                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9641
Sample ID:               S96T2447-DUP
Sample Size:             5.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3683.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:24.89 sec
Dead Time:               0.8%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       9-JUN-1996 08:31:39.76
Decayed to:              9-JUN-1996 08:31:39.76
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
*****************************************************************************
```

Removed by: Em Bo

Em Bo

Verified by: B Machelor 6/10/96

Post-NID Peak Search Report

I	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.62*	200441	1.59	1323.41	1315	17	0.5		CS-137	453.
0	724.19	67	1.74	1448.55	1442	15	54.3			
0	1005.37	41	1.57	2010.93	2006	10	50.9			
0	1274.49	55	2.34	2549.32	2543	15	34.8			
0	1460.78*	22	1.57	2922.05	2914	17	127.2		K-40	0.781

Sample ID : S96T2447-DUP Acquisition date : 9-JUN-1996 08:31:39

Total number of lines in spectrum	5	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	5	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~7.814E-01~~	~~7.814E-01~~	~~9.941E-01~~	~~127.22~~	~~BKG~~
CS-137	30.00Y	1.000	4.531E+02	4.531E+02	0.021E+02	0.46	
		Total Activity :	4.539E+02	4.539E+02			
		Grand Total Activity :	4.539E+02	4.539E+02			

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

Sample ID : S96T2447-DUP Acquisition date : 9-JUN-1996 08:31:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5967.	477.59	5.0898E+00
NA-22	59.	1274.53	1.2055E-01
NA-24	1.	1368.55	1.6938E-02
CR-51	4851.	320.08	3.4533E+00
MN-54	37.	834.83	6.6888E-02
CO-56	49.	846.76	7.7284E-02
CO-57	5330.	122.06	2.5269E-01
CO-58	44.	810.78	7.0980E-02
FE-59	24.	1099.25	1.2021E-01
CO-60	19.	1332.50	7.0949E-02
SE-75	5485.	264.66	5.5013E-01
SR-85	2958.	514.01	4.0969E-01
Y-88	3.	1836.06	3.6345E-02
NB-94	55.	871.09	8.4487E-02
ZRNB-95	94.	724.18	2.1478E-01
RU-103	3738.	497.08	4.7301E-01
RURH-106	1100.	621.93	5.6843E+00
AG-108m	87.	722.94	9.9435E-02
CD-109	4575.	88.03	7.7522E+00
AG-110M	4368.	657.76	6.2265E-01
SN-113	5330.	391.69	6.6382E-01
TE-123m	5239.	159.00	2.5774E-01
SB-124	1154.	602.73	2.8756E-01
SB-125	6229.	427.89	1.6753E+00
TE-125m	4727.	109.27	7.7477E+01
I-131	4799.	364.48	4.7095E-01
CS-134	1098.	604.70	2.8183E-01
BA-140	2145.	537.31	1.4257E+00
LA-140	3.	1596.21	3.4185E-02
CEPR-144	5226.	133.51	3.7843E+00
EU-152	5.	1408.01	1.8189E-01
EU-154	59.	1274.51	3.5012E-01
EU-155	4780.	105.31	1.0405E+00
HG-203	5070.	279.20	3.9442E-01
TL-208	5144.	277.36	5.1037E+00
BI-212	60.	727.18	1.1339E+00
PB-212	5852.	238.63	7.0673E-01
BI-214	1175.	609.31	6.3928E-01
PB-214	5017.	351.92	1.9015E+00
RA-224	5796.	240.99	7.8094E+00
RA-226	7033.	186.10	7.8533E+00
AC-228	46.	911.21	2.9934E-01
TH-228	4362.	84.37	2.3313E+01
TH-229	4509.	88.47	1.1155E+00
PA-233	4789.	312.17	8.7905E-01
UTH-233	5559.	245.34	2.8668E+02
PA-234M	29.	1001.03	1.1604E-01
TH-234	4004.	63.29	1.5043E+01
U-235	6922.	185.71	4.7352E-01
NP-237	4527.	86.48	2.3161E+00
NP-239	4713.	106.12	9.8165E-01

Sample ID : S96T2447-DUP Acquisition date : 9-JUN-1996 08:31:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	5115.	129.30	3.2585E+03
AM-241	4054.	59.54	2.6715E+00
AM-243	4199.	74.67	6.3900E-01

LABCORE Data Entry Template for Worklist# 9803

Analyst: KRM **Instrument:** GEA00 1 **Book#** 54856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-102. 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	S96T002448	0	F	@GEA-02	SOLID	96000536	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T002448	0	F	@GEA-02	SOLID		
5	SAMPLE	S96T002449	0	F	@GEA-02	SOLID	96000536	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T002449	0	F	@GEA-02	SOLID		
7	SAMPLE	S96T002518	0	F	@GEA-02	SOLID	96000536	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
8	DUP	S96T002518	0	F	@GEA-02	SOLID		

Final page for worklist # 9803

6-11-96
Analyst Signature **Date**

6/13/96
Analyst Signature **Date**

Data Entry Comments:

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

worklistrad Version 0.0 04/18/96
06/13/96 15:16

LABCORE Completed RadChem Report for Worklist#: 9803

Analyst: krm **Instrument:** GEA01 **Book#** 54856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-102. 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	2.434e-02		2.55e-02	104.766	% Recovery
1	STD		0		@GEA-02	CO60-02E	SOLID	1		1.31	1.310	% Ct Error
1	STD		0		@GEA-02	CS13702	SOLID	2.217e-02		2.23e-02	100.586	% Recovery
1	STD		0		@GEA-02	CS13702E	SOLID	1		1.67	1.670	% Ct Error
2	BLNK-PREP		0		@GEA-02	CO60-02	SOLID	1		<9.26e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	CS13702	SOLID	1		<7.93e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15402	SOLID	1		<2.95e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15502	SOLID	1		<2.45e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	AM24102	SOLID	1		<1.27e-1		uCi/g
3	SAMPLE	S96T002448	0	F	@GEA-02	CO60-02	SOLID	N/A	<	1.206e-01	121.0e-003	uCi/g
3	SAMPLE	S96T002448	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002448	0	F	@GEA-02	CS13702	SOLID	N/A		1.717e+02	0.0e+000	uCi/g
3	SAMPLE	S96T002448	0	F	@GEA-02	CS13702E	SOLID	N/A		0.790	0.0e+000	% Ct. Error
3	SAMPLE	S96T002448	0	F	@GEA-02	EU15402	SOLID	N/A	<	4.262e-01	426.0e-003	uCi/g
3	SAMPLE	S96T002448	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002448	0	F	@GEA-02	EU15502	SOLID	N/A	<	5.250e-01	525.0e-003	uCi/g
3	SAMPLE	S96T002448	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002448	0	F	@GEA-02	AM24102	SOLID	N/A	<	4.501e+02	450.1e+000	uCi/g
3	SAMPLE	S96T002448	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
4	DUP	S96T002448	0	F	@GEA-02	CO60-02	SOLID	<1.21e-1		<1.00e-1		RPD
4	DUP	S96T002448	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002448	0	F	@GEA-02	CS13702	SOLID	1.72e+02		1.73e+02	0.580	RPD
4	DUP	S96T002448	0	F	@GEA-02	CS13702E	SOLID	1		0.790	0.790	% Ct Error
4	DUP	S96T002448	0	F	@GEA-02	EU15402	SOLID	<4.26e-1		<4.35e-1		RPD
4	DUP	S96T002448	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002448	0	F	@GEA-02	EU15502	SOLID	<5.25e-1		<5.24e-1		RPD
4	DUP	S96T002448	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002448	0	F	@GEA-02	AM24102	SOLID	<4.50e2		<3.65e2		RPD
4	DUP	S96T002448	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
5	SAMPLE	S96T002449	0	F	@GEA-02	CO60-02	SOLID	N/A	<	1.250e-01	125.0e-003	uCi/g
5	SAMPLE	S96T002449	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002449	0	F	@GEA-02	CS13702	SOLID	N/A		2.138e+02	0.0e+000	uCi/g
5	SAMPLE	S96T002449	0	F	@GEA-02	CS13702E	SOLID	N/A		0.730	0.0e+000	% Ct. Error
5	SAMPLE	S96T002449	0	F	@GEA-02	EU15402	SOLID	N/A	<	4.366e-01	437.0e-003	uCi/g
5	SAMPLE	S96T002449	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002449	0	F	@GEA-02	EU15502	SOLID	N/A	<	5.840e-01	584.0e-003	uCi/g
5	SAMPLE	S96T002449	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002449	0	F	@GEA-02	AM24102	SOLID	N/A	<	3.241e-01	324.0e-003	uCi/g
5	SAMPLE	S96T002449	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	DUP	S96T002449	0	F	@GEA-02	CO60-02	SOLID	<1.25e-1		<1.01e-1		RPD
5	DUP	S96T002449	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#: 9803

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
6	DUP	S96T002449	0	F	@GEA-02	CS13702	SOLID	2.14e+02		2.14e+02	0.000	RPD
6	DUP	S96T002449	0	F	@GEA-02	CS13702E	SOLID	1		0.750	0.750	% Ct Error
6	DUP	S96T002449	0	F	@GEA-02	EU15402	SOLID	<4.37e-1		<4.45e-1		RPD
6	DUP	S96T002449	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002449	0	F	@GEA-02	EU15502	SOLID	<5.84e-1		<5.90e-1		RPD
6	DUP	S96T002449	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002449	0	F	@GEA-02	AM24102	SOLID	<3.24e-1		<3.30e-1		RPD
6	DUP	S96T002449	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
7	SAMPLE	S96T002518	0	F	@GEA-02	CO60-02	SOLID	N/A	<	5.069e-02	506.9e-004	uCi/g
7	SAMPLE	S96T002518	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002518	0	F	@GEA-02	CS13702	SOLID	N/A		1.035e+02	0.0e+000	uCi/g
7	SAMPLE	S96T002518	0	F	@GEA-02	CS13702E	SOLID	N/A		0.730	0.0e+000	% Ct. Error
7	SAMPLE	S96T002518	0	F	@GEA-02	EU15402	SOLID	N/A	<	2.102e-01	210.0e-003	uCi/g
7	SAMPLE	S96T002518	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002518	0	F	@GEA-02	EU15502	SOLID	N/A	<	2.810e-01	281.0e-003	uCi/g
7	SAMPLE	S96T002518	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002518	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.521e-01	152.0e-003	uCi/g
7	SAMPLE	S96T002518	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
8	DUP	S96T002518	0	F	@GEA-02	CO60-02	SOLID	<5.07e-2		<4.84e-2		RPD
8	DUP	S96T002518	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002518	0	F	@GEA-02	CS13702	SOLID	1.04e+02		1.06e+02	1.905	RPD
8	DUP	S96T002518	0	F	@GEA-02	CS13702E	SOLID	1		0.680	0.680	% Ct Error
8	DUP	S96T002518	0	F	@GEA-02	EU15402	SOLID	<2.10e-1		<1.80e-1		RPD
8	DUP	S96T002518	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002518	0	F	@GEA-02	EU15502	SOLID	<2.81e-1		<2.60e-1		RPD
8	DUP	S96T002518	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002518	0	F	@GEA-02	AM24102	SOLID	<1.52e-1		<1.44e-1		RPD
8	DUP	S96T002518	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error

Comments Section:

Comments for sample# S96T002448 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002449 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002518 **and test** @GEA-02 .
DL=0 => n/a.

Final page for worklist# 9803

Analyst Signature **Date**

Analyst Signature **Date**

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

LABCORE Completed RadChem Report for Worklist#: 9803

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

Reviewer Signature: [signature] Date: 6/14/96

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

****
* 222-S Laboratory Counting Room 11-JUN-1996 11:53:33.37 *
****

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

Worklist #:	9803
Sample ID:	WL9803-STD
Sample Size:	1.00000E-03 L
Dilution Factor:	1.00000E+00

Removed by: D.H. Milbier

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

Detector ID:	
File Number:	dka300:[spec.GEA1]1g1130.cnf
Geometry:	41
Count Time:	0 00:50:00.00 sec
Real Time:	0 00:50:26.59 sec
Dead Time:	0.9%

Verified by: B Machelor 6/13/96

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

Sample Count Time:	11-JUN-1996 11:02:30.14
Decayed to:	11-JUN-1996 11:02:30.14
Standard Deviations:	2
Analysis Library:	ENVGEA
Analyst:	DM
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	31.74	3452	1.10	64.13	59	10	6.5			
0	36.29	880	0.89	73.22	69	9	19.1			
0	661.46*	18455	1.44	1323.55	1316	14	1.7		CS-137	22.3
0	1172.79	14989	1.82	2346.48	2338	18	1.9		CO-60	25.8
0	1331.97	13273	1.91	2664.97	2655	19	1.9		CO-60	25.3

Sample ID : WL9803-STD Acquisition date : 11-JUN-1996 11:02:30

Total number of lines in spectrum	5	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	3	60.00%

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	2.555E+01	2.555E+01	0.033E+01	1.31	
CS-137	30.00Y	1.000	2.234E+01	2.234E+01	0.037E+01	1.67	
		Total Activity :	4.790E+01	4.790E+01			
		Grand Total Activity :	4.790E+01	4.790E+01			

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

Sample ID : WL9803-STD
Acquisition date : 11-JUN-1996 11:02:30

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1147.	477.59	1.1598E+00
NA-22	97.	1274.53	8.4307E-02
NA-24	39.	1368.55	5.7973E-02
K-40	533.	1460.75	2.0598E+00
CR-51	1191.	320.08	8.4804E-01
MN-54	779.	834.83	1.6581E-01
CO-56	822.	846.76	1.7260E-01
CO-57	1409.	122.06	5.6594E-02
CO-58	767.	810.78	1.6114E-01
FE-59	732.	1099.25	3.6258E-01
SE-75	1220.	264.66	1.2626E-01
SR-85	937.	514.01	1.2096E-01
Y-88	18.	1836.06	4.8359E-02
NB-94	852.	871.09	1.8031E-01
ZRNB-95	652.	724.18	3.0492E-01
RU-103	947.	497.08	1.2439E-01
RURH-106	688.	621.93	2.3955E+00
AG-108m	646.	722.94	1.4577E-01
CD-109	1300.	88.03	1.1685E+00
AG-110M	1292.	657.76	1.8126E-01
SN-113	1116.	391.69	1.5439E-01
TE-123m	1437.	159.00	6.6804E-02
SB-124	744.	602.73	1.2272E-01
SB-125	1230.	427.89	3.8211E-01
TE-125m	1353.	109.27	1.6184E+01
I-131	1170.	364.48	1.1701E-01
CS-134	714.	604.70	1.2082E-01
BA-140	781.	537.31	4.5328E-01
LA-140	25.	1596.21	5.3207E-02
CEPR-144	1444.	133.51	9.2347E-01
EU-152	45.	1408.01	2.9818E-01
EU-154	97.	1274.51	2.4509E-01
EU-155	1317.	105.31	2.0397E-01
HG-203	1282.	279.20	9.7113E-02
TL-208	1312.	277.36	1.2609E+00
BI-212	691.	727.18	2.0703E+00
PB-212	1447.	238.63	1.7015E-01
BI-214	892.	609.31	2.9617E-01
PB-214	1324.	351.92	4.8925E-01
RA-224	1421.	240.99	1.8716E+00
RA-226	1669.	186.10	1.9055E+00
AC-228	1060.	911.21	7.8665E-01
TH-228	1338.	84.37	3.3548E+00
TH-229	1277.	88.47	1.6937E-01
PA-233	1251.	312.17	2.2225E-01
UTH-233	1373.	245.34	6.8979E+01
PA-234M	834.	1001.03	3.4170E-01
TH-234	1180.	63.29	8.7685E-01
U-235	1667.	185.71	1.1575E-01
NP-237	1328.	86.48	3.4259E-01
NP-239	1326.	106.12	1.9634E-01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1464.	129.30	7.9320E+02
AM-241	1084.	59.54	1.0609E-01
AM-243	1325.	74.67	6.9517E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room    11-JUN-1996 12:46:30.87                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                9803
Sample ID:                 WL9803-~~STD~~ Blk
Sample Size:               2.50000E-04 L
Dilution Factor:           1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:               dka300:[spec.GEA1]1g1131.cnf
Geometry:                  41
Count Time:                0 00:50:00.00 sec
Real Time:                 0 00:50:11.02 sec
Dead Time:                 0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:         11-JUN-1996 11:55:42.24
Decayed to:                11-JUN-1996 11:55:42.24
Standard Deviations:       2
Analysis Library:          ENVGEA
Analyst:                   DM
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
*****************************************************************************
```

Removed by: D H Nibria

Verified by: B Bachelor 6/13/96

Post-NID Peak Search Report

Id	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	16.33	107	1.50	33.31	29	8	72.2			
0	351.66*	74	1.19	703.91	698	12	95.5			
0	609.08*	66	1.68	1218.79	1211	14	75.8			
0	661.56*	32	1.71	1323.76	1320	9	105.6		CS-137	0.154
0	934.34	27	1.78	1869.43	1865	10	91.3			
0	1376.60*	17	1.08	2754.27	2748	13	108.1			
0	1764.08*	21	1.71	3529.67	3520	16	101.2			

Summary of Nuclide Activity
Sample ID : WL9803-STD Acquisition date : 11-JUN-1996 11:55:42

Total number of lines in spectrum	7	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	4	57.14%

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~~	~~1.538E-01~~	~~1.538E-01~~	~~1.623E-01~~	~~105.55~~	BKG
			---	---			
Total Activity :			1.538E-01	1.538E-01			
Grand Total Activity :			1.538E-01	1.538E-01			

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

Minimum Detectable Activity Report
Sample ID : WL9803-STD Acquisition date : 11-JUN-1996 11:55:42

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	113.	477.59	1.4534E+00
NA-22	33.	1274.53	1.9671E-01
NA-24	24.	1368.55	1.7922E-01
K-40	575.	1460.75	8.5616E+00
CR-51	243.	320.08	1.5319E+00
MN-54	54.	834.83	1.7403E-01
CO-56	45.	846.76	1.6176E-01
CO-57	514.	122.06	1.3671E-01
CO-58	57.	810.78	1.7525E-01
FE-59	41.	1099.25	3.4403E-01
CO-60	26.	1332.50	1.7954E-01
SE-75	262.	264.66	2.3407E-01
SR-85	116.	514.01	1.7051E-01
Y-88	5.	1836.06	1.0540E-01
NB-94	59.	871.09	1.8941E-01
ZRNB-95	76.	724.18	4.1538E-01
RU-103	121.	497.08	1.7778E-01
RURH-106	71.	621.93	3.0846E+00
AG-108m	72.	722.94	1.9432E-01
CD-109	416.	88.03	2.6422E+00
AG-110M	73.	657.76	1.7197E-01
SN-113	145.	391.69	2.2262E-01
TE-123m	515.	159.00	1.6001E-01
SB-124	76.	602.73	1.5696E-01
SB-125	147.	427.89	5.2892E-01
TE-125m	505.	109.27	3.9534E+01
I-131	168.	364.48	1.7722E-01
CS-134	75.	604.70	1.5695E-01
BA-140	84.	537.31	5.9331E-01
LA-140	8.	1596.21	1.2151E-01
CEPR-144	463.	133.51	2.0919E+00
EU-152	26.	1408.01	9.0605E-01
EU-154	33.	1274.51	5.7162E-01
EU-155	445.	105.31	4.7427E-01
HG-203	268.	279.20	1.7742E-01
TL-208	276.	277.36	2.3139E+00
BI-212	96.	727.18	3.0842E+00
PB-212	440.	238.63	3.7529E-01
BI-214	245.	609.31	6.2072E-01
PB-214	322.	351.92	9.6292E-01
RA-224	364.	240.99	3.7917E+00
RA-226	492.	186.10	4.1363E+00
AC-228	135.	911.21	1.1217E+00
TH-228	475.	84.37	7.9928E+00
TH-229	424.	88.47	3.9033E-01
PA-233	201.	312.17	3.5637E-01
UTH-233	311.	245.34	1.3135E+02
PA-234M	49.	1001.03	3.3181E-01
TH-234	367.	63.29	1.9549E+00
U-235	487.	185.71	2.5015E-01
NP-237	431.	86.48	7.8050E-01

HNF-SD-WM-DP-189, REV.
Sample ID : WL9803-STD Acquisition date : 11-JUN-1996 11:55:42

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	443.	106.12	4.5393E-01
PU-239	527.	129.30	1.9034E+03
AM-241	367.	59.54	2.4712E-01
AM-243	551.	74.67	1.7939E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    11-JUN-1996 13:53:35.97                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9803
Sample ID:               S96T2448-SAM                    Removed by:
Sample Size:             2.50000E-04 L
Dilution Factor:         1.00000E+00                     D. H. Milicia

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                             Verified by:
File Number:             dka300:[spec.GEA1]1g1132.cnf
Geometry:                41                              Bachelor 6/13/96
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:28.65 sec
Dead Time:               0.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-JUN-1996 13:02:28.01
Decayed to:              11-JUN-1996 13:02:28.01
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
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	21.76	385	1.19	44.16	41	7	43.4			
0	31.82	11833	1.08	64.28	60	10	3.1			
0	36.35	3178	0.98	73.35	69	9	7.8			
0	42.38	209	0.76	85.41	83	7	78.9			
0	59.27	315	1.06	119.19	116	7	51.4		AM-241	0.873
0	122.90	510	1.00	246.42	242	9	39.6		CO-57	0.661
0	661.50*	68817	1.44	1323.63	1316	15	0.8		CS-137	333.
0	1274.44	46	2.24	2549.86	2544	17	68.6			

Summary of Nuclide Activity
Sample ID : S96T2448-SAM Acquisition date : 11-JUN-1996 13:02:28

Total number of lines in spectrum	8	
Number of unidentified lines	4	
Number of lines tentatively identified by NID	4	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~6.609E-01~~	~~6.609E-01~~	~~2.614E-01~~	~~39.55~~	ISVEa
CS-137	30.00Y	1.000	3.333E+02	3.333E+02	0.026E+02	0.79	
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~8.731E-01~~	~~8.731E-01~~	~~4.489E-01~~	~~51.41~~	BKG
		Total Activity :	3.348E+02	3.348E+02			
		Grand Total Activity :	3.348E+02	3.348E+02			

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

Minimum Detectable Activity Report
Sample ID : S96T2448-SAM Acquisition date : 11-JUN-1996 13:02:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2265.	477.59	6.5185E+00
NA-22	69.	1274.53	2.8439E-01
NA-24	15.	1368.55	1.4442E-01
K-40	566.	1460.75	8.4924E+00
CR-51	1915.	320.08	4.3023E+00
MN-54	72.	834.83	2.0207E-01
CO-56	56.	846.76	1.8041E-01
CO-58	65.	810.78	1.8696E-01
FE-59	50.	1099.25	3.7871E-01
CO-60	43.	1332.50	2.3384E-01
SE-75	1926.	264.66	6.3462E-01
SR-85	1207.	514.01	5.4913E-01
Y-88	8.	1836.06	1.2788E-01
NB-94	78.	871.09	2.1793E-01
ZRNB-95	105.	724.18	4.9023E-01
RU-103	1371.	497.08	5.9859E-01
RURH-106	382.	621.93	7.1384E+00
AG-108m	104.	722.94	2.3350E-01
CD-109	1932.	88.03	5.6968E+00
AG-110M	2407.	657.76	9.8972E-01
SN-113	2039.	391.69	8.3461E-01
TE-123m	1953.	159.00	3.1157E-01
SB-124	408.	602.73	3.6362E-01
SB-125	2322.	427.89	2.1003E+00
TE-125m	2005.	109.27	7.8798E+01
I-131	1929.	364.48	6.0092E-01
CS-134	392.	604.70	3.5816E-01
BA-140	810.	537.31	1.8470E+00
LA-140	13.	1596.21	1.5316E-01
CEPR-144	2083.	133.51	4.4375E+00
EU-152	32.	1408.01	9.9975E-01
EU-154	69.	1274.51	8.2659E-01
EU-155	2051.	105.31	1.0182E+00
HG-203	1897.	279.20	4.7249E-01
TL-208	1869.	277.36	6.0201E+00
BI-212	98.	727.18	3.1134E+00
PB-212	2189.	238.63	8.3704E-01
BI-214	599.	609.31	9.7118E-01
PB-214	2086.	351.92	2.4573E+00
RA-224	2121.	240.99	9.1465E+00
RA-226	2841.	186.10	9.9446E+00
AC-228	147.	911.21	1.1737E+00
TH-228	1982.	84.37	1.6333E+01
TH-229	1879.	88.47	8.2192E-01
PA-233	1818.	312.17	1.0715E+00
UTH-233	1989.	245.34	3.3213E+02
PA-234M	77.	1001.03	4.1469E-01
TH-234	1849.	63.29	4.3910E+00
U-235	2813.	185.71	6.0141E-01
NP-237	2105.	86.48	1.7258E+00
NP-239	2065.	106.12	9.8012E-01

