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

Document number: SD-WM-DP-178

Section 4 **of** 6

Title: Final Report for Tank 241AY101 Grab Samples 1AY-96-1 Thru 1AY-96-10 & 1AY-96-FB [Pgs 588 Thru 776]

Date: 07/22/1996 **Revision:** R001

Originator: Esch, R A
Co: WHC

Recipient:
Co:

References: ECN-633305

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

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		16	16
	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	372	335
7164	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12.370	11.137

Batch Number		
96002885	Blank Concentration in µCi/L	5.35E+01
Rerun	Replicate Concentration in µCi/L	4.82E+01
0	Average Concentration in µCi/L	5.0829E+01

Sample Prep
N/A

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

Sample #
S96T001522

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

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

Instrument Code
WB27806

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

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

Prepared By
SEH

Chemist
SLF

ALPHA TOTAL in µCi/mL (Average) =	5.08E-02	DETECTION LEVEL
		1.03E-03 µCi/mL
RELATIVE COUNTING ERROR	10.8%	

Analyst
SMF

Date Complete
04/02/96

Analysis Date
04/02/96

Analysis Time
02:00 AM

Sample Point
AY-101 GRAB

Analyst:		SMF	Date: 02-Apr-96
Signature of Chemist:		SLF	Date: 4/3/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

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

Type	DETECTOR NUMBER		DUP	REPLICATE
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	355	386
7164	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11.803	12.837

Batch Number		
96002885	Blank Concentration in µCi/L	5.10E+01
Rerun	Replicate Concentration in µCi/L	5.55E+01
0	Average Concentration in µCi/L	5.3280E+01

Sample Prep
N/A

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

Sample #
S96T001522

Instrument Code
WB27806

Prepared By
SEH

Chemist
SLF

Analyst
SMF

Date Complete
04/02/96

Analysis Date
04/02/96

Analysis Time
02:00 AM

Sample Point
AY-101 GRAB

		DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Average) =	5.33E-02	
RELATIVE COUNTING ERROR	10.4%	1.03E-03 µCi/mL

Analyst:		SMF	Date: 02-Apr-96
Signature of Chemist:		SLF	Date: 4/3/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 7284

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

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

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001313	0	F	@ALPHA01	SOLID	96000210	AY-101 GRAB
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T001313	0	F	@ALPHA01	SOLID		
6	SPK	S96T001313	0	F	@ALPHA01	SOLID		

Final page for worklist # 7284

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

Sharon L Walsh 4.8.96
Analyst Signature **Date**

4/9/96

Data Entry Comments:

The RPD is acceptable due to low sample alpha activity. 4/9/96

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

worklistdata Version 0.0 05/16/95
04/09/96 15:48

LABCORE Completed Worklist Report for Worklist# 7284

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01 ALPHA01	SOLID	1.28E-04	1.49E-4	116.410	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	4.44E+00	4.440	% Ct. Error
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<5.01E-1		uCi/g
2	BLNK-PREP		0		@ALPHA01 ALPHA01E	SOLID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01 ALPHA01	SOLID	1.00E+00	1.42E+00	1.420	uCi/g
4	SAMPLE	S96T001313	0	F	@ALPHA01 ALPHA01	SOLID	N/A	4.48E+00	0.643	uCi/g
4	SAMPLE	S96T001313	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	2.15E+01	0.000	% Ct. Error
5	DUP	S96T001313	0	F	@ALPHA01 ALPHA01	SOLID	4.48E+0	3.76E+0	17.480	RPD
5	DUP	S96T001313	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	2.25E+01	22.500	% Ct. Error
6	SPK	S96T001313	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.64E-02	101.390	% Recovery

Final page for worklist# 7284

Analyst Signature **Date**

Analyst Signature **Date**

4/9/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

Type			STANDARD	REPLICATE
STD	DETECTOR NUMBER		16	16
	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	1972	2206
7284	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		65.463	73.263
Batch Number	Standard Value in µCi/mL		1.28E-04	
96003002	Concentration in µCi/L	=	1.40E-01	
Rerun	Replicate Concentration in µCi/L	=	1.57E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4850E-01	

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)
WL7284	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	
Analyst	
AKL	
Date Complete	
04/08/96	
Analysis Date	
04/04/96	
Analysis Time	
02:00 PM	
Sample Point	
AY-101	

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.49E-04	
RELATIVE COUNTING ERROR	=	4.4%	1.14E-06 µCi/mL

Analyst:		SLH	Date: 08-Apr-96
Signature of Chemist:		SLF	Date: 4/9/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

Type			BLNK-PREP	REPLICATE
BLNK-PREP	DETECTOR NUMBER		16	16
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
7284	GROSS COUNTS	(GC)	10	13
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.27	0.27
Test Code	SAMPLE SIZE in mL	(SS)	0.100	0.100
@ALPHA01	DILUTION FACTOR	(DF)	101	101
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.794	1.794
SOLID	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.297	0.416
96003002				
Rerun	Blank Concentration in µCi/g	<	3.58E-01	
0	Replicate Concentration in µCi/g	<	5.01E-01	
Sample Prep	Maximum Concentration in µCi/g	<	5.0138E-01	
N/A				
Sample #				
WL7284				
Instrument Code				
WB27806				
Prepared By				
SLH				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/08/96				
Analysis Date				
04/04/96				
Analysis Time				
02:00 PM				
Sample Point				
AY-101				

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

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

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

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

		DETECTION LEVEL
ALPHA TOTAL in µCi/g (Maximum) =	< 5.01E-01	
LESS THAN Value was Determined from Rmax.		6.43E-01 µCi/g
RELATIVE COUNTING ERROR	500.0%	

Analyst:		AKL	Date: 08-Apr-96
Signature of Chemist:		SLF	Date: 4/9/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		16	16
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
7284	GROSS COUNTS	(GC)	105	134
AT or TE ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.27	0.27
Test Code	SAMPLE SIZE in mL	(SS)	0.100	0.100
@ALPHA01	DILUTION FACTOR	(DF)	101	101
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.794	1.794
SOLID	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.230	4.197
96003002				
Rerun #	Blank Concentration in µCi/g		3.89E+00	
0	Replicate Concentration in µCi/g		5.06E+00	
Sample Prep	Average Concentration in µCi/g		4.4757E+00	
FUSION01				
Sample #				
S96T001313				
Instrument Code				
WB27806				
Prepared By				
SLH				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/08/96				
Analysis Date				
04/04/96				
Analysis Time				
02:00 PM				
Sample Point				
AY-101				

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

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

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

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

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	4.48E+00	
			6.43E-01 µCi/g
RELATIVE COUNTING ERROR		21.5%	

Analyst:	AKL		Date: 08-Apr-96
Signature of Chemist:		SLF	Date: 4/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		16	16
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
7284	GROSS COUNTS	(GC)	98	105
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.27	0.27
Test Code	SAMPLE SIZE in mL	(SS)	0.100	0.100
@ALPHA01	DILUTION FACTOR	(DF)	101	101
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.79	1.79
SOLID	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.997	3.230
96003002				
Rerun	Blank Concentration in µCi/g		3.62E+00	
0	Replicate Concentration in µCi/g		3.90E+00	
Sample Prep	Average Concentration in µCi/g		3.7609E+00	
FUSION01				
Sample #				
S96T001313				
Instrument Code				
WB27806				
Prepared By				
SLH				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/08/96				
Analysis Date				
04/04/96				
Analysis Time				
02:00 PM				
Sample Point				
AY-101				

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

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

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

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

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	3.76E+00	
RELATIVE COUNTING ERROR		22.5%	6.44E-01 µCi/g

Analyst:		AKL	Date: 08-Apr-96
Signature of Chemist:		SLF	Date: 4/9/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

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

Type			SPIKE	REPLICATE
SPK	DETECTOR NUMBER		16	16
	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	51895	50422
7284	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.794	1.794
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
96003002	SPIKE VALUE in µCi/mL	(SVal)	3.5897E-02	3.5897E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/g	(S+S)	2.08E+03	2.03E+03
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		4.4757E+00	
FUSION01				
Sample #				
S96T001313	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27806	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SLH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
04/08/96				
Analysis Date				
04/04/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.64E-02	
02:00 PM	AVG. PERCENT SPIKE RECOVERY	=	101.5%	
Sample Point				
AY-101				

Analyst:		SLH	Date: 08-Apr-96
Signature of Chemist:		SLF	Date: 4/9/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 7626

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

SUPER RUSH

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	S96T001208	0		@ALPHA01	LIQUID	96000210	AY-101 GRAB
	Analytes Requested:				ALPHA01 , ALPHA01E			
5	DUP	S96T001208	0		@ALPHA01	LIQUID		
6	SPK	S96T001208	0		@ALPHA01	LIQUID		

Final page for worklist # 7626

Anthony Turitto 4-14-96
Analyst Signature **Date**

Sharon L Hall 4-15-96
Analyst Signature **Date**

J. Opinen 4/15/96

Data Entry Comments:

RPD is acceptable due to low sample alpha activity. DA 4/16/96

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

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

LABCORE Completed Worklist Report for Worklist# 7626

Analyst: adp **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	1.30E-4	101.560	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	LIQUID	1.00	4.49E+00	4.490	% Ct. Error
2	BLNK		0		@ALPHA01 ALPHA01	LIQUID	1	<1.02E-7		uCi/mL
2	BLNK		0		@ALPHA01 ALPHA01E	LIQUID	1.00	5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01 ALPHA01	LIQUID	1.00E+00	1.05E+00	1.050	uCi/mL
4	SAMPLE	S96T001208	0		@ALPHA01 ALPHA01	LIQUID	N/A	4.81E-07	2.110e-007	uCi/mL
4	SAMPLE	S96T001208	0		@ALPHA01 ALPHA01E	LIQUID	N/A	4.26E+01	0.000	% Ct. Error
5	DUP	S96T001208	0		@ALPHA01 ALPHA01	LIQUID	4.81E-7	7.32E-7	41.380	RPD
5	DUP	S96T001208	0		@ALPHA01 ALPHA01E	LIQUID	1.00	4.67E+01	46.700	% Ct. Error
6	SPK	S96T001208	0		@ALPHA01 ALPHA01	LIQUID	3.59E-02	3.62E-02	100.840	% Recovery

Final page for worklist# 7626

_____ _____

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

4/17/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

Type
STD
Work List
7626
AT or TB ?
AT
Test Code
@ALPHA01
Matrix
LIQUID
Batch Number
96003432
Rerun
0
Sample Prep
N/A
Sample #
WL7626
Instrument Code
WB27807
Prepared By
SLH
Chemist
SLF
Analyst
ADP
Date Complete
04/15/96
Analysis Date
04/14/96
Analysis Time
12:00 PM
Sample Point
AY-101 GRAB

			STANDARD	REPLICATE
DETECTOR NUMBER			14	14
DISH SIZE (1 , 2 , or 5)	(MS)		2	2
GROSS COUNTS	(GC)		2019	1926
COUNT TIME in MINUTES	(CT)		30	30
BACKGROUND in cpm	(BKG)		0.27	0.27
SAMPLE SIZE in mL	(SS)		1.000	1.000
DILUTION FACTOR	(DF)		1	1
STANDARD BOOK NUMBER	(Std BN)		47B56	47B56
EFFICIENCY FACTOR	(EFF)		0.2274	0.2274
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			67.030	63.930
Standard Value in µCi/mL			1.28E-04	
Concentration in µCi/L		=	1.33E-01	
Replicate Concentration in µCi/L		=	1.27E-01	
AVERAGE CONCENTRATION in µCi/L		=	1.2971E-01	

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	=	1.30E-04	
RELATIVE COUNTING ERROR	=	4.5%	1.06E-06 µCi/mL

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

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

Type			BLNK	REPLICATE
BLNK	DETECTOR NUMBER		14	14
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
7626	GROSS COUNTS	(GC)	8	9
AT or TE-2	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.27	0.27
Test Code	SAMPLE SIZE in mL	(SS)	5.000	5.000
@ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST DILUTION FACTOR	(DDF)	1	1
LIQUID	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.221	0.257
96003432				
Rerun	Blank Concentration in µCi/L	<	8.77E-05	
0	Replicate Concentration in µCi/L	<	1.02E-04	
Sample Prep	Maximum Concentration in µCi/L	<	1.0199E-04	
N/A				
Sample #	Rs (Sample Count Rate) = (TC / CT) - BKG			
WL7626	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
Instrument Code	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
WB27807	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
Prepared By	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
SLH				
Chemist				
SLF				
Analyst				
ADP				
Date Complete				
04/15/96				
Analysis Date				
04/14/96				
Analysis Time				
12:00 PM				
Sample Point				
AY-101 GRAB				

ALPHA TOTAL in µCi/mL (Maximum)	=	< 1.02E-07	DETECTION LEVEL
LESS Than Value was Determined from Lc.			2.11E-07 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

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

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		14	14
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
7626	GROSS COUNTS	(GC)	49	40
AT or TB ?	COUNT TIME In MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.27	0.27
Test Code	SAMPLE SIZE in mL	(SS)	5.000	5.000
@ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST DILUTION FACTOR	(DDF)	1	1
LIQUID	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.363	1.063
96003432				
Rerun	Blank Concentration in µCi/L		5.40E-04	
0	Replicate Concentration in µCi/L		4.21E-04	
Sample Prep	Average Concentration in µCi/L		4.8069E-04	
N/A				
Sample #	Rs (Sample Count Rate) = (TC / CT) - BKG			
S96T001208	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
Instrument Code	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
WB27807	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
Prepared By	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
SLH				
Chemist				
SLF	ALPHA TOTAL in µCi/mL (Average) =		4.81E-07	DETECTION LEVEL
Analyst				
ADP				2.11E-07 µCi/mL
Date Complete	RELATIVE COUNTING ERROR		42.6%	
04/15/96				
Analysis Date				
04/14/96				
Analysis Time				
12:00 PM				
Sample Point				
AY-101 GRAB				

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

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		14	14
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
7626	GROSS COUNTS	(GC)	91	36
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.27	0.27
Test Code	SAMPLE SIZE in mL	(SS)	5.000	5.000
@ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST DILUTION FACTOR	(DDF)	1	1
LIQUID	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.763	0.930
96003432				
Rerun	Blank Concentration in µCi/L		1.09E-03	
0	Replicate Concentration in µCi/L		3.68E-04	
Sample Prep	Average Concentration in µCi/L		7.3160E-04	
N/A				
Sample #	Rs (Sample Count Rate) = (TC / CT) - BKG			
S96T001208	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
Instrument Code	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
WB27807	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
Prepared By	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
SLH				
Chemist				
SLF	ALPHA TOTAL in µCi/mL (Average) =		7.32E-07	DETECTION LEVEL
Analyst				
ADP				2.11E-07
Date Complete	RELATIVE COUNTING ERROR		46.7%	µCi/mL
04/15/96				
Analysis Date				
04/14/96				
Analysis Time				
12:00 PM				
Sample Point				
AY-101 GRAB				

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

SAMPLE.WB1 Rev. 1.0 508101MI

WORKBOOK PAGE: SPIKE6

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

Type			SPIKE	REPLICATE
SPK	DETECTOR NUMBER		14	14
	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	55075	54697
7626	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.27	0.27
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	5.000	5.000
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@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
96003432	SPIKE VALUE in µCi/mL	(SVal)	3.5896E-02	3.5896E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
0	SAMPLE + SPIKE µCi/mL	(S+S)	7.27E-04	7.22E-04
Sample Prep	AVERAGE or MAXIMUM µCi/mL in SAMPLE		4.8069E-07	
N/A				
Sample #				
S96T001208	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
WB27807	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))			
SLH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
ADP				
Date Complete				
04/15/96				
Analysis Date				
04/14/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.62E-02	
12:00 PM	AVG. PERCENT SPIKE RECOVERY	=	100.9%	
Sample Point				
AY-101 GRAB				

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

SPIKE.WB1 Rev. 1.0 508101ML

31

06/21/96 03:11
A-0004-1

LABCORE Data Entry Template for Worklist# 10168

Analyst: AKL **Instrument:** AB00 15 **Book#** 478556

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

Worklist Comment: AY-101 @Alpha01 Determine sample size using ludlum.

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	S96T003467	0	A	@ALPHA01	SOLID	96000210	AY-101 GRAB
	Analytes Requested:				ALPHA01 , ALPHA01E			
5	DUP	S96T003467	0	A	@ALPHA01	SOLID		
6	SPK	S96T003467	0	A	@ALPHA01	SOLID		

Final page for worklist # 10168

C Lewis 6/21/96
Analyst Signature **Date**

Sue E. Hogan 6-24-97
Analyst Signature **Date**

C.J. Quinn 6/24/96

Data Entry Comments:

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

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

LABCORE Completed RadChem Report for Worklist#: 10168

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

Method: _____ Rev/Mod _____

Worklist Comment: AY-101 @Alpha01 Determine sample size using ludlum.