WHC-SD-WM-DP-189, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	2106.	129.30	3.8051E+03
AM-243	2055.	74.67	3.4629E-01

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* 222-S Laboratory Counting Room 11-JUN-1996 14:46:18.28 *
****

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

Worklist #: 9803
Sample ID: S96T2448-DUP
Sample Size: 2.50000E-04 L
Dilution Factor: 1.00000E+00

Removed by: D. H. Milicia

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

Detector ID:
File Number: dka300:[spec.GEA1]lg1133.cnf
Geometry: 41
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:28.82 sec
Dead Time: 1.0%

Verified by: [illegible] 6/13/96

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

Sample Count Time: 11-JUN-1996 13:55:12.27
Decayed to: 11-JUN-1996 13:55:12.27
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: DM
Background Subtract: DKA300:[SPEC.GEA1]lGBACK

>>>>>>>>>> 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	21.76	399	1.15	44.16	41	7	40.8			
0	31.79	10573	1.06	64.23	60	8	3.1			
0	36.31	3311	0.89	73.27	69	9	7.5			
0	42.33	398	1.14	85.31	81	9	50.1			
0	59.32	252	0.78	119.28	117	6	55.8		AM-241	0.699
0	86.72*	235	1.11	174.08	172	6	61.2		NP-237	1.90
									CD-109	6.56
0	122.88	283	1.11	246.39	244	6	50.9		CO-57	0.367
0	661.50*	68437	1.44	1323.63	1316	16	0.8		CS-137	331.
0	1273.92	46	0.92	2548.81	2541	14	59.9			

Summary of Nuclide Activity
Sample ID : S96T2448-DUP Acquisition date : 11-JUN-1996 13:55:12

Total number of lines in spectrum	9	
Number of unidentified lines	4	
Number of lines tentatively identified by NID	5	55.56%

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~~	~~3.668E-01~~	~~3.669E-01~~	~~1.867E-01~~	~~50.90~~	BKG
~~GD-109~~	~~462.90D~~	~~1.000~~	~~6.563E+00~~	~~6.563E+00~~	~~4.013E+00~~	~~61.15~~	BKG
CS-137	30.00Y	1.000	3.314E+02	3.314E+02	0.026E+02	0.79	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~1.904E+00~~	~~1.904E+00~~	~~1.165E+00~~	~~61.15~~	BKG
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~6.988E-01~~	~~6.988E-01~~	~~3.902E-01~~	~~55.84~~	BKG
			---	---			
	Total Activity :		3.410E+02	3.410E+02			

Grand Total Activity : 3.410E+02 3.410E+02

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

Sample ID : S96T2448-DUP Acquisition date : 11-JUN-1996 13:55:12

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2237.	477.59	6.4786E+00
NA-22	70.	1274.53	2.8654E-01
NA-24	13.	1368.55	1.3236E-01
K-40	549.	1460.75	8.3675E+00
CR-51	1854.	320.08	4.2337E+00
MN-54	65.	834.83	1.9199E-01
CO-56	57.	846.76	1.8114E-01
CO-58	69.	810.78	1.9303E-01
FE-59	49.	1099.25	3.7492E-01
CO-60	29.	1332.50	1.9232E-01
SE-75	1936.	264.66	6.3631E-01
SR-85	1158.	514.01	5.3785E-01
Y-88	7.	1836.06	1.2319E-01
NB-94	68.	871.09	2.0418E-01
ZRNB-95	122.	724.18	5.2740E-01
RU-103	1369.	497.08	5.9816E-01
RURH-106	425.	621.93	7.5275E+00
AG-108m	122.	722.94	2.5309E-01
AG-110M	2390.	657.76	9.8634E-01
SN-113	2020.	391.69	8.3067E-01
TE-123m	2059.	159.00	3.1984E-01
SB-124	429.	602.73	3.7263E-01
SB-125	2317.	427.89	2.0980E+00
TE-125m	1994.	109.27	7.8588E+01
I-131	1957.	364.48	6.0518E-01
CS-134	423.	604.70	3.7185E-01
BA-140	846.	537.31	1.8872E+00
LA-140	11.	1596.21	1.4249E-01
CEPR-144	2048.	133.51	4.4000E+00
EU-152	25.	1408.01	8.9086E-01
EU-154	70.	1274.51	8.3260E-01
EU-155	1986.	105.31	1.0021E+00
HG-203	1922.	279.20	4.7554E-01
TL-208	1902.	277.36	6.0735E+00
BI-212	96.	727.18	3.0821E+00
PB-212	2091.	238.63	8.1815E-01
BI-214	569.	609.31	9.4647E-01
PB-214	2094.	351.92	2.4619E+00
RA-224	2003.	240.99	8.8904E+00
RA-226	2829.	186.10	9.9224E+00
AC-228	115.	911.21	1.0370E+00
TH-228	1955.	84.37	1.6220E+01
TH-229	1942.	88.47	8.3568E-01
PA-233	1868.	312.17	1.0862E+00
UTH-233	1983.	245.34	3.3160E+02
PA-234M	45.	1001.03	3.1718E-01
TH-234	1781.	63.29	4.3094E+00
U-235	2797.	185.71	5.9974E-01
NP-239	2018.	106.12	9.6889E-01
PU-239	2020.	129.30	3.7261E+03
AM-243	1922.	74.67	3.3489E-01

HNF-SD-WM-TP-189, REV.

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* 222-S Laboratory Counting Room    11-JUN-1996 15:44:09.56                *
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>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<

Worklist #:	9803
Sample ID:	S96T2449-SAM
Sample Size:	2.50000E-04 L
Dilution Factor:	1.00000E+00

Removed by: D.H. Milicia

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

Detector ID:	
File Number:	dka300:[spec.GEA1]1g1134.cnf
Geometry:	41
Count Time:	0 00:50:00.00 sec
Real Time:	0 00:50:32.14 sec
Dead Time:	1.1%

Verified by: Bachelor 6/13/96

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

Sample Count Time:	11-JUN-1996 14:52:49.99
Decayed to:	11-JUN-1996 14:52:49.99
Standard Deviations:	2
Analysis Library:	ENVGEA
Analyst:	DM
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

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Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.60	307	0.97	43.86	41	7	57.4			
0	31.78	14205	1.10	64.21	59	10	2.7			
0	36.29	4055	0.99	73.23	69	9	6.3			
0	122.72	288	1.49	246.06	242	8	66.3		CO-57	0.373
0	661.50*	80524	1.43	1323.64	1316	15	0.7		CS-137	390.
0	723.64	25	0.90	1447.93	1445	6	87.7			

Sample ID : S96T2449-SAM Acquisition date : 11-JUN-1996 14:52:49

Total number of lines in spectrum	6	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	3	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CO-57~~	~~271.80D~~	~~1.000~~	~~3.729E-01~~	~~3.729E-01~~	~~2.473E-01~~	~~66.31~~	~~BK~~
CS-137	30.00Y	1.000	3.900E+02	3.900E+02	0.028E+02	0.73	
		Total Activity :	3.903E+02	3.904E+02			
		Grand Total Activity :	3.903E+02	3.904E+02			

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

Sample ID : S96T2449-SAM Acquisition date : 11-JUN-1996 14:52:49

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2542.	477.59	6.9060E+00
NA-22	64.	1274.53	2.7421E-01
NA-24	17.	1368.55	1.5346E-01
K-40	592.	1460.75	8.6858E+00
CR-51	2140.	320.08	4.5479E+00
MN-54	61.	834.83	1.8513E-01
CO-56	69.	846.76	2.0041E-01
CO-58	65.	810.78	1.8832E-01
FE-59	48.	1099.25	3.6985E-01
CO-60	41.	1332.50	2.2808E-01
SE-75	2198.	264.66	6.7806E-01
SR-85	1360.	514.01	5.8286E-01
Y-88	10.	1836.06	1.4298E-01
NB-94	59.	871.09	1.8968E-01
ZRNB-95	87.	724.18	4.4553E-01
RU-103	1657.	497.08	6.5805E-01
RURH-106	436.	621.93	7.6251E+00
AG-108m	90.	722.94	2.1789E-01
CD-109	2107.	88.03	5.9494E+00
AG-110M	2793.	657.76	1.0663E+00
SN-113	2443.	391.69	9.1367E-01
TE-123m	2286.	159.00	3.3707E-01
SB-124	472.	602.73	3.9082E-01
SB-125	2763.	427.89	2.2908E+00
TE-125m	2185.	109.27	8.2257E+01
I-131	2278.	364.48	6.5305E-01
CS-134	499.	604.70	4.0377E-01
BA-140	984.	537.31	2.0355E+00
LA-140	14.	1596.21	1.6064E-01
CEPR-144	2321.	133.51	4.6837E+00
EU-152	27.	1408.01	9.2164E-01
EU-154	64.	1274.51	7.9632E-01
EU-155	2245.	105.31	1.0653E+00
HG-203	2208.	279.20	5.0970E-01
TL-208	2224.	277.36	6.5664E+00
BI-212	86.	727.18	2.9286E+00
PB-212	2456.	238.63	8.8658E-01
BI-214	618.	609.31	9.8652E-01
PB-214	2255.	351.92	2.5563E+00
RA-224	2404.	240.99	9.7396E+00
RA-226	3167.	186.10	1.0499E+01
AC-228	115.	911.21	1.0369E+00
TH-228	2203.	84.37	1.7220E+01
TH-229	2082.	88.47	8.6517E-01
PA-233	2092.	312.17	1.1496E+00
UTH-233	2305.	245.34	3.5754E+02
PA-234M	50.	1001.03	3.3455E-01
TH-234	1980.	63.29	4.5439E+00
U-235	3120.	185.71	6.3343E-01
NP-237	2168.	86.48	1.7512E+00
NP-239	2225.	106.12	1.0173E+00

Sample ID : S96T2449-SAM Acquisition date : 11-JUN-1996 14:52:49

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	2365.	129.30	4.0321E+03
AM-241	2103.	59.54	5.9111E-01
AM-243	2200.	74.67	3.5832E-01

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*****************************************************************************
* 222-S Laboratory Counting Room    11-JUN-1996 16:44:22.90                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9803
Sample ID:               S96T2449-DUP
Sample Size:             2.50000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1135.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:30.57 sec
Dead Time:               1.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-JUN-1996 15:53:16.36
Decayed to:              11-JUN-1996 15:53:16.36
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
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
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Removed by: D. H. Mitchell

Verified by: R. Bachelor 6/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.88	283	0.94	44.42	41	8	67.7			
0	31.81	13344	1.09	64.26	60	9	2.7			
0	36.32	3526	0.95	73.29	69	9	7.2			
0	661.50*	76715	1.44	1323.63	1316	16	0.7		CS-137	372.

Sample ID : S96T2449-DUP Acquisition date : 11-JUN-1996 15:53:16

Total number of lines in spectrum	4	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	1	25.00%

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	3.715E+02	3.715E+02	0.028E+02	0.75	
		Total Activity :	3.715E+02	3.715E+02			
		Grand Total Activity :	3.715E+02	3.715E+02			

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

Sample ID : S96T2449-DUP Acquisition date : 11-JUN-1996 15:53:16

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2476.	477.59	6.8155E+00
NA-22	60.	1274.53	2.6510E-01
NA-24	18.	1368.55	1.5727E-01
K-40	601.	1460.75	8.7523E+00
CR-51	2048.	320.08	4.4491E+00
MN-54	66.	834.83	1.9251E-01
CO-56	48.	846.76	1.6722E-01
CO-57	2282.	122.06	2.8812E-01
CO-58	61.	810.78	1.8114E-01
FE-59	46.	1099.25	3.6359E-01
CO-60	24.	1332.50	1.7442E-01
SE-75	2176.	264.66	6.7455E-01
SR-85	1321.	514.01	5.7436E-01
Y-88	7.	1836.06	1.2328E-01
NB-94	73.	871.09	2.1144E-01
ZRNB-95	95.	724.18	4.6512E-01
RU-103	1553.	497.08	6.3713E-01
RURH-106	439.	621.93	7.6512E+00
AG-108m	91.	722.94	2.1910E-01
CD-109	2007.	88.03	5.8066E+00
AG-110M	2636.	657.76	1.0359E+00
SN-113	2249.	391.69	8.7651E-01
TE-123m	2210.	159.00	3.3142E-01
SB-124	523.	602.73	4.1147E-01
SB-125	2630.	427.89	2.2350E+00
TE-125m	2121.	109.27	8.1049E+01
I-131	2098.	364.48	6.2665E-01
CS-134	471.	604.70	3.9225E-01
BA-140	889.	537.31	1.9346E+00
LA-140	12.	1596.21	1.5049E-01
CEPR-144	2226.	133.51	4.5870E+00
EU-152	34.	1408.01	1.0343E+00
EU-154	60.	1274.51	7.7081E-01
EU-155	2064.	105.31	1.0216E+00
HG-203	2126.	279.20	5.0009E-01
TL-208	2104.	277.36	6.3875E+00
BI-212	73.	727.18	2.6992E+00
PB-212	2329.	238.63	8.6330E-01
BI-214	606.	609.31	9.7634E-01
PB-214	2203.	351.92	2.5259E+00
RA-224	2257.	240.99	9.4354E+00
RA-226	3095.	186.10	1.0379E+01
AC-228	148.	911.21	1.1772E+00
TH-228	2108.	84.37	1.6843E+01
TH-229	1985.	88.47	8.4471E-01
PA-233	2076.	312.17	1.1451E+00
UTH-233	2120.	245.34	3.4291E+02
PA-234M	33.	1001.03	2.7263E-01
TH-234	1877.	63.29	4.4235E+00
U-235	3034.	185.71	6.2467E-01
NP-237	2139.	86.48	1.7395E+00

Sample ID : S96T2449-DUP Acquisition date : 11-JUN-1996 15:53:16

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2112.	106.12	9.9111E-01
PU-239	2184.	129.30	3.8748E+03
AM-241	1964.	59.54	5.7136E-01
AM-243	2102.	74.67	3.5024E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    11-JUN-1996 18:10:09.29                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9803
Sample ID:               S96T2518-SAM                    Removed by:
Sample Size:             5.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                             Verified by:
File Number:             dka300:[spec.GEA1]1g1138.cnf
Geometry:                41                              6/13/96
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:31.21 sec
Dead Time:               1.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-JUN-1996 17:19:00.47
Decayed to:              11-JUN-1996 17:19:00.47
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
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	21.55	635	1.02	43.75	39	10	35.4			
0	31.82	13749	1.09	64.29	60	9	2.7			
0	36.33	3898	1.02	73.30	69	9	6.7			
0	661.50*	80924	1.44	1323.63	1316	16	0.7		CS-137	196.
0	1764.03*	20	3.20	3529.57	3521	17	84.6			

Summary of Nuclide Activity
Sample ID : S96T2518-SAM

Acquisition date : 11-JUN-1996 17:19:00

Total number of lines in spectrum	5	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	2	40.00%

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	1.960E+02	1.960E+02	0.014E+02	0.73	
		Total Activity :	1.960E+02	1.960E+02			
		Grand Total Activity :	1.960E+02	1.960E+02			

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

Minimum Detectable Activity Report
Sample ID : S96T2518-SAM Acquisition date : 11-JUN-1996 17:19:00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2652.	477.59	3.5270E+00
NA-22	64.	1274.53	1.3677E-01
NA-24	19.	1368.55	8.0777E-02
K-40	566.	1460.75	4.2467E+00
CR-51	2127.	320.08	2.2668E+00
MN-54	55.	834.83	8.7846E-02
CO-56	51.	846.76	8.6069E-02
CO-57	2425.	122.06	1.4850E-01
CO-58	50.	810.78	8.2127E-02
FE-59	46.	1099.25	1.8260E-01
CO-60	29.	1332.50	9.5981E-02
SE-75	2284.	264.66	3.4554E-01
SR-85	1352.	514.01	2.9054E-01
Y-88	5.	1836.06	5.2701E-02
NB-94	61.	871.09	9.6165E-02
ZRNB-95	88.	724.18	2.2397E-01
RU-103	1634.	497.08	3.2678E-01
RURH-106	404.	621.93	3.6703E+00
AG-108m	83.	722.94	1.0419E-01
CD-109	2091.	88.03	2.9636E+00
AG-110M	2739.	657.76	5.2789E-01
SN-113	2350.	391.69	4.4796E-01
TE-123m	2334.	159.00	1.7028E-01
SB-124	495.	602.73	2.0010E-01
SB-125	2719.	427.89	1.1362E+00
TE-125m	2170.	109.27	4.0993E+01
I-131	2256.	364.48	3.2490E-01
CS-134	460.	604.70	1.9380E-01
BA-140	945.	537.31	9.9728E-01
LA-140	19.	1596.21	9.4663E-02
CEPR-144	2207.	133.51	2.2836E+00
EU-152	25.	1408.01	4.4425E-01
EU-154	64.	1274.51	3.9808E-01
EU-155	2241.	105.31	5.3213E-01
HG-203	2280.	279.20	2.5895E-01
TL-208	2301.	277.36	3.3399E+00
BI-212	94.	727.18	1.5299E+00
PB-212	2433.	238.63	4.4124E-01
BI-214	656.	609.31	5.0818E-01
PB-214	2377.	351.92	1.3121E+00
RA-224	2363.	240.99	4.8276E+00
RA-226	3126.	186.10	5.2150E+00
AC-228	113.	911.21	5.1477E-01
TH-228	2150.	84.37	8.5052E+00
TH-229	2039.	88.47	4.2809E-01
PA-233	2173.	312.17	5.8570E-01
UTH-233	2300.	245.34	1.7856E+02
PA-234M	48.	1001.03	1.6395E-01
TH-234	1770.	63.29	2.1480E+00
U-235	3086.	185.71	3.1497E-01
NP-237	2178.	86.48	8.7758E-01

Minimum Detectable Activity Report (continued)

Sample ID : S96T2518-SAM Acquisition date : 11-JUN-1996 17:19:00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2233.	106.12	5.0959E-01
PU-239	2285.	129.30	1.9814E+03
AM-241	1996.	59.54	2.8799E-01
AM-243	2145.	74.67	1.7691E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    11-JUN-1996 19:08:51.76                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9803
Sample ID:               S96T2518-DUP
Sample Size:             5.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1139.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:34.87 sec
Dead Time:               1.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-JUN-1996 18:17:39.16
Decayed to:              11-JUN-1996 18:17:39.16
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
*****************************************************************************
```

Removed by: Eric Barela

Verified by: D Machelor 6/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.48	525	1.07	43.61	39	9	42.1			
0	31.78	15908	1.10	64.20	59	11	2.8			
0	36.33	4559	1.01	73.31	69	9	6.0			
0	661.48*	92019	1.43	1323.60	1316	16	0.7		CS-137	223.
0	1376.28*	16	0.89	2753.62	2745	14	108.1			

Summary of Nuclide Activity
Sample ID : S96T2518-DUP

Acquisition date : 11-JUN-1996 18:17:39

Total number of lines in spectrum	5	
Number of unidentified lines	4	
Number of lines tentatively identified by NID	1	20.00%

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	2.228E+02	2.228E+02	0.015E+02	0.68	
		Total Activity :	2.228E+02	2.228E+02			
		Grand Total Activity :	2.228E+02	2.228E+02			

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

Minimum Detectable Activity Report
Sample ID : S96T2518-DUP Acquisition date : 11-JUN-1996 18:17:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2910.	477.59	3.6940E+00
NA-22	58.	1274.53	1.3053E-01
NA-24	24.	1368.55	9.0869E-02
K-40	602.	1460.75	4.3802E+00
CR-51	2463.	320.08	2.4396E+00
MN-54	81.	834.83	1.0695E-01
CO-56	42.	846.76	7.8460E-02
CO-57	2595.	122.06	1.5364E-01
CO-58	69.	810.78	9.6622E-02
FE-59	53.	1099.25	1.9588E-01
CO-60	33.	1332.50	1.0216E-01
SE-75	2547.	264.66	3.6492E-01
SR-85	1604.	514.01	3.1655E-01
Y-88	6.	1836.06	5.5280E-02
NB-94	57.	871.09	9.2936E-02
ZRNB-95	99.	724.18	2.3711E-01
RU-103	1859.	497.08	3.4849E-01
RURH-106	478.	621.93	3.9945E+00
AG-108m	90.	722.94	1.0871E-01
CD-109	2347.	88.03	3.1397E+00
AG-110M	3263.	657.76	5.7617E-01
SN-113	2692.	391.69	4.7951E-01
TE-123m	2507.	159.00	1.7648E-01
SB-124	545.	602.73	2.0994E-01
SB-125	3092.	427.89	1.2117E+00
TE-125m	2437.	109.27	4.3443E+01
I-131	2535.	364.48	3.4445E-01
CS-134	541.	604.70	2.1028E-01
BA-140	1070.	537.31	1.0612E+00
LA-140	13.	1596.21	7.6583E-02
CEPR-144	2632.	133.51	2.4937E+00
EU-152	33.	1408.01	5.0586E-01
EU-154	58.	1274.51	3.7901E-01
EU-155	2377.	105.31	5.4808E-01
HG-203	2475.	279.20	2.6982E-01
TL-208	2453.	277.36	3.4482E+00
BI-212	91.	727.18	1.4991E+00
PB-212	2554.	238.63	4.5209E-01
BI-214	685.	609.31	5.1907E-01
PB-214	2614.	351.92	1.3769E+00
RA-224	2610.	240.99	5.0739E+00
RA-226	3663.	186.10	5.6453E+00
AC-228	127.	911.21	5.4363E-01
TH-228	2447.	84.37	9.0742E+00
TH-229	2318.	88.47	4.5644E-01
PA-233	2438.	312.17	6.2040E-01
UTH-233	2603.	245.34	1.8997E+02
PA-234M	51.	1001.03	1.6865E-01
TH-234	2123.	63.29	2.3525E+00
U-235	3606.	185.71	3.4047E-01
NP-237	2437.	86.48	9.2827E-01

Minimum Detectable Activity Report (continued)
Sample ID : S96T2518-DUP Acquisition date : 11-JUN-1996 18:17:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2381.	106.12	5.2623E-01
PU-239	2573.	129.30	2.1027E+03
AM-241	2210.	59.54	3.0301E-01
AM-243	2358.	74.67	1.8548E-01

LABCORE Data Entry Template for Worklist# 9806

Analyst: KRM **Instrument:** GEA00 3 **Book#** 54856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-102. 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	S96T002521	0	F	@GEA-02	SOLID	96000536	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T002521	0	F	@GEA-02	SOLID		
5	SAMPLE	S96T002671	0	F	@GEA-02	SOLID	96000536	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T002671	0	F	@GEA-02	SOLID		
7	SAMPLE	S96T002672	0	F	@GEA-02	SOLID	96000536	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
8	DUP	S96T002672	0	F	@GEA-02	SOLID		
9	SAMPLE	S96T002757	0	F	@GEA-02	SOLID	96000536	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
10	DUP	S96T002757	0	F	@GEA-02	SOLID		

Final page for worklist # 9806

6-11-96
Analyst Signature **Date**

6/13/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9806

Analyst: krm **Instrument:** GEA03 **Book#** 54856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-102. 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	2.434e-02		2.53e-02	103.944	% Recovery
1	STD		0		@GEA-02	CO60-02E	SOLID	1		1.22	1.220	% Ct Error
1	STD		0		@GEA-02	CS13702	SOLID	2.217e-02		2.25e-02	101.488	% Recovery
1	STD		0		@GEA-02	CS13702E	SOLID	1		1.58	1.580	% Ct Error
2	BLNK-PREP		0		@GEA-02	CO60-02	SOLID	1		<5.28e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	CS13702	SOLID	1		3.92e-01	0.392	uCi/g
2	BLNK-PREP		0		@GEA-02	EU15402	SOLID	1		<1.61e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15502	SOLID	1		<1.22e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	AM24102	SOLID	1		<3.14e-1		uCi/g
3	SAMPLE	S96T002521	0	F	@GEA-02	CO60-02	SOLID	N/A	<	4.466e-02	446.6e-004	uCi/g
3	SAMPLE	S96T002521	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002521	0	F	@GEA-02	CS13702	SOLID	N/A		1.117e+02	0.0e+000	uCi/g
3	SAMPLE	S96T002521	0	F	@GEA-02	CS13702E	SOLID	N/A		0.670	0.0e+000	% Ct. Error
3	SAMPLE	S96T002521	0	F	@GEA-02	EU15402	SOLID	N/A	<	1.088e-01	109.0e-003	uCi/g
3	SAMPLE	S96T002521	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002521	0	F	@GEA-02	EU15502	SOLID	N/A	<	3.746e-01	375.0e-003	uCi/g
3	SAMPLE	S96T002521	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002521	0	F	@GEA-02	AM24102	SOLID	N/A	<	9.725e-01	973.0e-003	uCi/g
3	SAMPLE	S96T002521	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
4	DUP	S96T002521	0	F	@GEA-02	CO60-02	SOLID	<4.47e-2		<4.01e-2		RPD
4	DUP	S96T002521	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002521	0	F	@GEA-02	CS13702	SOLID	1.12e+02		1.09e+02	2.715	RPD
4	DUP	S96T002521	0	F	@GEA-02	CS13702E	SOLID	1		0.700	0.700	% Ct Error
4	DUP	S96T002521	0	F	@GEA-02	EU15402	SOLID	<1.09e-1		<1.27e-1		RPD
4	DUP	S96T002521	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002521	0	F	@GEA-02	EU15502	SOLID	<3.75e-1		<3.79e-1		RPD
4	DUP	S96T002521	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002521	0	F	@GEA-02	AM24102	SOLID	<9.73e-1		<1.00e0		RPD
4	DUP	S96T002521	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
5	SAMPLE	S96T002671	0	F	@GEA-02	CO60-02	SOLID	N/A	<	3.575e-02	357.5e-004	uCi/g
5	SAMPLE	S96T002671	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002671	0	F	@GEA-02	CS13702	SOLID	N/A		2.002e+02	0.0e+000	uCi/g
5	SAMPLE	S96T002671	0	F	@GEA-02	CS13702E	SOLID	N/A		0.500	0.0e+000	% Ct. Error
5	SAMPLE	S96T002671	0	F	@GEA-02	EU15402	SOLID	N/A	<	1.037e-01	104.0e-003	uCi/g
5	SAMPLE	S96T002671	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002671	0	F	@GEA-02	EU15502	SOLID	N/A	<	4.936e-01	494.0e-003	uCi/g
5	SAMPLE	S96T002671	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002671	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.308e+00	130.8e-002	uCi/g
5	SAMPLE	S96T002671	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
6	DUP	S96T002671	0	F	@GEA-02	CO60-02	SOLID	<3.57e-2		<3.68e-2		RPD
6	DUP	S96T002671	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#: 9806

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
6	DUP	S96T002671	0	F	@GEA-02	CS13702	SOLID	2.00e+02		2.03e+02	1.489	RPD
6	DUP	S96T002671	0	F	@GEA-02	CS13702E	SOLID	1		0.490	0.490	% Ct Error
6	DUP	S96T002671	0	F	@GEA-02	EU15402	SOLID	<1.04e-1		<1.30e-1		RPD
6	DUP	S96T002671	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002671	0	F	@GEA-02	EU15502	SOLID	<4.94e-1		<4.86e-1		RPD
6	DUP	S96T002671	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002671	0	F	@GEA-02	AM24102	SOLID	<1.31e0		<1.27e0		RPD
6	DUP	S96T002671	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
7	SAMPLE	S96T002672	0	F	@GEA-02	CO60-02	SOLID	N/A	<	5.008e-02	500.8e-004	uCi/g
7	SAMPLE	S96T002672	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002672	0	F	@GEA-02	CS13702	SOLID	N/A		2.665e+02	0.0e+000	uCi/g
7	SAMPLE	S96T002672	0	F	@GEA-02	CS13702E	SOLID	N/A		0.590	0.0e+000	% Ct. Error
7	SAMPLE	S96T002672	0	F	@GEA-02	EU15402	SOLID	N/A	<	2.484e-01	248.0e-003	uCi/g
7	SAMPLE	S96T002672	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002672	0	F	@GEA-02	EU15502	SOLID	N/A	<	7.831e-01	783.0e-003	uCi/g
7	SAMPLE	S96T002672	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002672	0	F	@GEA-02	AM24102	SOLID	N/A	<	2.022e+00	202.2e-002	uCi/g
7	SAMPLE	S96T002672	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
8	DUP	S96T002672	0	F	@GEA-02	CO60-02	SOLID	<5.01e-2		<6.48e-2		RPD
8	DUP	S96T002672	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002672	0	F	@GEA-02	CS13702	SOLID	2.66e+02		2.66e+02	0.000	RPD
8	DUP	S96T002672	0	F	@GEA-02	CS13702E	SOLID	1		0.590	0.590	% Ct Error
8	DUP	S96T002672	0	F	@GEA-02	EU15402	SOLID	<2.48e-1		<2.31e-1		RPD
8	DUP	S96T002672	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002672	0	F	@GEA-02	EU15502	SOLID	<7.83e-1		<7.84e-1		RPD
8	DUP	S96T002672	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002672	0	F	@GEA-02	AM24102	SOLID	<2.02e0		<2.07e0		RPD
8	DUP	S96T002672	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
9	SAMPLE	S96T002757	0	F	@GEA-02	CO60-02	SOLID	N/A	<	7.653e-02	765.3e-004	uCi/g
9	SAMPLE	S96T002757	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
9	SAMPLE	S96T002757	0	F	@GEA-02	CS13702	SOLID	N/A		1.952e+02	0.0e+000	uCi/g
9	SAMPLE	S96T002757	0	F	@GEA-02	CS13702E	SOLID	N/A		0.660	0.0e+000	% Ct. Error
9	SAMPLE	S96T002757	0	F	@GEA-02	EU15402	SOLID	N/A	<	1.940e-01	194.0e-003	uCi/g
9	SAMPLE	S96T002757	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
9	SAMPLE	S96T002757	0	F	@GEA-02	EU15502	SOLID	N/A	<	6.394e-01	639.0e-003	uCi/g
9	SAMPLE	S96T002757	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
9	SAMPLE	S96T002757	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.692e+00	169.2e-002	uCi/g
9	SAMPLE	S96T002757	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
10	DUP	S96T002757	0	F	@GEA-02	CO60-02	SOLID	<7.65e-2		<5.95e-2		RPD
10	DUP	S96T002757	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
10	DUP	S96T002757	0	F	@GEA-02	CS13702	SOLID	1.95e+02		1.91e+02	2.073	RPD
10	DUP	S96T002757	0	F	@GEA-02	CS13702E	SOLID	1		0.690	0.690	% Ct Error
10	DUP	S96T002757	0	F	@GEA-02	EU15402	SOLID	<1.94e-1		<2.10e-1		RPD
10	DUP	S96T002757	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
10	DUP	S96T002757	0	F	@GEA-02	EU15502	SOLID	<6.39e-1		<6.64e-1		RPD
10	DUP	S96T002757	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
10	DUP	S96T002757	0	F	@GEA-02	AM24102	SOLID	<1.69e0		<1.74e0		RPD
10	DUP	S96T002757	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error

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

LABCORE Completed RadChem Report for Worklist#: 9806

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

Comments Section:

Comments for sample# S96T002521 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002671 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002672 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002757 **and test** @GEA-02 .
DL=0 => n/a.

Final page for worklist# 9806

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

[signature] 6/14/96
Reviewer Signature **Date**

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

```
*****************************************************************************
* 222-S Laboratory Counting Room    11-JUN-1996 11:58:27.97                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9806
Sample ID:               WL9806-STD                          Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                                 Verified by:
File Number:             dka300:[spec.GEA3]3g3691.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:09.09 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-JUN-1996 11:07:39.51
Decayed to:              11-JUN-1996 11:07:39.51
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Removed by: D H Mulvie

Verified by: B Bachelor 6/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.52*	19918	1.58	1323.21	1315	15	1.6		CS-137	22.5
0	1173.05	16015	1.94	2346.37	2336	19	1.8		CO-60	25.3
0	1332.31	14423	1.97	2664.98	2655	21	1.7		CO-60	25.2
0	1460.74*	22	1.87	2921.96	2917	13	128.6		K-40	0.382

Summary of Nuclide Activity
Sample ID : WL9806-STD Acquisition date : 11-JUN-1996 11:07:39

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~~	~~3.822E-01~~	~~3.822E-01~~	~~4.915E-01~~	~~128.58~~	BKG
CO-60	5.27Y	1.000	2.525E+01	2.525E+01	0.031E+01	1.22	
CS-137	30.00Y	1.000	2.251E+01	2.251E+01	0.036E+01	1.58	
		Total Activity :	4.814E+01	4.814E+01			
		Grand Total Activity :	4.814E+01	4.814E+01			

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

Sample ID : WL9806-STD Acquisition date : 11-JUN-1996 11:07:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1163.	477.59	1.1237E+00
NA-22	97.	1274.53	7.7361E-02
NA-24	34.	1368.55	4.9062E-02
CR-51	1165.	320.08	8.4634E-01
MN-54	749.	834.83	1.4963E-01
CO-56	746.	846.76	1.5126E-01
CO-57	1137.	122.06	5.8364E-02
CO-58	703.	810.78	1.4219E-01
FE-59	784.	1099.25	3.4323E-01
SE-75	1346.	264.66	1.3626E-01
SR-85	906.	514.01	1.1338E-01
Y-88	17.	1836.06	4.3039E-02
NB-94	803.	871.09	1.6076E-01
ZRNB-95	569.	724.18	2.6410E-01
RU-103	845.	497.08	1.1248E-01
RURH-106	588.	621.93	2.0778E+00
AG-108m	582.	722.94	1.2837E-01
CD-109	1128.	88.03	1.9244E+00
AG-110M	1136.	657.76	1.5880E-01
SN-113	1086.	391.69	1.4982E-01
TE-123m	1215.	159.00	6.2055E-02
SB-124	631.	602.73	1.0632E-01
SB-125	1130.	427.89	3.5682E-01
TE-125m	1085.	109.27	1.8558E+01
I-131	981.	364.48	1.0645E-01
CS-134	635.	604.70	1.0714E-01
BA-140	757.	537.31	4.2353E-01
LA-140	18.	1596.21	4.1627E-02
CEPR-144	1195.	133.51	9.0499E-01
EU-152	25.	1408.01	2.0470E-01
EU-154	97.	1274.51	2.2494E-01
EU-155	1069.	105.31	2.4609E-01
HG-203	1255.	279.20	9.8123E-02
TL-208	1255.	277.36	1.2605E+00
BI-212	569.	727.18	1.7423E+00
PB-212	1504.	238.63	1.7917E-01
BI-214	663.	609.31	2.4008E-01
PB-214	1069.	351.92	4.3760E-01
RA-224	1513.	240.99	1.9951E+00
RA-226	1462.	186.10	1.7905E+00
AC-228	965.	911.21	6.8796E-01
TH-228	1074.	84.37	5.7830E+00
TH-229	1102.	88.47	2.7578E-01
PA-233	1174.	312.17	2.1764E-01
UTH-233	1444.	245.34	7.3066E+01
PA-234M	786.	1001.03	3.0369E-01
TH-234	988.	63.29	3.7364E+00
U-235	1458.	185.71	1.0864E-01
NP-237	1100.	86.48	5.7081E-01
NP-239	1083.	106.12	2.3533E-01
PU-239	1159.	129.30	7.7562E+02

CSD-WM-DP-189, REV. 1
Sample ID : WL9806-STD Acquisition date : 11-JUN-1996 11:07:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	994.	59.54	6.6123E-01
AM-243	1096.	74.67	1.6324E-01

****
* 222-S Laboratory Counting Room 11-JUN-1996 12:52:16.36 *
****

>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<< C-SD-WM-DP-189, REV. 1

Worklist #: 9806
Sample ID: WL9806-BLK
Sample Size: 2.50000E-04 L
Dilution Factor: 1.00000E+00

Removed by: D. H. Malicia

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

Detector ID:
File Number: dka300:[spec.GEA3]3g3692.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:00.46 sec
Dead Time: 0.0%

Verified by: [illegible] 6/13/96

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

Sample Count Time: 11-JUN-1996 12:01:37.94
Decayed to: 11-JUN-1996 12:01:37.94
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: DM
Background Subtract: DKA300:[SPEC.GEA3]3GBACK

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

Date of last energy calibration: 11-MAR-1994 11:47:01.11
Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.59*	163	1.59	1323.36	1317	14	23.0		CS-137	0.736

Sample ID : WL9806-BLK Acquisition date : 11-JUN-1996 12:01:37

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	7.363E-01	7.363E-01	1.694E-01	23.00	
		Total Activity :	7.363E-01	7.363E-01			
		Grand Total Activity :	7.363E-01	7.363E-01			

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

Sample ID : WL9806-BLK Acquisition date : 11-JUN-1996 12:01:37

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	34.	477.59	7.6758E-01
NA-22	11.	1274.53	1.0413E-01
NA-24	4.	1368.55	6.6182E-02
K-40	121.	1460.75	3.6071E+00
CR-51	49.	320.08	6.9462E-01
MN-54	14.	834.83	8.2926E-02
CO-56	9.	846.76	6.4754E-02
CO-57	63.	122.06	5.5076E-02
CO-58	21.	810.78	9.7612E-02
FE-59	9.	1099.25	1.4618E-01
CO-60	9.	1332.50	9.9277E-02
SE-75	83.	264.66	1.3567E-01
SR-85	48.	514.01	1.0398E-01
Y-88	3.	1836.06	7.2691E-02
NB-94	13.	871.09	8.2421E-02
ZRNB-95	15.	724.18	1.7407E-01
RU-103	31.	497.08	8.5681E-02
RURH-106	26.	621.93	1.7367E+00
AG-108m	14.	722.94	7.9654E-02
CD-109	60.	88.03	1.7691E+00
AG-110M	30.	657.76	1.0369E-01
SN-113	48.	391.69	1.2631E-01
TE-123m	85.	159.00	6.5513E-02
SB-124	36.	602.73	1.0174E-01
SB-125	46.	427.89	2.8838E-01
TE-125m	77.	109.27	1.9756E+01
I-131	51.	364.48	9.7251E-02
CS-134	28.	604.70	9.0632E-02
BA-140	35.	537.31	3.6401E-01
LA-140	3.	1596.21	6.8366E-02
CEPR-144	79.	133.51	9.3070E-01
EU-152	8.	1408.01	4.5535E-01
EU-154	11.	1274.51	3.0253E-01
EU-155	58.	105.31	2.2971E-01
HG-203	59.	279.20	8.5087E-02
TL-208	56.	277.36	1.0620E+00
BI-212	31.	727.18	1.6293E+00
PB-212	86.	238.63	1.7146E-01
BI-214	44.	609.31	2.4780E-01
PB-214	73.	351.92	4.5527E-01
RA-224	64.	240.99	1.6405E+00
RA-226	79.	186.10	1.6611E+00
AC-228	32.	911.21	5.0124E-01
TH-228	76.	84.37	6.1725E+00
TH-229	60.	88.47	2.5764E-01
PA-233	50.	312.17	1.8027E-01
UTH-233	81.	245.34	6.9042E+01
PA-234M	11.	1001.03	1.4460E-01
TH-234	71.	63.29	4.0039E+00
U-235	82.	185.71	1.0297E-01
NP-237	66.	86.48	5.6133E-01

HNF-SD-WM-TP-189, REV. 1
Sample ID : WL9806-BLK Acquisition date : 11-JUN-1996 12:01:37

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	62.	106.12	2.2479E-01
PU-239	78.	129.30	8.0220E+02
AM-241	50.	59.54	5.9092E-01
AM-243	76.	74.67	1.7177E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    11-JUN-1996 13:59:07.55                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9806
Sample ID:               S96T2521-SAM                    Removed by:
Sample Size:             5.00000E-04 L
Dilution Factor:         1.00000E+00                     D H Mitchie

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                             Verified by:
File Number:             dka300:[spec.GEA3]3g3693.cnf
Geometry:                42                              B Machelor 6/13/96
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:11.63 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-JUN-1996 13:08:11.24
Decayed to:              11-JUN-1996 13:08:11.24
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.52*	92807	1.58	1323.21	1315	17	0.7		CS-137	210.
0	1273.78	15	1.95	2547.89	2545	13	90.7			

Sample ID : S96T2521-SAM Acquisition date : 11-JUN-1996 13:08:11

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	2.098E+02	2.098E+02	0.014E+02	0.67	
		Total Activity :	2.098E+02	2.098E+02			
		Grand Total Activity :	2.098E+02	2.098E+02			

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

Sample ID : S96T2521-SAM Acquisition date : 11-JUN-1996 13:08:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2808.	477.59	3.4912E+00
NA-22	20.	1274.53	7.0506E-02
NA-24	5.	1368.55	3.7175E-02
K-40	110.	1460.75	1.7192E+00
CR-51	2192.	320.08	2.3215E+00
MN-54	21.	834.83	5.0604E-02
CO-56	29.	846.76	5.9254E-02
CO-57	2507.	122.06	1.7329E-01
CO-58	19.	810.78	4.7153E-02
FE-59	19.	1099.25	1.0608E-01
CO-60	27.	1332.50	8.3925E-02
SE-75	2408.	264.66	3.6451E-01
SR-85	1397.	514.01	2.8161E-01
Y-88	4.	1836.06	4.1050E-02
NB-94	29.	871.09	6.0644E-02
ZRNB-95	33.	724.18	1.2741E-01
RU-103	1751.	497.08	3.2379E-01
RURH-106	485.	621.93	3.7728E+00
AG-108m	28.	722.94	5.6684E-02
CD-109	2127.	88.03	5.2860E+00
AG-110M	2591.	657.76	4.7957E-01
SN-113	2449.	391.69	4.4993E-01
TE-123m	2452.	159.00	1.7632E-01
SB-124	519.	602.73	1.9290E-01
SB-125	2718.	427.89	1.1066E+00
TE-125m	2177.	109.27	5.2584E+01
I-131	2156.	364.48	3.1564E-01
CS-134	513.	604.70	1.9257E-01
BA-140	1001.	537.31	9.7396E-01
LA-140	3.	1596.21	3.4184E-02
CEPR-144	2367.	133.51	2.5471E+00
EU-152	7.	1408.01	2.1265E-01
EU-154	20.	1274.51	2.0443E-01
EU-155	2187.	105.31	7.0387E-01
HG-203	2403.	279.20	2.7157E-01
TL-208	2411.	277.36	3.4941E+00
BI-212	39.	727.18	9.0635E-01
PB-212	2773.	238.63	4.8651E-01
BI-214	537.	609.31	4.3222E-01
PB-214	2240.	351.92	1.2677E+00
RA-224	2712.	240.99	5.3413E+00
RA-226	3273.	186.10	5.3574E+00
AC-228	31.	911.21	2.4692E-01
TH-228	2105.	84.37	1.6195E+01
TH-229	2084.	88.47	7.5829E-01
PA-233	2240.	312.17	6.0117E-01
UTH-233	2707.	245.34	2.0003E+02
PA-234M	18.	1001.03	9.1248E-02
TH-234	1911.	63.29	1.0393E+01
U-235	3234.	185.71	3.2367E-01
NP-237	2085.	86.48	1.5717E+00

Minimum Detectable Activity Report (continued)
Sample ID : S96T2521-SAM Acquisition date : 11-JUN-1996 13:08:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2194.	106.12	6.6971E-01
PU-239	2365.	129.30	2.2155E+03
AM-241	1898.	59.54	1.8276E+00
AM-243	1977.	74.67	4.3845E-01

****
* 222-S Laboratory Counting Room 11-JUN-1996 14:52:26.41 *
****

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

Worklist #: 9806
Sample ID: S96T2521-DUP
Sample Size: 5.00000E-04 L
Dilution Factor: 1.00000E+00

Removed by: D.H. Miller

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

Detector ID:
File Number: dka300:[spec.GEA3]3g3694.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:10.69 sec
Dead Time: 0.4%

Verified by: Bachelor 6/13/96

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

Sample Count Time: 11-JUN-1996 14:01:38.41
Decayed to: 11-JUN-1996 14:01:38.41
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: DM
Background Subtract: DKA300:[SPEC.GEA3]3GBACK

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

Date of last energy calibration: 11-MAR-1994 11:47:01.11
Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.53*	84975	1.57	1323.23	1315	17	0.7		CS-137	192.

Sample ID : S96T2521-DUP Acquisition date : 11-JUN-1996 14:01:38

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	1.921E+02	1.921E+02	0.013E+02	0.70	
		Total Activity :	1.921E+02	1.921E+02			
		Grand Total Activity :	1.921E+02	1.921E+02			

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

Sample ID : S96T2521-DUP Acquisition date : 11-JUN-1996 14:01:38

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2582.	477.59	3.3480E+00
NA-22	24.	1274.53	7.7207E-02
NA-24	5.	1368.55	3.7871E-02
K-40	117.	1460.75	1.7729E+00
CR-51	2019.	320.08	2.2278E+00
MN-54	25.	834.83	5.4801E-02
CO-56	9.	846.76	3.3225E-02
CO-57	2223.	122.06	1.6320E-01
CO-58	30.	810.78	5.9199E-02
FE-59	10.	1099.25	7.7551E-02
CO-60	19.	1332.50	7.0755E-02
SE-75	2223.	264.66	3.5025E-01
SR-85	1301.	514.01	2.7171E-01
Y-88	4.	1836.06	4.1968E-02
NB-94	31.	871.09	6.2839E-02
ZRNB-95	38.	724.18	1.3743E-01
RU-103	1571.	497.08	3.0669E-01
RURH-106	433.	621.93	3.5642E+00
AG-108m	42.	722.94	6.9047E-02
CD-109	1918.	88.03	5.0194E+00
AG-110M	2188.	657.76	4.4071E-01
SN-113	2191.	391.69	4.2558E-01
TE-123m	2302.	159.00	1.7085E-01
SB-124	477.	602.73	1.8486E-01
SB-125	2561.	427.89	1.0741E+00
TE-125m	2031.	109.27	5.0785E+01
I-131	2057.	364.48	3.0831E-01
CS-134	491.	604.70	1.8849E-01
BA-140	908.	537.31	9.2764E-01
LA-140	5.	1596.21	4.3665E-02
CEPR-144	2214.	133.51	2.4634E+00
EU-152	6.	1408.01	1.9783E-01
EU-154	24.	1274.51	2.2449E-01
EU-155	1970.	105.31	6.6809E-01
HG-203	2171.	279.20	2.5811E-01
TL-208	2257.	277.36	3.3810E+00
BI-212	22.	727.18	6.7746E-01
PB-212	2586.	238.63	4.6982E-01
BI-214	535.	609.31	4.3138E-01
PB-214	1981.	351.92	1.1920E+00
RA-224	2580.	240.99	5.2098E+00
RA-226	2847.	186.10	4.9963E+00
AC-228	31.	911.21	2.4478E-01
TH-228	1861.	84.37	1.5226E+01
TH-229	1944.	88.47	7.3244E-01
PA-233	2130.	312.17	5.8616E-01
UTH-233	2433.	245.34	1.8964E+02
PA-234M	16.	1001.03	8.7150E-02
TH-234	1779.	63.29	1.0026E+01
U-235	2827.	185.71	3.0263E-01
NP-237	1949.	86.48	1.5197E+00

Sample ID : S96T2521-DUP Acquisition date : 11-JUN-1996 14:01:38

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	1985.	106.12	6.3702E-01
PU-239	2265.	129.30	2.1681E+03
AM-241	1768.	59.54	1.7642E+00
AM-243	1805.	74.67	4.1892E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    11-JUN-1996 15:48:19.93                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9806
Sample ID:               S96T2671-SAM
Sample Size:             5.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3695.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:20.38 sec
Dead Time:               0.7%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-JUN-1996 14:57:21.04
Decayed to:              11-JUN-1996 14:57:21.04
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
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
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Removed by: D.H. Malicia

Verified by: Bachelor 6/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.52*	164414	1.58	1323.21	1315	17	0.5		CS-137	372.