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01 ALPHA01	SOLID	1.28E-04	1.26E-4	98.438	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	4.46E+00	4.460	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<2.43E-1		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	8.33E-01	0.833	BLNK/BKG
4	SAMPLE	S96T003467	0	A	@ALPHA01 ALPHA01	SOLID	N/A	4.84E+00	489.0e-003	uCi/g
4	SAMPLE	S96T003467	0	A	@ALPHA01 ALPHA01E	SOLID	N/A	2.00E+01	0.0e+000	% Ct. Error
5	DUP	S96T003467	0	A	@ALPHA01 ALPHA01	SOLID	4.84E+0	4.47E+0	7.948	RPD
5	DUP	S96T003467	0	A	@ALPHA01 ALPHA01E	SOLID	1.00	2.54E+01	25.400	% Ct. Erro
6	SPK	S96T003467	0	A	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.73E-02	103.900	% Recovery

Final page for worklist# 10168

Analyst Signature **Date**

Analyst Signature **Date**

6/25/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worklist	GROSS COUNTS	(GC)	2072	1938
10168	COUNT TIME in MINUTES	(CT)	30	30
Analysis	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Method	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Units	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		68.967	64.533
Batch Number	Standard Value in µCi/mL		1.28E-04	
96006398	Concentration in µCi/L	=	1.31E-01	
Rerun	Replicate Concentration in µCi/L	=	1.22E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.2633E-01	

Sample Prep
N/A

Sample #
WL10168

Instrument Code
WB26872

Prepared By
SEH

Chemist
SLF

Analyst
AKL

Date Complete
06/24/96

Analysis Date
06/21/96

Analysis Time
01:26 PM

Sample Point
AY-101 GRAB

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

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

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

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

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

				DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.26E-04		
RELATIVE COUNTING ERROR	=	4.5%		6.82E-07 µCi/mL

Analyst:		SEH	Date: 24-Jun-96
Signature of Chemist:		SLF	Date: 6/25/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	4	1
10168	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	1111	1111
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	3.1	3.1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.179	0.135

Batch Number			
96006398	Blank Concentration in µCi/g	<	2.43E-01
Rerun	Replicate Concentration in µCi/g	<	1.83E-01
0	Maximum Concentration in µCi/g	<	2.4263E-01

Sample Prep: N/A

Sample #: WL10168

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: AKL

Date Complete: 06/24/96

Analysis Date: 06/21/96

Analysis Time: 01:25 PM

Sample Point: AY-101 GRAB

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)	=	< 2.43E-01	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.				
RELATIVE COUNTING ERROR			500.0%	4.89E-01 µCi/g

Analyst:		AKL	Date: 24-Jun-96
Signature of Chemist:		SLF	Date: 6/25/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		15	15
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
10168	GROSS COUNTS	(GC)	115	105
Matrix	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.1	0.1
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	1111	1111
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	3.1	3.1
SOLID	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.733	3.400
96006398				
Rerun	Blank Concentration in µCi/g		5.06E+00	
0	Replicate Concentration in µCi/g		4.61E+00	
Sample Prep	Average Concentration in µCi/g		4.8386E+00	
ACIDIG01				
Sample #				
S96T003467				
Instrument Code				
WB26872				
Prepared By				
SEH				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
06/24/96				
Analysis Date				
06/21/96				
Analysis Time				
01:25 PM				
Sample Point				
AY-101 GRAB				

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

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

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

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

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	4.84E+00	
RELATIVE COUNTING ERROR		20.0%	4.89E-01 µCi/g

{/ system;exit}yes~

Analyst:		AKL	Date: 24-Jun-96
Signature of Chemist:		SLF	Date: 6/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		15	15
Lot # LIT	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
10168	GROSS COUNTS	(GC)	72	68
Work Unit	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.1	0.1
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	1111	1111
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1	2.1
SOLID	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.300	2.167
96006398				
Parent	Blank Concentration in µCi/g		4.61E+00	
0	Replicate Concentration in µCi/g		4.34E+00	
Sample Prep	Average Concentration in µCi/g		4.4725E+00	
ACIDIG01				
Sample #	Rs (Sample Count Rate) = (TC / CT) - BKG			
S96T003467	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
Prepared By				
SEH				
Chemist				
SLF	ALPHA TOTAL in µCi/g (Average)	=	4.47E+00	DETECTION LEVEL
Analyst				
AKL				7.21E-01
Date Complete	RELATIVE COUNTING ERROR		25.4%	µCi/g
06/24/96				
Analysis Date				
06/21/96				
Analysis Time				
01:25 PM				
Sample Point				
AY-101 GRAB				

{/ system;exit}yes~

Analyst:	AKL		Date: 24-Jun-96
Signature of Chemist:		SLF	Date: 6/25/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

Type			SPIKE	REPLICATE
SPK	DETECTOR NUMBER		15	15
	DISH SIZE 1, 2, or 5	(MS)	2	2
10168	TOTAL COUNTS	(TC)	58537	59952
	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.1	0.1
	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
@ALPHA01	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1111	1111
	DIGEST GRAMS of SOLIDS / L	(Dg/L)	3.1	3.1
SOLID	SPIKE VOLUME in mL	(SVol)	0.100	0.100
	SPIKE DILUTION FACTOR	(SDF)	1	1
96006398	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
	SPIKE VALUE in µCi/mL	(SVal)	3.5885E-02	3.5885E-02
0	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
	SAMPLE + SPIKE µCi/g	(S+S)	2.65E+03	2.71E+03
ACIDIG01	AVERAGE or MAXIMUM µCi/g in SAMPLE		4.8385E+00	

Sample #: S96T003467

Instrument Code: WB26872

Prepared By: SEH

Chemist: SLF

Analyst: AKL

Date Complete: 05/24/96

Analysis Date: 06/21/96

Analysis Time: 01:25 PM

Sample Point: AY-101 GRAB

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	=	3.73E-02	
AVG. PERCENT SPIKE RECOVERY	=	104.0%	

Analyst:		SEH	Date: 24-Jun-96
Signature of Chemist:		SLF	Date: 6/25/96

SPIKE.WB1 Rev. 1.0 508101MD

610

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

LABCORE Data Entry Template for Worklist# 10349

Analyst: BDV **Instrument:** DSC01 **Book #** —

Method: LA-514-113 Rev/Mod —

Worklist Comment: Dry DSCs for AY-101. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
96000210	AY-101 GRAB	1 SAMPLE	S96T003465	0		DSC-02	SOLID	N/A	Ø		Joules/g Dry
96000210	AY-101 GRAB	2 DUP	S96T003465	0		DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry

Data entered + validated by **Final page for worklist # 10349**

Blandina Valenzuela 6-27-96

Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 6736

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

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

Worklist Comment: AY-101, Sample Size = .250 - 10ml (dilution). new

ADP 4/2/96

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S96T001263	0		@GEA-01	LIQUID	96000210	AY-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T001263	0		@GEA-01	LIQUID		
5	SAMPLE	S96T001264	0		@GEA-01	LIQUID	96000210	AY-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S96T001264	0		@GEA-01	LIQUID		
7	SAMPLE	S96T001265	0		@GEA-01	LIQUID	96000210	AY-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
8	DUP	S96T001265	0		@GEA-01	LIQUID		
9	SAMPLE	S96T001359	0		@GEA-01	LIQUID	96000257	AY-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
10	DUP	S96T001359	0		@GEA-01	LIQUID		
11	SAMPLE	S96T001360	0		@GEA-01	LIQUID	96000257	AY-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
12	DUP	S96T001360	0		@GEA-01	LIQUID		

Final page for worklist # 6736

Anthony Puente 3-27-96

Analyst Signature **Date**

Eric Barker

Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 6736

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

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

Worklist Comment: SY-101, Sample Size = .250 - 10ml (dilution). new

AD 4-3-96

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@GEA-01	CO60-02	LIQUID	0.0259	2.60e-02	100.390	% Recovery
1	STD		0		@GEA-01	CO60-02E	LIQUID	1	1.21	1.210	% Ct. Error
1	STD		0		@GEA-01	CS13702	LIQUID	0.0271	2.80e-02	103.320	% Recovery
1	STD		0		@GEA-01	CS13702E	LIQUID	1	1.39	1.390	% Ct. Error
2	BLNK		0		@GEA-01	CO60-02	LIQUID	1	<2.64e-5		uCi/mL
2	BLNK		0		@GEA-01	CS13702	LIQUID	1	<1.77e-3		uCi/mL
3	SAMPLE	S96T001263	0		@GEA-01	CO60-02	LIQUID	N/A	2.380e-02	0.000	uCi/mL
3	SAMPLE	S96T001263	0		@GEA-01	CO60-02E	LIQUID	N/A	15.0	0.000	% Ct. Error
3	SAMPLE	S96T001263	0		@GEA-01	CS13702	LIQUID	N/A	8.670e+01	0.000	uCi/mL
3	SAMPLE	S96T001263	0		@GEA-01	CS13702E	LIQUID	N/A	0.150	0.000	% Ct. Error
4	DUP	S96T001263	0		@GEA-01	CO60-02	LIQUID	2.38e-02	2.53e-02	6.110	RPD
4	DUP	S96T001263	0		@GEA-01	CO60-02E	LIQUID	1	10.8	10.800	% Ct. Error
4	DUP	S96T001263	0		@GEA-01	CS13702	LIQUID	8.67e+01	8.62e+01	0.580	RPD
4	DUP	S96T001263	0		@GEA-01	CS13702E	LIQUID	1	0.150	0.150	% Ct. Error
5	SAMPLE	S96T001264	0		@GEA-01	CO60-02	LIQUID	N/A	2.810e-02	0.000	uCi/mL
5	SAMPLE	S96T001264	0		@GEA-01	CO60-02E	LIQUID	N/A	10.5	0.000	% Ct. Error
5	SAMPLE	S96T001264	0		@GEA-01	CS13702	LIQUID	N/A	8.200e+01	0.000	uCi/mL
5	SAMPLE	S96T001264	0		@GEA-01	CS13702E	LIQUID	N/A	0.160	0.000	% Ct. Error
6	DUP	S96T001264	0		@GEA-01	CO60-02	LIQUID	2.81e-02	2.31e-02	19.530	RPD
6	DUP	S96T001264	0		@GEA-01	CO60-02E	LIQUID	1	12.7	12.700	% Ct. Error
6	DUP	S96T001264	0		@GEA-01	CS13702	LIQUID	8.20e+01	7.97e+01	2.840	RPD
6	DUP	S96T001264	0		@GEA-01	CS13702E	LIQUID	1	0.160	0.160	% Ct. Error
7	SAMPLE	S96T001265	0		@GEA-01	CO60-02	LIQUID	N/A	2.700e-02	0.000	uCi/mL
7	SAMPLE	S96T001265	0		@GEA-01	CO60-02E	LIQUID	N/A	12.4	0.000	% Ct. Error
7	SAMPLE	S96T001265	0		@GEA-01	CS13702	LIQUID	N/A	8.690e+01	0.000	uCi/mL
7	SAMPLE	S96T001265	0		@GEA-01	CS13702E	LIQUID	N/A	0.150	0.000	% Ct. Error
8	DUP	S96T001265	0		@GEA-01	CO60-02	LIQUID	2.70e-02	2.67e-02	1.120	RPD
8	DUP	S96T001265	0		@GEA-01	CO60-02E	LIQUID	1	13.9	13.900	% Ct. Error
8	DUP	S96T001265	0		@GEA-01	CS13702	LIQUID	8.69e+01	8.72e+01	0.340	RPD
8	DUP	S96T001265	0		@GEA-01	CS13702E	LIQUID	1	0.150	0.150	% Ct. Error
9	SAMPLE	S96T001359	0		@GEA-01	CO60-02	LIQUID	N/A	2.780e-02	0.000	uCi/mL
9	SAMPLE	S96T001359	0		@GEA-01	CO60-02E	LIQUID	N/A	12.9	0.000	% Ct. Error
9	SAMPLE	S96T001359	0		@GEA-01	CS13702	LIQUID	N/A	9.150e+01	0.000	uCi/mL
9	SAMPLE	S96T001359	0		@GEA-01	CS13702E	LIQUID	N/A	0.150	0.000	% Ct. Error
10	DUP	S96T001359	0		@GEA-01	CO60-02	LIQUID	2.78e-02	2.83e-02	1.780	RPD
10	DUP	S96T001359	0		@GEA-01	CO60-02E	LIQUID	1	11.9	11.900	% Ct. Error
10	DUP	S96T001359	0		@GEA-01	CS13702	LIQUID	9.15e+01	8.79e+01	4.010	RPD
10	DUP	S96T001359	0		@GEA-01	CS13702E	LIQUID	1	0.150	0.150	% Ct. Error
11	SAMPLE	S96T001360	0		@GEA-01	CO60-02	LIQUID	N/A	2.480e-02	0.000	uCi/mL
11	SAMPLE	S96T001360	0		@GEA-01	CO60-02E	LIQUID	N/A	12.0	0.000	% Ct. Error
11	SAMPLE	S96T001360	0		@GEA-01	CS13702	LIQUID	N/A	8.540e+01	0.000	uCi/mL

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

LABCORE Completed Worklist Report for Worklist# 6736

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
11	SAMPLE	S96T001360	0		@GEA-01	CS13702E LIQUID	N/A	0.150	0.000	% Ct. Error
12	DUP	S96T001360	0		@GEA-01	CO60-02 LIQUID	2.48e-02	2.77e-02	11.050	RPD
12	DUP	S96T001360	0		@GEA-01	CO60-02E LIQUID	1	11.1	11.100	% Ct. Error
12	DUP	S96T001360	0		@GEA-01	CS13702 LIQUID	8.54e+01	8.57e+01	0.350	RPD
12	DUP	S96T001360	0		@GEA-01	CS13702E LIQUID	1	0.150	0.150	% Ct. Error

Comments Section:

Comments for sample# S96T001263 **and test** @GEA-01 .
DL=0 => n/a.

Comments for sample# S96T001264 **and test** @GEA-01 .
DL=0 => n/a.

Comments for sample# S96T001265 **and test** @GEA-01 .
DL=0 => n/a.

Comments for sample# S96T001359 **and test** @GEA-01 .
DL=0 => n/a.

Comments for sample# S96T001360 **and test** @GEA-01 .
DL=0 => n/a.

Final page for worklist# 6736

Analyst Signature **Date**

Analyst Signature **Date**

R Bachelo 4/1/96
Reviewer Signature **Date**

```
********************************************************************************
* 222-S Laboratory Counting Room   27-MAR-1996 12:21:04.16                      *
********************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                6736
Sample ID:                 WL6736-STD                       Removed by:
Sample Size:               1.00000E-03 L
Dilution Factor:           1.00000E+00                      Em Bailey
                                                            ________________________

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:               GEA3                             Verified by:
File Number:               NI3AC:1.cnf 393948
Geometry:                  42                               RJ Machelor 3/28/96
Count Time:                0 00:50:00.00 sec                ________________________
Real Time:                 0 00:50:09.88 sec
Dead Time:                 0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:         27-MAR-1996 11:25:53.39
Decayed to:                27-MAR-1996 11:25:53.39
Standard Deviations:       2
Analysis Library:          ENVGEA
Analyst:                   MB
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    660.89*  24743  1.56 1321.96   1315   15   1.4           CS-137      28.0
 0   1172.35   16193  1.85 2344.97   2337   17   1.7           CO-60       25.5
 0   1331.55   15114  2.03 2663.47   2654   20   1.7           CO-60       26.5
 0   1408.73      17  1.38 2817.90   2815   12127.2
```

Sample ID : WL6736-STD Acquisition date : 27-MAR-1996 11:25:53

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
CO-60	5.27Y	1.000	2.599E+01	2.600E+01	0.031E+01	1.21	
CS-137	30.00Y	1.000	2.797E+01	2.797E+01	0.039E+01	1.39	
Total Activity :			5.396E+01	5.396E+01			
Grand Total Activity :			5.396E+01	5.396E+01			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1236.	477.59	1.1582E+00
NA-22	117.	1274.53	8.4730E-02
NA-24	29.	1368.55	4.5542E-02
K-40	132.	1460.75	9.4173E-01
CR-51	1253.	320.08	8.7744E-01
MN-54	795.	834.83	1.5417E-01
CO-56	804.	846.76	1.5705E-01
CO-57	1277.	122.06	6.1846E-02
CO-58	743.	810.78	1.4611E-01
FE-59	841.	1099.25	3.5550E-01
SE-75	1461.	264.66	1.4197E-01
SR-85	921.	514.01	1.1433E-01
Y-88	18.	1836.06	4.4214E-02
NB-94	829.	871.09	1.6337E-01
ZRNB-95	659.	724.18	2.8431E-01
RU-103	1026.	497.08	1.2391E-01
RURH-106	665.	621.93	2.2096E+00
AG-108m	631.	722.94	1.3371E-01
CD-109	1168.	88.03	1.9582E+00
AG-110M	3648.	657.76	2.8450E-01
SN-113	1135.	391.69	1.5316E-01
TE-123m	1446.	159.00	6.7698E-02
SB-124	677.	602.73	1.1012E-01
SB-125	1316.	427.89	3.8504E-01
TE-125m	1290.	109.27	2.0241E+01
I-131	1193.	364.48	1.1743E-01
CS-134	680.	604.70	1.1088E-01
BA-140	724.	537.31	4.1425E-01
LA-140	23.	1596.21	4.7325E-02
CEPR-144	1358.	133.51	9.6465E-01
EU-152	42.	1408.01	2.6408E-01
EU-154	117.	1274.51	2.4633E-01
EU-155	1234.	105.31	2.6430E-01
HG-203	1322.	279.20	1.0069E-01
TL-208	1339.	277.36	1.3018E+00
BI-212	650.	727.18	1.8623E+00
PB-212	1613.	238.63	1.8551E-01
BI-214	727.	609.31	2.5135E-01
PB-214	1238.	351.92	4.7117E-01
RA-224	1638.	240.99	2.0758E+00
RA-226	1567.	186.10	1.8536E+00
AC-228	1004.	911.21	7.0193E-01
TH-228	1215.	84.37	6.1513E+00
TH-229	1156.	88.47	2.8235E-01
PA-233	1215.	312.17	2.2137E-01
UTH-233	1570.	245.34	7.6164E+01
PA-234M	764.	1001.03	2.9928E-01
TH-234	1126.	63.29	3.9896E+00
U-235	1564.	185.71	1.1254E-01
NP-237	1174.	86.48	5.8986E-01
NP-239	1234.	106.12	2.5118E-01

Sample ID : WL6736-STD Acquisition date : 27-MAR-1996 11:25:53

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1321.	129.30	8.2787E+02
AM-241	1100.	59.54	6.9565E-01
AM-243	1166.	74.67	1.6838E-01

****
* 222-S Laboratory Counting Room 27-MAR-1996 13:27:46.47 *
****

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

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

Worklist #: 6736
Sample ID: WL6736-BLANK
Sample Size: 1.00000E-03 L
Dilution Factor: 4.10000E+01

Removed by:

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

Detector ID: GEA3
File Number: NI3AC:~~1.cnf~~ 33949
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:00.43 sec
Dead Time: 0.0%

Verified by: 3/28/96

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

Sample Count Time: 27-MAR-1996 12:22:53.47
Decayed to: 27-MAR-1996 12:22:53.47
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: MB
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	608.80*	20	1.30	1217.79	1213	11	107.5			
0	660.91*	38	1.51	1322.00	1316	11	82.4		CS-137	1.77

Sample ID : WL6736-BLANK Acquisition date : 27-MAR-1996 12:22:53

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~1.768E+00~~	~~1.768E+00~~	~~1.458E+00~~	~~82.44~~	
Total Activity :			1.768E+00	1.768E+00			
Grand Total Activity :			1.768E+00	1.768E+00			

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	38.	477.59	8.3036E+00
NA-22	8.	1274.53	8.8636E-01
NA-24	4.	1368.55	6.9436E-01
K-40	129.	1460.75	3.8082E+01
CR-51	51.	320.08	7.2717E+00
MN-54	12.	834.83	7.7902E-01
CO-56	22.	846.76	1.0539E+00
CO-57	86.	122.06	6.5863E-01
CO-58	24.	810.78	1.0758E+00
FE-59	11.	1099.25	1.6674E+00
CO-60	11.	1332.50	1.0836E+00
SE-75	63.	264.66	1.2099E+00
SR-85	29.	514.01	8.3018E-01
Y-88	5.	1836.06	9.6189E-01
NB-94	17.	871.09	9.6028E-01
ZRNB-95	25.	724.18	2.2767E+00
RU-103	32.	497.08	8.9243E-01
RURH-106	33.	621.93	2.0258E+01
AG-108m	24.	722.94	1.0628E+00
CD-109	63.	88.03	1.8611E+01
AG-110M	41.	657.76	1.2345E+00
SN-113	57.	391.69	1.4089E+00
TE-123m	83.	159.00	6.6412E-01
SB-124	30.	602.73	9.4867E-01
SB-125	41.	427.89	2.7767E+00
TE-125m	74.	109.27	1.9818E+02
I-131	41.	364.48	8.9541E-01
CS-134	28.	604.70	9.1498E-01
BA-140	20.	537.31	2.8497E+00
LA-140	6.	1596.21	9.6295E-01
CEPR-144	81.	133.51	9.6633E+00
EU-152	7.	1408.01	4.4119E+00
EU-154	8.	1274.51	2.5683E+00
EU-155	60.	105.31	2.3901E+00
HG-203	61.	279.20	8.8570E-01
TL-208	65.	277.36	1.1799E+01
BI-212	27.	727.18	1.5590E+01
PB-212	84.	238.63	1.7354E+00
BI-214	58.	609.31	2.9080E+00
PB-214	78.	351.92	4.8457E+00
RA-224	79.	240.99	1.8679E+01
RA-226	100.	186.10	1.9223E+01
AC-228	33.	911.21	5.2173E+00
TH-228	73.	84.37	6.1919E+01
TH-229	68.	88.47	2.8031E+00
PA-233	41.	312.17	1.6770E+00
UTH-233	58.	245.34	6.0238E+02
PA-234M	22.	1001.03	2.0741E+00
TH-234	60.	63.29	3.7704E+01
U-235	107.	185.71	1.2080E+00
NP-237	58.	86.48	5.3700E+00

Sample ID : WL6736-BLANK Acquisition date : 27-MAR-1996 12:22:53

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	67.	106.12	2.3914E+00
PU-239	66.	129.30	7.5913E+03
AM-241	61.	59.54	6.7019E+00
AM-243	78.	74.67	1.7804E+00

* 222-S Laboratory Counting Room 27-MAR-1996 14:31:54.73 *

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

Worklist #:	6736
Sample ID:	S96T1263-SAM
Sample Size:	1.00000E-03 L
Dilution Factor:	4.10000E+01

Removed by: Im Baula

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

Detector ID:	GEA3
File Number:	dka300:[spec.GEA3]3g3950.cnf
Geometry:	42
Count Time:	0 00:50:00.00 sec
Real Time:	0 00:54:06.08 sec
Dead Time:	7.6%

Verified by: DP Machelon 3/28/96

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

Sample Count Time:	27-MAR-1996 13:36:45.57
Decayed to:	27-MAR-1996 13:36:45.57
Standard Deviations:	2
Analysis Library:	ENVGEA
Analyst:	MB
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	660.88*	1870337	1.57	1321.93	1313	18	0.2		CS-137	8.667E+04
0	1172.43	381	1.41	2345.13	2338	15	29.3		CO-60	24.7
0	1321.23	1034	2.73	2642.84	2634	20	13.1			
0	1331.55	328	2.24	2663.47	2657	18	17.5		CO-60	23.5

Sample ID : S96T1263-SAM Acquisition date : 27-MAR-1996 13:36:45

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	2.379E+01	2.379E+01	0.357E+01	15.00	
CS-137	30.00Y	1.000	8.667E+04	8.667E+04	0.013E+04	0.15	
	Total Activity :		8.670E+04	8.670E+04			
	Grand Total Activity :		8.670E+04	8.670E+04			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	56151.	477.59	3.2007E+02
NA-22	356.	1274.53	6.0706E+00
NA-24	19.	1368.55	1.5274E+00
K-40	118.	1460.75	3.6486E+01
CR-51	44966.	320.08	2.1555E+02
MN-54	2032.	834.83	1.0106E+01
CO-56	1979.	846.76	1.0101E+01
CO-57	46174.	122.06	1.5247E+01
CO-58	2320.	810.78	1.0589E+01
FE-59	787.	1099.25	1.4103E+01
SE-75	49501.	264.66	3.3881E+01
SR-85	29647.	514.01	2.6591E+01
Y-88	7.	1836.06	1.1363E+00
NB-94	1795.	871.09	9.8572E+00
ZRNB-95	3184.	724.18	2.5622E+01
RU-103	35806.	497.08	3.0012E+01
RURH-106	10843.	621.93	3.6584E+02
AG-108m	3235.	722.94	1.2409E+01
CD-109	39613.	88.03	4.6764E+02
AG-110M	246120.	657.76	9.5816E+01
SN-113	49455.	391.69	4.1452E+01
TE-123m	47672.	159.00	1.5938E+01
SB-124	11616.	602.73	1.8703E+01
SB-125	58418.	427.89	1.0517E+02
TE-125m	42565.	109.27	4.7662E+03
I-131	46636.	364.48	3.0101E+01
CS-134	11501.	604.70	1.8697E+01
BA-140	21325.	537.31	9.2168E+01
LA-140	12.	1596.21	1.4020E+00
CEPR-144	47146.	133.51	2.3303E+02
EU-152	35.	1408.01	9.8410E+00
EU-154	356.	1274.51	1.7639E+01
EU-155	41582.	105.31	6.2915E+01
HG-203	47591.	279.20	2.4774E+01
TL-208	47797.	277.36	3.1893E+02
BI-212	3175.	727.18	1.6871E+02
PB-212	55188.	238.63	4.4492E+01
BI-214	11362.	609.31	4.0747E+01
PB-214	46124.	351.92	1.2268E+02
RA-224	54337.	240.99	4.9029E+02
RA-226	64446.	186.10	4.8734E+02
AC-228	1471.	911.21	3.4838E+01
TH-228	39483.	84.37	1.4378E+03
TH-229	39485.	88.47	6.7667E+01
PA-233	45240.	312.17	5.5387E+01
UTH-233	53654.	245.34	1.8258E+04
PA-234M	986.	1001.03	1.3943E+01
TH-234	36590.	63.29	9.3229E+02
U-235	64128.	185.71	2.9546E+01
NP-237	39474.	86.48	1.4020E+02
NP-239	41561.	106.12	5.9784E+01

Sample ID : S96T1263-SAM Acquisition date : 27-MAR-1996 13:36:45

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	47140.	129.30	2.0278E+05
AM-241	36511.	59.54	1.6434E+02
AM-243	38583.	74.67	3.9708E+01

```
**********************************************************************************
* 222-S Laboratory Counting Room   27-MAR-1996 16:41:22.96                       *
**********************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6736
Sample ID:               S96T1263-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         4.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3952.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:54:04.33 sec
Dead Time:               7.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-MAR-1996 15:46:41.62
Decayed to:              27-MAR-1996 15:46:41.62
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: [signature]

Verified by: [signature] 5/20/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	660.87*	1860170	1.57	1321.92	1313	18	0.2		CS-137	8.620E+04
0	1172.21	394	2.11	2344.68	2340	12	22.2		CO-60	25.5
0	1321.25	1019	2.50	2642.87	2634	22	14.6			
0	1331.44	352	2.42	2663.26	2656	15	12.4		CO-60	25.2
0	1459.96*	25	2.20	2920.42	2914	17	126.0		K-40	17.9

Sample ID : S96T1263-DUP Acquisition date : 27-MAR-1996 15:46:41

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
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~1.791E+01~~	~~1.791E+01~~	~~2.257E+01~~	~~125.98~~	BKG
CO-60	5.27Y	1.000	2.528E+01	2.528E+01	0.274E+01	10.84	
CS-137	30.00Y	1.000	8.620E+04	8.620E+04	0.013E+04	0.15	
	Total Activity :		8.625E+04	8.625E+04			
	Grand Total Activity :		8.625E+04	8.625E+04			

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

Sample ID : S96T1263-DUP Acquisition date : 27-MAR-1996 15:46:41

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	55255.	477.59	3.1751E+02
NA-22	372.	1274.53	6.2088E+00
NA-24	33.	1368.55	2.0116E+00
CR-51	44714.	320.08	2.1495E+02
MN-54	2010.	834.83	1.0050E+01
CO-56	1952.	846.76	1.0031E+01
CO-57	45385.	122.06	1.5116E+01
CO-58	2257.	810.78	1.0443E+01
FE-59	700.	1099.25	1.3303E+01
SE-75	49320.	264.66	3.3819E+01
SR-85	29266.	514.01	2.6419E+01
Y-88	6.	1836.06	1.0517E+00
NB-94	1761.	871.09	9.7642E+00
ZRNB-95	3214.	724.18	2.5744E+01
RU-103	35299.	497.08	2.9799E+01
RURH-106	11015.	621.93	3.6873E+02
AG-108m	3234.	722.94	1.2406E+01
CD-109	39352.	88.03	4.6609E+02
AG-110M	247874.	657.76	9.6157E+01
SN-113	49853.	391.69	4.1619E+01
TE-123m	47521.	159.00	1.5913E+01
SB-124	11591.	602.73	1.8683E+01
SB-125	57987.	427.89	1.0479E+02
TE-125m	42163.	109.27	4.7436E+03
I-131	46586.	364.48	3.0084E+01
CS-134	11511.	604.70	1.8705E+01
BA-140	21167.	537.31	9.1827E+01
LA-140	13.	1596.21	1.4610E+00
CEPR-144	46911.	133.51	2.3244E+02
EU-152	27.	1408.01	8.7041E+00
EU-154	372.	1274.51	1.8023E+01
EU-155	41403.	105.31	6.2779E+01
HG-203	46986.	279.20	2.4616E+01
TL-208	47246.	277.36	3.1708E+02
BI-212	3194.	727.18	1.6922E+02
PB-212	54611.	238.63	4.4259E+01
BI-214	11168.	609.31	4.0397E+01
PB-214	45418.	351.92	1.2170E+02
RA-224	54164.	240.99	4.8951E+02
RA-226	64398.	186.10	4.8716E+02
AC-228	1453.	911.21	3.4620E+01
TH-228	39185.	84.37	1.4324E+03
TH-229	39274.	88.47	6.7487E+01
PA-233	44861.	312.17	5.5154E+01
UTH-233	53315.	245.34	1.8200E+04
PA-234M	1001.	1001.03	1.4047E+01
TH-234	36472.	63.29	9.3078E+02
U-235	63957.	185.71	2.9507E+01
NP-237	39269.	86.48	1.3984E+02
NP-239	41406.	106.12	5.9672E+01
PU-239	46372.	129.30	2.0112E+05

Sample ID : S96T1263-DUP Acquisition date : 27-MAR-1996 15:46:41

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	36015.	59.54	1.6322E+02
AM-243	38042.	74.67	3.9429E+01

****
* 222-S Laboratory Counting Room 27-MAR-1996 19:44:09.34 *
****

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

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

Worklist #: 6736
Sample ID: S96T1264-SAM
Sample Size: 1.00000E-03 L
Dilution Factor: 4.10000E+01

Removed by: Raymond

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

Detector ID: GEA3
File Number: NI3AC:1.cnf 3953
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:53:50.79 sec
Dead Time: 7.1%

Verified by: Bmacbeth 3/28/96

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

Sample Count Time: 27-MAR-1996 16:47:36.20
Decayed to: 27-MAR-1996 16:47:36.20
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	475.50	2182	2.36	951.24	948	8	36.8			
0	660.86*	1768533	1.57	1321.90	1313	18	0.2		CS-137	8.196E+04
0	1172.30	452	2.13	2344.87	2337	15	22.0		CO-60	29.2
0	1321.62	706	2.19	2643.61	2638	18	17.4			
0	1331.56	387	1.87	2663.50	2657	15	11.9		CO-60	27.8

Sample ID : S96T1264-SAM Acquisition date : 27-MAR-1996 16:47:36

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	2.808E+01	2.808E+01	0.294E+01	10.47	
CS-137	30.00Y	1.000	8.196E+04	8.196E+04	0.013E+04	0.16	
Total Activity :			8.198E+04	8.198E+04			
Grand Total Activity :			8.198E+04	8.198E+04			

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

Sample ID : S96T1264-SAM Acquisition date : 27-MAR-1996 16:47:36

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	52689.	477.59	3.1005E+02
NA-22	344.	1274.53	5.9725E+00
NA-24	39.	1368.55	2.1641E+00
K-40	122.	1460.75	3.7102E+01
CR-51	42399.	320.08	2.0931E+02
MN-54	1822.	834.83	9.5686E+00
CO-56	1784.	846.76	9.5908E+00
CO-57	43089.	122.06	1.4729E+01
CO-58	1981.	810.78	9.7834E+00
FE-59	699.	1099.25	1.3292E+01
SE-75	46859.	264.66	3.2964E+01
SR-85	27626.	514.01	2.5669E+01
Y-88	6.	1836.06	1.0537E+00
NB-94	1528.	871.09	9.0960E+00
ZRNB-95	2942.	724.18	2.4631E+01
RU-103	33624.	497.08	2.9083E+01
RURH-106	10087.	621.93	3.5286E+02
AG-108m	2956.	722.94	1.1862E+01
CD-109	37532.	88.03	4.5519E+02
AG-110M	238045.	657.76	9.4231E+01
SN-113	47371.	391.69	4.0569E+01
TE-123m	44654.	159.00	1.5426E+01
SB-124	10867.	602.73	1.8090E+01
SB-125	55011.	427.89	1.0206E+02
TE-125m	39541.	109.27	4.5938E+03
I-131	43964.	364.48	2.9225E+01
CS-134	10816.	604.70	1.8132E+01
BA-140	19826.	537.31	8.8870E+01
LA-140	13.	1596.21	1.4668E+00
CEPR-144	44497.	133.51	2.2638E+02
EU-152	31.	1408.01	9.2210E+00
EU-154	344.	1274.51	1.7344E+01
EU-155	38977.	105.31	6.0912E+01
HG-203	44876.	279.20	2.4056E+01
TL-208	44864.	277.36	3.0899E+02
BI-212	2852.	727.18	1.5989E+02
PB-212	51489.	238.63	4.2975E+01
BI-214	10698.	609.31	3.9538E+01
PB-214	43048.	351.92	1.1821E+02
RA-224	50640.	240.99	4.7331E+02
RA-226	60585.	186.10	4.7252E+02
AC-228	1324.	911.21	3.3049E+01
TH-228	37236.	84.37	1.3963E+03
TH-229	37623.	88.47	6.6052E+01
PA-233	42729.	312.17	5.3827E+01
UTH-233	50279.	245.34	1.7674E+04
PA-234M	916.	1001.03	1.3439E+01
TH-234	34950.	63.29	9.1116E+02
U-235	60111.	185.71	2.8606E+01
NP-237	37451.	86.48	1.3656E+02
NP-239	39195.	106.12	5.8055E+01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	44104.	129.30	1.9614E+05
AM-241	34337.	59.54	1.5937E+02
AM-243	35733.	74.67	3.8213E+01

```
**********************************************************************
* 222-S Laboratory Counting Room   27-MAR-1996 19:39:12.79           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6736
Sample ID:               S96T1264-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         4.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3954.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:53:44.32 sec
Dead Time:               7.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-MAR-1996 18:44:50.31
Decayed to:              27-MAR-1996 18:44:50.31
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
**********************************************************************
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Removed by: [signature]

Verified by: [signature] 3/28/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	660.86*	1719689	1.57	1321.90	1313	17	0.2		CS-137	7.969E+04
0	1172.23	345	1.48	2344.73	2339	11	22.6		CO-60	22.3
0	1321.05	794	2.41	2642.46	2633	23	17.9			
0	1331.41	328	1.81	2663.19	2655	18	15.3		CO-60	23.5
0	1764.07*	10	1.88	3528.98	3524	11	13.5			

Sample ID : S96T1263-DUP
Acquisition date : 27-MAR-1996 18:44:50

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	2.312E+01	2.312E+01	0.293E+01	12.65	
CS-137	30.00Y	1.000	7.969E+04	7.969E+04	0.013E+04	0.16	
			---------	---------			
	Total Activity :		7.972E+04	7.972E+04			
	Grand Total Activity :		7.972E+04	7.972E+04			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	50780.	477.59	3.0438E+02
NA-22	311.	1274.53	5.6717E+00
NA-24	21.	1368.55	1.5906E+00
K-40	148.	1460.75	4.0833E+01
CR-51	41305.	320.08	2.0659E+02
MN-54	1719.	834.83	9.2955E+00
CO-56	1687.	846.76	9.3256E+00
CO-57	42244.	122.06	1.4584E+01
CO-58	1867.	810.78	9.4992E+00
FE-59	686.	1099.25	1.3164E+01
SE-75	45428.	264.66	3.2457E+01
SR-85	26994.	514.01	2.5373E+01
Y-88	1.	1836.06	4.3017E-01
NB-94	1511.	871.09	9.0450E+00
ZRNB-95	2786.	724.18	2.3966E+01
RU-103	32688.	497.08	2.8675E+01
RURH-106	9814.	621.93	3.4805E+02
AG-108m	2799.	722.94	1.1544E+01
CD-109	36687.	88.03	4.5003E+02
AG-110M	231572.	657.76	9.2941E+01
SN-113	45692.	391.69	3.9844E+01
TE-123m	43527.	159.00	1.5230E+01
SB-124	10648.	602.73	1.7907E+01
SB-125	53878.	427.89	1.0100E+02
TE-125m	39017.	109.27	4.5633E+03
I-131	43104.	364.48	2.8938E+01
CS-134	10475.	604.70	1.7843E+01
BA-140	19602.	537.31	8.8367E+01
LA-140	14.	1596.21	1.4909E+00
CEPR-144	43574.	133.51	2.2402E+02
EU-152	22.	1408.01	7.8650E+00
EU-154	310.	1274.51	1.6473E+01
EU-155	38040.	105.31	6.0175E+01
HG-203	43451.	279.20	2.3671E+01
TL-208	43797.	277.36	3.0529E+02
BI-212	2669.	727.18	1.5468E+02
PB-212	50308.	238.63	4.2480E+01
BI-214	10173.	609.31	3.8556E+01
PB-214	41825.	351.92	1.1640E+02
RA-224	49975.	240.99	4.7018E+02
RA-226	59109.	186.10	4.6673E+02
AC-228	1203.	911.21	3.1495E+01
TH-228	36135.	84.37	1.3755E+03
TH-229	36710.	88.47	6.5246E+01
PA-233	41687.	312.17	5.3166E+01
UTH-233	49079.	245.34	1.7462E+04
PA-234M	878.	1001.03	1.3158E+01
TH-234	33856.	63.29	8.9678E+02
U-235	58567.	185.71	2.8236E+01
NP-237	36359.	86.48	1.3456E+02
NP-239	38138.	106.12	5.7266E+01

Sample ID : S96T1263-DUP Acquisition date : 27-MAR-1996 18:44:50

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	42653.	129.30	1.9289E+05
AM-241	33578.	59.54	1.5760E+02
AM-243	35111.	74.67	3.7879E+01