Sample ID : S96T2671-SAM Acquisition date : 11-JUN-1996 14:57:21

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	3.717E+02	3.717E+02	0.019E+02	0.50	
		Total Activity :	3.717E+02	3.717E+02			
		Grand Total Activity :	3.717E+02	3.717E+02			

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

Sample ID : S96T2671-SAM Acquisition date : 11-JUN-1996 14:57:21

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5044.	477.59	4.6797E+00
NA-22	18.	1274.53	6.6233E-02
NA-24	4.	1368.55	3.3875E-02
K-40	117.	1460.75	1.7686E+00
CR-51	3966.	320.08	3.1225E+00
MN-54	30.	834.83	6.0031E-02
CO-56	28.	846.76	5.8768E-02
CO-57	4121.	122.06	2.2219E-01
CO-58	23.	810.78	5.1588E-02
FE-59	15.	1099.25	9.4236E-02
CO-60	17.	1332.50	6.6417E-02
SE-75	4302.	264.66	4.8722E-01
SR-85	2443.	514.01	3.7233E-01
Y-88	4.	1836.06	4.1050E-02
NB-94	41.	871.09	7.2877E-02
ZRNB-95	68.	724.18	1.8247E-01
RU-103	3065.	497.08	4.2833E-01
RURH-106	864.	621.93	5.0366E+00
AG-108m	66.	722.94	8.6355E-02
CD-109	3635.	88.03	6.9104E+00
AG-110M	4437.	657.76	6.2755E-01
SN-113	4243.	391.69	5.9228E-01
TE-123m	4209.	159.00	2.3101E-01
SB-124	919.	602.73	2.5667E-01
SB-125	5032.	427.89	1.5057E+00
TE-125m	3810.	109.27	6.9557E+01
I-131	4041.	364.48	4.3216E-01
CS-134	903.	604.70	2.5556E-01
BA-140	1749.	537.31	1.2875E+00
LA-140	7.	1596.21	5.2700E-02
CEPR-144	4267.	133.51	3.4195E+00
EU-152	11.	1408.01	2.6774E-01
EU-154	18.	1274.51	1.9264E-01
EU-155	3713.	105.31	9.1703E-01
HG-203	4140.	279.20	3.5641E-01
TL-208	4229.	277.36	4.6276E+00
BI-212	48.	727.18	1.0148E+00
PB-212	4880.	238.63	6.4535E-01
BI-214	929.	609.31	5.6832E-01
PB-214	4018.	351.92	1.7003E+00
RA-224	4812.	240.99	7.1156E+00
RA-226	5754.	186.10	7.1036E+00
AC-228	47.	911.21	3.0375E-01
TH-228	3686.	84.37	2.1431E+01
TH-229	3613.	88.47	9.9854E-01
PA-233	3912.	312.17	7.9442E-01
UTH-233	4729.	245.34	2.6441E+02
PA-234M	21.	1001.03	9.9591E-02
TH-234	3319.	63.29	1.3696E+01
U-235	5691.	185.71	4.2936E-01
NP-237	3675.	86.48	2.0868E+00

Sample ID : S96T2671-SAM Acquisition date : 11-JUN-1996 14:57:21

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	3757.	106.12	8.7648E-01
PU-239	4233.	129.30	2.9642E+03
AM-241	3354.	59.54	2.4297E+00
AM-243	3400.	74.67	5.7499E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    11-JUN-1996 16:53:48.04                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                9806
Sample ID:                 S96T2671-DUP
Sample Size:               5.00000E-04 L
Dilution Factor:           1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:               dka300:[spec.GEA3]3g3696.cnf
Geometry:                  42
Count Time:                0 00:50:00.00 sec
Real Time:                 0 00:50:21.56 sec
Dead Time:                 0.7%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:         11-JUN-1996 16:02:50.15
Decayed to:                11-JUN-1996 16:02:50.15
Standard Deviations:       2
Analysis Library:          ENVGEA
Analyst:                   DM
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
*****************************************************************************
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Removed by: D. H. Milicia

Verified by: B Machelor 6/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.52*	174147	1.57	1323.22	1315	17	0.5		CS-137	394.
0	1460.83*	12	1.65	2922.14	2913	15	209.4		K-40	0.430

Sample ID : S96T2671-DUP Acquisition date : 11-JUN-1996 16:02:50

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~~	~~4.297E-01~~	~~4.297E-01~~	~~8.997E-01~~	~~209.40~~	~~BKG~~
CS-137	30.00Y	1.000	3.937E+02	3.937E+02	0.019E+02	0.49	
		Total Activity :	3.941E+02	3.941E+02			
		Grand Total Activity :	3.941E+02	3.941E+02			

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

Sample ID : S96T2671-DUP Acquisition date : 11-JUN-1996 16:02:50

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	5243.	477.59	4.7709E+00
NA-22	30.	1274.53	8.6536E-02
NA-24	8.	1368.55	4.6828E-02
CR-51	4180.	320.08	3.2057E+00
MN-54	30.	834.83	6.0009E-02
CO-56	41.	846.76	7.1320E-02
CO-57	4560.	122.06	2.3373E-01
CO-58	24.	810.78	5.2488E-02
FE-59	21.	1099.25	1.1349E-01
CO-60	19.	1332.50	7.1508E-02
SE-75	4634.	264.66	5.0569E-01
SR-85	2562.	514.01	3.8131E-01
Y-88	5.	1836.06	4.6922E-02
NB-94	38.	871.09	6.9846E-02
ZRNB-95	62.	724.18	1.7394E-01
RU-103	3185.	497.08	4.3661E-01
RURH-106	894.	621.93	5.1233E+00
AG-108m	56.	722.94	7.9853E-02
CD-109	3861.	88.03	7.1213E+00
AG-110M	4549.	657.76	6.3544E-01
SN-113	4476.	391.69	6.0834E-01
TE-123m	4383.	159.00	2.3575E-01
SB-124	1002.	602.73	2.6792E-01
SB-125	5404.	427.89	1.5604E+00
TE-125m	4060.	109.27	7.1807E+01
I-131	4273.	364.48	4.4439E-01
CS-134	1001.	604.70	2.6905E-01
BA-140	1840.	537.31	1.3207E+00
LA-140	6.	1596.21	4.9262E-02
CEPR-144	4461.	133.51	3.4966E+00
EU-152	13.	1408.01	2.9135E-01
EU-154	30.	1274.51	2.5141E-01
EU-155	3927.	105.31	9.4320E-01
HG-203	4487.	279.20	3.7106E-01
TL-208	4405.	277.36	4.7228E+00
BI-212	60.	727.18	1.1344E+00
PB-212	5406.	238.63	6.7929E-01
BI-214	985.	609.31	5.8529E-01
PB-214	4232.	351.92	1.7453E+00
RA-224	5157.	240.99	7.3659E+00
RA-226	6007.	186.10	7.2582E+00
AC-228	43.	911.21	2.9130E-01
TH-228	3790.	84.37	2.1730E+01
TH-229	3901.	88.47	1.0375E+00
PA-233	4173.	312.17	8.2050E-01
UTH-233	4950.	245.34	2.7052E+02
PA-234M	24.	1001.03	1.0566E-01
TH-234	3598.	63.29	1.4260E+01
U-235	5968.	185.71	4.3968E-01
NP-237	3820.	86.48	2.1276E+00
NP-239	3968.	106.12	9.0071E-01

...-SS-WW-...P-189, REV.
Sample ID : S96T2671-DUP Acquisition date : 11-JUN-1996 16:02:50

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/I)
PU-239	4488.	129.30	3.0522E+03
AM-241	3463.	59.54	2.4690E+00
AM-243	3709.	74.67	6.0055E-01

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*****************************************************************************
* 222-S Laboratory Counting Room    11-JUN-1996 18:03:36.85                 *
*****************************************************************************
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>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<

Worklist #:	9806
Sample ID:	S96T2672-SAM
Sample Size:	2.50000E-04 L
Dilution Factor:	1.00000E+00

Removed by: Eric Barelli

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

Detector ID:	
File Number:	dka300:[spec.GEA3]3g3698.cnf
Geometry:	42
Count Time:	0 00:50:00.00 sec
Real Time:	0 00:50:14.98 sec
Dead Time:	0.5%

Verified by: Brachelor 6/13/96

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

Sample Count Time:	11-JUN-1996 17:12:40.89
Decayed to:	11-JUN-1996 17:12:40.89
Standard Deviations:	2
Analysis Library:	ENVGEA
Analyst:	DM
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

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Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.53*	120486	1.56	1323.23	1315	17	0.6		CS-137	545.
0	1272.41	23	6.67	2545.16	2538	20	103.6			

Sample ID : S96T2672-SAM Acquisition date : 11-JUN-1996 17:12:40

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	5.447E+02	5.447E+02	0.032E+02	0.59	
		Total Activity :	5.447E+02	5.447E+02			
		Grand Total Activity :	5.447E+02	5.447E+02			

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

Sample ID : S96T2672-SAM Acquisition date : 11-JUN-1996 17:12:40

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3712.	477.59	8.0284E+00
NA-22	31.	1274.53	1.7481E-01
NA-24	8.	1368.55	9.5811E-02
K-40	123.	1460.75	3.6370E+00
CR-51	2903.	320.08	5.3435E+00
MN-54	27.	834.83	1.1304E-01
CO-56	22.	846.76	1.0445E-01
CO-57	3004.	122.06	3.7942E-01
CO-58	33.	810.78	1.2311E-01
FE-59	19.	1099.25	2.1576E-01
CO-60	10.	1332.50	1.0241E-01
SE-75	3201.	264.66	8.4056E-01
SR-85	1815.	514.01	6.4180E-01
Y-88	2.	1836.06	5.9352E-02
NB-94	34.	871.09	1.3240E-01
ZRNB-95	58.	724.18	3.3684E-01
RU-103	2215.	497.08	7.2823E-01
RURH-106	662.	621.93	8.8190E+00
AG-108m	57.	722.94	1.6134E-01
CD-109	2669.	88.03	1.1842E+01
AG-110M	3255.	657.76	1.0751E+00
SN-113	3061.	391.69	1.0061E+00
TE-123m	3077.	159.00	3.9502E-01
SB-124	689.	602.73	4.4454E-01
SB-125	3648.	427.89	2.5640E+00
TE-125m	2840.	109.27	1.2010E+02
I-131	2904.	364.48	7.3269E-01
CS-134	654.	604.70	4.3511E-01
BA-140	1271.	537.31	2.1953E+00
LA-140	8.	1596.21	1.0949E-01
CEPR-144	3151.	133.51	5.8771E+00
EU-152	11.	1408.01	5.3957E-01
EU-154	31.	1274.51	5.0787E-01
EU-155	2830.	105.31	1.6013E+00
HG-203	2950.	279.20	6.0170E-01
TL-208	3084.	277.36	7.9035E+00
BI-212	36.	727.18	1.7497E+00
PB-212	3520.	238.63	1.0963E+00
BI-214	723.	609.31	1.0028E+00
PB-214	2962.	351.92	2.9171E+00
RA-224	3494.	240.99	1.2126E+01
RA-226	4217.	186.10	1.2163E+01
AC-228	34.	911.21	5.1889E-01
TH-228	2715.	84.37	3.6787E+01
TH-229	2632.	88.47	1.7045E+00
PA-233	2839.	312.17	1.3536E+00
UTH-233	3530.	245.34	4.5689E+02
PA-234M	25.	1001.03	2.1772E-01
TH-234	2362.	63.29	2.3107E+01
U-235	4154.	185.71	7.3363E-01
NP-237	2645.	86.48	3.5405E+00

Sample ID : S96T2672-SAM Acquisition date : 11-JUN-1996 17:12:40

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2852.	106.12	1.5272E+00
PU-239	3114.	129.30	5.0844E+03
AM-241	2429.	59.54	4.1352E+00
AM-243	2547.	74.67	9.9538E-01

****
* 222-S Laboratory Counting Room 11-JUN-1996 19:10:25.77 *
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>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<

Worklist #:	9806
Sample ID:	S96T2672-DUP
Sample Size:	2.50000E-04 L
Dilution Factor:	1.00000E+00

Removed by: Em Baca

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

Detector ID:	
File Number:	dka300:[spec.GEA3]3g3699.cnf
Geometry:	42
Count Time:	0 00:50:00.00 sec
Real Time:	0 00:50:14.96 sec
Dead Time:	0.5%

Verified by: B Machela 6/13/96

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

Sample Count Time:	11-JUN-1996 18:19:28.43
Decayed to:	11-JUN-1996 18:19:28.43
Standard Deviations:	2
Analysis Library:	ENVGEA
Analyst:	EMB
Background Subtract:	DKA300:[SPEC.GEA3]3GBACK

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

Date of last energy calibration: 11-MAR-1994 11:47:01.11
Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.51*	120181	1.57	1323.19	1315	17	0.6		CS-137	543.

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	5.433E+02	5.433E+02	0.032E+02	0.59	
		Total Activity :	5.433E+02	5.433E+02			
		Grand Total Activity :	5.433E+02	5.433E+02			

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

Sample ID : S96T2672-DUP Acquisition date : 11-JUN-1996 18:19:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	3556.	477.59	7.8576E+00
NA-22	27.	1274.53	1.6246E-01
NA-24	8.	1368.55	9.4714E-02
K-40	126.	1460.75	3.6806E+00
CR-51	3006.	320.08	5.4374E+00
MN-54	19.	834.83	9.4614E-02
CO-56	22.	846.76	1.0390E-01
CO-57	3143.	122.06	3.8807E-01
CO-58	17.	810.78	8.9558E-02
FE-59	18.	1099.25	2.0741E-01
CO-60	17.	1332.50	1.3242E-01
SE-75	3194.	264.66	8.3961E-01
SR-85	1803.	514.01	6.3970E-01
Y-88	2.	1836.06	5.9352E-02
NB-94	29.	871.09	1.2197E-01
ZRNB-95	45.	724.18	2.9597E-01
RU-103	2226.	497.08	7.3006E-01
RURH-106	648.	621.93	8.7261E+00
AG-108m	37.	722.94	1.3030E-01
CD-109	2663.	88.03	1.1828E+01
AG-110M	3256.	657.76	1.0752E+00
SN-113	3129.	391.69	1.0172E+00
TE-123m	2994.	159.00	3.8970E-01
SB-124	637.	602.73	4.2742E-01
SB-125	3637.	427.89	2.5602E+00
TE-125m	2809.	109.27	1.1945E+02
I-131	2900.	364.48	7.3223E-01
CS-134	640.	604.70	4.3036E-01
BA-140	1297.	537.31	2.2173E+00
LA-140	5.	1596.21	8.6434E-02
CEPR-144	3152.	133.51	5.8782E+00
EU-152	3.	1408.01	2.7387E-01
EU-154	27.	1274.51	4.7199E-01
EU-155	2832.	105.31	1.6019E+00
HG-203	3075.	279.20	6.1432E-01
TL-208	3157.	277.36	7.9961E+00
BI-212	36.	727.18	1.7461E+00
PB-212	3536.	238.63	1.0987E+00
BI-214	705.	609.31	9.9007E-01
PB-214	2944.	351.92	2.9082E+00
RA-224	3425.	240.99	1.2006E+01
RA-226	4248.	186.10	1.2207E+01
AC-228	34.	911.21	5.1984E-01
TH-228	2625.	84.37	3.6171E+01
TH-229	2657.	88.47	1.7125E+00
PA-233	2909.	312.17	1.3702E+00
UTH-233	3439.	245.34	4.5096E+02
PA-234M	15.	1001.03	1.6922E-01
TH-234	2391.	63.29	2.3251E+01
U-235	4198.	185.71	7.3751E-01
NP-237	2736.	86.48	3.6014E+00

Sample ID : S96T2672-DUP Acquisition date : 11-JUN-1996 18:19:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2928.	106.12	1.5475E+00
PU-239	3068.	129.30	5.0470E+03
AM-241	2546.	59.54	4.2339E+00
AM-243	2594.	74.67	1.0045E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room    11-JUN-1996 20:15:19.82                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9806
Sample ID:               S96T2757-SAM                    Removed by:
Sample Size:             2.50000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                             Verified by:
File Number:             dka300:[spec.GEA3]3g3700.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:11.90 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-JUN-1996 19:22:27.30
Decayed to:              11-JUN-1996 19:22:27.30
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.50*	94890	1.57	1323.18	1316	16	0.7		CS-137	429.
0	1460.51*	21	1.67	2921.50	2913	18	119.6		K-40	1.46

Sample ID : S96T2757-SAM Acquisition date : 11-JUN-1996 19:22:27

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~~	~~1.457E+00~~	~~1.457E+00~~	~~1.743E+00~~	~~119.62~~	
CS-137	30.00Y	1.000	4.290E+02	4.290E+02	0.028E+02	0.66	
			---	---			
Total Activity :			4.305E+02	4.305E+02			
Grand Total Activity :			4.305E+02	4.305E+02			

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

Sample ID : S96T2757-SAM Acquisition date : 11-JUN-1996 19:22:27

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2803.	477.59	6.9771E+00
NA-22	22.	1274.53	1.4660E-01
NA-24	4.	1368.55	6.7747E-02
CR-51	2283.	320.08	4.7384E+00
MN-54	22.	834.83	1.0206E-01
CO-56	20.	846.76	9.8869E-02
CO-57	2558.	122.06	3.5009E-01
CO-58	22.	810.78	1.0092E-01
FE-59	12.	1099.25	1.6927E-01
CO-60	27.	1332.50	1.6818E-01
SE-75	2548.	264.66	7.4996E-01
SR-85	1478.	514.01	5.7921E-01
Y-88	3.	1836.06	7.2691E-02
NB-94	27.	871.09	1.1880E-01
ZRNB-95	36.	724.18	2.6643E-01
RU-103	1732.	497.08	6.4398E-01
RURH-106	482.	621.93	7.5275E+00
AG-108m	40.	722.94	1.3527E-01
CD-109	2128.	88.03	1.0575E+01
AG-110M	2600.	657.76	9.6082E-01
SN-113	2464.	391.69	9.0270E-01
TE-123m	2446.	159.00	3.5224E-01
SB-124	554.	602.73	3.9851E-01
SB-125	2897.	427.89	2.2851E+00
TE-125m	2288.	109.27	1.0780E+02
I-131	2333.	364.48	6.5675E-01
CS-134	547.	604.70	3.9782E-01
BA-140	1035.	537.31	1.9812E+00
LA-140	7.	1596.21	1.0443E-01
CEPR-144	2492.	133.51	5.2268E+00
EU-152	12.	1408.01	5.5367E-01
EU-154	22.	1274.51	4.2630E-01
EU-155	2179.	105.31	1.4052E+00
HG-203	2344.	279.20	5.3643E-01
TL-208	2415.	277.36	6.9941E+00
BI-212	40.	727.18	1.8447E+00
PB-212	2778.	238.63	9.7387E-01
BI-214	565.	609.31	8.8651E-01
PB-214	2289.	351.92	2.5629E+00
RA-224	2685.	240.99	1.0629E+01
RA-226	3232.	186.10	1.0647E+01
AC-228	30.	911.21	4.8437E-01
TH-228	2089.	84.37	3.2263E+01
TH-229	2056.	88.47	1.5065E+00
PA-233	2281.	312.17	1.2132E+00
UTH-233	2799.	245.34	4.0681E+02
PA-234M	19.	1001.03	1.8745E-01
TH-234	1987.	63.29	2.1195E+01
U-235	3225.	185.71	6.4644E-01
NP-237	2107.	86.48	3.1605E+00
NP-239	2122.	106.12	1.3174E+00

Sample ID : S96T2757-SAM Acquisition date : 11-JUN-1996 19:22:27

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	2475.	129.30	4.5330E+03
AM-241	1964.	59.54	3.7185E+00
AM-243	2024.	74.67	8.8735E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    11-JUN-1996 21:13:15.60                *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9806
Sample ID:               S96T2757-DUP
Sample Size:             2.50000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3701.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:10.84 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       11-JUN-1996 20:22:25.02
Decayed to:              11-JUN-1996 20:22:25.02
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
*****************************************************************************
```

Removed by: Em Barela

Verified by: D Machelor 6/13/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.50*	85847	1.56	1323.17	1315	17	0.7		CS-137	388.

Sample ID : S96T2757-DUP Acquisition date : 11-JUN-1996 20:22:25

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	3.881E+02	3.881E+02	0.027E+02	0.69	
		Total Activity :	3.881E+02	3.881E+02			
		Grand Total Activity :	3.881E+02	3.881E+02			

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

Sample ID : S96T2757-DUP Acquisition date : 11-JUN-1996 20:22:25

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2575.	477.59	6.6868E+00
NA-22	22.	1274.53	1.4651E-01
NA-24	12.	1368.55	1.1648E-01
K-40	126.	1460.75	3.6797E+00
CR-51	2033.	320.08	4.4709E+00
MN-54	11.	834.83	7.2714E-02
CO-56	21.	846.76	1.0245E-01
CO-57	2230.	122.06	3.2691E-01
CO-58	26.	810.78	1.0885E-01
FE-59	14.	1099.25	1.8275E-01
CO-60	14.	1332.50	1.2090E-01
SE-75	2309.	264.66	7.1389E-01
SR-85	1274.	514.01	5.3780E-01
Y-88	4.	1836.06	8.3936E-02
NB-94	28.	871.09	1.2045E-01
ZRNB-95	37.	724.18	2.6848E-01
RU-103	1566.	497.08	6.1233E-01
RURH-106	460.	621.93	7.3500E+00
AG-108m	31.	722.94	1.1782E-01
CD-109	2009.	88.03	1.0273E+01
AG-110M	2380.	657.76	9.1921E-01
SN-113	2296.	391.69	8.7145E-01
TE-123m	2243.	159.00	3.3728E-01
SB-124	459.	602.73	3.6288E-01
SB-125	2616.	427.89	2.1715E+00
TE-125m	2011.	109.27	1.0108E+02
I-131	2107.	364.48	6.2409E-01
CS-134	435.	604.70	3.5490E-01
BA-140	965.	537.31	1.9129E+00
LA-140	0.	1596.21	0.0000E+00
CEPR-144	2242.	133.51	4.9579E+00
EU-152	11.	1408.01	5.3124E-01
EU-154	22.	1274.51	4.2564E-01
EU-155	2005.	105.31	1.3478E+00
HG-203	2161.	279.20	5.1501E-01
TL-208	2210.	277.36	6.6908E+00
BI-212	31.	727.18	1.6211E+00
PB-212	2645.	238.63	9.5033E-01
BI-214	504.	609.31	8.3754E-01
PB-214	2074.	351.92	2.4392E+00
RA-224	2616.	240.99	1.0494E+01
RA-226	3026.	186.10	1.0303E+01
AC-228	34.	911.21	5.1889E-01
TH-228	1987.	84.37	3.1471E+01
TH-229	1988.	88.47	1.4812E+00
PA-233	2038.	312.17	1.1467E+00
UTH-233	2484.	245.34	3.8323E+02
PA-234M	15.	1001.03	1.6831E-01
TH-234	1782.	63.29	2.0071E+01
U-235	3001.	185.71	6.2360E-01
NP-237	2014.	86.48	3.0900E+00

WM-PR-189, REV.
Sample ID : S96T2757-DUP Acquisition date : 11-JUN-1996 20:22:25

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	1999.	106.12	1.2738E+00
PU-239	2266.	129.30	4.3372E+03
AM-241	1776.	59.54	3.5363E+00
AM-243	1934.	74.67	8.6737E-01

06/13/96 14:31
A-0004-1

LABCORE Data Entry Template for Worklist# 9946

Analyst: CRJ **Instrument:** GEA00 1 **Book#** 54 B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-102 USE .100ML SAMPLE SIZE. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-02	SOLID		
2	BLNK-PREP				@GEA-02	SOLID		
3	SAMPLE	S96T002648	0	F	@GEA-02	SOLID	96000569	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T002648	0	F	@GEA-02	SOLID		
5	SAMPLE	S96T002649	0	F	@GEA-02	SOLID	96000569	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T002649	0	F	@GEA-02	SOLID		
7	SAMPLE	S96T002654	0	F	@GEA-02	SOLID	96000569	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
8	DUP	S96T002654	0	F	@GEA-02	SOLID		

Final page for worklist # 9946

C Johnson 6/17/96
Analyst Signature **Date**

[illegible] 6/18/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9946

Analyst: crj **Instrument:** GEA01 **Book#** 54B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-102 USE .100ML SAMPLE SIZE. RCJ

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-02	CO60-02	SOLID	2.429e-02		2.54e-02	104.570	% Recovery
1	STD		0		@GEA-02	CO60-02E	SOLID	1		1.33	1.330	% Ct Error
1	STD		0		@GEA-02	CS13702	SOLID	2.217e-02		2.26e-02	101.940	% Recovery
1	STD		0		@GEA-02	CS13702E	SOLID	1		1.69	1.690	% Ct Error
2	BLNK-PREP		0		@GEA-02	CO60-02	SOLID	1		<2.15e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	CS13702	SOLID	1		<2.81e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15402	SOLID	1		<7.49e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15502	SOLID	1		<5.79e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	AM24102	SOLID	1		<3.01e-1		uCi/g
3	SAMPLE	S96T002648	0	F	@GEA-02	CO60-02	SOLID	N/A	<	2.475e-01	248.0e-003	uCi/g
3	SAMPLE	S96T002648	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002648	0	F	@GEA-02	CS13702	SOLID	N/A		1.151e+02	0.0e+000	uCi/g
3	SAMPLE	S96T002648	0	F	@GEA-02	CS13702E	SOLID	N/A		1.49	0.0e+000	% Ct. Error
3	SAMPLE	S96T002648	0	F	@GEA-02	EU15402	SOLID	N/A	<	8.646e-01	865.0e-003	uCi/g
3	SAMPLE	S96T002648	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002648	0	F	@GEA-02	EU15502	SOLID	N/A	<	8.663e-01	866.0e-003	uCi/g
3	SAMPLE	S96T002648	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002648	0	F	@GEA-02	AM24102	SOLID	N/A	<	5.830e+02	583.0e+000	uCi/g
3	SAMPLE	S96T002648	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
4	DUP	S96T002648	0	F	@GEA-02	CO60-02	SOLID	<2.47e-1		<2.59e-1		RPD
4	DUP	S96T002648	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002648	0	F	@GEA-02	CS13702	SOLID	1.15e+02		1.11e+02	3.540	RPD
4	DUP	S96T002648	0	F	@GEA-02	CS13702E	SOLID	1		1.51	1.510	% Ct Error
4	DUP	S96T002648	0	F	@GEA-02	EU15402	SOLID	<8.65e-1		<8.38e-1		RPD
4	DUP	S96T002648	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002648	0	F	@GEA-02	EU15502	SOLID	<8.66e-1		<8.51e-1		RPD
4	DUP	S96T002648	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002648	0	F	@GEA-02	AM24102	SOLID	<5.83e2		<6.24e2		RPD
4	DUP	S96T002648	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
5	SAMPLE	S96T002649	0	F	@GEA-02	CO60-02	SOLID	N/A	<	1.847e-01	185.0e-003	uCi/g
5	SAMPLE	S96T002649	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002649	0	F	@GEA-02	CS13702	SOLID	N/A		1.198e+02	0.0e+000	uCi/g
5	SAMPLE	S96T002649	0	F	@GEA-02	CS13702E	SOLID	N/A		1.47	0.0e+000	% Ct. Error
5	SAMPLE	S96T002649	0	F	@GEA-02	EU15402	SOLID	N/A	<	8.038e-01	804.0e-003	uCi/g
5	SAMPLE	S96T002649	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002649	0	F	@GEA-02	EU15502	SOLID	N/A	<	8.403e-01	840.0e-003	uCi/g
5	SAMPLE	S96T002649	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002649	0	F	@GEA-02	AM24102	SOLID	N/A	<	4.384e-01	438.0e-003	uCi/g
5	SAMPLE	S96T002649	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	DUP	S96T002649	0	F	@GEA-02	CO60-02	SOLID	<1.85e-1		<2.10e-1		RPD
5	DUP	S96T002649	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#: 9946

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
6	DUP	S96T002649	0	F	@GEA-02	CS13702	SOLID	1.20e+02		1.13e+02	6.009	RPD
6	DUP	S96T002649	0	F	@GEA-02	CS13702E	SOLID	1		1.48	1.480	% Ct Error
6	DUP	S96T002649	0	F	@GEA-02	EU15402	SOLID	<8.04e-1		<7.05e-1		RPD
6	DUP	S96T002649	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002649	0	F	@GEA-02	EU15502	SOLID	<8.40e-1		<7.94e-1		RPD
6	DUP	S96T002649	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002649	0	F	@GEA-02	AM24102	SOLID	<4.38e-1		<4.46e-1		RPD
6	DUP	S96T002649	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
7	SAMPLE	S96T002654	0	F	@GEA-02	CO60-02	SOLID	N/A	<	1.847e-01	185.0e-003	uCi/g
7	SAMPLE	S96T002654	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002654	0	F	@GEA-02	CS13702	SOLID	N/A		1.381e+02	0.0e+000	uCi/g
7	SAMPLE	S96T002654	0	F	@GEA-02	CS13702E	SOLID	N/A		1.33	0.0e+000	% Ct. Error
7	SAMPLE	S96T002654	0	F	@GEA-02	EU15402	SOLID	N/A	<	7.269e-01	727.0e-003	uCi/g
7	SAMPLE	S96T002654	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002654	0	F	@GEA-02	EU15502	SOLID	N/A	<	8.340e-01	834.0e-003	uCi/g
7	SAMPLE	S96T002654	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002654	0	F	@GEA-02	AM24102	SOLID	N/A	<	4.369e-01	437.0e-003	uCi/g
7	SAMPLE	S96T002654	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
8	DUP	S96T002654	0	F	@GEA-02	CO60-02	SOLID	<1.85e-1		<1.96e-1		RPD
8	DUP	S96T002654	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002654	0	F	@GEA-02	CS13702	SOLID	1.38e+02		1.38e+02	0.000	RPD
8	DUP	S96T002654	0	F	@GEA-02	CS13702E	SOLID	1		1.31	1.310	% Ct Error
8	DUP	S96T002654	0	F	@GEA-02	EU15402	SOLID	<7.27e-1		<6.98e-1		RPD
8	DUP	S96T002654	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002654	0	F	@GEA-02	EU15502	SOLID	<8.34e-1		<7.82e-1		RPD
8	DUP	S96T002654	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002654	0	F	@GEA-02	AM24102	SOLID	<4.37e-1		<4.35e-1		RPD
8	DUP	S96T002654	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error

Comments Section:

Comments for sample# S96T002648 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002649 **and test** @GEA-02 .
Dl=0 => n/a.

Comments for sample# S96T002654 **and test** @GEA-02 .
Dl=0 => n/a.

Final page for worklist# 9946

Analyst Signature **Date**

Analyst Signature **Date**

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

LABCORE Completed RadChem Report for Worklist#: 9946

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

Reviewer Signature: B Machelor Date: 6/19/96

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