****
* 222-S Laboratory Counting Room 27-MAR-1996 20:40:43.24 *
****

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

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

Worklist #: 6736
Sample ID: S96T1265-SAM
Sample Size: 1.00000E-03 L
Dilution Factor: 4.10000E+01

Removed by: Raymond

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

Detector ID: GEA3
File Number: dka300:[spec.GEA3]3g3955.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:54:06.83 sec
Dead Time: 7.6%

Verified by: BJ Machelor 3/28/96

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

Sample Count Time: 27-MAR-1996 19:46:00.99
Decayed to: 27-MAR-1996 19:46:00.99
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	660.87*	1874481	1.57	1321.92	1313	17	0.2		CS-137	8.687E+04
0	1172.49	381	2.11	2345.25	2338	14	27.1		CO-60	24.6
0	1321.51	774	2.61	2643.40	2637	15	15.8			
0	1331.55	387	1.75	2663.47	2654	18	14.0		CO-60	27.8

Sample ID : S96T1265-SAM Acquisition date : 27-MAR-1996 19:46:00

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	2.700E+01	2.700E+01	0.336E+01	12.44	
CS-137	30.00Y	1.000	8.687E+04	8.687E+04	0.013E+04	0.15	
	Total Activity :		8.689E+04	8.689E+04			
	Grand Total Activity :		8.689E+04	8.689E+04			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	56251.	477.59	3.2036E+02
NA-22	332.	1274.53	5.8598E+00
NA-24	40.	1368.55	2.2002E+00
K-40	145.	1460.75	4.0449E+01
CR-51	45421.	320.08	2.1664E+02
MN-54	2148.	834.83	1.0391E+01
CO-56	1948.	846.76	1.0020E+01
CO-57	46436.	122.06	1.5290E+01
CO-58	2173.	810.78	1.0248E+01
FE-59	783.	1099.25	1.4070E+01
SE-75	49933.	264.66	3.4029E+01
SR-85	28868.	514.01	2.6239E+01
Y-88	3.	1836.06	7.4508E-01
NB-94	1735.	871.09	9.6904E+00
ZRNB-95	3131.	724.18	2.5407E+01
RU-103	35911.	497.08	3.0056E+01
RURH-106	11077.	621.93	3.6976E+02
AG-108m	3158.	722.94	1.2261E+01
CD-109	39920.	88.03	4.6944E+02
AG-110M	247382.	657.76	9.6061E+01
SN-113	49641.	391.69	4.1530E+01
TE-123m	47985.	159.00	1.5991E+01
SB-124	11552.	602.73	1.8652E+01
SB-125	58239.	427.89	1.0501E+02
TE-125m	42521.	109.27	4.7638E+03
I-131	46759.	364.48	3.0140E+01
CS-134	11654.	604.70	1.8821E+01
BA-140	21164.	537.31	9.1820E+01
LA-140	11.	1596.21	1.3158E+00
CEPR-144	47401.	133.51	2.3365E+02
EU-152	26.	1408.01	8.4616E+00
EU-154	332.	1274.51	1.7024E+01
EU-155	41354.	105.31	6.2742E+01
HG-203	47944.	279.20	2.4865E+01
TL-208	48116.	277.36	3.1999E+02
BI-212	3149.	727.18	1.6801E+02
PB-212	55204.	238.63	4.4499E+01
BI-214	11513.	609.31	4.1016E+01
PB-214	46066.	351.92	1.2261E+02
RA-224	54565.	240.99	4.9131E+02
RA-226	64514.	186.10	4.8760E+02
AC-228	1429.	911.21	3.4335E+01
TH-228	39455.	84.37	1.4373E+03
TH-229	39940.	88.47	6.8056E+01
PA-233	45610.	312.17	5.5613E+01
UTH-233	53623.	245.34	1.8252E+04
PA-234M	1049.	1001.03	1.4383E+01
TH-234	37058.	63.29	9.3823E+02
U-235	64109.	185.71	2.9542E+01
NP-237	39886.	86.48	1.4093E+02
NP-239	41420.	106.12	5.9682E+01

Sample ID : S96T1265-SAM Acquisition date : 27-MAR-1996 19:46:00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	47147.	129.30	2.0279E+05
AM-241	36627.	59.54	1.6460E+02
AM-243	38353.	74.67	3.9589E+01

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**********************************************************************
* 222-S Laboratory Counting Room   27-MAR-1996 22:22:53.48           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6736
Sample ID:               S96T1265-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         4.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3956.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:54:07.37 sec
Dead Time:               7.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-MAR-1996 21:28:10.29
Decayed to:              27-MAR-1996 21:28:10.29
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:

Verified by:

3/28/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	660.88*	1882134	1.58	1321.94	1313	18	0.2		CS-137	8.722E+04
0	1172.16	427	2.04	2344.59	2336	17	27.8		CO-60	27.6
0	1321.68	785	2.45	2643.72	2638	13	14.2			
0	1331.61	368	1.91	2663.60	2654	20	16.1		CO-60	26.4

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	2.668E+01	2.668E+01	0.372E+01	13.95	
CS-137	30.00Y	1.000	8.722E+04	8.722E+04	0.013E+04	0.15	
	Total Activity :		8.725E+04	8.725E+04			
	Grand Total Activity :		8.725E+04	8.725E+04			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	56770.	477.59	3.2183E+02
NA-22	355.	1274.53	6.0672E+00
NA-24	35.	1368.55	2.0580E+00
K-40	146.	1460.75	4.0572E+01
CR-51	45323.	320.08	2.1640E+02
MN-54	2142.	834.83	1.0376E+01
CO-56	2038.	846.76	1.0248E+01
CO-57	46079.	122.06	1.5231E+01
CO-58	2311.	810.78	1.0567E+01
FE-59	771.	1099.25	1.3960E+01
SE-75	49565.	264.66	3.3903E+01
SR-85	29802.	514.01	2.6660E+01
Y-88	1.	1836.06	4.3017E-01
NB-94	1747.	871.09	9.7231E+00
ZRNB-95	3254.	724.18	2.5904E+01
RU-103	36099.	497.08	3.0135E+01
RURH-106	10842.	621.93	3.6583E+02
AG-108m	3276.	722.94	1.2487E+01
CD-109	39859.	88.03	4.6908E+02
AG-110M	243677.	657.76	9.5339E+01
SN-113	50182.	391.69	4.1756E+01
TE-123m	47836.	159.00	1.5966E+01
SB-124	11626.	602.73	1.8711E+01
SB-125	58274.	427.89	1.0504E+02
TE-125m	42823.	109.27	4.7807E+03
I-131	47092.	364.48	3.0248E+01
CS-134	11612.	604.70	1.8786E+01
BA-140	21317.	537.31	9.2152E+01
LA-140	16.	1596.21	1.6022E+00
CEPR-144	47491.	133.51	2.3388E+02
EU-152	29.	1408.01	9.0566E+00
EU-154	356.	1274.51	1.7631E+01
EU-155	41864.	105.31	6.3128E+01
HG-203	47542.	279.20	2.4761E+01
TL-208	47852.	277.36	3.1911E+02
BI-212	3237.	727.18	1.7035E+02
PB-212	55755.	238.63	4.4720E+01
BI-214	11403.	609.31	4.0820E+01
PB-214	46044.	351.92	1.2260E+02
RA-224	55047.	240.99	4.9348E+02
RA-226	64893.	186.10	4.8903E+02
AC-228	1407.	911.21	3.4062E+01
TH-228	39493.	84.37	1.4380E+03
TH-229	39910.	88.47	6.8031E+01
PA-233	45588.	312.17	5.5599E+01
UTH-233	53719.	245.34	1.8269E+04
PA-234M	1072.	1001.03	1.4538E+01
TH-234	36701.	63.29	9.3371E+02
U-235	64491.	185.71	2.9630E+01
NP-237	39805.	86.48	1.4079E+02
NP-239	42030.	106.12	6.0120E+01

Sample ID : S96T1265-DUP Acquisition date : 27-MAR-1996 21:28:10

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	47060.	129.30	2.0261E+05
AM-241	36730.	59.54	1.6483E+02
AM-243	38287.	74.67	3.9555E+01

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**********************************************************************
* 222-S Laboratory Counting Room   27-MAR-1996 23:21:20.86           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6736
Sample ID:               S96T1359-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         4.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3957.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:54:20.37 sec
Dead Time:               8.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-MAR-1996 22:26:23.70
Decayed to:              27-MAR-1996 22:26:23.70
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: W Raymond

Verified by: B Bachelor 3/28/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	660.89*	1973897	1.58	1321.96	1313	18	0.1		CS-137	9.147E+04
0	1172.19	385	2.10	2344.65	2339	13	26.3		CO-60	24.9
0	1321.29	1010	2.82	2642.95	2635	16	13.1			
0	1331.63	405	2.02	2663.63	2654	18	14.8		CO-60	29.1
0	1459.67*	28	1.51	2919.82	2911	15	111.4		K-40	20.5
0	1500.05	9	1.35	3000.63	2997	7	109.6			

WHC-SD-WM-DP-178, REV /

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~~	~~2.051E+01~~	~~2.051E+01~~	~~2.284E+01~~	~~111.37~~ BKG	
CO-60	5.27Y	1.000	2.781E+01	2.781E+01	0.360E+01	12.94	
CS-137	30.00Y	1.000	9.147E+04	9.147E+04	0.013E+04	0.15	
	Total Activity :		9.152E+04	9.152E+04			
Grand Total Activity :			9.152E+04	9.152E+04			

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

Sample ID : S96T1359-SAM Acquisition date : 27-MAR-1996 22:26:23

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	59452.	477.59	3.2935E+02
NA-22	402.	1274.53	6.4501E+00
NA-24	48.	1368.55	2.3982E+00
CR-51	47395.	320.08	2.2130E+02
MN-54	2321.	834.83	1.0801E+01
CO-56	2181.	846.76	1.0603E+01
CO-57	48274.	122.06	1.5590E+01
CO-58	2508.	810.78	1.1009E+01
FE-59	801.	1099.25	1.4230E+01
SE-75	52131.	264.66	3.4769E+01
SR-85	31067.	514.01	2.7220E+01
Y-88	8.	1836.06	1.2000E+00
NB-94	1991.	871.09	1.0382E+01
ZRNB-95	3626.	724.18	2.7343E+01
RU-103	37681.	497.08	3.0788E+01
RURH-106	11568.	621.93	3.7787E+02
AG-108m	3573.	722.94	1.3040E+01
CD-109	41793.	88.03	4.8033E+02
AG-110M	251877.	657.76	9.6930E+01
SN-113	52661.	391.69	4.2774E+01
TE-123m	50118.	159.00	1.6342E+01
SB-124	12251.	602.73	1.9207E+01
SB-125	61634.	427.89	1.0803E+02
TE-125m	44650.	109.27	4.8816E+03
I-131	49230.	364.48	3.0927E+01
CS-134	12240.	604.70	1.9288E+01
BA-140	22599.	537.31	9.4883E+01
LA-140	12.	1596.21	1.3962E+00
CEPR-144	49729.	133.51	2.3932E+02
EU-152	36.	1408.01	1.0062E+01
EU-154	402.	1274.51	1.8750E+01
EU-155	43485.	105.31	6.4338E+01
HG-203	49973.	279.20	2.5386E+01
TL-208	49993.	277.36	3.2617E+02
BI-212	3550.	727.18	1.7839E+02
PB-212	57836.	238.63	4.5547E+01
BI-214	12118.	609.31	4.2081E+01
PB-214	48317.	351.92	1.2586E+02
RA-224	57590.	240.99	5.0476E+02
RA-226	67974.	186.10	5.0051E+02
AC-228	1582.	911.21	3.6125E+01
TH-228	41508.	84.37	1.4742E+03
TH-229	41739.	88.47	6.9572E+01
PA-233	47740.	312.17	5.6897E+01
UTH-233	56576.	245.34	1.8748E+04
PA-234M	1111.	1001.03	1.4803E+01
TH-234	38544.	63.29	9.5685E+02
U-235	67438.	185.71	3.0299E+01
NP-237	41693.	86.48	1.4409E+02
NP-239	43622.	106.12	6.1249E+01
PU-239	49239.	129.30	2.0724E+05

Sample ID : S96T1359-SAM Acquisition date : 27-MAR-1996 22:26:23

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	38404.	59.54	1.6855E+02
AM-243	40461.	74.67	4.0663E+01

****
* 222-S Laboratory Counting Room 28-MAR-1996 00:19:29.30 *
****

WHC-SD-WM-DP-178, REV

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

Worklist #:	6736
Sample ID:	S96T1359-DUP
Sample Size:	1.00000E-03 L
Dilution Factor:	4.10000E+01

Removed by: Raymore

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

Detector ID:	GEA3
File Number:	dka300:[spec.GEA3]3g3958.cnf
Geometry:	42
Count Time:	0 00:50:00.00 sec
Real Time:	0 00:54:10.02 sec
Dead Time:	7.7%

Verified by: Rachelor 3/28/96

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

Sample Count Time:	27-MAR-1996 23:24:42.36
Decayed to:	27-MAR-1996 23:24:42.36
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	660.89*	1897337	1.57	1321.95	1313	18	0.1		CS-137	8.792E+04
0	1172.29	460	1.84	2344.84	2336	17	26.4		CO-60	29.7
0	1321.18	922	3.01	2642.74	2634	19	15.2			
0	1331.56	389	1.94	2663.49	2656	15	13.3		CO-60	27.9

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	2.826E+01	2.826E+01	0.336E+01	11.91	
CS-137	30.00Y	1.000	8.792E+04	8.792E+04	0.013E+04	0.15	
Total Activity :			8.795E+04	8.795E+04			
Grand Total Activity :			8.795E+04	8.795E+04			

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

Sample ID : S96T1359-DUP Acquisition date : 27-MAR-1996 23:24:42

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	56767.	477.59	3.2182E+02
NA-22	374.	1274.53	6.2267E+00
NA-24	35.	1368.55	2.0601E+00
K-40	129.	1460.75	3.8078E+01
CR-51	46094.	320.08	2.1824E+02
MN-54	2065.	834.83	1.0187E+01
CO-56	2015.	846.76	1.0191E+01
CO-57	46562.	122.06	1.5311E+01
CO-58	2307.	810.78	1.0557E+01
FE-59	756.	1099.25	1.3820E+01
SE-75	50549.	264.66	3.4238E+01
SR-85	29788.	514.01	2.6654E+01
Y-88	6.	1836.06	1.0537E+00
NB-94	1824.	871.09	9.9360E+00
ZRNB-95	3301.	724.18	2.6089E+01
RU-103	36489.	497.08	3.0297E+01
RURH-106	11308.	621.93	3.7360E+02
AG-108m	3323.	722.94	1.2577E+01
CD-109	40093.	88.03	4.7046E+02
AG-110M	242826.	657.76	9.5172E+01
SN-113	50900.	391.69	4.2053E+01
TE-123m	48083.	159.00	1.6007E+01
SB-124	11892.	602.73	1.8924E+01
SB-125	59066.	427.89	1.0576E+02
TE-125m	43352.	109.27	4.8101E+03
I-131	47428.	364.48	3.0355E+01
CS-134	11841.	604.70	1.8971E+01
BA-140	21898.	537.31	9.3400E+01
LA-140	9.	1596.21	1.1916E+00
CEPR-144	47985.	133.51	2.3509E+02
EU-152	33.	1408.01	9.5669E+00
EU-154	374.	1274.51	1.8087E+01
EU-155	42108.	105.31	6.3311E+01
HG-203	48441.	279.20	2.4994E+01
TL-208	48660.	277.36	3.2180E+02
BI-212	3253.	727.18	1.7076E+02
PB-212	56127.	238.63	4.4869E+01
BI-214	11788.	609.31	4.1504E+01
PB-214	46575.	351.92	1.2336E+02
RA-224	55619.	240.99	4.9604E+02
RA-226	65165.	186.10	4.9006E+02
AC-228	1425.	911.21	3.4281E+01
TH-228	39915.	84.37	1.4457E+03
TH-229	40121.	88.47	6.8210E+01
PA-233	46099.	312.17	5.5910E+01
UTH-233	53720.	245.34	1.8269E+04
PA-234M	1040.	1001.03	1.4317E+01
TH-234	36968.	63.29	9.3710E+02
U-235	64795.	185.71	2.9700E+01
NP-237	40013.	86.48	1.4116E+02
NP-239	42469.	106.12	6.0433E+01

Sample ID : S96T1359-DUP Acquisition date : 27-MAR-1996 23:24:42

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	47784.	129.30	2.0416E+05
AM-241	36729.	59.54	1.6483E+02
AM-243	38375.	74.67	3.9601E+01

```
**********************************************************************
* 222-S Laboratory Counting Room   28-MAR-1996 02:29:05.81           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6736
Sample ID:               S96T1360-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         4.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3959.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:54:02.14 sec
Dead Time:               7.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       28-MAR-1996 01:34:03.74
Decayed to:              28-MAR-1996 01:34:03.74
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 VR
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Verified by: [signature] 3/28/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	660.89*	1842532	1.57	1321.96	1313	18	0.2		CS-137	8.538E+04
0	1172.47	460	1.93	2345.21	2335	20	27.7		CO-60	29.8
0	1321.45	905	2.67	2643.27	2636	17	14.1			
0	1331.60	336	1.92	2663.58	2658	14	13.2		CO-60	24.1
0	1460.00*	25	1.93	2920.49	2910	20	111.5		K-40	17.7
0	1762.83	11	1.36	3526.50	3524	12	106.5			

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~~	~~1.771E+01~~	~~1.771E+01~~	~~1.975E+01~~	~~111.52~~	~~BLC~~
CO-60	5.27Y	1.000	2.483E+01	2.483E+01	0.298E+01	11.98	
CS-137	30.00Y	1.000	8.538E+04	8.538E+04	0.013E+04	0.15	
	Total Activity :		8.543E+04	8.543E+04			
	Grand Total Activity :		8.543E+04	8.543E+04			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	55309.	477.59	3.1766E+02
NA-22	340.	1274.53	5.9325E+00
NA-24	27.	1368.55	1.8047E+00
CR-51	44250.	320.08	2.1383E+02
MN-54	2014.	834.83	1.0061E+01
CO-56	1847.	846.76	9.7586E+00
CO-57	45566.	122.06	1.5146E+01
CO-58	2206.	810.78	1.0324E+01
FE-59	725.	1099.25	1.3539E+01
SE-75	49171.	264.66	3.3768E+01
SR-85	28803.	514.01	2.6210E+01
Y-88	6.	1836.06	1.0517E+00
NB-94	1663.	871.09	9.4885E+00
ZRNB-95	3190.	724.18	2.5648E+01
RU-103	35556.	497.08	2.9907E+01
RURH-106	10885.	621.93	3.6655E+02
AG-108m	3192.	722.94	1.2327E+01
CD-109	39181.	88.03	4.6507E+02
AG-110M	232504.	657.76	9.3128E+01
SN-113	49115.	391.69	4.1309E+01
TE-123m	46738.	159.00	1.5781E+01
SB-124	11407.	602.73	1.8534E+01
SB-125	57525.	427.89	1.0437E+02
TE-125m	42023.	109.27	4.7358E+03
I-131	46180.	364.48	2.9953E+01
CS-134	11228.	604.70	1.8473E+01
BA-140	20931.	537.31	9.1313E+01
LA-140	16.	1596.21	1.5968E+00
CEPR-144	45965.	133.51	2.3009E+02
EU-152	28.	1408.01	8.8884E+00
EU-154	340.	1274.51	1.7231E+01
EU-155	40894.	105.31	6.2392E+01
HG-203	46950.	279.20	2.4606E+01
TL-208	47453.	277.36	3.1778E+02
BI-212	3071.	727.18	1.6591E+02
PB-212	54468.	238.63	4.4201E+01
BI-214	11252.	609.31	4.0549E+01
PB-214	45310.	351.92	1.2151E+02
RA-224	53426.	240.99	4.8616E+02
RA-226	63786.	186.10	4.8484E+02
AC-228	1363.	911.21	3.3532E+01
TH-228	39098.	84.37	1.4308E+03
TH-229	39248.	88.47	6.7464E+01
PA-233	44938.	312.17	5.5201E+01
UTH-233	53313.	245.34	1.8200E+04
PA-234M	979.	1001.03	1.3895E+01
TH-234	36063.	63.29	9.2556E+02
U-235	63436.	185.71	2.9387E+01
NP-237	38986.	86.48	1.3933E+02
NP-239	41033.	106.12	5.9402E+01
PU-239	46490.	129.30	2.0137E+05

Sample ID : S96T1360-SAM Acquisition date : 28-MAR-1996 01:34:03

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	36053.	59.54	1.6331E+02
AM-243	37523.	74.67	3.9159E+01

```
**********************************************************************
* 222-S Laboratory Counting Room   28-MAR-1996 03:28:32.30           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              6736
Sample ID:               S96T1360-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         4.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3960.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:54:03.08 sec
Dead Time:               7.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       28-MAR-1996 02:33:52.50
Decayed to:              28-MAR-1996 02:33:52.50
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:

Verified by:

Macheler 3/28/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	660.89*	1849766	1.58	1321.96	1313	17	0.2		CS-137	8.572E+04
0	1172.49	442	1.73	2345.26	2337	15	23.3		CO-60	28.6
0	1321.37	727	2.53	2643.11	2636	14	15.3			
0	1331.60	382	1.92	2663.57	2658	13	12.6		CO-60	27.4

Sample ID : S96T1360-DUP Acquisition date : 28-MAR-1996 02:33:52

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	2.766E+01	2.766E+01	0.306E+01	11.07	
CS-137	30.00Y	1.000	8.572E+04	8.572E+04	0.013E+04	0.15	
	Total Activity :		8.575E+04	8.575E+04			
	Grand Total Activity :		8.575E+04	8.575E+04			

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

Sample ID : S96T1360-DUP
Acquisition date : 28-MAR-1996 02:33:52

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	55345.	477.59	3.1777E+02
NA-22	351.	1274.53	6.0279E+00
NA-24	38.	1368.55	2.1513E+00
K-40	152.	1460.75	4.1299E+01
CR-51	44702.	320.08	2.1492E+02
MN-54	1974.	834.83	9.9604E+00
CO-56	1996.	846.76	1.0145E+01
CO-57	45420.	122.06	1.5122E+01
CO-58	2167.	810.78	1.0233E+01
FE-59	726.	1099.25	1.3546E+01
SE-75	48803.	264.66	3.3641E+01
SR-85	28810.	514.01	2.6213E+01
Y-88	3.	1836.06	7.4226E-01
NB-94	1714.	871.09	9.6326E+00
ZRNB-95	3105.	724.18	2.5301E+01
RU-103	35499.	497.08	2.9883E+01
RURH-106	10826.	621.93	3.6555E+02
AG-108m	3148.	722.94	1.2241E+01
CD-109	39229.	88.03	4.6536E+02
AG-110M	232578.	657.76	9.3142E+01
SN-113	49051.	391.69	4.1282E+01
TE-123m	47087.	159.00	1.5840E+01
SB-124	11489.	602.73	1.8600E+01
SB-125	57500.	427.89	1.0434E+02
TE-125m	42251.	109.27	4.7486E+03
I-131	46152.	364.48	2.9944E+01
CS-134	11434.	604.70	1.8642E+01
BA-140	20767.	537.31	9.0955E+01
LA-140	14.	1596.21	1.5324E+00
CEPR-144	47077.	133.51	2.3285E+02
EU-152	33.	1408.01	9.5185E+00
EU-154	351.	1274.51	1.7511E+01
EU-155	41548.	105.31	6.2889E+01
HG-203	47080.	279.20	2.4640E+01
TL-208	47394.	277.36	3.1758E+02
BI-212	3052.	727.18	1.6539E+02
PB-212	54227.	238.63	4.4103E+01
BI-214	11271.	609.31	4.0583E+01
PB-214	45563.	351.92	1.2187E+02
RA-224	53600.	240.99	4.8695E+02
RA-226	63441.	186.10	4.8353E+02
AC-228	1453.	911.21	3.4623E+01
TH-228	38769.	84.37	1.4248E+03
TH-229	39193.	88.47	6.7417E+01
PA-233	44806.	312.17	5.5120E+01
UTH-233	52778.	245.34	1.8108E+04
PA-234M	997.	1001.03	1.4018E+01
TH-234	36152.	63.29	9.2669E+02
U-235	62984.	185.71	2.9282E+01
NP-237	38776.	86.48	1.3896E+02
NP-239	41513.	106.12	5.9749E+01

Sample ID : S96T1360-DUP Acquisition date : 28-MAR-1996 02:33:52

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	46412.	129.30	2.0121E+05
AM-241	36208.	59.54	1.6366E+02
AM-243	37675.	74.67	3.9238E+01

LABCORE Data Entry Template for Worklist# 7087

Analyst: CRJ **Instrument:** GEA00 2 **Book#** 12B56

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

Worklist Comment: AY-101 GRAB.Sample size =.250-10ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S96T001361	0		@GEA-01	LIQUID	96000257	AY-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T001361	0		@GEA-01	LIQUID		

Final page for worklist # 7087

N. Johnson 4/1/96
Analyst Signature **Date**

C.R. Jones 4/2/96
Analyst Signature **Date**

Data Entry Comments:

250ml - 10ml dilution 1ml sample size per Nora Wright

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

LABCORE Completed Worklist Report for Worklist# 7087

Analyst: crj **Instrument:** GEA02 **Book#** 12856

Method: LA-548-124 Rev/Mod E-0

Worklist Comment: AY-101 GRAB.Sample size =.250-10ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@GEA-01	CO60-02	LIQUID	0.0258	2.59e-02	100.390	% Recovery
1	STD		0		@GEA-01	CO60-02E	LIQUID	1	1.35	1.350	% Ct. Error
1	STD		0		@GEA-01	CS13702	LIQUID	0.0271	2.70e-02	99.630	% Recovery
1	STD		0		@GEA-01	CS13702E	LIQUID	1	1.62	1.620	% Ct. Error
2	BLNK		0		@GEA-01	CO60-02	LIQUID	1	<1.02e-3		uCi/mL
2	BLNK		0		@GEA-01	CS13702	LIQUID	1	<3.38e-3		uCi/mL
3	SAMPLE	S96T001361	0		@GEA-01	CO60-02	LIQUID	N/A	2.630e-02	0.000	uCi/mL
3	SAMPLE	S96T001361	0		@GEA-01	CO60-02E	LIQUID	N/A	13.0	0.000	% Ct. Error
3	SAMPLE	S96T001361	0		@GEA-01	CS13702	LIQUID	N/A	8.820e+01	0.000	uCi/mL
3	SAMPLE	S96T001361	0		@GEA-01	CS13702E	LIQUID	N/A	0.170	0.000	% Ct. Error
4	DUP	S96T001361	0		@GEA-01	CO60-02	LIQUID	2.63e-02	2.63e-02	0.000	RPD
4	DUP	S96T001361	0		@GEA-01	CO60-02E	LIQUID	1	11.8	11.800	% Ct. Error
4	DUP	S96T001361	0		@GEA-01	CS13702	LIQUID	8.82e+01	8.60e+01	2.530	RPD
4	DUP	S96T001361	0		@GEA-01	CS13702E	LIQUID	1	0.170	0.170	% Ct. Error

Comments Section:

Comments for sample# S96T001361 **and test** @GEA-01 .
DL=0 => n/a.

Final page for worklist# 7087

Analyst Signature **Date**

Analyst Signature **Date**

BX Rachelon 4/2/96
Reviewer Signature **Date**

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

```
**********************************************************************
* 222-S Laboratory Counting Room    2-APR-1996 02:18:01.97           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7087
Sample ID:               WL7087-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2170.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.72 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       2-APR-1996 01:27:16.21
Decayed to:              2-APR-1996 01:27:16.21
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
**********************************************************************
```

Removed by: D. H. Milicia

Verified by: B. Bachelor 4/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.64*	19429	1.52	1323.30	1316	16	1.6		CS-137	27.0
0	1173.20	13149	1.85	2346.45	2336	18	1.9		CO-60	25.8
0	1332.49	11935	1.95	2665.13	2655	21	1.9		CO-60	26.0

Summary of Nuclide Activity
Sample ID : WL7087-STD Acquisition date : 2-APR-1996 01:27:16

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.590E+01	2.590E+01	0.035E+01	1.35	
CS-137	30.00Y	1.000	2.696E+01	2.696E+01	0.044E+01	1.62	
			---------	---------			
	Total Activity :		5.286E+01	5.286E+01			
Grand Total Activity :			5.286E+01	5.286E+01			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1052.	477.59	1.3157E+00
NA-22	96.	1274.53	9.5505E-02
NA-24	28.	1368.55	5.5692E-02
K-40	116.	1460.75	1.1002E+00
CR-51	1107.	320.08	1.0070E+00
MN-54	672.	834.83	1.7361E-01
CO-56	645.	846.76	1.7230E-01
CO-57	1316.	122.06	8.1107E-02
CO-58	602.	810.78	1.6124E-01
FE-59	675.	1099.25	3.9520E-01
SE-75	1308.	264.66	1.6524E-01
SR-85	811.	514.01	1.3266E-01
Y-88	9.	1836.06	3.8547E-02
NB-94	751.	871.09	1.9032E-01
ZRNB-95	492.	724.18	3.0141E-01
RU-103	869.	497.08	1.4085E-01
RURH-106	619.	621.93	2.6212E+00
AG-108m	509.	722.94	1.4727E-01
CD-109	1114.	88.03	2.5622E+00
AG-110M	1019.	657.76	1.8466E-01
SN-113	1031.	391.69	1.7670E-01
TE-123m	1313.	159.00	8.1069E-02
SB-124	655.	602.73	1.3329E-01
SB-125	1095.	427.89	4.2729E-01
TE-125m	1244.	109.27	2.6146E+01
I-131	1051.	364.48	1.3366E-01
CS-134	668.	604.70	1.3522E-01
BA-140	709.	537.31	5.0684E-01
LA-140	13.	1596.21	4.4674E-02
CEPR-144	1335.	133.51	1.2209E+00
EU-152	25.	1408.01	2.5199E-01
EU-154	96.	1274.51	2.7764E-01
EU-155	1147.	105.31	3.3712E-01
HG-203	1205.	279.20	1.1799E-01
TL-208	1238.	277.36	1.5368E+00
BI-212	551.	727.18	2.1036E+00
PB-212	1447.	238.63	2.1708E-01
BI-214	621.	609.31	2.8581E-01
PB-214	1051.	351.92	5.2723E-01
RA-224	1451.	240.99	2.4126E+00
RA-226	1467.	186.10	2.2342E+00
AC-228	843.	911.21	7.8785E-01
TH-228	1148.	84.37	7.9862E+00
TH-229	1104.	88.47	3.6977E-01
PA-233	1148.	312.17	2.6297E-01
UTH-233	1456.	245.34	9.0516E+01
PA-234M	670.	1001.03	3.4568E-01
TH-234	1079.	63.29	4.5112E+00
U-235	1463.	185.71	1.3563E-01
NP-237	1113.	86.48	7.6858E-01
NP-239	1182.	106.12	3.2474E-01

Sample ID : WL7087-STD Acquisition date : 2-APR-1996 01:27:16

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1303.	129.30	1.0538E+03
AM-241	1030.	59.54	7.0173E-01
AM-243	1114.	74.67	2.1385E-01

****
* 222-S Laboratory Counting Room 2-APR-1996 03:11:54.10 *
****

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

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

Worklist #: 7087
Sample ID: WL7087-BLK
Sample Size: 1.00000E-03 L
Dilution Factor: 4.10000E+01

Removed by: D Hamilton

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

Detector ID: GEA2
File Number: dka300:[spec.GEA2]2g2171.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:00.47 sec
Dead Time: 0.0%

Verified by: B Thatcher 4/2/96

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

Sample Count Time: 2-APR-1996 02:21:12.01
Decayed to: 2-APR-1996 02:21:12.01
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: DM
Background Subtract: DKA300:[SPEC.GEA2]2GBACK

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

Date of last energy calibration: 21-MAR-1994 09:31:55.15
Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	1119.01*	27	5.09	2238.06	2231	17	47.5			
0	1460.85*	20	1.40	2921.97	2914	15	121.2		K-40	18.3

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~~	~~1.826E+01~~	~~1.826E+01~~	~~2.213E+01~~	~~121.22~~	~~BKG~~
Total Activity :			1.826E+01	1.826E+01			
Grand Total Activity :			1.826E+01	1.826E+01			

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

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	28.	477.59	8.7666E+00
NA-22	8.	1274.53	1.1008E+00
NA-24	5.	1368.55	9.6582E-01
CR-51	56.	320.08	9.2849E+00
MN-54	14.	834.83	1.0320E+00
CO-56	12.	846.76	9.6400E-01
CO-57	86.	122.06	8.4777E-01
CO-58	14.	810.78	1.0064E+00
FE-59	7.	1099.25	1.6656E+00
CO-60	6.	1332.50	1.0162E+00
SE-75	61.	264.66	1.4655E+00
SR-85	49.	514.01	1.3358E+00
Y-88	0.	1836.06	0.0000E+00
NB-94	21.	871.09	1.2960E+00
ZRNB-95	25.	724.18	2.8070E+00
RU-103	40.	497.08	1.2454E+00
RURH-106	18.	621.93	1.8142E+01
AG-108m	22.	722.94	1.2412E+00
CD-109	75.	88.03	2.7278E+01
AG-110M	26.	657.76	1.2022E+00
SN-113	41.	391.69	1.4382E+00
TE-123m	74.	159.00	7.9133E-01
SB-124	15.	602.73	8.3484E-01
SB-125	42.	427.89	3.4262E+00
TE-125m	57.	109.27	2.2940E+02
I-131	41.	364.48	1.0826E+00
CS-134	18.	604.70	9.0151E-01
CS-137	163.	661.66	3.3801E+00
BA-140	27.	537.31	4.0758E+00
LA-140	6.	1596.21	1.2756E+00
CEPR-144	81.	133.51	1.2326E+01
EU-152	9.	1408.01	6.0981E+00
EU-154	8.	1274.51	3.1896E+00
EU-155	72.	105.31	3.4612E+00
HG-203	55.	279.20	1.0292E+00
TL-208	58.	277.36	1.3662E+01
BI-212	25.	727.18	1.8385E+01
PB-212	71.	238.63	1.9697E+00
BI-214	39.	609.31	2.9492E+00
PB-214	65.	351.92	5.3504E+00
RA-224	82.	240.99	2.3530E+01
RA-226	68.	186.10	1.9754E+01
AC-228	24.	911.21	5.4973E+00
TH-228	68.	84.37	7.9548E+01
TH-229	71.	88.47	3.8386E+00
PA-233	62.	312.17	2.4991E+00
UTH-233	60.	245.34	7.5569E+02
PA-234M	8.	1001.03	1.5096E+00
TH-234	51.	63.29	4.0076E+01
U-235	73.	185.71	1.2417E+00
NP-237	74.	86.48	8.0996E+00

Sample ID : WL7087-BLK Acquisition date : 2-APR-1996 02:21:12

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	69.	106.12	3.2121E+00
PU-239	72.	129.30	1.0171E+04
AM-241	60.	59.54	6.9403E+00
AM-243	88.	74.67	2.4632E+00

****
* 222-S Laboratory Counting Room 2-APR-1996 04:08:16.78 *
****

>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<< WHC-SD-WM-DP-178, REV. 1

Worklist #: 7087
Sample ID: S96T1361-SAM
Sample Size: 1.00000E-03 L
Dilution Factor: 4.10000E+01

Removed by: D H. Gilicia

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

Detector ID: GEA2
File Number: dka300:[spec.GEA2]2g2172.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:53:42.22 sec
Dead Time: 6.9%

Verified by: BJ Machelor 4/2/96

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

Sample Count Time: 2-APR-1996 03:13:56.14
Decayed to: 2-APR-1996 03:13:56.14
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: DM
Background Subtract: DKA300:[SPEC.GEA2]2GBACK

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

Date of last energy calibration: 21-MAR-1994 09:31:55.15
Date of last efficiency calibration: 21-MAR-1994 09:43:42.61

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.64*	1550943	1.54	1323.31	1315	17	0.2		CS-137	8.824E+04
0	1172.92	356	1.92	2345.91	2336	18	30.8		CO-60	28.7
0	1322.47	575	2.83	2645.10	2638	21	22.0			
0	1332.51	290	1.99	2665.18	2658	15	14.3		CO-60	25.9
0	1460.84*	17	1.17	2921.95	2913	16	136.1		K-40	15.1