```
*****************************************************************************
* 222-S Laboratory Counting Room   17-JUN-1996 19:15:41.07                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9946
Sample ID:               WL9946-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1170.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:26.10 sec
Dead Time:               0.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       17-JUN-1996 18:24:39.22
Decayed to:              17-JUN-1996 18:24:39.22
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
*****************************************************************************
```

Removed by: ALJ 6-17-96

Verified by: B Machelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.75	3486	1.09	64.15	59	11	6.9			
0	36.37	861	0.85	73.38	70	8	18.3			
0	661.47*	18688	1.40	1323.58	1316	16	1.7		CS-137	22.6
0	1172.82	14640	1.82	2346.53	2338	19	1.9		CO-60	25.2
0	1331.98	13447	1.92	2664.99	2655	21	1.8		CO-60	25.6
0	1525.55	21	1.54	3052.32	3050	7	53.5			

Sample ID : WL9946-STD Acquisition date : 17-JUN-1996 18:24:39

Total number of lines in spectrum	6	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	3	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.543E+01	2.543E+01	0.034E+01	1.33	
CS-137	30.00Y	1.000	2.263E+01	2.263E+01	0.038E+01	1.69	
		Total Activity :	4.806E+01	4.806E+01			
		Grand Total Activity :	4.806E+01	4.806E+01			

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

Minimum Detectable Activity Report
Sample ID : WL9946-STD Acquisition date : 17-JUN-1996 18:24:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1165.	477.59	1.1685E+00
NA-22	94.	1274.53	8.3013E-02
NA-24	42.	1368.55	6.0083E-02
K-40	568.	1460.75	2.1279E+00
CR-51	1258.	320.08	8.7159E-01
MN-54	761.	834.83	1.6390E-01
CO-56	828.	846.76	1.7333E-01
CO-57	1471.	122.06	5.7827E-02
CO-58	725.	810.78	1.5670E-01
FE-59	715.	1099.25	3.5836E-01
SE-75	1321.	264.66	1.3139E-01
SR-85	902.	514.01	1.1865E-01
Y-88	18.	1836.06	4.7781E-02
NB-94	902.	871.09	1.8560E-01
ZRNB-95	664.	724.18	3.0754E-01
RU-103	969.	497.08	1.2581E-01
RURH-106	740.	621.93	2.4835E+00
AG-108m	677.	722.94	1.4917E-01
CD-109	1281.	88.03	1.1599E+00
AG-110M	1225.	657.76	1.7656E-01
SN-113	1150.	391.69	1.5669E-01
TE-123m	1359.	159.00	6.4961E-02
SB-124	726.	602.73	1.2120E-01
SB-125	1236.	427.89	3.8299E-01
TE-125m	1341.	109.27	1.6113E+01
I-131	1107.	364.48	1.1379E-01
CS-134	711.	604.70	1.2053E-01
BA-140	780.	537.31	4.5312E-01
LA-140	20.	1596.21	4.8007E-02
CEPR-144	1418.	133.51	9.1536E-01
EU-152	48.	1408.01	3.0717E-01
EU-154	94.	1274.51	2.4129E-01
EU-155	1238.	105.31	1.9781E-01
HG-203	1237.	279.20	9.5365E-02
TL-208	1285.	277.36	1.2480E+00
BI-212	702.	727.18	2.0854E+00
PB-212	1532.	238.63	1.7509E-01
BI-214	862.	609.31	2.9126E-01
PB-214	1234.	351.92	4.7230E-01
RA-224	1490.	240.99	1.9168E+00
RA-226	1633.	186.10	1.8845E+00
AC-228	1084.	911.21	7.9545E-01
TH-228	1281.	84.37	3.2823E+00
TH-229	1275.	88.47	1.6929E-01
PA-233	1286.	312.17	2.2533E-01
UTH-233	1346.	245.34	6.8298E+01
PA-234M	834.	1001.03	3.4178E-01
TH-234	1120.	63.29	8.5417E-01
U-235	1631.	185.71	1.1449E-01
NP-237	1322.	86.48	3.4190E-01
NP-239	1308.	106.12	1.9502E-01

Sample ID : WL9946-STD Acquisition date : 17-JUN-1996 18:24:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1471.	129.30	7.9502E+02
AM-241	1120.	59.54	1.0787E-01
AM-243	1354.	74.67	7.0272E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room    17-JUN-1996 20:12:47.26                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                9946
Sample ID:                 WL9946-BLK
Sample Size:               1.00000E-04 L
Dilution Factor:           1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:               dka300:[spec.GEA1]lg1171.cnf
Geometry:                  41
Count Time:                0 00:50:00.00 sec
Real Time:                 0 00:50:11.31 sec
Dead Time:                 0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:         17-JUN-1996 19:21:59.22
Decayed to:                17-JUN-1996 19:21:59.22
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
*****************************************************************************
```

Removed by: ALJ 6-17-96

Verified by: BMachelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	16.44	97	1.37	33.53	30	8	78.9			
0	238.72*	64	1.40	478.04	474	8	110.3			
0	663.39	85	3.16	1327.40	1319	19	63.0			
0	1237.68*	32	1.53	2476.31	2470	12	95.6			

Sample ID : WL9946-BLK Acquisition date : 17-JUN-1996 19:21:59

Total number of lines in spectrum	4	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	2	50.00%

**** 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 : WL9946-BLK Acquisition date : 17-JUN-1996 19:21:59

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	113.	477.59	3.6382E+00
NA-22	39.	1274.53	5.3493E-01
NA-24	9.	1368.55	2.8139E-01
K-40	580.	1460.75	2.1490E+01
CR-51	248.	320.08	3.8727E+00
MN-54	58.	834.83	4.5210E-01
CO-56	61.	846.76	4.7165E-01
CO-57	557.	122.06	3.5583E-01
CO-58	59.	810.78	4.4758E-01
FE-59	42.	1099.25	8.6988E-01
CO-60	25.	1332.50	4.4544E-01
SE-75	282.	264.66	6.0748E-01
SR-85	117.	514.01	4.2769E-01
Y-88	10.	1836.06	3.5509E-01
NB-94	51.	871.09	4.4057E-01
ZRNB-95	55.	724.18	8.8499E-01
RU-103	118.	497.08	4.3993E-01
RURH-106	89.	621.93	8.6058E+00
AG-108m	57.	722.94	4.3112E-01
CD-109	421.	88.03	6.6501E+00
AG-110M	78.	657.76	4.4644E-01
SN-113	158.	391.69	5.8117E-01
TE-123m	504.	159.00	3.9560E-01
SB-124	83.	602.73	4.1096E-01
SB-125	155.	427.89	1.3570E+00
TE-125m	516.	109.27	9.9907E+01
I-131	155.	364.48	4.2624E-01
CS-134	80.	604.70	4.0542E-01
CS-137	107.	661.66	5.8268E-01
BA-140	90.	537.31	1.5370E+00
LA-140	12.	1596.21	3.7622E-01
CEPR-144	498.	133.51	5.4230E+00
EU-152	35.	1408.01	2.6060E+00
EU-154	39.	1274.51	1.5540E+00
EU-155	457.	105.31	1.2011E+00
HG-203	280.	279.20	4.5347E-01
TL-208	277.	277.36	5.7896E+00
BI-212	80.	727.18	7.0630E+00
PB-212	460.	238.63	9.5911E-01
BI-214	232.	609.31	1.5121E+00
PB-214	310.	351.92	2.3623E+00
RA-224	381.	240.99	9.6863E+00
RA-226	495.	186.10	1.0377E+01
AC-228	116.	911.21	2.5976E+00
TH-228	516.	84.37	2.0837E+01
TH-229	413.	88.47	9.6351E-01
PA-233	224.	312.17	9.4048E-01
UTH-233	322.	245.34	3.3428E+02
PA-234M	33.	1001.03	6.7795E-01
TH-234	380.	63.29	4.9765E+00
U-235	493.	185.71	6.2947E-01

C-SD-WM-DP-189 REV. 1
Sample ID : WL9946-BLK Acquisition date : 17-JUN-1996 19:21:59

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	467.	86.48	2.0324E+00
NP-239	480.	106.12	1.1810E+00
PU-239	520.	129.30	4.7261E+03
AM-241	377.	59.54	6.2545E-01
AM-243	537.	74.67	4.4241E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    17-JUN-1996 21:14:41.01                *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                9946
Sample ID:                 S96T002648-SAM
Sample Size:               1.00000E-04 L
Dilution Factor:           1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:               dka300:[spec.GEA1]1gl172.cnf
Geometry:                  41
Count Time:                0 00:50:00.00 sec
Real Time:                 0 00:50:16.30 sec
Dead Time:                 0.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:         17-JUN-1996 20:23:45.97
Decayed to:                17-JUN-1996 20:23:45.97
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
*****************************************************************************
```

Removed by: ALJ 6-17-96

Verified by: BBrachelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.85	3445	1.09	64.34	60	9	5.8			
0	36.30	1007	1.16	73.25	69	9	15.0			
0	59.43	175	1.15	119.51	117	7	63.0		AM-241	1.21
0	123.57	199	0.94	247.75	244	8	62.9			
0	661.49*	19713	1.43	1323.61	1316	15	1.5		CS-137	239.
0	1273.93	25	0.73	2548.83	2545	9	77.7			
0	1763.88*	41	1.95	3529.27	3520	17	51.8			

Sample ID : S96T002648-SAM Acquisition date : 17-JUN-1996 20:23:45

Total number of lines in spectrum	7	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	5	71.43%

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	2.387E+02	2.387E+02	0.036E+02	1.49	
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~1.210E+00~~	~~1.210E+00~~	~~0.763E+00~~	~~63.04~~	BKG
			---	---			
Total Activity :			2.399E+02	2.399E+02			
Grand Total Activity :			2.399E+02	2.399E+02			

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

Sample ID : S96T002648-SAM Acquisition date : 17-JUN-1996 20:23:45

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	722.	477.59	9.2014E+00
NA-22	52.	1274.53	6.1813E-01
NA-24	18.	1368.55	3.8624E-01
K-40	575.	1460.75	2.1405E+01
CR-51	670.	320.08	6.3619E+00
MN-54	71.	834.83	5.0150E-01
CO-56	61.	846.76	4.7212E-01
CO-57	1112.	122.06	5.0281E-01
CO-58	63.	810.78	4.6126E-01
FE-59	47.	1099.25	9.1978E-01
CO-60	34.	1332.50	5.1378E-01
SE-75	764.	264.66	9.9920E-01
SR-85	433.	514.01	8.2244E-01
Y-88	8.	1836.06	3.2827E-01
NB-94	57.	871.09	4.6663E-01
ZRNB-95	89.	724.18	1.1239E+00
RU-103	462.	497.08	8.6912E-01
RURH-106	154.	621.93	1.1336E+01
AG-108m	82.	722.94	5.2081E-01
CD-109	930.	88.03	9.8819E+00
AG-110M	746.	657.76	1.3779E+00
SN-113	681.	391.69	1.2055E+00
TE-123m	922.	159.00	5.3508E-01
SB-124	183.	602.73	6.0866E-01
SB-125	782.	427.89	3.0476E+00
TE-125m	944.	109.27	1.3515E+02
I-131	637.	364.48	8.6332E-01
CS-134	182.	604.70	6.1051E-01
BA-140	311.	537.31	2.8589E+00
LA-140	10.	1596.21	3.3467E-01
CEPR-144	1028.	133.51	7.7909E+00
EU-152	28.	1408.01	2.3630E+00
EU-154	52.	1274.51	1.7945E+00
EU-155	1023.	105.31	1.7980E+00
HG-203	736.	279.20	7.3553E-01
TL-208	701.	277.36	9.2153E+00
BI-212	93.	727.18	7.5909E+00
PB-212	969.	238.63	1.3926E+00
BI-214	333.	609.31	1.8089E+00
PB-214	828.	351.92	3.8620E+00
RA-224	905.	240.99	1.4935E+01
RA-226	1175.	186.10	1.5987E+01
AC-228	137.	911.21	2.8283E+00
TH-228	1000.	84.37	2.8998E+01
TH-229	884.	88.47	1.4097E+00
PA-233	687.	312.17	1.6471E+00
UTH-233	852.	245.34	5.4330E+02
PA-234M	45.	1001.03	7.9712E-01
TH-234	818.	63.29	7.3023E+00
U-235	1151.	185.71	9.6171E-01
NP-237	1052.	86.48	3.0491E+00

Minimum Detectable Activity Report (continued)
Sample ID : S96T002648-SAM Acquisition date : 17-JUN-1996 20:23:45

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	1018.	106.12	1.7206E+00
PU-239	1022.	129.30	6.6248E+03
AM-243	1059.	74.67	6.2137E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    17-JUN-1996 22:49:43.82                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9946
Sample ID:               S96T002648-DUP
Sample Size:             1.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]lg1173.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:16.01 sec
Dead Time:               0.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       17-JUN-1996 21:58:50.00
Decayed to:              17-JUN-1996 21:58:50.00
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
*****************************************************************************
```

Removed by: ALJ 6-17-96

Verified by: DBrachelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.81	132	1.26	44.26	41	8	88.0			
0	31.85	3209	1.08	64.34	60	9	6.1			
0	36.31	983	1.03	73.26	69	9	15.2			
0	59.29	183	1.03	119.22	116	7	59.1		AM-241	1.27
0	123.33	296	1.11	247.28	243	9	45.6		CO-57	0.961
0	609.08*	60	1.33	1218.79	1214	10	98.4			
0	661.48*	18560	1.39	1323.60	1316	15	1.5		CS-137	225.

HC-SD-WM-CP-189, REV. 1
Sample ID : S96T002648-DUP Acquisition date : 17-JUN-1996 21:58:50

Total number of lines in spectrum	7	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	4	57.14%

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~~	~~9.611E-01~~	~~9.612E-01~~	~~4.387E-01~~	~~45.65~~	~~INTERF~~
CS-137	30.00Y	1.000	2.247E+02	2.247E+02	0.034E+02	1.51	
~~PM-241~~	~~432.20Y~~	~~1.000~~	~~1.270E+00~~	~~1.270E+00~~	~~0.751E+00~~	~~59.13~~	~~BKG~~
		Total Activity :	2.269E+02	2.269E+02			
		Grand Total Activity :	2.269E+02	2.269E+02			

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

Minimum Detectable Activity Report
Sample ID : S96T002648-DUP Acquisition date : 17-JUN-1996 21:58:50

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	691.	477.59	8.9988E+00
NA-22	47.	1274.53	5.8811E-01
NA-24	23.	1368.55	4.3846E-01
K-40	559.	1460.75	2.1110E+01
CR-51	664.	320.08	6.3322E+00
MN-54	52.	834.83	4.2940E-01
CO-56	69.	846.76	5.0112E-01
CO-58	64.	810.78	4.6720E-01
FE-59	45.	1099.25	8.9628E-01
CO-60	35.	1332.50	5.2597E-01
SE-75	750.	264.66	9.8989E-01
SR-85	446.	514.01	8.3461E-01
Y-88	11.	1836.06	3.7454E-01
NB-94	68.	871.09	5.0858E-01
ZRNB-95	85.	724.18	1.0988E+00
RU-103	472.	497.08	8.7813E-01
RURH-106	169.	621.93	1.1883E+01
AG-108m	83.	722.94	5.2249E-01
CD-109	897.	88.03	9.7069E+00
AG-110M	668.	657.76	1.3040E+00
SN-113	640.	391.69	1.1690E+00
TE-123m	903.	159.00	5.2950E-01
SB-124	188.	602.73	6.1611E-01
SB-125	747.	427.89	2.9777E+00
TE-125m	890.	109.27	1.3129E+02
I-131	629.	364.48	8.5757E-01
CS-134	187.	604.70	6.1818E-01
BA-140	303.	537.31	2.8220E+00
LA-140	14.	1596.21	3.9549E-01
CEPR-144	978.	133.51	7.5992E+00
EU-152	25.	1408.01	2.2066E+00
EU-154	47.	1274.51	1.7054E+00
EU-155	949.	105.31	1.7316E+00
HG-203	714.	279.20	7.2452E-01
TL-208	729.	277.36	9.4005E+00
BI-212	81.	727.18	7.0718E+00
PB-212	922.	238.63	1.3581E+00
BI-214	354.	609.31	1.8652E+00
PB-214	733.	351.92	3.6335E+00
RA-224	853.	240.99	1.4502E+01
RA-226	1054.	186.10	1.5143E+01
AC-228	125.	911.21	2.6966E+00
TH-228	940.	84.37	2.8117E+01
TH-229	867.	88.47	1.3962E+00
PA-233	697.	312.17	1.6585E+00
UTH-233	750.	245.34	5.0993E+02
PA-234M	51.	1001.03	8.4720E-01
TH-234	842.	63.29	7.4089E+00
U-235	1074.	185.71	9.2913E-01
NP-237	999.	86.48	2.9716E+00
NP-239	932.	106.12	1.6464E+00