Sample ID : S96T1361-SAM Acquisition date : 2-APR-1996 03:13:56

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
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~1.509E+01~~	~~1.509E+01~~	~~2.054E+01~~	~~136.09~~	~~βK4~~
CO-60	5.27Y	1.000	2.629E+01	2.629E+01	0.342E+01	13.01	
CS-137	30.00Y	1.000	8.824E+04	8.824E+04	0.015E+04	0.17	
Total Activity :			8.829E+04	8.829E+04			
Grand Total Activity :			8.829E+04	8.829E+04			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	50475.	477.59	3.7364E+02
NA-22	255.	1274.53	6.3904E+00
NA-24	27.	1368.55	2.2648E+00
CR-51	41151.	320.08	2.5170E+02
MN-54	1682.	834.83	1.1263E+01
CO-56	1543.	846.76	1.0924E+01
CO-57	44186.	122.06	1.9271E+01
CO-58	1758.	810.78	1.1296E+01
FE-59	596.	1099.25	1.5220E+01
SE-75	45990.	264.66	4.0166E+01
SR-85	26258.	514.01	3.0953E+01
Y-88	4.	1836.06	1.0344E+00
NB-94	1382.	871.09	1.0589E+01
ZRNB-95	2611.	724.18	2.8465E+01
RU-103	32036.	497.08	3.5061E+01
RURH-106	11648.	621.93	4.6613E+02
AG-108m	2624.	722.94	1.3709E+01
CD-109	39301.	88.03	6.2405E+02
AG-110M	38984.	657.76	4.6824E+01
SN-113	45297.	391.69	4.8021E+01
TE-123m	45974.	159.00	1.9669E+01
SB-124	11866.	602.73	2.3264E+01
SB-125	51889.	427.89	1.2061E+02
TE-125m	41376.	109.27	6.1815E+03
I-131	42322.	364.48	3.4773E+01
CS-134	11827.	604.70	2.3330E+01
BA-140	19662.	537.31	1.0948E+02
LA-140	7.	1596.21	1.3214E+00
CEPR-144	45557.	133.51	2.9245E+02
EU-152	21.	1408.01	9.5638E+00
EU-154	255.	1274.51	1.8567E+01
EU-155	40546.	105.31	8.2184E+01
HG-203	44047.	279.20	2.9246E+01
TL-208	44400.	277.36	3.7731E+02
BI-212	2561.	727.18	1.8585E+02
PB-212	51517.	238.63	5.3102E+01
BI-214	11761.	609.31	5.0996E+01
PB-214	41631.	351.92	1.4104E+02
RA-224	50777.	240.99	5.8523E+02
RA-226	58011.	186.10	5.7606E+02
AC-228	1149.	911.21	3.7714E+01
TH-228	38927.	84.37	1.9070E+03
TH-229	39309.	88.47	9.0470E+01
PA-233	41621.	312.17	6.4911E+01
UTH-233	49525.	245.34	2.1644E+04
PA-234M	753.	1001.03	1.5026E+01
TH-234	36388.	63.29	1.0741E+03
U-235	57323.	185.71	3.4806E+01
NP-237	39142.	86.48	1.8688E+02
NP-239	40861.	106.12	7.8325E+01
PU-239	45306.	129.30	2.5480E+05

Sample ID : S96T1361-SAM Acquisition date : 2-APR-1996 03:13:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	36522.	59.54	1.7131E+02
AM-243	37554.	74.67	5.0909E+01

```
**********************************************************************
* 222-S Laboratory Counting Room    2-APR-1996 05:03:40.82           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7087
Sample ID:               S96T1361-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         4.10000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2
File Number:             dka300:[spec.GEA2]2g2173.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:53:36.22 sec
Dead Time:               6.7%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       2-APR-1996 04:09:25.27
Decayed to:              2-APR-1996 04:09:25.27
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:  21-MAR-1994 09:43:42.61
**********************************************************************
```

Removed by: D H. Milicia

Verified by: B Bachelor 4/2/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.65*	1512179	1.54	1323.31	1315	17	0.2		CS-137	8.604E+04
0	1173.16	310	1.35	2346.38	2341	13	26.8		CO-60	24.9
0	1322.36	602	2.60	2644.86	2636	23	21.9			
0	1332.62	300	2.02	2665.39	2658	17	13.1		CO-60	26.7

Sample ID : S96T1361-DUP Acquisition date : 2-APR-1996 04:09:25

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	2.634E+01	2.634E+01	0.310E+01	11.79	
CS-137	30.00Y	1.000	8.604E+04	8.604E+04	0.015E+04	0.17	
Total Activity :			8.607E+04	8.607E+04			
Grand Total Activity :			8.607E+04	8.607E+04			

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

Sample ID : S96T1361-DUP Acquisition date : 2-APR-1996 04:09:25

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	49387.	477.59	3.6959E+02
NA-22	251.	1274.53	6.3423E+00
NA-24	17.	1368.55	1.7766E+00
K-40	112.	1460.75	4.4296E+01
CR-51	39954.	320.08	2.4801E+02
MN-54	1516.	834.83	1.0694E+01
CO-56	1499.	846.76	1.0765E+01
CO-57	43351.	122.06	1.9088E+01
CO-58	1727.	810.78	1.1194E+01
FE-59	528.	1099.25	1.4327E+01
SE-75	44998.	264.66	3.9731E+01
SR-85	25522.	514.01	3.0516E+01
Y-88	7.	1836.06	1.3947E+00
NB-94	1312.	871.09	1.0316E+01
ZRNB-95	2515.	724.18	2.7934E+01
RU-103	31050.	497.08	3.4517E+01
RURH-106	11122.	621.93	4.5549E+02
AG-108m	2499.	722.94	1.3378E+01
CD-109	37804.	88.03	6.1204E+02
AG-110M	38257.	657.76	4.6385E+01
SN-113	44008.	391.69	4.7333E+01
TE-123m	44706.	159.00	1.9396E+01
SB-124	11594.	602.73	2.2995E+01
SB-125	50656.	427.89	1.1917E+02
TE-125m	40287.	109.27	6.0997E+03
I-131	41240.	364.48	3.4326E+01
CS-134	11515.	604.70	2.3020E+01
BA-140	19017.	537.31	1.0767E+02
LA-140	7.	1596.21	1.3103E+00
CEPR-144	44467.	133.51	2.8893E+02
EU-152	20.	1408.01	9.2247E+00
EU-154	251.	1274.51	1.8429E+01
EU-155	39264.	105.31	8.0875E+01
HG-203	42955.	279.20	2.8882E+01
TL-208	42823.	277.36	3.7054E+02
BI-212	2470.	727.18	1.8255E+02
PB-212	49853.	238.63	5.2237E+01
BI-214	11423.	609.31	5.0259E+01
PB-214	40699.	351.92	1.3931E+02
RA-224	49281.	240.99	5.7654E+02
RA-226	56749.	186.10	5.6976E+02
AC-228	1018.	911.21	3.5491E+01
TH-228	37945.	84.37	1.8828E+03
TH-229	37814.	88.47	8.8733E+01
PA-233	40673.	312.17	6.4167E+01
UTH-233	48264.	245.34	2.1367E+04
PA-234M	698.	1001.03	1.4468E+01
TH-234	35508.	63.29	1.0610E+03
U-235	56225.	185.71	3.4471E+01
NP-237	38053.	86.48	1.8427E+02
NP-239	39419.	106.12	7.6929E+01

Sample ID : S96T1361-DUP Acquisition date : 2-APR-1996 04:09:25

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	44221.	129.30	2.5173E+05
AM-241	35234.	59.54	1.6826E+02
AM-243	36654.	74.67	5.0295E+01

LABCORE Data Entry Template for Worklist# 7167

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

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

Worklist Comment: AY-101 Grab. Sample size = .100ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S96T001521	0		@GEA-01	LIQUID	96000257	AY-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T001521	0		@GEA-01	LIQUID		
5	SAMPLE	S96T001522	0		@GEA-01	LIQUID	96000257	AY-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S96T001522	0		@GEA-01	LIQUID		

Final page for worklist # 7167

C. J. Johnson 4/10/96
C. J. Johnson 4/10/96
Analyst Signature **Date**

Sharon J. Hall 4-12-96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7167

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

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

Worklist Comment: AY-101 Grab. Sample size = .100ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@GEA-01	CO60-02	LIQUID	0.0257	2.59e-02	100.778	% Recovery
1	STD		0		@GEA-01	CO60-02E	LIQUID	1	1.19	1.190	% Ct. Error
1	STD		0		@GEA-01	CS13702	LIQUID	0.0271	2.71e-02	100.000	% Recovery
1	STD		0		@GEA-01	CS13702E	LIQUID	1	1.41	1.410	% Ct. Error
2	BLNK		0		@GEA-01	CO60-02	LIQUID	1	<2.70e-4		uCi/mL
2	BLNK		0		@GEA-01	CS13702	LIQUID	1	<4.75e-4		uCi/mL
3	SAMPLE	S96T001521	0		@GEA-01	CO60-02	LIQUID	N/A	2.410e-02	0.000	uCi/mL
3	SAMPLE	S96T001521	0		@GEA-01	CO60-02E	LIQUID	N/A	12.4	0.000	% Ct. Error
3	SAMPLE	S96T001521	0		@GEA-01	CS13702	LIQUID	N/A	8.550e+01	0.000	uCi/mL
3	SAMPLE	S96T001521	0		@GEA-01	CS13702E	LIQUID	N/A	0.150	0.000	% Ct. Error
4	DUP	S96T001521	0		@GEA-01	CO60-02	LIQUID	2.41e-02	2.76e-02	13.540	RPD
4	DUP	S96T001521	0		@GEA-01	CO60-02E	LIQUID	1	11.1	11.100	% Ct. Error
4	DUP	S96T001521	0		@GEA-01	CS13702	LIQUID	8.55e+01	8.65e+01	1.163	RPD
4	DUP	S96T001521	0		@GEA-01	CS13702E	LIQUID	1	0.150	0.150	% Ct. Error
5	SAMPLE	S96T001522	0		@GEA-01	CO60-02	LIQUID	N/A	2.410e-02	0.000	uCi/mL
5	SAMPLE	S96T001522	0		@GEA-01	CO60-02E	LIQUID	N/A	12.2	0.000	% Ct. Error
5	SAMPLE	S96T001522	0		@GEA-01	CS13702	LIQUID	N/A	8.670e+01	0.000	uCi/mL
5	SAMPLE	S96T001522	0		@GEA-01	CS13702E	LIQUID	N/A	0.150	0.000	% Ct. Error
6	DUP	S96T001522	0		@GEA-01	CO60-02	LIQUID	2.41e-02	2.98e-02	21.150	RPD
6	DUP	S96T001522	0		@GEA-01	CO60-02E	LIQUID	1	11.4	11.400	% Ct. Error
6	DUP	S96T001522	0		@GEA-01	CS13702	LIQUID	8.67e+01	9.00e+01	3.735	RPD
6	DUP	S96T001522	0		@GEA-01	CS13702E	LIQUID	1	0.140	0.140	% Ct. Error

Comments Section:

Comments for sample# S96T001521 **and test** @GEA-01 .
DL=0 => n/a. Sample size corrected by factor of 10.

Comments for sample# S96T001522 **and test** @GEA-01 .
DL=0 => n/a. Dup SS corr. by 10x. Co-60 high RPD

Final page for worklist# 7167

Analyst Signature **Date**

Analyst Signature **Date**

Reviewer Signature 4/23/96 Date

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

****
* 222-S Laboratory Counting Room 10-APR-1996 17:40:07.70 *
****

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

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

Worklist #: 7167
Sample ID: WL7167-STD
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

Removed by: D. H. Mitchell

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

Detector ID: GEA3
File Number: dka300:[spec.GEA3]3g3078.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:09.79 sec
Dead Time: 0.3%

Verified by: B B Bachelor 4/11/96

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

Sample Count Time: 10-APR-1996 16:49:21.74
Decayed to: 10-APR-1996 16:49:21.74
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	661.89*	24019	1.59	1323.96	1316	14	1.4		CS-137	27.1
0	1173.51	16540	1.92	2347.28	2339	17	1.7		CO-60	26.1
0	1332.78	14724	1.95	2665.93	2657	18	1.7		CO-60	25.8
0	1765.20*	15	2.39	3531.25	3525	13	11.2			

Sample ID : WL7167-STD Acquisition date : 10-APR-1996 16:49:21

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
CO-60	5.27Y	1.000	2.593E+01	2.593E+01	0.031E+01	1.19	
CS-137	30.00Y	1.000	2.715E+01	2.715E+01	0.038E+01	1.41	
Total Activity :			5.308E+01	5.308E+01			
Grand Total Activity :			5.308E+01	5.308E+01			

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

Sample ID : WL7167-STD Acquisition date : 10-APR-1996 16:49:21

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1279.	477.59	1.1783E+00
NA-22	91.	1274.53	7.4834E-02
NA-24	22.	1368.55	3.9397E-02
K-40	137.	1460.75	9.5783E-01
CR-51	1265.	320.08	8.8163E-01
MN-54	756.	834.83	1.5029E-01
CO-56	737.	846.76	1.5031E-01
CO-57	1264.	122.06	6.1535E-02
CO-58	700.	810.78	1.4180E-01
FE-59	763.	1099.25	3.3866E-01
SE-75	1575.	264.66	1.4739E-01
SR-85	924.	514.01	1.1452E-01
Y-88	12.	1836.06	3.6048E-02
NB-94	813.	871.09	1.6180E-01
ZRNB-95	598.	724.18	2.7084E-01
RU-103	1013.	497.08	1.2314E-01
RURH-106	680.	621.93	2.2343E+00
AG-108m	611.	722.94	1.3157E-01
CD-109	1196.	88.03	1.9817E+00
AG-110M	855.	657.76	1.3773E-01
SN-113	1173.	391.69	1.5570E-01
TE-123m	1414.	159.00	6.6947E-02
SB-124	670.	602.73	1.0958E-01
SB-125	1293.	427.89	3.8171E-01
TE-125m	1190.	109.27	1.9436E+01
I-131	1153.	364.48	1.1542E-01
CS-134	667.	604.70	1.0986E-01
BA-140	766.	537.31	4.2610E-01
LA-140	22.	1596.21	4.6526E-02
CEPR-144	1308.	133.51	9.4671E-01
EU-152	27.	1408.01	2.1261E-01
EU-154	91.	1274.51	2.1746E-01
EU-155	1247.	105.31	2.6578E-01
HG-203	1387.	279.20	1.0315E-01
TL-208	1348.	277.36	1.3061E+00
BI-212	583.	727.18	1.7637E+00
PB-212	1600.	238.63	1.8475E-01
BI-214	680.	609.31	2.4308E-01
PB-214	1204.	351.92	4.6462E-01
RA-224	1646.	240.99	2.0805E+00
RA-226	1526.	186.10	1.8291E+00
AC-228	936.	911.21	6.7785E-01
TH-228	1145.	84.37	5.9716E+00
TH-229	1199.	88.47	2.8754E-01
PA-233	1333.	312.17	2.3186E-01
UTH-233	1564.	245.34	7.6018E+01
PA-234M	859.	1001.03	3.1737E-01
TH-234	1097.	63.29	3.9365E+00
U-235	1528.	185.71	1.1123E-01
NP-237	1133.	86.48	5.7929E-01
NP-239	1252.	106.12	2.5294E-01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1388.	129.30	8.4858E+02
AM-241	1069.	59.54	6.8602E-01
AM-243	1171.	74.67	1.6872E-01

****
* 222-S Laboratory Counting Room 10-APR-1996 18:37:43.48 *
****

>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<< WHC-SD-WM-DP-178, REV. 1

Worklist #: 7167
Sample ID: WL7167-BLK
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+01

Removed by: D. H. Watkins

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

Detector ID: GEA3
File Number: dka300:[spec.GEA3]3g3079.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:00.45 sec
Dead Time: 0.0%

Verified by: BP Pachelon 4/11/96

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

Sample Count Time: 10-APR-1996 17:46:57.28
Decayed to: 10-APR-1996 17:46:57.28
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	582.98*	23	0.84	1166.15	1160	13	98.0			
0	661.95*	42	1.41	1324.07	1319	13	81.4		CS-137	0.475
0	751.64	41	5.49	1503.44	1497	15	31.2			
0	1460.91*	14	1.76	2922.31	2914	15	176.6		K-40	2.41

Sample ID : WL7167-BLK Acquisition date : 10-APR-1996 17:46:57

Total number of lines in spectrum	4	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	3	75.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~2.411E+00~~	~~2.411E+00~~	~~4.257E+00~~	~~176.57~~	BKG
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~4.746E-01~~	~~4.746E-01~~	~~3.862E-01~~	~~81.37~~	BKG
Total Activity :			2.886E+00	2.886E+00			
Grand Total Activity :			2.886E+00	2.886E+00			

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	31.	477.59	1.8446E+00
NA-22	10.	1274.53	2.4302E-01
NA-24	6.	1368.55	2.0742E-01
CR-51	53.	320.08	1.8058E+00
MN-54	14.	834.83	2.0486E-01
CO-56	22.	846.76	2.5975E-01
CO-57	75.	122.06	1.4938E-01
CO-58	24.	810.78	2.6398E-01
FE-59	25.	1099.25	6.1739E-01
CO-60	11.	1332.50	2.6992E-01
SE-75	66.	264.66	3.0269E-01
SR-85	58.	514.01	2.8797E-01
Y-88	3.	1836.06	1.7641E-01
NB-94	12.	871.09	1.9677E-01
ZRNB-95	22.	724.18	5.2176E-01
RU-103	32.	497.08	2.1839E-01
RURH-106	19.	621.93	3.7117E+00
AG-108m	18.	722.94	2.2407E-01
CD-109	66.	88.03	4.6697E+00
AG-110M	30.	657.76	2.5965E-01
SN-113	46.	391.69	3.0994E-01
TE-123m	83.	159.00	1.6235E-01
SB-124	31.	602.73	2.3508E-01
SB-125	45.	427.89	7.1356E-01
TE-125m	76.	109.27	4.8980E+01
I-131	48.	364.48	2.3492E-01
CS-134	27.	604.70	2.2246E-01
BA-140	31.	537.31	8.6265E-01
LA-140	4.	1596.21	1.9735E-01
CEPR-144	78.	133.51	2.3152E+00
EU-152	9.	1408.01	1.2030E+00
EU-154	10.	1274.51	7.0456E-01
EU-155	64.	105.31	6.0017E-01
HG-203	48.	279.20	1.9284E-01
TL-208	63.	277.36	2.8199E+00
BI-212	25.	727.18	3.6845E+00
PB-212	106.	238.63	4.7548E-01
BI-214	42.	609.31	6.0592E-01
PB-214	60.	351.92	1.0337E+00
RA-224	79.	240.99	4.5608E+00
RA-226	80.	186.10	4.1761E+00
AC-228	34.	911.21	1.2947E+00
TH-228	77.	84.37	1.5532E+01
TH-229	73.	88.47	7.0767E-01
PA-233	50.	312.17	4.4820E-01
UTH-233	67.	245.34	1.5766E+02
PA-234M	10.	1001.03	3.4409E-01
TH-234	56.	63.29	8.9267E+00
U-235	80.	185.71	2.5513E-01
NP-237	69.	86.48	1.4303E+00
NP-239	64.	106.12	5.7193E-01

Sample ID : WL7167-BLK Acquisition date : 10-APR-1996 17:46:57

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	72.	129.30	1.9265E+03
AM-241	52.	59.54	1.5076E+00
AM-243	71.	74.67	4.1594E-01

****
* 222-S Laboratory Counting Room 10-APR-1996 19:38:25.51 *
****

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

Worklist #:	7167
Sample ID:	S96T1521-SAM
Sample Size:	1.00000E-03 L
Dilution Factor:	1.00000E+00

should be 10, not 1. Entered in GEA shell. 4/23/96

Removed by: D. H. Nikolaison

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

Verified by: B. Machelor 4/11/96

Detector ID:	GEA3
File Number:	dka300:[spec.GEA3]3g3080.cnf
Geometry:	43
Count Time:	0 00:50:00.00 sec
Real Time:	0 00:54:31.04 sec
Dead Time:	8.3%

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

Sample Count Time:	10-APR-1996 18:43:16.60
Decayed to:	10-APR-1996 18:43:16.60
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 10:11:20.05

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.88*	1939372	1.58	1323.94	1315	18	0.1		CS-137	8.547E+03
0	1173.39	420	2.18	2347.04	2342	12	23.5		CO-60	2.46
0	1322.53	1023	2.60	2645.43	2638	17	12.9			
0	1332.72	367	1.75	2665.81	2658	17	14.7		CO-60	2.39

Sample ID : S96T1521-SAM Acquisition date : 10-APR-1996 18:43:16

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	2.410E+00	2.410E+00	0.300E+00	12.45	
CS-137	30.00Y	1.000	8.547E+03	8.547E+03	0.013E+03	0.15	
	Total Activity :		8.549E+03	8.549E+03			
	Grand Total Activity :		8.549E+03	8.549E+03			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	61006.	477.59	3.2726E+01
NA-22	380.	1274.53	5.6960E-01
NA-24	37.	1368.55	1.9073E-01
K-40	159.	1460.75	3.8141E+00
CR-51	51982.	320.08	2.2760E+01
MN-54	2446.	834.83	1.0500E+00
CO-56	2417.	846.76	1.0571E+00
CO-57	53985.	122.06	1.6350E+00
CO-58	2657.	810.78	1.0734E+00
FE-59	808.	1099.25	1.3097E+00
SE-75	58663.	264.66	3.6851E+00
SR-85	31377.	514.01	2.6985E+00
Y-88	7.	1836.06	1.0036E-01
NB-94	2010.	871.09	9.8784E-01
ZRNB-95	3776.	724.18	2.6494E+00
RU-103	38184.	497.08	3.0535E+00
RURH-106	12001.	621.93	3.6856E+01
AG-108m	3848.	722.94	1.2851E+00
CD-109	44856.	88.03	5.2301E+01
AG-110M	25363.	657.76	2.9262E+00
SN-113	54051.	391.69	4.1461E+00
TE-123m	56706.	159.00	1.8232E+00
SB-124	12651.	602.73	1.8791E+00
SB-125	62333.	427.89	1.0463E+01
TE-125m	48696.	109.27	5.1305E+02
I-131	51386.	364.48	3.0410E+00
CS-134	12551.	604.70	1.8792E+00
BA-140	23041.	537.31	9.4236E+00
LA-140	15.	1596.21	1.4122E-01
CEPR-144	56770.	133.51	2.5531E+01
EU-152	39.	1408.01	9.4370E-01
EU-154	380.	1274.51	1.6558E+00
EU-155	47928.	105.31	6.8516E+00
HG-203	56261.	279.20	2.6847E+00
TL-208	56426.	277.36	3.4551E+01
BI-212	3794.	727.18	1.7511E+01
PB-212	62609.	238.63	4.7804E+00
BI-214	12262.	609.31	4.0672E+00
PB-214	51377.	351.92	1.2576E+01
RA-224	62193.	240.99	5.2835E+01
RA-226	74666.	186.10	5.6115E+01
AC-228	1736.	911.21	3.5747E+00
TH-228	44252.	84.37	1.6060E+02
TH-229	44850.	88.47	7.5751E+00
PA-233	53181.	312.17	5.9188E+00
UTH-233	61231.	245.34	1.9600E+03
PA-234M	1113.	1001.03	1.3774E+00
TH-234	39394.	63.29	9.5111E+01
U-235	73685.	185.71	3.3887E+00
NP-237	44665.	86.48	1.5705E+01
NP-239	48240.	106.12	6.5225E+00

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	55687.	129.30	2.1908E+04
AM-241	39685.	59.54	1.5756E+01
AM-243	41998.	74.67	4.3498E+00

****
* 222-S Laboratory Counting Room 10-APR-1996 20:37:24.36 *
****

>>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<< WHC-SD-WM-DP-178, REV. 1

Worklist #: 7167
Sample ID: S96T1521-DUP
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+01

Removed by: D. H Gribbin

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

Detector ID: GEA3
File Number: dka300:[spec.GEA3]3g3081.cnf
Geometry: 43
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:54:34.99 sec
Dead Time: 8.4%

Verified by: D Trachele 4/11/96

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

Sample Count Time: 10-APR-1996 19:42:05.82
Decayed to: 10-APR-1996 19:42:05.82
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 10:11:20.05

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	189.26	26897	8.60	378.94	367	29	11.4			
0	661.88*	1963410	1.58	1323.94	1315	18	0.1		CS-137	8.653E+04
0	1173.52	488	1.93	2347.31	2341	13	20.0		CO-60	28.6
0	1322.45	1053	2.40	2645.26	2636	21	15.0			
0	1332.84	418	1.91	2666.06	2659	17	13.3		CO-60	27.2

Sample ID : S96T1521-DUP Acquisition date : 10-APR-1996 19:42:05

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

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	2.762E+01	2.762E+01	0.306E+01	11.08	
CS-137	30.00Y	1.000	8.653E+04	8.653E+04	0.013E+04	0.15	
Total Activity :			8.655E+04	8.655E+04			
Grand Total Activity :			8.655E+04	8.655E+04			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	61736.	477.59	3.2922E+02
NA-22	380.	1274.53	5.6994E+00
NA-24	39.	1368.55	1.9565E+00
K-40	141.	1460.75	3.5911E+01
CR-51	52707.	320.08	2.2918E+02
MN-54	2507.	834.83	1.0630E+01
CO-56	2412.	846.76	1.0560E+01
CO-57	54734.	122.06	1.6463E+01
CO-58	2665.	810.78	1.0750E+01
FE-59	868.	1099.25	1.3576E+01
SE-75	59124.	264.66	3.6996E+01
SR-85	32051.	514.01	2.7274E+01
Y-88	3.	1836.06	6.5808E-01
NB-94	2095.	871.09	1.0085E+01
ZRNB-95	3973.	724.18	2.7178E+01
RU-103	38714.	497.08	3.0747E+01
RURH-106	11844.	621.93	3.6614E+02
AG-108m	3987.	722.94	1.3081E+01
CD-109	45155.	88.03	5.2475E+02
AG-110M	25466.	657.76	2.9322E+01
SN-113	54523.	391.69	4.1642E+01
TE-123m	57779.	159.00	1.8404E+01
SB-124	12602.	602.73	1.8755E+01
SB-125	63086.	427.89	1.0526E+02
TE-125m	49777.	109.27	5.1872E+03
I-131	52049.	364.48	3.0606E+01
CS-134	12403.	604.70	1.8681E+01
BA-140	23161.	537.31	9.4481E+01
LA-140	11.	1596.21	1.1818E+00
CEPR-144	56883.	133.51	2.5556E+02
EU-152	28.	1408.01	7.9235E+00
EU-154	380.	1274.51	1.6552E+01
EU-155	48083.	105.31	6.8626E+01
HG-203	56747.	279.20	2.6963E+01
TL-208	57252.	277.36	3.4803E+02
BI-212	3932.	727.18	1.7826E+02
PB-212	63749.	238.63	4.8237E+01
BI-214	12421.	609.31	4.0935E+01
PB-214	51969.	351.92	1.2657E+02
RA-224	62746.	240.99	5.3070E+02
RA-226	75413.	186.10	5.6395E+02
AC-228	1746.	911.21	3.5844E+01
TH-228	44935.	84.37	1.6183E+03
TH-229	45115.	88.47	7.5974E+01
PA-233	53380.	312.17	5.9299E+01
UTH-233	62473.	245.34	1.9798E+04
PA-234M	1158.	1001.03	1.4048E+01
TH-234	40482.	63.29	9.6416E+02
U-235	74202.	185.71	3.4005E+01
NP-237	44872.	86.48	1.5741E+02
NP-239	48553.	106.12	6.5436E+01

Sample ID : S96T1521-DUP Acquisition date : 10-APR-1996 19:42:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	56721.	129.30	2.2110E+05
AM-241	39952.	59.54	1.5809E+02
AM-243	42760.	74.67	4.3891E+01

```
**********************************************************************************
* 222-S Laboratory Counting Room   10-APR-1996 21:39:10.91                       *
**********************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7167
Sample ID:               S96T1522-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3082.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:54:34.59 sec
Dead Time:               8.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       10-APR-1996 20:43:55.81
Decayed to:              10-APR-1996 20:43:55.81
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 10:11:20.05
**********************************************************************************
```

Removed by: D. H. Nikolaison

Verified by: D. Machelor 4/11/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	188.86	8406	4.53	378.14	371	19	25.5			
0	661.88*	1966716	1.58	1323.94	1315	18	0.1		CS-137	8.667E+04
0	1173.13	483	1.90	2346.53	2339	14	20.4		CO-60	28.3
0	1322.76	899	2.85	2645.88	2639	16	14.5			
0	1332.71	347	1.89	2665.80	2660	13	15.2		CO-60	22.6

Sample ID : S96T1522-SAM Acquisition date : 10-APR-1996 20:43:55

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	2.412E+01	2.412E+01	0.295E+01	12.23	
CS-137	30.00Y	1.000	8.667E+04	8.667E+04	0.013E+04	0.15	
	Total Activity :		8.670E+04	8.670E+04			
	Grand Total Activity :		8.670E+04	8.670E+04			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	61496.	477.59	3.2858E+02
NA-22	411.	1274.53	5.9235E+00
NA-24	41.	1368.55	2.0113E+00
K-40	151.	1460.75	3.7091E+01
CR-51	52331.	320.08	2.2836E+02
MN-54	2604.	834.83	1.0834E+01
CO-56	2297.	846.76	1.0305E+01
CO-57	54454.	122.06	1.6421E+01
CO-58	2678.	810.78	1.0778E+01
FE-59	887.	1099.25	1.3723E+01
SE-75	59336.	264.66	3.7062E+01
SR-85	32277.	514.01	2.7370E+01
Y-88	12.	1836.06	1.3066E+00
NB-94	2142.	871.09	1.0198E+01
ZRNB-95	4009.	724.18	2.7300E+01
RU-103	38799.	497.08	3.0780E+01
RURH-106	11858.	621.93	3.6636E+02
AG-108m	3915.	722.94	1.2963E+01
CD-109	45313.	88.03	5.2567E+02
AG-110M	25103.	657.76	2.9112E+01
SN-113	54639.	391.69	4.1687E+01
TE-123m	57561.	159.00	1.8369E+01
SB-124	12609.	602.73	1.8759E+01
SB-125	63039.	427.89	1.0522E+02
TE-125m	49591.	109.27	5.1775E+03
I-131	52571.	364.48	3.0759E+01
CS-134	12504.	604.70	1.8757E+01
BA-140	23297.	537.31	9.4758E+01
LA-140	15.	1596.21	1.3966E+00
CEPR-144	56902.	133.51	2.5561E+02
EU-152	32.	1408.01	8.5319E+00
EU-154	411.	1274.51	1.7211E+01
EU-155	48277.	105.31	6.8765E+01
HG-203	56684.	279.20	2.6948E+01
TL-208	57370.	277.36	3.4838E+02
BI-212	3960.	727.18	1.7890E+02
PB-212	63376.	238.63	4.8096E+01
BI-214	12307.	609.31	4.0746E+01
PB-214	51622.	351.92	1.2614E+02
RA-224	63168.	240.99	5.3248E+02
RA-226	75198.	186.10	5.6315E+02
AC-228	1675.	911.21	3.5106E+01
TH-228	44968.	84.37	1.6189E+03
TH-229	45177.	88.47	7.6027E+01
PA-233	53191.	312.17	5.9194E+01
UTH-233	62259.	245.34	1.9764E+04
PA-234M	1183.	1001.03	1.4199E+01
TH-234	40299.	63.29	9.6197E+02
U-235	74265.	185.71	3.4020E+01
NP-237	45377.	86.48	1.5830E+02
NP-239	48335.	106.12	6.5289E+01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	56925.	129.30	2.2150E+05
AM-241	39958.	59.54	1.5810E+02
AM-243	42844.	74.67	4.3934E+01

****
* 222-S Laboratory Counting Room 10-APR-1996 22:37:56.56 *
****

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

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

Worklist #:	7167
Sample ID:	S96T1522-DUP
Sample Size:	1.00000E-03 L
Dilution Factor:	1.00000E+00

Removed by: D. H. Nikolaison

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

Detector ID:	GEA3
File Number:	dka300:[spec.GEA3]3g3083.cnf
Geometry:	43
Count Time:	0 00:50:00.00 sec
Real Time:	0 00:54:46.51 sec
Dead Time:	8.7%

Verified by: B. Bachelor 4/11/96

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

Sample Count Time:	10-APR-1996 21:42:29.97
Decayed to:	10-APR-1996 21:42:29.97
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 10:11:20.05

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	84.80	985	1.02	170.13	168	6	68.2		TH-228	162.
5	186.83	3917	1.83	374.09	371	18	23.6	1.46E+01	RA-226	173.
5	188.67	2737	1.29	377.77	371	18	37.7			
0	661.89*	2043203	1.58	1323.95	1315	18	0.1		CS-137	9.004E+03
0	1173.63	487	1.95	2347.54	2340	16	25.9		CO-60	2.86
0	1322.44	1198	2.73	2645.26	2636	19	12.3			
0	1332.89	462	1.86	2666.15	2656	20	12.6		CO-60	3.01

Sample ID : S96T1522-DUP Acquisition date : 10-APR-1996 21:42:29

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
CO-60	5.27Y	1.000	2.978E+00	2.978E+00	0.338E+00	11.36	
CS-137	30.00Y	1.000	9.004E+03	9.004E+03	0.013E+03	0.14	
RA-226	1600.00Y	1.000	1.730E+02	1.730E+02	0.408E+02	23.56	
~~TH-228~~	~~1.91Y~~	~~1.000~~	~~1.617E+02~~	~~1.617E+02~~	~~1.104E+02~~	~~68.24~~	
	Total Activity :		9.342E+03	9.342E+03			
	Grand Total Activity :		9.342E+03	9.342E+03			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	64257.	477.59	3.3587E+01
NA-22	372.	1274.53	5.6344E-01
NA-24	42.	1368.55	2.0472E-01
K-40	136.	1460.75	3.5273E+00
CR-51	55165.	320.08	2.3446E+01
MN-54	2641.	834.83	1.0911E+00
CO-56	2528.	846.76	1.0811E+00
CO-57	56949.	122.06	1.6793E+00
CO-58	2931.	810.78	1.1275E+00
FE-59	934.	1099.25	1.4089E+00
SE-75	61947.	264.66	3.7869E+00
SR-85	33185.	514.01	2.7752E+00
Y-88	2.	1836.06	5.3732E-02
NB-94	2294.	871.09	1.0552E+00
ZRNB-95	4334.	724.18	2.8386E+00
RU-103	40311.	497.08	3.1374E+00
RURH-106	12364.	621.93	3.7409E+01
AG-108m	4326.	722.94	1.3626E+00
CD-109	46869.	88.03	5.3461E+01
AG-110M	26095.	657.76	2.9682E+00
SN-113	56777.	391.69	4.2494E+00
TE-123m	59582.	159.00	1.8689E+00
SB-124	13159.	602.73	1.9165E+00
SB-125	65448.	427.89	1.0721E+01
TE-125m	51683.	109.27	5.2855E+02
I-131	54333.	364.48	3.1270E+00
CS-134	13065.	604.70	1.9173E+00
BA-140	24073.	537.31	9.6324E+00
LA-140	12.	1596.21	1.2481E-01
CEPR-144	59003.	133.51	2.6028E+01
EU-152	42.	1408.01	9.7724E-01
EU-154	372.	1274.51	1.6376E+00
EU-155	49981.	105.31	6.9968E+00
HG-203	59050.	279.20	2.7504E+00
TL-208	59383.	277.36	3.5444E+01
BI-212	4348.	727.18	1.8747E+01
PB-212	65678.	238.63	4.8961E+00
BI-214	12827.	609.31	4.1598E+00
PB-214	54168.	351.92	1.2947E+01
RA-224	65050.	240.99	5.4036E+01
AC-228	1793.	911.21	3.6320E+00
TH-229	46921.	88.47	7.7480E+00
PA-233	55531.	312.17	6.0482E+00
UTH-233	64450.	245.34	2.0109E+03
PA-234M	1262.	1001.03	1.4664E+00
TH-234	41827.	63.29	9.8005E+01
U-235	77333.	185.71	3.4715E+00
NP-237	46787.	86.48	1.6074E+01
NP-239	50411.	106.12	6.6678E+00
PU-239	59018.	129.30	2.2553E+04
AM-241	41179.	59.54	1.6050E+01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-243	44512.	74.67	4.4782E+00

LABCORE Data Entry Template for Worklist# 8217

Analyst: CRJ **Instrument:** GEA00 1 **Book#** 12856

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

Worklist Comment: AY-101. Sample size = 1.0ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S96T001208	0		@GEA-01	LIQUID	96000210	AY-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T001208	0		@GEA-01	LIQUID		

Final page for worklist # 8217

C. Johnson 5/3/96
Analyst Signature **Date**

Sue E. Hogan 5/8/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8217

Analyst: crj **Instrument:** GEA01 **Book#** 12856

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

Worklist Comment: AY-101. Sample size = 1.0ml. new WHC-SD-WM-DP-178, REV. 1

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0	@GEA-01	C060-02	LIQUID	2.551e-02		2.63e-02	103.097	% Recovery
1	STD		0	@GEA-01	C060-02E	LIQUID	1		1.30	1.300	% Ct Error
1	STD		0	@GEA-01	CS13702	LIQUID	2.707e-02		2.78e-02	102.697	% Recovery
1	STD		0	@GEA-01	CS13702E	LIQUID	1		1.47	1.470	% Ct Error
2	BLNK		0	@GEA-01	C060-02	LIQUID	1		<4.47e-5		uCi/mL
2	BLNK		0	@GEA-01	CS13702	LIQUID	1		<6.38e-5		uCi/mL
3	SAMPLE	S96T001208	0	@GEA-01	C060-02	LIQUID	N/A	<	4.400e-05	440.0e-007	uCi/mL
3	SAMPLE	S96T001208	0	@GEA-01	C060-02E	LIQUID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001208	0	@GEA-01	CS13702	LIQUID	N/A	<	1.014e-04	101.4e-006	uCi/mL
3	SAMPLE	S96T001208	0	@GEA-01	CS13702E	LIQUID	N/A		n/a	0.0e+000	% Ct. Error
4	DUP	S96T001208	0	@GEA-01	C060-02	LIQUID	<4.40e-5		<4.78e-5		RPD
4	DUP	S96T001208	0	@GEA-01	C060-02E	LIQUID	1		n/a		% Ct Error
4	DUP	S96T001208	0	@GEA-01	CS13702	LIQUID	<1.01e-4		1.14e-04		RPD
4	DUP	S96T001208	0	@GEA-01	CS13702E	LIQUID	1		39.8	39.800	% Ct Error