Sample ID : S96T002648-DUP Acquisition date : 17-JUN-1996 21:58:50

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	967.	129.30	6.4447E+03
AM-243	959.	74.67	5.9136E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    17-JUN-1996 23:45:28.93                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9946
Sample ID:               S96T002649-SAM
Sample Size:             1.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1174.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:16.20 sec
Dead Time:               0.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       17-JUN-1996 22:54:34.90
Decayed to:              17-JUN-1996 22:54:34.90
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
*****************************************************************************
```

Removed by: ALJ 6-17-96

Verified by: B Bachelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.83	3673	1.10	64.31	59	11	6.0			
0	36.35	978	1.05	73.35	70	9	14.6			
0	609.29*	62	1.71	1219.19	1216	9	88.6			
0	661.49*	20319	1.45	1323.61	1316	16	1.5		CS-137	246.
0	1121.46	46	4.77	2243.77	2232	20	121.8			
0	1460.22*	23	1.64	2921.58	2913	17	226.8		K-40	4.49

Sample ID : S96T002649-SAM Acquisition date : 17-JUN-1996 22:54:34

Total number of lines in spectrum	6	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	4	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~4.492E+00~~	~~4.492E+00~~	~~10.19E+00~~	~~226.80~~	~~acs~~
CS-137	30.00Y	1.000	2.460E+02	2.460E+02	0.036E+02	1.47	
		Total Activity :	2.505E+02	2.505E+02			
		Grand Total Activity :	2.505E+02	2.505E+02			

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

Sample ID : S96T002649-SAM Acquisition date : 17-JUN-1996 22:54:34

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	683.	477.59	8.9500E+00
NA-22	44.	1274.53	5.6787E-01
NA-24	13.	1368.55	3.3087E-01
CR-51	736.	320.08	6.6671E+00
MN-54	63.	834.83	4.7088E-01
CO-56	55.	846.76	4.4638E-01
CO-57	1015.	122.06	4.8043E-01
CO-58	36.	810.78	3.4885E-01
FE-59	35.	1099.25	7.9548E-01
CO-60	18.	1332.50	3.7923E-01
SE-75	734.	264.66	9.7953E-01
SR-85	438.	514.01	8.2719E-01
Y-88	1.	1836.06	1.1303E-01
NB-94	58.	871.09	4.6904E-01
ZRNB-95	68.	724.18	9.8570E-01
RU-103	491.	497.08	8.9590E-01
RURH-106	175.	621.93	1.2083E+01
AG-108m	79.	722.94	5.1117E-01
CD-109	873.	88.03	9.5724E+00
AG-110M	796.	657.76	1.4233E+00
SN-113	757.	391.69	1.2710E+00
TE-123m	903.	159.00	5.2970E-01
SB-124	186.	602.73	6.1352E-01
SB-125	753.	427.89	2.9892E+00
TE-125m	943.	109.27	1.3515E+02
I-131	686.	364.48	8.9558E-01
CS-134	183.	604.70	6.1188E-01
BA-140	302.	537.31	2.8193E+00
LA-140	10.	1596.21	3.3707E-01
CEPR-144	981.	133.51	7.6133E+00
EU-152	29.	1408.01	2.3947E+00
EU-154	44.	1274.51	1.6501E+00
EU-155	942.	105.31	1.7249E+00
HG-203	774.	279.20	7.5442E-01
TL-208	809.	277.36	9.9041E+00
BI-212	94.	727.18	7.6254E+00
PB-212	975.	238.63	1.3964E+00
BI-214	362.	609.31	1.8857E+00
PB-214	828.	351.92	3.8626E+00
RA-224	911.	240.99	1.4988E+01
RA-226	1153.	186.10	1.5836E+01
AC-228	132.	911.21	2.7755E+00
TH-228	924.	84.37	2.7881E+01
TH-229	852.	88.47	1.3839E+00
PA-233	712.	312.17	1.6767E+00
UTH-233	827.	245.34	5.3547E+02
PA-234M	50.	1001.03	8.3699E-01
TH-234	753.	63.29	7.0036E+00
U-235	1121.	185.71	9.4927E-01
NP-237	947.	86.48	2.8937E+00
NP-239	966.	106.12	1.6762E+00

Minimum Detectable Activity Report (continued)

Sample ID : S96T002649-SAM Acquisition date : 17-JUN-1996 22:54:34

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	972.	129.30	6.4614E+03
AM-241	780.	59.54	8.9989E-01
AM-243	902.	74.67	5.7354E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    18-JUN-1996 00:41:17.00                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9946
Sample ID:               S96T002649-DUE
Sample Size:             1.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1175.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:15.88 sec
Dead Time:               0.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       17-JUN-1996 23:50:23.39
Decayed to:              17-JUN-1996 23:50:23.39
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
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.88	3390	1.09	64.41	61	9	5.8			
0	36.34	876	1.11	73.32	69	8	15.3			
0	661.50*	19792	1.44	1323.64	1316	14	1.5		CS-137	240.

Removed by: 6-18-96

Verified by: 6/18/96

Sample ID : S96T002649-DUP Acquisition date : 17-JUN-1996 23:50:23

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.396E+02	2.396E+02	0.036E+02	1.48	
		Total Activity :	2.396E+02	2.396E+02			
		Grand Total Activity :	2.396E+02	2.396E+02			

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

Sample ID : S96T002649-DUP Acquisition date : 17-JUN-1996 23:50:23

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	693.	477.59	9.0118E+00
NA-22	36.	1274.53	5.1391E-01
NA-24	22.	1368.55	4.3279E-01
K-40	551.	1460.75	2.0953E+01
CR-51	665.	320.08	6.3404E+00
MN-54	43.	834.83	3.8960E-01
CO-56	50.	846.76	4.2586E-01
CO-57	1014.	122.06	4.8018E-01
CO-58	73.	810.78	4.9701E-01
FE-59	51.	1099.25	9.5621E-01
CO-60	25.	1332.50	4.4544E-01
SE-75	819.	264.66	1.0348E+00
SR-85	457.	514.01	8.4503E-01
Y-88	11.	1836.06	3.7968E-01
NB-94	49.	871.09	4.3393E-01
ZRNB-95	95.	724.18	1.1664E+00
RU-103	479.	497.08	8.8471E-01
RURH-106	160.	621.93	1.1560E+01
AG-108m	83.	722.94	5.2373E-01
CD-109	836.	88.03	9.3677E+00
AG-110M	761.	657.76	1.3909E+00
SN-113	725.	391.69	1.2441E+00
TE-123m	972.	159.00	5.4959E-01
SB-124	182.	602.73	6.0741E-01
SB-125	795.	427.89	3.0713E+00
TE-125m	917.	109.27	1.3325E+02
I-131	713.	364.48	9.1306E-01
CS-134	167.	604.70	5.8467E-01
BA-140	321.	537.31	2.9049E+00
LA-140	10.	1596.21	3.3963E-01
CEPR-144	977.	133.51	7.5966E+00
EU-152	24.	1408.01	2.1735E+00
EU-154	36.	1274.51	1.4933E+00
EU-155	897.	105.31	1.6837E+00
HG-203	696.	279.20	7.1521E-01
TL-208	723.	277.36	9.3581E+00
BI-212	100.	727.18	7.8666E+00
PB-212	961.	238.63	1.3866E+00
BI-214	342.	609.31	1.8353E+00
PB-214	817.	351.92	3.8356E+00
RA-224	903.	240.99	1.4921E+01
RA-226	1129.	186.10	1.5668E+01
AC-228	134.	911.21	2.7990E+00
TH-228	862.	84.37	2.6929E+01
TH-229	808.	88.47	1.3479E+00
PA-233	645.	312.17	1.5958E+00
UTH-233	831.	245.34	5.3665E+02
PA-234M	58.	1001.03	8.9970E-01
TH-234	787.	63.29	7.1593E+00
U-235	1113.	185.71	9.4602E-01
NP-237	899.	86.48	2.8187E+00

Minimum Detectable Activity Report (continued)
Sample ID : S96T002649-DUP Acquisition date : 17-JUN-1996 23:50:23

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	912.	106.12	1.6282E+00
PU-239	982.	129.30	6.4961E+03
AM-241	859.	59.54	9.4467E-01
AM-243	927.	74.67	5.8151E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    18-JUN-1996 01:57:26.05                *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9946
Sample ID:               S96T002654-SAM
Sample Size:             1.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]lg1176.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:17.78 sec
Dead Time:               0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       18-JUN-1996 01:06:28.89
Decayed to:              18-JUN-1996 01:06:28.89
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
*****************************************************************************
```

Removed by: ALJ 6-18-96

Verified by: BMachelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.87	4330	1.10	64.38	60	9	5.0			
0	36.39	1168	1.09	73.43	70	8	12.2			
0	661.50*	24707	1.44	1323.64	1316	16	1.3		CS-137	299.
0	1508.79*	8	1.26	3018.77	3015	7	136.2			

Summary of Nuclide Activity
Sample ID : S96T002654-SAM Acquisition date : 18-JUN-1996 01:06:28

Total number of lines in spectrum	4	
Number of unidentified lines	3	
Number of lines tentatively identified by NID	1	25.00%

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	2.991E+02	2.991E+02	0.040E+02	1.33	
		Total Activity :	2.991E+02	2.991E+02			
		Grand Total Activity :	2.991E+02	2.991E+02			

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

HNF-SD-WM-DP-189, REV. 1
Sample ID : S96T002654-SAM Acquisition date : 18-JUN-1996 01:06:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	928.	477.59	1.0429E+01
NA-22	40.	1274.53	5.4164E-01
NA-24	22.	1368.55	4.3564E-01
K-40	617.	1460.75	2.2170E+01
CR-51	855.	320.08	7.1878E+00
MN-54	59.	834.83	4.5523E-01
CO-56	61.	846.76	4.7222E-01
CO-57	1150.	122.06	5.1131E-01
CO-58	57.	810.78	4.3849E-01
FE-59	49.	1099.25	9.3459E-01
CO-60	20.	1332.50	3.9994E-01
SE-75	884.	264.66	1.0749E+00
SR-85	525.	514.01	9.0513E-01
Y-88	10.	1836.06	3.5744E-01
NB-94	61.	871.09	4.8245E-01
ZRNB-95	76.	724.18	1.0396E+00
RU-103	567.	497.08	9.6207E-01
RURH-106	216.	621.93	1.3427E+01
AG-108m	72.	722.94	4.8710E-01
CD-109	899.	88.03	9.7186E+00
AG-110M	845.	657.76	1.4659E+00
SN-113	885.	391.69	1.3745E+00
TE-123m	1060.	159.00	5.7379E-01
SB-124	213.	602.73	6.5654E-01
SB-125	945.	427.89	3.3495E+00
TE-125m	997.	109.27	1.3891E+02
I-131	768.	364.48	9.4807E-01
CS-134	185.	604.70	6.1408E-01
BA-140	387.	537.31	3.1887E+00
LA-140	21.	1596.21	4.9031E-01
CEPR-144	1121.	133.51	8.1378E+00
EU-152	26.	1408.01	2.2680E+00
EU-154	40.	1274.51	1.5738E+00
EU-155	1032.	105.31	1.8058E+00
HG-203	837.	279.20	7.8464E-01
TL-208	878.	277.36	1.0314E+01
BI-212	96.	727.18	7.6953E+00
PB-212	1101.	238.63	1.4841E+00
BI-214	340.	609.31	1.8279E+00
PB-214	959.	351.92	4.1567E+00
RA-224	1002.	240.99	1.5720E+01
RA-226	1279.	186.10	1.6681E+01
AC-228	130.	911.21	2.7515E+00
TH-228	1005.	84.37	2.9077E+01
TH-229	906.	88.47	1.4269E+00
PA-233	824.	312.17	1.8035E+00
UTH-233	925.	245.34	5.6618E+02
PA-234M	47.	1001.03	8.0791E-01
TH-234	826.	63.29	7.3358E+00
U-235	1262.	185.71	1.0073E+00
NP-237	961.	86.48	2.9154E+00

HNF-IG-SD-WM-DP-189, REV. 1
Sample ID : S96T002654-SAM Acquisition date : 18-JUN-1996 01:06:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	1041.	106.12	1.7398E+00
PU-239	1004.	129.30	6.5692E+03
AM-241	862.	59.54	9.4597E-01
AM-243	1004.	74.67	6.0511E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    18-JUN-1996 02:53:09.12                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                 9946
Sample ID:                  S96T002654-DUP
Sample Size:                1.00000E-04 L
Dilution Factor:            1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:                dka300:[spec.GEA1]lg1177.cnf
Geometry:                   41
Count Time:                 0 00:50:00.00 sec
Real Time:                  0 00:50:17.20 sec
Dead Time:                  0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:          18-JUN-1996 02:02:11.01
Decayed to:                 18-JUN-1996 02:02:11.01
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
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	8.95	579	1.68	18.56	15	9	17.5			
0	22.03	102	0.91	44.70	43	6	94.7			
0	31.80	4598	1.10	64.25	59	11	5.3			
0	36.26	1289	0.93	73.17	69	9	12.3			
0	661.50*	25457	1.42	1323.64	1316	15	1.3		CS-137	308.
0	1408.19	33	2.24	2817.48	2811	17	34.8			
0	1460.34*	38	1.88	2921.83	2914	16	157.5		K-40	7.36

Removed by: 6-18-96

Verified by: 6/18/96

Sample ID : S96T002654-DUP Acquisition date : 18-JUN-1996 02:02:11

Total number of lines in spectrum	7	
Number of unidentified lines	4	
Number of lines tentatively identified by NID	3	42.86%

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	~~7.357E+00~~	~~7.357E+00~~	~~11.59E+00~~	~~157.50~~	~~AKS~~
CS-137	30.00Y	1.000	3.082E+02	3.082E+02	0.040E+02	1.31	
		Total Activity :	3.156E+02	3.156E+02			
		Grand Total Activity :	3.156E+02	3.156E+02			

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

Sample ID : S96T002654-DUP Acquisition date : 18-JUN-1996 02:02:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	937.	477.59	1.0480E+01
NA-22	39.	1274.53	5.3504E-01
NA-24	19.	1368.55	4.0662E-01
CR-51	808.	320.08	6.9865E+00
MN-54	50.	834.83	4.2145E-01
CO-56	47.	846.76	4.1476E-01
CO-57	1143.	122.06	5.0974E-01
CO-58	64.	810.78	4.6670E-01
FE-59	50.	1099.25	9.4975E-01
CO-60	24.	1332.50	4.3602E-01
SE-75	906.	264.66	1.0885E+00
SR-85	486.	514.01	8.7152E-01
Y-88	8.	1836.06	3.1971E-01
NB-94	53.	871.09	4.4795E-01
ZRNB-95	67.	724.18	9.7578E-01
RU-103	577.	497.08	9.7116E-01
RURH-106	186.	621.93	1.2445E+01
AG-108m	66.	722.94	4.6464E-01
CD-109	1037.	88.03	1.0434E+01
AG-110M	897.	657.76	1.5102E+00
SN-113	854.	391.69	1.3504E+00
TE-123m	1052.	159.00	5.7158E-01
SB-124	213.	602.73	6.5598E-01
SB-125	989.	427.89	3.4258E+00
TE-125m	1088.	109.27	1.4512E+02
I-131	823.	364.48	9.8145E-01
CS-134	214.	604.70	6.6115E-01
BA-140	362.	537.31	3.0860E+00
LA-140	11.	1596.21	3.5829E-01
CEPR-144	1063.	133.51	7.9243E+00
EU-152	30.	1408.01	2.4300E+00
EU-154	39.	1274.51	1.5546E+00
EU-155	961.	105.31	1.7427E+00
HG-203	870.	279.20	7.9963E-01
TL-208	895.	277.36	1.0415E+01
BI-212	75.	727.18	6.8356E+00
PB-212	1100.	238.63	1.4834E+00
BI-214	385.	609.31	1.9453E+00
PB-214	911.	351.92	4.0515E+00
RA-224	1041.	240.99	1.6020E+01
RA-226	1329.	186.10	1.7005E+01
AC-228	132.	911.21	2.7751E+00
TH-228	1013.	84.37	2.9197E+01
TH-229	1002.	88.47	1.5004E+00
PA-233	816.	312.17	1.7951E+00
UTH-233	977.	245.34	5.8204E+02
PA-234M	45.	1001.03	7.9534E-01
TH-234	848.	63.29	7.4342E+00
U-235	1326.	185.71	1.0324E+00
NP-237	1057.	86.48	3.0566E+00
NP-239	971.	106.12	1.6803E+00

CSD-WM-P-189, REV. 1
Sample ID : S96T002654-DUP Acquisition date : 18-JUN-1996 02:02:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1088.	129.30	6.8381E+03
AM-241	904.	59.54	9.6878E-01
AM-243	1102.	74.67	6.3406E-01

LABCORE Data Entry Template for Worklist# 9947

Analyst: CRJ **Instrument:** GEA00 2 **Book#** 54B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-102 USE .200ML SAMPLE SIZE. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-02	SOLID		
2	BLNK-PREP				@GEA-02	SOLID		
3	SAMPLE	S96T002655	0	F	@GEA-02	SOLID	96000569	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T002655	0	F	@GEA-02	SOLID		
5	SAMPLE	S96T002662	0	F	@GEA-02	SOLID	96000569	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T002662	0	F	@GEA-02	SOLID		
7	SAMPLE	S96T002793	0	F	@GEA-02	SOLID	96000569	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
8	DUP	S96T002793	0	F	@GEA-02	SOLID		

Final page for worklist # 9947

C Johnson 6/17/96
Analyst Signature **Date**

M G Burr 6/18/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9947

Analyst: crj **Instrument:** GEA02 **Book#** 54B56

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-102 USE .200ML SAMPLE SIZE. RCJ

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-02	CO60-02	SOLID	2.429e-02		2.51e-02	103.335	% Recovery
1	STD		0		@GEA-02	CO60-02E	SOLID	1		1.39	1.390	% Ct Error
1	STD		0		@GEA-02	CS13702	SOLID	2.217e-02		2.19e-02	98.782	% Recovery
1	STD		0		@GEA-02	CS13702E	SOLID	1		1.84	1.840	% Ct Error
2	BLNK-PREP		0		@GEA-02	CO60-02	SOLID	1		<7.35e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	CS13702	SOLID	1		<2.07e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15402	SOLID	1		<2.33e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15502	SOLID	1		<1.89e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	AM24102	SOLID	1		<4.78e-1		uCi/g
3	SAMPLE	S96T002655	0	F	@GEA-02	CO60-02	SOLID	N/A	<	8.728e-02	872.8e-004	uCi/g
3	SAMPLE	S96T002655	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002655	0	F	@GEA-02	CS13702	SOLID	N/A		6.183e+01	0.0e+000	uCi/g
3	SAMPLE	S96T002655	0	F	@GEA-02	CS13702E	SOLID	N/A		1.53	0.0e+000	% Ct. Error
3	SAMPLE	S96T002655	0	F	@GEA-02	EU15402	SOLID	N/A	<	3.302e-01	330.0e-003	uCi/g
3	SAMPLE	S96T002655	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002655	0	F	@GEA-02	EU15502	SOLID	N/A	<	5.897e-01	590.0e-003	uCi/g
3	SAMPLE	S96T002655	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002655	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.187e+00	118.7e-002	uCi/g
3	SAMPLE	S96T002655	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
4	DUP	S96T002655	0	F	@GEA-02	CO60-02	SOLID	<8.73e-2		<7.21e-2		RPD
4	DUP	S96T002655	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002655	0	F	@GEA-02	CS13702	SOLID	6.18e+01		6.76e+01	8.964	RPD
4	DUP	S96T002655	0	F	@GEA-02	CS13702E	SOLID	1		1.39	1.390	% Ct Error
4	DUP	S96T002655	0	F	@GEA-02	EU15402	SOLID	<3.30e-1		<3.02e-1		RPD
4	DUP	S96T002655	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002655	0	F	@GEA-02	EU15502	SOLID	<5.90e-1		<5.57e-1		RPD
4	DUP	S96T002655	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002655	0	F	@GEA-02	AM24102	SOLID	<1.19e0		<1.20e0		RPD
4	DUP	S96T002655	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
5	SAMPLE	S96T002662	0	F	@GEA-02	CO60-02	SOLID	N/A	<	7.604e-02	760.4e-004	uCi/g
5	SAMPLE	S96T002662	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002662	0	F	@GEA-02	CS13702	SOLID	N/A		6.331e+01	0.0e+000	uCi/g
5	SAMPLE	S96T002662	0	F	@GEA-02	CS13702E	SOLID	N/A		1.45	0.0e+000	% Ct. Error
5	SAMPLE	S96T002662	0	F	@GEA-02	EU15402	SOLID	N/A	<	2.312e-01	231.0e-003	uCi/g
5	SAMPLE	S96T002662	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002662	0	F	@GEA-02	EU15502	SOLID	N/A	<	5.558e-01	556.0e-003	uCi/g
5	SAMPLE	S96T002662	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002662	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.130e+00	113.0e-002	uCi/g
5	SAMPLE	S96T002662	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
6	DUP	S96T002662	0	F	@GEA-02	CO60-02	SOLID	<7.60e-2		<7.87e-2		RPD
6	DUP	S96T002662	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#: 9947

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
6	DUP	S96T002662	0	F	@GEA-02	CS13702	SOLID	6.33e+01		6.24e+01	1.432	RPD
6	DUP	S96T002662	0	F	@GEA-02	CS13702E	SOLID	1		1.44	1.440	% Ct Error
6	DUP	S96T002662	0	F	@GEA-02	EU15402	SOLID	<2.31e-1		<2.74e-1		RPD
6	DUP	S96T002662	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002662	0	F	@GEA-02	EU15502	SOLID	<5.56e-1		<5.61e-1		RPD
6	DUP	S96T002662	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002662	0	F	@GEA-02	AM24102	SOLID	<1.13e0		<1.12e0		RPD
6	DUP	S96T002662	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
7	SAMPLE	S96T002793	0	F	@GEA-02	CO60-02	SOLID	N/A	<	9.379e-02	937.9e-004	uCi/g
7	SAMPLE	S96T002793	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002793	0	F	@GEA-02	CS13702	SOLID	N/A		1.407e+02	0.0e+000	uCi/g
7	SAMPLE	S96T002793	0	F	@GEA-02	CS13702E	SOLID	N/A		1.00	0.0e+000	% Ct. Error
7	SAMPLE	S96T002793	0	F	@GEA-02	EU15402	SOLID	N/A	<	2.879e-01	288.0e-003	uCi/g
7	SAMPLE	S96T002793	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002793	0	F	@GEA-02	EU15502	SOLID	N/A	<	8.285e-01	829.0e-003	uCi/g
7	SAMPLE	S96T002793	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002793	0	F	@GEA-02	AM24102	SOLID	N/A	<	1.754e+00	175.4e-002	uCi/g
7	SAMPLE	S96T002793	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
8	DUP	S96T002793	0	F	@GEA-02	CO60-02	SOLID	<9.38e-2		<9.88e-2		RPD
8	DUP	S96T002793	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002793	0	F	@GEA-02	CS13702	SOLID	1.41e+02		1.49e+02	5.517	RPD
8	DUP	S96T002793	0	F	@GEA-02	CS13702E	SOLID	1		0.990	0.990	% Ct Error
8	DUP	S96T002793	0	F	@GEA-02	EU15402	SOLID	<2.88e-1		<3.68e-1		RPD
8	DUP	S96T002793	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002793	0	F	@GEA-02	EU15502	SOLID	<8.29e-1		<8.86e-1		RPD
8	DUP	S96T002793	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002793	0	F	@GEA-02	AM24102	SOLID	<1.75e0		<1.80e0		RPD
8	DUP	S96T002793	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error

Comments Section:

Comments for sample# S96T002655 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002662 **and test** @GEA-02 .
DL=0 => n/a.

Comments for sample# S96T002793 **and test** @GEA-02 .
DL=0 => n/a.

Final page for worklist# 9947

Analyst Signature **Date**

Analyst Signature **Date**

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

LABCORE Completed RadChem Report for Worklist#: 9947

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

R. Bachelor 6/19/96
Reviewer Signature Date

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

```
*****************************************************************************
* 222-S Laboratory Counting Room    17-JUN-1996 19:17:23.43                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9947
Sample ID:               WL9947-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2013.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.04 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       17-JUN-1996 18:26:40.55
Decayed to:              17-JUN-1996 18:26:40.55
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

Removed by: ALJ 6-17-96

Verified by: BBmachelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.49*	15801	1.53	1323.01	1315	17	1.8		CS-137	21.9
0	1173.04	12829	1.86	2346.14	2336	20	2.0		CO-60	25.2
0	1332.30	11512	1.93	2664.76	2655	21	1.9		CO-60	25.0
0	1489.60	12	1.10	2979.50	2977	6	65.4			

Summary of Nuclide Activity
Sample ID : WL9947-STD Acquisition date : 17-JUN-1996 18:26:40

Total number of lines in spectrum	4	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	3	75.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.512E+01	2.512E+01	0.035E+01	1.39	
CS-137	30.00Y	1.000	2.193E+01	2.193E+01	0.040E+01	1.84	
		Total Activity :	4.705E+01	4.705E+01			
		Grand Total Activity :	4.705E+01	4.705E+01			

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

Sample ID : WL9947-STD Acquisition date : 17-JUN-1996 18:26:40

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	927.	477.59	1.2352E+00
NA-22	73.	1274.53	8.3355E-02
NA-24	24.	1368.55	5.1655E-02
K-40	130.	1460.75	1.1645E+00
CR-51	1065.	320.08	9.8767E-01
MN-54	658.	834.83	1.7183E-01
CO-56	621.	846.76	1.6894E-01
CO-57	1134.	122.06	7.5297E-02
CO-58	603.	810.78	1.6137E-01
FE-59	639.	1099.25	3.8439E-01
SE-75	1234.	264.66	1.6044E-01
SR-85	746.	514.01	1.2724E-01
Y-88	19.	1836.06	5.7340E-02
NB-94	695.	871.09	1.8316E-01
ZRNB-95	467.	724.18	2.9357E-01
RU-103	705.	497.08	1.2687E-01
RURH-106	589.	621.93	2.5569E+00
AG-108m	489.	722.94	1.4429E-01
CD-109	985.	88.03	2.4102E+00
AG-110M	1029.	657.76	1.8555E-01
SN-113	946.	391.69	1.6929E-01
TE-123m	1207.	159.00	7.7730E-02
SB-124	597.	602.73	1.2723E-01
SB-125	963.	427.89	4.0081E-01
TE-125m	1073.	109.27	2.4275E+01
I-131	945.	364.48	1.2672E-01
CS-134	570.	604.70	1.2490E-01
BA-140	601.	537.31	4.6697E-01
LA-140	18.	1596.21	5.3025E-02
CEPR-144	1217.	133.51	1.1656E+00
EU-152	23.	1408.01	2.4116E-01
EU-154	73.	1274.51	2.4204E-01
EU-155	1016.	105.31	3.1730E-01
HG-203	1102.	279.20	1.1284E-01
TL-208	1121.	277.36	1.4621E+00
BI-212	507.	727.18	2.0163E+00
PB-212	1317.	238.63	2.0708E-01
BI-214	605.	609.31	2.8209E-01
PB-214	976.	351.92	5.0809E-01
RA-224	1316.	240.99	2.2970E+00
RA-226	1294.	186.10	2.0982E+00
AC-228	782.	911.21	7.5847E-01
TH-228	1017.	84.37	7.5178E+00
TH-229	977.	88.47	3.4792E-01
PA-233	1050.	312.17	2.5144E-01
UTH-233	1228.	245.34	8.3145E+01
PA-234M	662.	1001.03	3.4371E-01
TH-234	918.	63.29	4.1615E+00
U-235	1292.	185.71	1.2746E-01
NP-237	988.	86.48	7.2412E-01
NP-239	1043.	106.12	3.0513E-01

Sample ID : WL9947-STD Acquisition date : 17-JUN-1996 18:26:40

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1152.	129.30	9.9080E+02
AM-241	986.	59.54	6.8656E-01
AM-243	971.	74.67	1.9967E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    17-JUN-1996 20:13:40.10                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9947
Sample ID:               WL9947-BLK
Sample Size:             2.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2014.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:       17-JUN-1996 19:23:03.86
Decayed to:              17-JUN-1996 19:23:03.86
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************

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

Removed by: ALJ 6-17-96

Verified by: BJ Michelor 6/18/96

Sample ID : WL9947-BLK Acquisition date : 17-JUN-1996 19:23:03

**** 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 : WL9947-BLK Acquisition date : 17-JUN-1996 19:23:03

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	25.	477.59	1.0161E+00
NA-22	11.	1274.53	1.6378E-01
NA-24	9.	1368.55	1.5802E-01
K-40	107.	1460.75	5.2768E+00
CR-51	59.	320.08	1.1610E+00
MN-54	14.	834.83	1.2391E-01
CO-56	18.	846.76	1.4391E-01
CO-57	66.	122.06	9.0528E-02
CO-58	16.	810.78	1.3085E-01
FE-59	8.	1099.25	2.2061E-01
CO-60	9.	1332.50	1.4985E-01
SE-75	52.	264.66	1.6426E-01
SR-85	36.	514.01	1.4000E-01
Y-88	2.	1836.06	8.5072E-02
NB-94	15.	871.09	1.3451E-01
ZRNB-95	22.	724.18	3.1563E-01
RU-103	33.	497.08	1.3652E-01
RURH-106	17.	621.93	2.1853E+00
AG-108m	18.	722.94	1.3913E-01
CD-109	70.	88.03	3.2009E+00
AG-110M	22.	657.76	1.3707E-01
SN-113	34.	391.69	1.5945E-01
TE-123m	77.	159.00	9.8446E-02
SB-124	25.	602.73	1.3020E-01
SB-125	39.	427.89	4.0416E-01
TE-125m	73.	109.27	3.1755E+01
I-131	42.	364.48	1.3348E-01
CS-134	16.	604.70	1.0436E-01
CS-137	172.	661.66	4.2267E-01
BA-140	27.	537.31	4.9814E-01
LA-140	4.	1596.21	1.2336E-01
CEPR-144	71.	133.51	1.4115E+00
EU-152	7.	1408.01	6.5395E-01
EU-154	11.	1274.51	4.7584E-01
EU-155	60.	105.31	3.8539E-01
HG-203	73.	279.20	1.4502E-01
TL-208	61.	277.36	1.7057E+00
BI-212	21.	727.18	2.0622E+00
PB-212	90.	238.63	2.7122E-01
BI-214	37.	609.31	3.5112E-01
PB-214	59.	351.92	6.2564E-01
RA-224	58.	240.99	2.4140E+00
RA-226	91.	186.10	2.7838E+00
AC-228	25.	911.21	6.7328E-01
TH-228	81.	84.37	1.0599E+01
TH-229	66.	88.47	4.5234E-01
PA-233	56.	312.17	2.8965E-01
UTH-233	71.	245.34	9.9611E+01
PA-234M	21.	1001.03	3.0434E-01
TH-234	61.	63.29	5.3735E+00
U-235	94.	185.71	1.7149E-01

Minimum Detectable Activity Report (continued)
Sample ID : WL9947-BLK Acquisition date : 17-JUN-1996 19:23:03

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	73.	86.48	9.8107E-01
NP-239	58.	106.12	3.6024E-01
PU-239	80.	129.30	1.3082E+03
AM-241	79.	59.54	9.7375E-01
AM-243	73.	74.67	2.7378E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    17-JUN-1996 21:15:42.83                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9947
Sample ID:               S96T002655-SAM
Sample Size:             2.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2015.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:02.89 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       17-JUN-1996 20:25:02.24
Decayed to:              17-JUN-1996 20:25:02.24
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

Removed by: 6-17-96

Verified by: 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.51*	18208	1.52	1323.04	1316	15	1.5		CS-137	126.
0	1083.24	13	0.96	2166.49	2163	8	67.8			
0	1460.70*	14	2.13	2921.67	2915	14	163.8		K-40	1.51

Summary of Nuclide Activity
Sample ID : S96T002655-SAM Acquisition date : 17-JUN-1996 20:25:02

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~1.511E+00~~	~~1.511E+00~~	~~2.475E+00~~	~~163.81~~	BKG
CS-137	30.00Y	1.000	1.263E+02	1.263E+02	0.019E+02	1.53	
		Total Activity :	1.278E+02	1.278E+02			
		Grand Total Activity :	1.278E+02	1.278E+02			

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

Minimum Detectable Activity Report
Sample ID : S96T002655-SAM Acquisition date : 17-JUN-1996 20:25:02

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	597.	477.59	4.9565E+00
NA-22	23.	1274.53	2.3163E-01
NA-24	5.	1368.55	1.1219E-01
CR-51	511.	320.08	3.4207E+00
MN-54	19.	834.83	1.4632E-01
CO-56	18.	846.76	1.4391E-01
CO-57	693.	122.06	2.9430E-01
CO-58	14.	810.78	1.2150E-01
FE-59	11.	1099.25	2.5694E-01
CO-60	12.	1332.50	1.7788E-01
SE-75	596.	264.66	5.5751E-01
SR-85	341.	514.01	4.3025E-01
Y-88	1.	1836.06	6.5866E-02
NB-94	11.	871.09	1.1409E-01
ZRNB-95	29.	724.18	3.6476E-01
RU-103	380.	497.08	4.6581E-01
RURH-106	127.	621.93	5.9293E+00
AG-108m	23.	722.94	1.5485E-01
CD-109	545.	88.03	8.9583E+00
AG-110M	620.	657.76	7.2041E-01
SN-113	580.	391.69	6.6277E-01
TE-123m	584.	159.00	2.7045E-01
SB-124	143.	602.73	3.1094E-01
SB-125	613.	427.89	1.5992E+00
TE-125m	549.	109.27	8.6839E+01
I-131	486.	364.48	4.5439E-01
CS-134	151.	604.70	3.2144E-01
BA-140	259.	537.31	1.5322E+00
LA-140	8.	1596.21	1.7517E-01
CEPR-144	562.	133.51	3.9607E+00
EU-152	12.	1408.01	8.6037E-01
EU-154	23.	1274.51	6.7294E-01
EU-155	583.	105.31	1.2019E+00
HG-203	578.	279.20	4.0862E-01
TL-208	578.	277.36	5.2511E+00
BI-212	29.	727.18	2.3918E+00
PB-212	672.	238.63	7.3962E-01
BI-214	174.	609.31	7.5555E-01
PB-214	510.	351.92	1.8338E+00
RA-224	684.	240.99	8.2818E+00
RA-226	796.	186.10	8.2297E+00
AC-228	18.	911.21	5.7554E-01
TH-228	602.	84.37	2.8932E+01
TH-229	539.	88.47	1.2924E+00
PA-233	597.	312.17	9.4827E-01
UTH-233	649.	245.34	3.0227E+02
PA-234M	18.	1001.03	2.8375E-01
TH-234	509.	63.29	1.5488E+01
U-235	777.	185.71	4.9419E-01
NP-237	577.	86.48	2.7666E+00
NP-239	590.	106.12	1.1471E+00

Sample ID : S96T002655-SAM Acquisition date : 17-JUN-1996 20:25:02

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	589.	129.30	3.5417E+03
AM-241	490.	59.54	2.4201E+00
AM-243	510.	74.67	7.2380E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    17-JUN-1996 22:50:39.51                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9947
Sample ID:               S96T002655-DUP
Sample Size:             2.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2016.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:03.34 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       17-JUN-1996 21:59:58.77
Decayed to:              17-JUN-1996 21:59:58.77
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

Removed by: 6-17-96

Verified by: Machelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.50*	21635	1.55	1323.01	1315	16	1.4		CS-137	150.
0	1460.66*	22	1.91	2921.59	2914	15	106.8		K-40	2.39

Sample ID : S96T002655-DUP Acquisition date : 17-JUN-1996 21:59:58

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~~	~~2.389E+00~~	~~2.389E+00~~	~~2.552E+00~~	~~106.83~~	BKG
CS-137	30.00Y	1.000	1.501E+02	1.501E+02	0.021E+02	1.39	
		Total Activity :	1.525E+02	1.525E+02			
		Grand Total Activity :	1.525E+02	1.525E+02			

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

Minimum Detectable Activity Report
Sample ID : S96T002655-DUP Acquisition date : 17-JUN-1996 21:59:58

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	661.	477.59	5.2133E+00
NA-22	22.	1274.53	2.3029E-01
NA-24	3.	1368.55	9.0749E-02
CR-51	579.	320.08	3.6397E+00
MN-54	14.	834.83	1.2746E-01
CO-56	13.	846.76	1.2218E-01
CO-57	772.	122.06	3.1060E-01
CO-58	15.	810.78	1.2635E-01
FE-59	9.	1099.25	2.2527E-01
CO-60	10.	1332.50	1.5998E-01
SE-75	726.	264.66	6.1554E-01
SR-85	425.	514.01	4.8005E-01
Y-88	3.	1836.06	1.1307E-01
NB-94	17.	871.09	1.4267E-01
ZRNB-95	36.	724.18	4.0896E-01
RU-103	448.	497.08	5.0562E-01
RURH-106	155.	621.93	6.5546E+00
AG-108m	37.	722.94	1.9742E-01
CD-109	673.	88.03	9.9568E+00
AG-110M	683.	657.76	7.5564E-01
SN-113	682.	391.69	7.1842E-01
TE-123m	719.	159.00	2.9987E-01
SB-124	177.	602.73	3.4673E-01
SB-125	699.	427.89	1.7071E+00
TE-125m	670.	109.27	9.5932E+01
I-131	627.	364.48	5.1620E-01
CS-134	175.	604.70	3.4619E-01
BA-140	283.	537.31	1.6014E+00
LA-140	4.	1596.21	1.2336E-01
CEPR-144	716.	133.51	4.4722E+00
EU-152	5.	1408.01	5.6631E-01
EU-154	22.	1274.51	6.6907E-01
EU-155	616.	105.31	1.2351E+00
HG-203	671.	279.20	4.4026E-01
TL-208	628.	277.36	5.4743E+00
BI-212	22.	727.18	2.0884E+00
PB-212	735.	238.63	7.7357E-01
BI-214	191.	609.31	7.9357E-01
PB-214	674.	351.92	2.1093E+00
RA-224	727.	240.99	8.5406E+00
RA-226	865.	186.10	8.5777E+00
AC-228	34.	911.21	7.9100E-01
TH-228	610.	84.37	2.9121E+01
TH-229	657.	88.47	1.4268E+00
PA-233	631.	312.17	9.7448E-01
UTH-233	706.	245.34	3.1512E+02
PA-234M	13.	1001.03	2.4417E-01
TH-234	582.	63.29	1.6568E+01
U-235	856.	185.71	5.1876E-01
NP-237	644.	86.48	2.9233E+00
NP-239	636.	106.12	1.1910E+00

Minimum Detectable Activity Report (continued)
Sample ID : S96T002655-DUP Acquisition date : 17-JUN-1996 21:59:58

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	701.	129.30	3.8658E+03
AM-241	594.	59.54	2.6638E+00
AM-243	621.	74.67	7.9824E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    17-JUN-1996 23:46:58.09                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9947
Sample ID:               S96T002662-SAM
Sample Size:             2.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2017.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:03.14 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       17-JUN-1996 22:56:19.55
Decayed to:              17-JUN-1996 22:56:19.55
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

Removed by: ALJ 6-17-96

Verified by: B Bachelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.50*	20171	1.53	1323.02	1315	16	1.4		CS-137	140.
0	1460.57*	14	1.52	2921.41	2914	16	163.8		K-40	1.51

Summary of Nuclide Activity
Sample ID : S96T002662-SAM Acquisition date : 17-JUN-1996 22:56:19

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~~	~~1.511E+00~~	~~1.511E+00~~	~~2.475E+00~~	~~163.81~~	~~BKG~~
CS-137	30.00Y	1.000	1.400E+02	1.400E+02	0.020E+02	1.45	
			---	---			
Total Activity :			1.415E+02	1.415E+02			
Grand Total Activity :			1.415E+02	1.415E+02			

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

Minimum Detectable Activity Report
Sample ID : S96T002662-SAM Acquisition date : 17-JUN-1996 22:56:19

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	656.	477.59	5.1945E+00
NA-22	13.	1274.53	1.7600E-01
NA-24	7.	1368.55	1.3976E-01
CR-51	594.	320.08	3.6871E+00
MN-54	13.	834.83	1.1987E-01
CO-56	13.	846.76	1.2244E-01
CO-57	698.	122.06	2.9545E-01
CO-58	12.	810.78	1.1291E-01
FE-59	9.	1099.25	2.2770E-01
CO-60	11.	1332.50	1.6815E-01
SE-75	647.	264.66	5.8088E-01
SR-85	390.	514.01	4.6009E-01
Y-88	1.	1836.06	6.4097E-02
NB-94	25.	871.09	1.7335E-01
ZRNB-95	21.	724.18	3.1310E-01
RU-103	412.	497.08	4.8507E-01
RURH-106	160.	621.93	6.6641E+00
AG-108m	25.	722.94	1.6346E-01
CD-109	610.	88.03	9.4832E+00
AG-110M	670.	657.76	7.4865E-01
SN-113	601.	391.69	6.7435E-01
TE-123m	662.	159.00	2.8791E-01
SB-124	177.	602.73	3.4660E-01
SB-125	686.	427.89	1.6919E+00
TE-125m	629.	109.27	9.2942E+01
I-131	599.	364.48	5.0451E-01
CS-134	185.	604.70	3.5548E-01
BA-140	249.	537.31	1.5033E+00
LA-140	5.	1596.21	1.3792E-01
CEPR-144	639.	133.51	4.2232E+00
EU-152	8.	1408.01	7.2278E-01
EU-154	13.	1274.51	5.1132E-01
EU-155	610.	105.31	1.2289E+00
HG-203	609.	279.20	4.1951E-01
TL-208	599.	277.36	5.3452E+00
BI-212	18.	727.18	1.9076E+00
PB-212	707.	238.63	7.5863E-01
BI-214	177.	609.31	7.6310E-01
PB-214	623.	351.92	2.0280E+00
RA-224	708.	240.99	8.4266E+00
RA-226	815.	186.10	8.3260E+00
AC-228	29.	911.21	7.3317E-01
TH-228	614.	84.37	2.9202E+01
TH-229	623.	88.47	1.3885E+00
PA-233	572.	312.17	9.2802E-01
UTH-233	685.	245.34	3.1042E+02
PA-234M	8.	1001.03	1.8649E-01
TH-234	531.	63.29	1.5821E+01
U-235	812.	185.71	5.0504E-01
NP-237	627.	86.48	2.8840E+00
NP-239	624.	106.12	1.1804E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   18-JUN-1996 00:42:37.26                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9947
Sample ID:               S96T002662-DUP
Sample Size:             2.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2018.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:03.11 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       17-JUN-1996 23:51:56.12
Decayed to:              17-JUN-1996 23:51:56.12
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

Removed by: 6-18-96

Verified by: Bachelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.49*	19997	1.54	1323.01	1315	15	1.4		CS-137	139.

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	691.	129.30	3.8364E+03
AM-241	523.	59.54	2.4997E+00
AM-243	522.	74.67	7.3197E-01

Summary of Nuclide Activity
Sample ID : S96T002662-DUP Acquisition date : 17-JUN-1996 23:51:56

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	1.388E+02	1.388E+02	0.020E+02	1.44	
		Total Activity :	1.388E+02	1.388E+02			
		Grand Total Activity :	1.388E+02	1.388E+02			

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

Minimum Detectable Activity Report

Sample ID : S96T002662-DUP Acquisition date : 17-JUN-1996 23:51:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	630.	477.59	5.0923E+00
NA-22	19.	1274.53	2.1005E-01
NA-24	5.	1368.55	1.1741E-01
K-40	97.	1460.75	5.0139E+00
CR-51	577.	320.08	3.6332E+00
MN-54	16.	834.83	1.3447E-01
CO-56	10.	846.76	1.0718E-01
CO-57	694.	122.06	2.9447E-01
CO-58	13.	810.78	1.1654E-01
FE-59	15.	1099.25	2.9453E-01
CO-60	12.	1332.50	1.7525E-01
SE-75	607.	264.66	5.6296E-01
SR-85	339.	514.01	4.2883E-01
Y-88	4.	1836.06	1.3173E-01
NB-94	13.	871.09	1.2720E-01
ZRNB-95	25.	724.18	3.4042E-01
RU-103	423.	497.08	4.9154E-01
RURH-106	150.	621.93	6.4402E+00
AG-108m	21.	722.94	1.4930E-01
CD-109	595.	88.03	9.3600E+00
AG-110M	645.	657.76	7.3430E-01
SN-113	670.	391.69	7.1216E-01
TE-123m	696.	159.00	2.9507E-01
SB-124	159.	602.73	3.2821E-01
SB-125	656.	427.89	1.6541E+00
TE-125m	669.	109.27	9.5891E+01
I-131	574.	364.48	4.9390E-01
CS-134	182.	604.70	3.5283E-01
BA-140	267.	537.31	1.5564E+00
LA-140	2.	1596.21	8.7231E-02
CEPR-144	706.	133.51	4.4402E+00
EU-152	9.	1408.01	7.6322E-01
EU-154	19.	1274.51	6.1024E-01
EU-155	629.	105.31	1.2485E+00
HG-203	598.	279.20	4.1567E-01
TL-208	605.	277.36	5.3720E+00
BI-212	22.	727.18	2.0845E+00
PB-212	714.	238.63	7.6221E-01
BI-214	166.	609.31	7.3843E-01
PB-214	611.	351.92	2.0077E+00
RA-224	729.	240.99	8.5505E+00
RA-226	850.	186.10	8.5050E+00
AC-228	35.	911.21	8.0736E-01
TH-228	592.	84.37	2.8671E+01
TH-229	570.	88.47	1.3280E+00
PA-233	531.	312.17	8.9421E-01
UTH-233	672.	245.34	3.0742E+02
PA-234M	8.	1001.03	1.9089E-01
TH-234	496.	63.29	1.5294E+01
U-235	853.	185.71	5.1765E-01
NP-237	622.	86.48	2.8732E+00

Minimum Detectable Activity Report (continued)

Sample ID : S96T002662-DUP Acquisition date : 17-JUN-1996 23:51:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	634.	106.12	1.1895E+00
PU-239	676.	129.30	3.7970E+03
AM-241	517.	59.54	2.4846E+00
AM-243	560.	74.67	7.5784E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    18-JUN-1996 01:58:24.69                *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9947
Sample ID:               S96T002793-SAM
Sample Size:             2.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2019.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:06.09 sec
Dead Time:               0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       18-JUN-1996 01:07:40.31
Decayed to:              18-JUN-1996 01:07:40.31
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
*****************************************************************************
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Removed by: ALJ 6-18-96

Verified by: B Bachelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.49*	42410	1.53	1322.99	1314	18	1.0		CS-137	294.

Sample ID : S96T002793-SAM Acquisition date : 18-JUN-1996 01:07:40

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	2.943E+02	2.943E+02	0.029E+02	1.00	
		Total Activity :	2.943E+02	2.943E+02			
		Grand Total Activity :	2.943E+02	2.943E+02			

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

Minimum Detectable Activity Report
Sample ID : S96T002793-SAM Acquisition date : 18-JUN-1996 01:07:40

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1372.	477.59	7.5134E+00
NA-22	18.	1274.53	2.0683E-01
NA-24	9.	1368.55	1.5361E-01
K-40	97.	1460.75	5.0296E+00
CR-51	1105.	320.08	5.0292E+00
MN-54	18.	834.83	1.4182E-01
CO-56	20.	846.76	1.5160E-01
CO-57	1327.	122.06	4.0722E-01
CO-58	22.	810.78	1.5288E-01
FE-59	8.	1099.25	2.1205E-01
CO-60	15.	1332.50	1.9594E-01
SE-75	1297.	264.66	8.2260E-01
SR-85	702.	514.01	6.1717E-01
Y-88	2.	1836.06	9.3148E-02
NB-94	19.	871.09	1.5272E-01
ZRNB-95	52.	724.18	4.8845E-01
RU-103	868.	497.08	7.0386E-01
RURH-106	282.	621.93	8.8440E+00
AG-108m	50.	722.94	2.3119E-01
CD-109	1152.	88.03	1.3031E+01
AG-110M	1451.	657.76	1.1015E+00
SN-113	1266.	391.69	9.7917E-01
TE-123m	1275.	159.00	3.9939E-01
SB-124	317.	602.73	4.6345E-01
SB-125	1421.	427.89	2.4339E+00
TE-125m	1286.	109.27	1.3290E+02
I-131	1123.	364.48	6.9069E-01
CS-134	312.	604.70	4.6226E-01
BA-140	515.	537.31	2.1598E+00
LA-140	4.	1596.21	1.2437E-01
CEPR-144	1342.	133.51	6.1220E+00
EU-152	5.	1408.01	5.3968E-01
EU-154	18.	1274.51	6.0157E-01
EU-155	1209.	105.31	1.7310E+00
HG-203	1195.	279.20	5.8743E-01
TL-208	1227.	277.36	7.6487E+00
BI-212	23.	727.18	2.1452E+00
PB-212	1434.	238.63	1.0803E+00
BI-214	318.	609.31	1.0229E+00
PB-214	1180.	351.92	2.7926E+00
RA-224	1380.	240.99	1.1763E+01
RA-226	1716.	186.10	1.2082E+01
AC-228	19.	911.21	5.9132E-01
TH-228	1123.	84.37	3.9504E+01
TH-229	1133.	88.47	1.8733E+00
PA-233	1173.	312.17	1.3289E+00
UTH-233	1385.	245.34	4.4142E+02
PA-234M	15.	1001.03	2.6255E-01
TH-234	1039.	63.29	2.2128E+01
U-235	1700.	185.71	7.3096E-01
NP-237	1122.	86.48	3.8584E+00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	1198.	106.12	1.6347E+00
PU-239	1342.	129.30	5.3486E+03
AM-241	1124.	59.54	3.6655E+00
AM-243	1095.	74.67	1.0600E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room    18-JUN-1996 02:54:07.81                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9947
Sample ID:               S96T002793-DUP
Sample Size:             2.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA2]2g2020.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:06.18 sec
Dead Time:               0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       18-JUN-1996 02:03:19.42
Decayed to:              18-JUN-1996 02:03:19.42
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
```

Removed by: ALJ 6-18-96

Verified by: BJ Machelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.49*	43227	1.53	1322.99	1314	17	1.0		CS-137	300.

Sample ID : S96T002793-DUP Acquisition date : 18-JUN-1996 02:03:19

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	2.999E+02	2.999E+02	0.030E+02	0.99	
		Total Activity :	2.999E+02	2.999E+02			
		Grand Total Activity :	2.999E+02	2.999E+02			

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

Minimum Detectable Activity Report
Sample ID : S96T002793-DUP Acquisition date : 18-JUN-1996 02:03:19

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1395.	477.59	7.5741E+00
NA-22	27.	1274.53	2.5485E-01
NA-24	6.	1368.55	1.2358E-01
K-40	98.	1460.75	5.0501E+00
CR-51	1233.	320.08	5.3130E+00
MN-54	23.	834.83	1.6176E-01
CO-56	19.	846.76	1.4785E-01
CO-57	1392.	122.06	4.1712E-01
CO-58	18.	810.78	1.3921E-01
FE-59	19.	1099.25	3.3000E-01
CO-60	15.	1332.50	1.9860E-01
SE-75	1287.	264.66	8.1949E-01
SR-85	699.	514.01	6.1592E-01
Y-88	1.	1836.06	6.5866E-02
NB-94	19.	871.09	1.4956E-01
ZRNB-95	34.	724.18	3.9676E-01
RU-103	868.	497.08	7.0386E-01
RURH-106	298.	621.93	9.0981E+00
AG-108m	34.	722.94	1.8915E-01
CD-109	1243.	88.03	1.3535E+01
AG-110M	1443.	657.76	1.0985E+00
SN-113	1233.	391.69	9.6601E-01
TE-123m	1375.	159.00	4.1477E-01
SB-124	319.	602.73	4.6500E-01
SB-125	1441.	427.89	2.4508E+00
TE-125m	1257.	109.27	1.3141E+02
I-131	1195.	364.48	7.1256E-01
CS-134	288.	604.70	4.4382E-01
BA-140	512.	537.31	2.1550E+00
LA-140	5.	1596.21	1.3883E-01
CEPR-144	1365.	133.51	6.1731E+00
EU-152	12.	1408.01	8.6273E-01
EU-154	27.	1274.51	7.4041E-01
EU-155	1281.	105.31	1.7818E+00
HG-203	1234.	279.20	5.9708E-01
TL-208	1271.	277.36	7.7855E+00
BI-212	20.	727.18	1.9799E+00
PB-212	1501.	238.63	1.1052E+00
BI-214	333.	609.31	1.0461E+00
PB-214	1169.	351.92	2.7795E+00
RA-224	1521.	240.99	1.2349E+01
RA-226	1671.	186.10	1.1922E+01
AC-228	32.	911.21	7.7243E-01
TH-228	1106.	84.37	3.9203E+01
TH-229	1217.	88.47	1.9410E+00
PA-233	1196.	312.17	1.3418E+00
UTH-233	1379.	245.34	4.4045E+02
PA-234M	23.	1001.03	3.2302E-01
TH-234	1082.	63.29	2.2587E+01
U-235	1642.	185.71	7.1849E-01
NP-237	1216.	86.48	4.0171E+00

Sample ID : S96T002793-DUP Acquisition date : 18-JUN-1996 02:03:19

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	1315.	106.12	1.7132E+00
PU-239	1338.	129.30	5.3402E+03
AM-241	1101.	59.54	3.6274E+00
AM-243	1195.	74.67	1.1077E+00

06/13/96 14:33
A-0004-1

LABCORE Data Entry Template for Worklist# 9948

Analyst: CRJ **Instrument:** GEA00 3 **Book#** B56

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

Worklist Comment: U-102 USE .100ML SAMPLE SIZE. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-02	SOLID		
2	BLNK-PREP				@GEA-02	SOLID		
3	SAMPLE	S96T002794	0	F	@GEA-02	SOLID	96000569	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
4	DUP	S96T002794	0	F	@GEA-02	SOLID		
5	SAMPLE	S96T002796	0	F	@GEA-02	SOLID	96000569	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
6	DUP	S96T002796	0	F	@GEA-02	SOLID		
7	SAMPLE	S96T002797	0	F	@GEA-02	SOLID	96000569	U-102
	Analytes Requested:	AM24102 , AM24102E, CO60-02 , CO60-02E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E						
8	DUP	S96T002797	0	F	@GEA-02	SOLID		

Final page for worklist # 9948

C Johnson 6/17/96
Analyst Signature **Date**

M G Bu... 6/18/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 9948

Analyst: crj **Instrument:** GEA03 **Book#** 54856

Method: LA-548-121 Rev/Mod E-0

Worklist Comment: U-102 USE .100ML SAMPLE SIZE. RCJ

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-02	CO60-02	SOLID	2.429e-02		2.52e-02	103.746	% Recovery
1	STD		0		@GEA-02	CO60-02E	SOLID	1		1.22	1.220	% Ct Error
1	STD		0		@GEA-02	CS13702	SOLID	2.217e-02		2.24e-02	101.037	% 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		<8.44e-2		uCi/g
2	BLNK-PREP		0		@GEA-02	CS13702	SOLID	1		<2.82e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15402	SOLID	1		<3.36e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	EU15502	SOLID	1		<2.93e-1		uCi/g
2	BLNK-PREP		0		@GEA-02	AM24102	SOLID	1		<7.68e-1		uCi/g
3	SAMPLE	S96T002794	0	F	@GEA-02	CO60-02	SOLID	N/A	<	1.474e-01	147.0e-003	uCi/g
3	SAMPLE	S96T002794	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002794	0	F	@GEA-02	CS13702	SOLID	N/A		2.052e+02	0.0e+000	uCi/g
3	SAMPLE	S96T002794	0	F	@GEA-02	CS13702E	SOLID	N/A		1.05	0.0e+000	% Ct. Error
3	SAMPLE	S96T002794	0	F	@GEA-02	EU15402	SOLID	N/A	<	5.319e-01	532.0e-003	uCi/g
3	SAMPLE	S96T002794	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002794	0	F	@GEA-02	EU15502	SOLID	N/A	<	1.133e+00	113.3e-002	uCi/g
3	SAMPLE	S96T002794	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T002794	0	F	@GEA-02	AM24102	SOLID	N/A	<	2.910e+00	291.0e-002	uCi/g
3	SAMPLE	S96T002794	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
4	DUP	S96T002794	0	F	@GEA-02	CO60-02	SOLID	<1.47e-1		<1.44e-1		RPD
4	DUP	S96T002794	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002794	0	F	@GEA-02	CS13702	SOLID	2.05e+02		2.11e+02	2.885	RPD
4	DUP	S96T002794	0	F	@GEA-02	CS13702E	SOLID	1		1.03	1.030	% Ct Error
4	DUP	S96T002794	0	F	@GEA-02	EU15402	SOLID	<5.32e-1		<4.56e-1		RPD
4	DUP	S96T002794	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002794	0	F	@GEA-02	EU15502	SOLID	<1.13e0		<1.15e0		RPD
4	DUP	S96T002794	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
4	DUP	S96T002794	0	F	@GEA-02	AM24102	SOLID	<2.91e0		<2.94e0		RPD
4	DUP	S96T002794	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
5	SAMPLE	S96T002796	0	F	@GEA-02	CO60-02	SOLID	N/A	<	1.407e-01	141.0e-003	uCi/g
5	SAMPLE	S96T002796	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002796	0	F	@GEA-02	CS13702	SOLID	N/A		1.842e+02	0.0e+000	uCi/g
5	SAMPLE	S96T002796	0	F	@GEA-02	CS13702E	SOLID	N/A		1.12	0.0e+000	% Ct. Error
5	SAMPLE	S96T002796	0	F	@GEA-02	EU15402	SOLID	N/A	<	5.025e-01	502.0e-003	uCi/g
5	SAMPLE	S96T002796	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002796	0	F	@GEA-02	EU15502	SOLID	N/A	<	1.066e+00	106.6e-002	uCi/g
5	SAMPLE	S96T002796	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
5	SAMPLE	S96T002796	0	F	@GEA-02	AM24102	SOLID	N/A	<	2.761e+00	276.1e-002	uCi/g
5	SAMPLE	S96T002796	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
6	DUP	S96T002796	0	F	@GEA-02	CO60-02	SOLID	<1.41e-1		<1.38e-1		RPD
6	DUP	S96T002796	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error

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

WHC-SD-WM-DP-189, REV. 1

LABCORE Completed RadChem Report for Worklist#: 9948

Seq	Type	Sample#	R	A	Test		Matrix	Actual		Found	DL or Yield	Unit
6	DUP	S96T002796	0	F	@GEA-02	CS13702	SOLID	1.84e+02		1.78e+02	3.315	RPD
6	DUP	S96T002796	0	F	@GEA-02	CS13702E	SOLID	1		1.12	1.120	% Ct Error
6	DUP	S96T002796	0	F	@GEA-02	EU15402	SOLID	<5.02e-1		<4.72e-1		RPD
6	DUP	S96T002796	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002796	0	F	@GEA-02	EU15502	SOLID	<1.07e0		<1.05e0		RPD
6	DUP	S96T002796	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
6	DUP	S96T002796	0	F	@GEA-02	AM24102	SOLID	<2.76e0		<2.68e0		RPD
6	DUP	S96T002796	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error
7	SAMPLE	S96T002797	0	F	@GEA-02	CO60-02	SOLID	N/A	<	1.292e-01	129.0e-003	uCi/g
7	SAMPLE	S96T002797	0	F	@GEA-02	CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002797	0	F	@GEA-02	CS13702	SOLID	N/A		1.906e+02	0.0e+000	uCi/g
7	SAMPLE	S96T002797	0	F	@GEA-02	CS13702E	SOLID	N/A		1.10	0.0e+000	% Ct. Error
7	SAMPLE	S96T002797	0	F	@GEA-02	EU15402	SOLID	N/A	<	3.432e-01	343.0e-003	uCi/g
7	SAMPLE	S96T002797	0	F	@GEA-02	EU15402E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002797	0	F	@GEA-02	EU15502	SOLID	N/A	<	1.064e+00	106.4e-002	uCi/g
7	SAMPLE	S96T002797	0	F	@GEA-02	EU15502E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
7	SAMPLE	S96T002797	0	F	@GEA-02	AM24102	SOLID	N/A	<	2.789e+00	278.9e-002	uCi/g
7	SAMPLE	S96T002797	0	F	@GEA-02	AM24102E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
8	DUP	S96T002797	0	F	@GEA-02	CO60-02	SOLID	<1.29e-1		<1.53e-1		RPD
8	DUP	S96T002797	0	F	@GEA-02	CO60-02E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002797	0	F	@GEA-02	CS13702	SOLID	1.91e+02		1.76e+02	8.174	RPD
8	DUP	S96T002797	0	F	@GEA-02	CS13702E	SOLID	1		1.13	1.130	% Ct Error
8	DUP	S96T002797	0	F	@GEA-02	EU15402	SOLID	<3.43e-1		<4.94e-1		RPD
8	DUP	S96T002797	0	F	@GEA-02	EU15402E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002797	0	F	@GEA-02	EU15502	SOLID	<1.06e0		<1.05e0		RPD
8	DUP	S96T002797	0	F	@GEA-02	EU15502E	SOLID	1		n/a		% Ct Error
8	DUP	S96T002797	0	F	@GEA-02	AM24102	SOLID	<2.79e0		<2.71e0		RPD
8	DUP	S96T002797	0	F	@GEA-02	AM24102E	SOLID	1		n/a		% Ct Error

Comments Section:

Comments for sample# S96T002794 **and test** @GEA-02 .
DL=0 => n/a.
DL=0 => n/a.

Comments for sample# S96T002796 **and test** @GEA-02 .
DL=0 => n/a.
DL=0 => n/a.

Comments for sample# S96T002797 **and test** @GEA-02 .
DL=0 => n/a.
DL=0 => n/a.

Final page for worklist# 9948

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

LABCORE Completed RadChem Report for Worklist#: 9948

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

Analyst Signature Date Analyst Signature Date

Reviewer Signature 6/20/96 Date

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

222-S Laboratory Counting Room 17-JUN-1996 19:19:05.39

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

Worklist #: 9948
Sample ID: WL9948-STD
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

Removed by: ALJ 6-17-96

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

Detector ID:
File Number: dka300:[spec.GEA3]3g3734.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:09.06 sec
Dead Time: 0.3%

Verified by: Bmachelor 6/18/96

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

Sample Count Time: 17-JUN-1996 18:28:18.94
Decayed to: 17-JUN-1996 18:28:18.94
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: ALJ
Background Subtract: DKA300:[SPEC.GEA3]3GBACK

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

Date of last energy calibration: 11-MAR-1994 11:47:01.11
Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.47*	19778	1.58	1323.11	1316	16	1.6		CS-137	22.4
0	1172.94	15938	1.95	2346.14	2337	18	1.7		CO-60	25.1
0	1332.16	14446	2.02	2664.70	2655	20	1.7		CO-60	25.3
0	1593.33*	10	0.56	3187.29	3183	7	106.3			

Sample ID : WL9948-STD Acquisition date : 17-JUN-1996 18:28:18

Total number of lines in spectrum	4	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	3	75.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.521E+01	2.521E+01	0.031E+01	1.22	
CS-137	30.00Y	1.000	2.235E+01	2.235E+01	0.036E+01	1.60	
		Total Activity :	4.756E+01	4.756E+01			
		Grand Total Activity :	4.756E+01	4.756E+01			

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

Minimum Detectable Activity Report
Sample ID : WL9948-STD Acquisition date : 17-JUN-1996 18:28:18

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1044.	477.59	1.0647E+00
NA-22	84.	1274.53	7.1992E-02
NA-24	20.	1368.55	3.8135E-02
K-40	123.	1460.75	9.0894E-01
CR-51	1157.	320.08	8.4319E-01
MN-54	738.	834.83	1.4851E-01
CO-56	756.	846.76	1.5222E-01
CO-57	1233.	122.06	6.0771E-02
CO-58	685.	810.78	1.4036E-01
FE-59	749.	1099.25	3.3549E-01
SE-75	1305.	264.66	1.3417E-01
SR-85	826.	514.01	1.0826E-01
Y-88	13.	1836.06	3.7289E-02
NB-94	751.	871.09	1.5547E-01
ZRNB-95	565.	724.18	2.6336E-01
RU-103	838.	497.08	1.1195E-01
RURH-106	630.	621.93	2.1509E+00
AG-108m	588.	722.94	1.2901E-01
CD-109	1087.	88.03	1.8889E+00
AG-110M	1079.	657.76	1.5472E-01
SN-113	1059.	391.69	1.4797E-01
TE-123m	1254.	159.00	6.3040E-02
SB-124	696.	602.73	1.1166E-01
SB-125	1138.	427.89	3.5806E-01
TE-125m	1045.	109.27	1.8214E+01
I-131	1045.	364.48	1.0987E-01
CS-134	676.	604.70	1.1053E-01
BA-140	672.	537.31	3.9902E-01
LA-140	15.	1596.21	3.8383E-02
CEPR-144	1234.	133.51	9.1968E-01
EU-152	28.	1408.01	2.1648E-01
EU-154	84.	1274.51	2.0921E-01
EU-155	1091.	105.31	2.4859E-01
HG-203	1193.	279.20	9.5663E-02
TL-208	1240.	277.36	1.2527E+00
BI-212	581.	727.18	1.7597E+00
PB-212	1492.	238.63	1.7845E-01
BI-214	620.	609.31	2.3215E-01
PB-214	1017.	351.92	4.2684E-01
RA-224	1430.	240.99	1.9395E+00
RA-226	1413.	186.10	1.7601E+00
AC-228	955.	911.21	6.8448E-01
TH-228	1021.	84.37	5.6402E+00
TH-229	1061.	88.47	2.7060E-01
PA-233	1182.	312.17	2.1833E-01
UTH-233	1394.	245.34	7.1788E+01
PA-234M	786.	1001.03	3.0371E-01
TH-234	984.	63.29	3.7287E+00
U-235	1385.	185.71	1.0591E-01
NP-237	1095.	86.48	5.6943E-01
NP-239	1103.	106.12	2.3745E-01

C-SD-WM-TP-189 REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1198.	129.30	7.8840E+02
AM-241	982.	59.54	6.5739E-01
AM-243	1081.	74.67	1.6213E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    17-JUN-1996 20:14:38.41                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9948
Sample ID:               WL9948-BLK
Sample Size:             1.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3735.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:       17-JUN-1996 19:24:00.22
Decayed to:              17-JUN-1996 19:24:00.22
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

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

Removed by: ALJ 6-17-96

Verified by: D Machelor 6/18/96

Sample ID : WL9948-BLK Acquisition date : 17-JUN-1996 19:24:00

**** 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 : WL9948-BLK Acquisition date : 17-JUN-1996 19:24:00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	36.	477.59	1.9756E+00
NA-22	9.	1274.53	2.4049E-01
NA-24	6.	1368.55	2.0130E-01
K-40	151.	1460.75	1.0050E+01
CR-51	46.	320.08	1.6835E+00
MN-54	17.	834.83	2.2832E-01
CO-56	15.	846.76	2.1224E-01
CO-57	81.	122.06	1.5564E-01
CO-58	18.	810.78	2.2987E-01
FE-59	11.	1099.25	3.9844E-01
CO-60	5.	1332.50	1.7550E-01
SE-75	59.	264.66	2.8469E-01
SR-85	41.	514.01	2.4206E-01
Y-88	5.	1836.06	2.3051E-01
NB-94	22.	871.09	2.6533E-01
ZRNB-95	23.	724.18	5.3102E-01
RU-103	21.	497.08	1.7831E-01
RURH-106	24.	621.93	4.1927E+00
AG-108m	20.	722.94	2.3585E-01
CD-109	81.	88.03	5.1438E+00
AG-110M	17.	657.76	1.9522E-01
SN-113	57.	391.69	3.4467E-01
TE-123m	87.	159.00	1.6565E-01
SB-124	24.	602.73	2.0759E-01
SB-125	37.	427.89	6.4902E-01
TE-125m	65.	109.27	4.5343E+01
I-131	35.	364.48	2.0248E-01
CS-134	27.	604.70	2.2049E-01
CS-137	124.	661.66	5.8583E-01
BA-140	22.	537.31	7.2087E-01
LA-140	4.	1596.21	1.8891E-01
CEPR-144	82.	133.51	2.3646E+00
EU-152	7.	1408.01	1.0499E+00
EU-154	9.	1274.51	6.9868E-01
EU-155	65.	105.31	6.0881E-01
HG-203	50.	279.20	1.9637E-01
TL-208	56.	277.36	2.6605E+00
BI-212	28.	727.18	3.8302E+00
PB-212	82.	238.63	4.1730E-01
BI-214	55.	609.31	6.8881E-01
PB-214	62.	351.92	1.0545E+00
RA-224	70.	240.99	4.2911E+00
RA-226	91.	186.10	4.4582E+00
AC-228	29.	911.21	1.1918E+00
TH-228	57.	84.37	1.3354E+01
TH-229	84.	88.47	7.6093E-01
PA-233	46.	312.17	4.3101E-01
UTH-233	68.	245.34	1.5812E+02
PA-234M	11.	1001.03	3.6111E-01
TH-234	58.	63.29	9.0692E+00
U-235	88.	185.71	2.6669E-01

Sample ID : WL9948-BLK Acquisition date : 17-JUN-1996 19:24:00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	60.	86.48	1.3308E+00
NP-239	68.	106.12	5.8876E-01
PU-239	59.	129.30	1.7467E+03
AM-241	58.	59.54	1.5977E+00
AM-243	67.	74.67	4.0306E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   17-JUN-1996 21:18:32.81                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9948
Sample ID:               S96T002794-SAM
Sample Size:             1.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3377.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:05.02 sec
Dead Time:               0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       17-JUN-1996 20:27:50.21
Decayed to:              17-JUN-1996 20:27:50.21
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-189, REV. 1

Removed by: 6-17-96

Verified by: Bmachelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.46*	37821	1.56	1323.10	1316	16	1.1		CS-137	427.

Summary of Nuclide Activity
Sample ID : S96T002794-SAM Acquisition date : 17-JUN-1996 20:27:50

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	4.275E+02	4.275E+02	0.045E+02	1.05	
		Total Activity :	4.275E+02	4.275E+02			
		Grand Total Activity :	4.275E+02	4.275E+02			

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

Minimum Detectable Activity Report
Sample ID : S96T002794-SAM Acquisition date : 17-JUN-1996 20:27:50

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1132.	477.59	1.1086E+01
NA-22	24.	1274.53	3.8120E-01
NA-24	8.	1368.55	2.3423E-01
K-40	113.	1460.75	8.6946E+00
CR-51	901.	320.08	7.4431E+00
MN-54	14.	834.83	2.0265E-01
CO-56	18.	846.76	2.3797E-01
CO-57	1109.	122.06	5.7644E-01
CO-58	18.	810.78	2.3048E-01
FE-59	12.	1099.25	4.1801E-01
CO-60	14.	1332.50	3.0664E-01
SE-75	1079.	264.66	1.2200E+00
SR-85	581.	514.01	9.0819E-01
Y-88	2.	1836.06	1.4838E-01
NB-94	26.	871.09	2.8872E-01
ZRNB-95	47.	724.18	7.5830E-01
RU-103	735.	497.08	1.0488E+00
RURH-106	217.	621.93	1.2618E+01
AG-108m	47.	722.94	3.6375E-01
CD-109	929.	88.03	1.7471E+01
AG-110M	1209.	657.76	1.6377E+00
SN-113	1037.	391.69	1.4640E+00
TE-123m	1035.	159.00	5.7271E-01
SB-124	228.	602.73	6.3901E-01
SB-125	1204.	427.89	3.6832E+00
TE-125m	997.	109.27	1.7790E+02
I-131	1010.	364.48	1.0801E+00
CS-134	203.	604.70	6.0573E-01
BA-140	445.	537.31	3.2470E+00
LA-140	7.	1596.21	2.5476E-01
CEPR-144	1105.	133.51	8.7009E+00
EU-152	8.	1408.01	1.1384E+00
EU-154	24.	1274.51	1.1065E+00
EU-155	981.	105.31	2.3569E+00
HG-203	980.	279.20	8.6696E-01
TL-208	1015.	277.36	1.1334E+01
BI-212	34.	727.18	4.2368E+00
PB-212	1304.	238.63	1.6682E+00
BI-214	248.	609.31	1.4678E+00
PB-214	928.	351.92	4.0747E+00
RA-224	1163.	240.99	1.7488E+01
RA-226	1396.	186.10	1.7496E+01
AC-228	31.	911.21	1.2251E+00
TH-228	918.	84.37	5.3466E+01
TH-229	935.	88.47	2.5399E+00
PA-233	944.	312.17	1.9514E+00
UTH-233	1091.	245.34	6.3491E+02
PA-234M	17.	1001.03	4.4164E-01
TH-234	814.	63.29	3.3918E+01
U-235	1386.	185.71	1.0594E+00
NP-237	954.	86.48	5.3156E+00

Sample ID : S96T002794-SAM Acquisition date : 17-JUN-1996 20:27:50

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	973.	106.12	2.2303E+00
PU-239	1064.	129.30	7.4301E+03
AM-241	833.	59.54	6.0531E+00
AM-243	869.	74.67	1.4535E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room    17-JUN-1996 22:51:38.02                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                9948
Sample ID:                 S96T002794-DUP
Sample Size:               1.00000E-04 L
Dilution Factor:           1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:               dka300:[spec.GEA3]3g3739.cnf
Geometry:                  42
Count Time:                0 00:50:00.00 sec
Real Time:                 0 00:50:05.16 sec
Dead Time:                 0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:         17-JUN-1996 22:00:55.35
Decayed to:                17-JUN-1996 22:00:55.35
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
*****************************************************************************
```

Removed by: ALJ 6-17-96

Verified by: Machelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.46*	38957	1.57	1323.09	1315	17	1.0		CS-137	440.

Sample ID : S96T002794-DUP Acquisition date : 17-JUN-1996 22:00:55

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	4.403E+02	4.403E+02	0.045E+02	1.03	
		Total Activity :	4.403E+02	4.403E+02			
		Grand Total Activity :	4.403E+02	4.403E+02			

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

Sample ID : S96T002794-DUP Acquisition date : 17-JUN-1996 22:00:55

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1200.	477.59	1.1411E+01
NA-22	17.	1274.53	3.2729E-01
NA-24	5.	1368.55	1.8248E-01
K-40	110.	1460.75	8.5951E+00
CR-51	1016.	320.08	7.9005E+00
MN-54	13.	834.83	1.9526E-01
CO-56	20.	846.76	2.5006E-01
CO-57	1068.	122.06	5.6567E-01
CO-58	19.	810.78	2.3369E-01
FE-59	8.	1099.25	3.4427E-01
CO-60	14.	1332.50	2.9954E-01
SE-75	1037.	264.66	1.1958E+00
SR-85	625.	514.01	9.4144E-01
Y-88	1.	1836.06	1.0492E-01
NB-94	30.	871.09	3.0951E-01
ZRNB-95	31.	724.18	6.2130E-01
RU-103	721.	497.08	1.0390E+00
RURH-106	221.	621.93	1.2731E+01
AG-108m	36.	722.94	3.1768E-01
CD-109	967.	88.03	1.7816E+01
AG-110M	1191.	657.76	1.6256E+00
SN-113	1041.	391.69	1.4671E+00
TE-123m	1069.	159.00	5.8225E-01
SB-124	241.	602.73	6.5747E-01
SB-125	1225.	427.89	3.7147E+00
TE-125m	981.	109.27	1.7644E+02
I-131	1007.	364.48	1.0785E+00
CS-134	219.	604.70	6.2865E-01
BA-140	431.	537.31	3.1955E+00
LA-140	6.	1596.21	2.4171E-01
CEPR-144	1078.	133.51	8.5923E+00
EU-152	8.	1408.01	1.1380E+00
EU-154	17.	1274.51	9.5088E-01
EU-155	1011.	105.31	2.3922E+00
HG-203	1013.	279.20	8.8133E-01
TL-208	1086.	277.36	1.1728E+01
BI-212	26.	727.18	3.6923E+00
PB-212	1226.	238.63	1.6172E+00
BI-214	267.	609.31	1.5234E+00
PB-214	1038.	351.92	4.3110E+00
RA-224	1195.	240.99	1.7728E+01
RA-226	1345.	186.10	1.7169E+01
AC-228	32.	911.21	1.2555E+00
TH-228	989.	84.37	5.5514E+01
TH-229	965.	88.47	2.5795E+00
PA-233	968.	312.17	1.9759E+00
UTH-233	1160.	245.34	6.5491E+02
PA-234M	18.	1001.03	4.5473E-01
TH-234	790.	63.29	3.3419E+01
U-235	1348.	185.71	1.0449E+00
NP-237	968.	86.48	5.3539E+00

Minimum Detectable Activity Report (continued)
Sample ID : S96T002794-DUP Acquisition date : 17-JUN-1996 22:00:55

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	1031.	106.12	2.2962E+00
PU-239	1105.	129.30	7.5733E+03
AM-241	852.	59.54	6.1233E+00
AM-243	926.	74.67	1.5001E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   17-JUN-1996 23:49:19.55                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              9948
Sample ID:               S96T002796-SAM
Sample Size:             1.00000E-04 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3738.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:04.50 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       17-JUN-1996 22:58:33.64
Decayed to:              17-JUN-1996 22:58:33.64
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
*****************************************************************************
```

Removed by: ALJ 6-17-96

Verified by: B Bachelor 6/18/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.47*	33554	1.57	1323.11	1315	17	1.1		CS-137	379.