Final page for worklist# 8217

Analyst Signature **Date**

Analyst Signature **Date**

B J Bachelor 5/9/96
Reviewer Signature **Date**

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

****
* 222-S Laboratory Counting Room 3-MAY-1996 15:42:13.55 *
****

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

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

Worklist #:	8217
Sample ID:	WL8217-STD
Sample Size:	1.00000E-03 L
Dilution Factor:	1.00000E+00

Removed by: D. H. Nicola

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

Detector ID:	
File Number:	dka300:[spec.GEA1]lg1847.cnf
Geometry:	41
Count Time:	0 00:50:00.00 sec
Real Time:	0 00:50:28.64 sec
Dead Time:	0.9%

Verified by: D Machelor 5/6/96

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

Sample Count Time:	3-MAY-1996 14:51:04.08
Decayed to:	3-MAY-1996 14:51:04.08
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	31.59	3957	0.95	63.83	59	9	5.7			
0	36.10	976	1.08	72.84	69	9	18.1			
0	238.31*	180	1.49	477.23	473	9	88.8			
0	661.41*	22927	1.42	1323.45	1315	14	1.5		CS-137	27.8
0	1172.88	15405	1.76	2346.66	2337	20	1.8		CO-60	26.5
0	1332.13	13716	1.94	2665.29	2655	21	1.8		CO-60	26.2
0	1378.93	68	5.79	2758.92	2746	42	99.9			

Sample ID : WL8217-STD Acquisition date : 3-MAY-1996 14:51:04

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-60	5.27Y	1.000	2.634E+01	2.634E+01	0.034E+01	1.30	
CS-137	30.00Y	1.000	2.776E+01	2.776E+01	0.041E+01	1.47	
Total Activity :			5.409E+01	5.409E+01			
Grand Total Activity :			5.409E+01	5.409E+01			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1323.	477.59	1.2453E+00
NA-22	110.	1274.53	8.9848E-02
NA-24	31.	1368.55	5.1083E-02
K-40	578.	1460.75	2.1466E+00
CR-51	1298.	320.08	8.8565E-01
MN-54	788.	834.83	1.6682E-01
CO-56	740.	846.76	1.6382E-01
CO-57	1573.	122.06	5.9800E-02
CO-58	758.	810.78	1.6019E-01
FE-59	779.	1099.25	3.7403E-01
SE-75	1442.	264.66	1.3727E-01
SR-85	1006.	514.01	1.2536E-01
Y-88	18.	1836.06	4.7942E-02
NB-94	875.	871.09	1.8272E-01
ZRNB-95	711.	724.18	3.1831E-01
RU-103	1043.	497.08	1.3050E-01
RURH-106	736.	621.93	2.4773E+00
AG-108m	736.	722.94	1.5554E-01
CD-109	1341.	88.03	1.1864E+00
AG-110M	1410.	657.76	1.8940E-01
SN-113	1310.	391.69	1.6724E-01
TE-123m	1512.	159.00	6.8537E-02
SB-124	702.	602.73	1.1916E-01
SB-125	1348.	427.89	4.0001E-01
TE-125m	1440.	109.27	1.6698E+01
I-131	1319.	364.48	1.2424E-01
CS-134	730.	604.70	1.2211E-01
BA-140	866.	537.31	4.7725E-01
LA-140	21.	1596.21	4.9532E-02
CEPR-144	1558.	133.51	9.5936E-01
EU-152	39.	1408.01	2.7543E-01
EU-154	110.	1274.51	2.6101E-01
EU-155	1424.	105.31	2.1210E-01
HG-203	1394.	279.20	1.0126E-01
TL-208	1381.	277.36	1.2935E+00
BI-212	734.	727.18	2.1337E+00
PB-212	1678.	238.63	1.8319E-01
BI-214	844.	609.31	2.8819E-01
PB-214	1347.	351.92	4.9360E-01
RA-224	1527.	240.99	1.9404E+00
RA-226	1774.	186.10	1.9645E+00
AC-228	1098.	911.21	8.0055E-01
TH-228	1367.	84.37	3.3917E+00
TH-229	1331.	88.47	1.7292E-01
PA-233	1366.	312.17	2.3220E-01
UTH-233	1528.	245.34	7.2768E+01
PA-234M	806.	1001.03	3.3595E-01
TH-234	1218.	63.29	8.9078E-01
U-235	1754.	185.71	1.1872E-01
NP-237	1342.	86.48	3.4448E-01
NP-239	1412.	106.12	2.0259E-01

Sample ID : WL8217-STD Acquisition date : 3-MAY-1996 14:51:04

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1520.	129.30	8.0802E+02
AM-241	1241.	59.54	1.1355E-01
AM-243	1435.	74.67	7.2359E-02

****
* 222-S Laboratory Counting Room 3-MAY-1996 16:35:13.50 *
****

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

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

Worklist #: 8217
Sample ID: WL8217-BLK
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

Removed by: D M Nelson

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

Detector ID:
File Number: dka300:[spec.GEA1]1g1848.cnf
Geometry: 41
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:11.77 sec
Dead Time: 0.4%

Verified by: B B Bachelor 5/6/96

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

Sample Count Time: 3-MAY-1996 15:44:20.74
Decayed to: 3-MAY-1996 15:44:20.74
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	14.38	217	4.36	29.42	22	16	61.9			
0	661.85*	53	1.56	1324.33	1318	15	85.8		CS-137	6.385E-02
0	1764.53*	8	2.18	3530.57	3524	14	194.2			

Sample ID : WL8217-BLK Acquisition date : 3-MAY-1996 15:44:20

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~6.385E-02~~	~~6.385E-02~~	~~5.476E-02~~	~~85.76~~	~~BKG~~
Total Activity :			6.385E-02	6.385E-02			
Grand Total Activity :			6.385E-02	6.385E-02			

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

Sample ID : WL8217-BLK Acquisition date : 3-MAY-1996 15:44:20

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	112.	477.59	3.6206E-01
NA-22	29.	1274.53	4.5994E-02
NA-24	23.	1368.55	4.4201E-02
K-40	566.	1460.75	2.1238E+00
CR-51	201.	320.08	3.4888E-01
MN-54	68.	834.83	4.8966E-02
CO-56	50.	846.76	4.2506E-02
CO-57	488.	122.06	3.3293E-02
CO-58	59.	810.78	4.4759E-02
FE-59	57.	1099.25	1.0138E-01
CO-60	25.	1332.50	4.4691E-02
SE-75	298.	264.66	6.2377E-02
SR-85	133.	514.01	4.5544E-02
Y-88	6.	1836.06	2.8650E-02
NB-94	57.	871.09	4.6495E-02
ZRNB-95	51.	724.18	8.5383E-02
RU-103	131.	497.08	4.6316E-02
RURH-106	71.	621.93	7.6758E-01
AG-108m	59.	722.94	4.3993E-02
CD-109	407.	88.03	6.5381E-01
AG-110M	72.	657.76	4.2729E-02
SN-113	152.	391.69	5.6974E-02
TE-123m	457.	159.00	3.7687E-02
SB-124	78.	602.73	3.9746E-02
SB-125	156.	427.89	1.3626E-01
TE-125m	491.	109.27	9.7518E+00
I-131	148.	364.48	4.1676E-02
CS-134	89.	604.70	4.2622E-02
BA-140	94.	537.31	1.5740E-01
LA-140	6.	1596.21	2.6912E-02
CEPR-144	504.	133.51	5.4574E-01
EU-152	42.	1408.01	2.8855E-01
EU-154	29.	1274.51	1.3405E-01
EU-155	476.	105.31	1.2262E-01
HG-203	257.	279.20	4.3473E-02
TL-208	242.	277.36	5.4106E-01
BI-212	59.	727.18	6.0322E-01
PB-212	445.	238.63	9.4379E-02
BI-214	239.	609.31	1.5320E-01
PB-214	332.	351.92	2.4450E-01
RA-224	387.	240.99	9.7716E-01
RA-226	505.	186.10	1.0476E+00
AC-228	122.	911.21	2.6660E-01
TH-228	498.	84.37	2.0460E+00
TH-229	401.	88.47	9.4923E-02
PA-233	233.	312.17	9.5890E-02
UTH-233	310.	245.34	3.2792E+01
PA-234M	52.	1001.03	8.5451E-02
TH-234	389.	63.29	5.0333E-01
U-235	505.	185.71	6.3729E-02
NP-237	413.	86.48	1.9104E-01

Sample ID : WL8217-BLK Acquisition date : 3-MAY-1996 15:44:20

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	473.	106.12	1.1732E-01
PU-239	557.	129.30	4.8908E+02
AM-241	359.	59.54	6.1077E-02
AM-243	508.	74.67	4.3055E-02

****
* 222-S Laboratory Counting Room 3-MAY-1996 17:51:47.69 *
****

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

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

Worklist #: 8217
Sample ID: S96T1208-SAM
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

Removed by: Eric Bowlin

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

Detector ID:
File Number: dka300:[spec.GEA1]1g1849.cnf
Geometry: 41
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:11.64 sec
Dead Time: 0.4%

Verified by: BJ Mackelvy 5/6/96

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

Sample Count Time: 3-MAY-1996 17:00:56.75
Decayed to: 3-MAY-1996 17:00:56.75
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	85.18*	133	1.59	170.99	166	11	79.1		TH-228	2.62
									NP-237	0.268
0	338.14*	43	1.32	676.88	674		7111.4			
0	661.55*	84	1.54	1323.74	1319	14	61.8		CS-137	0.101
0	1052.52	27	1.19	2105.85	2103	7	55.6			
0	1123.07	100	8.61	2247.00	2236	34	63.2			
0	1763.83*	30	2.58	3529.16	3521	16	72.4			

Sample ID : S96T1208-SAM Acquisition date : 3-MAY-1996 17:00:56

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
CS-137	30.00Y	1.000	1.014E-01	1.014E-01	0.627E-01	61.82	
TH-228	1.91Y	1.000	2.617E+00	2.617E+00	2.069E+00	79.09	
NP-237	2.14E+06Y	1.000	2.683E-01	2.683E-01	2.121E-01	79.09	
Total Activity :			2.986E+00	2.986E+00			
Grand Total Activity :			2.986E+00	2.986E+00			

BKG

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	122.	477.59	3.7748E-01
NA-22	34.	1274.53	4.9888E-02
NA-24	15.	1368.55	3.6039E-02
K-40	580.	1460.75	2.1502E+00
CR-51	186.	320.08	3.3506E-01
MN-54	66.	834.83	4.8375E-02
CO-56	52.	846.76	4.3505E-02
CO-57	512.	122.06	3.4122E-02
CO-58	72.	810.78	4.9294E-02
FE-59	39.	1099.25	8.4000E-02
CO-60	25.	1332.50	4.3997E-02
SE-75	267.	264.66	5.9031E-02
SR-85	120.	514.01	4.3197E-02
Y-88	9.	1836.06	3.3662E-02
NB-94	52.	871.09	4.4516E-02
ZRNB-95	55.	724.18	8.8828E-02
RU-103	92.	497.08	3.8692E-02
RURH-106	74.	621.93	7.8612E-01
AG-108m	56.	722.94	4.2881E-02
CD-109	417.	88.03	6.6159E-01
AG-110M	79.	657.76	4.4768E-02
SN-113	153.	391.69	5.7075E-02
TE-123m	478.	159.00	3.8514E-02
SB-124	75.	602.73	3.8963E-02
SB-125	124.	427.89	1.2125E-01
TE-125m	500.	109.27	9.8377E+00
I-131	144.	364.48	4.1079E-02
CS-134	75.	604.70	3.9128E-02
BA-140	94.	537.31	1.5753E-01
LA-140	10.	1596.21	3.3208E-02
CEPR-144	517.	133.51	5.5241E-01
EU-152	31.	1408.01	2.4811E-01
EU-154	34.	1274.51	1.4510E-01
EU-155	420.	105.31	1.1525E-01
HG-203	245.	279.20	4.2467E-02
TL-208	260.	277.36	5.6157E-01
BI-212	83.	727.18	7.1569E-01
PB-212	443.	238.63	9.4126E-02
BI-214	231.	609.31	1.5076E-01
PB-214	310.	351.92	2.3614E-01
RA-224	336.	240.99	9.1012E-01
RA-226	480.	186.10	1.0215E+00
AC-228	123.	911.21	2.6832E-01
TH-229	407.	88.47	9.5624E-02
PA-233	212.	312.17	9.1468E-02
UTH-233	308.	245.34	3.2683E+01
PA-234M	35.	1001.03	7.0299E-02
TH-234	383.	63.29	4.9948E-01
U-235	465.	185.71	6.1149E-02
NP-239	426.	106.12	1.1134E-01
PU-239	529.	129.30	4.7691E+02

Sample ID : S96T1208-SAM Acquisition date : 3-MAY-1996 17:00:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	364.	59.54	6.1451E-02
AM-243	504.	74.67	4.2871E-02

```
**********************************************************************
* 222-S Laboratory Counting Room    3-MAY-1996 19:54:24.31           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8217
Sample ID:               S96T1208-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1850.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:11.12 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-MAY-1996 19:03:35.03
Decayed to:              3-MAY-1996 19:03:35.03
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: Lm Bowles

Verified by: BJ Bachelor 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	16.18	135	1.91	33.01	29	9	61.8			
0	351.69*	78	1.12	703.98	698	12	88.1			
0	661.47*	95	1.49	1323.57	1318	11	39.8		CS-137	0.114
0	1242.43	81	10.61	2485.81	2473	32	66.5			
0	1377.95*	17	1.39	2756.97	2753	12	111.6			

Sample ID : S96T1208-DUP Acquisition date : 3-MAY-1996 19:03:35

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	1.144E-01	1.144E-01	0.455E-01	39.77	
Total Activity :			1.144E-01	1.144E-01			
Grand Total Activity :			1.144E-01	1.144E-01			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	89.	477.59	3.2236E-01
NA-22	31.	1274.53	4.7626E-02
NA-24	21.	1368.55	4.1855E-02
K-40	553.	1460.75	2.0983E+00
CR-51	202.	320.08	3.4956E-01
MN-54	50.	834.83	4.2145E-02
CO-56	64.	846.76	4.8098E-02
CO-57	491.	122.06	3.3424E-02
CO-58	43.	810.78	3.7959E-02
FE-59	53.	1099.25	9.7770E-02
CO-60	29.	1332.50	4.7763E-02
SE-75	278.	264.66	6.0305E-02
SR-85	122.	514.01	4.3587E-02
Y-88	7.	1836.06	2.9884E-02
NB-94	56.	871.09	4.6352E-02
ZRNB-95	71.	724.18	1.0084E-01
RU-103	91.	497.08	3.8598E-02
RURH-106	68.	621.93	7.5181E-01
AG-108m	58.	722.94	4.3708E-02
CD-109	430.	88.03	6.7191E-01
AG-110M	71.	657.76	4.2410E-02
SN-113	146.	391.69	5.5929E-02
TE-123m	496.	159.00	3.9247E-02
SB-124	89.	602.73	4.2491E-02
SB-125	132.	427.89	1.2519E-01
TE-125m	521.	109.27	1.0042E+01
I-131	186.	364.48	4.6701E-02
CS-134	90.	604.70	4.2969E-02
BA-140	94.	537.31	1.5738E-01
LA-140	9.	1596.21	3.2964E-02
CEPR-144	528.	133.51	5.5870E-01
EU-152	35.	1408.01	2.6123E-01
EU-154	31.	1274.51	1.3857E-01
EU-155	492.	105.31	1.2466E-01
HG-203	265.	279.20	4.4134E-02
TL-208	258.	277.36	5.5899E-01
BI-212	79.	727.18	6.9938E-01
PB-212	432.	238.63	9.2969E-02
BI-214	255.	609.31	1.5842E-01
PB-214	328.	351.92	2.4287E-01
RA-224	349.	240.99	9.2736E-01
RA-226	474.	186.10	1.0158E+00
AC-228	124.	911.21	2.6936E-01
TH-228	502.	84.37	2.0557E+00
TH-229	416.	88.47	9.6687E-02
PA-233	209.	312.17	9.0886E-02
UTH-233	337.	245.34	3.4191E+01
PA-234M	54.	1001.03	8.6749E-02
TH-234	391.	63.29	5.0463E-01
U-235	464.	185.71	6.1099E-02
NP-237	455.	86.48	2.0054E-01

Sample ID : S96T1208-DUP Acquisition date : 3-MAY-1996 19:03:35

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	488.	106.12	1.1917E-01
PU-239	535.	129.30	4.7940E+02
AM-241	358.	59.54	6.1019E-02
AM-243	542.	74.67	4.4455E-02

LABCORE Data Entry Template for Worklist# 10294

Analyst: CNJ **Instrument:** GEA00 #3 **Book#** 54B5

SUPER SUPER RUSH

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

Worklist Comment: AY-101 GRAB. Sample size is on traveler. new

SUPER SUPER RUSH

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S96T003467	0	A	@GEA-01	SOLID	96000210	AY-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T003467	0	A	@GEA-01	SOLID		

Final page for worklist # 10294

6/27/96

Analyst Signature Date 6/27/96

Analyst Signature Date 6.28.96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 10294

Analyst: crj **Instrument:** GEA03 **Book#** 54856

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

Worklist Comment: AY-101 GRAB. 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	SOLID	2.420e-02	2.55e-02	105.372	% Recovery
1	STD		0		@GEA-01	CO60-02E	SOLID	1	1.20	1.200	% Ct Error
1	STD		0		@GEA-01	CS13702	SOLID	2.215e-02	2.28e-02	102.935	% Recovery
1	STD		0		@GEA-01	CS13702E	SOLID	1	1.55	1.550	% Ct Error
2	BLNK-PREP		0		@GEA-01	CO60-02	SOLID	1	<1.72e0		uCi/g
2	BLNK-PREP		0		@GEA-01	CS13702	SOLID	1	<2.24e0		uCi/g
3	SAMPLE	S96T003467	0	A	@GEA-01	CO60-02	SOLID	N/A <	1.886e+00	188.6e-002	uCi/g
3	SAMPLE	S96T003467	0	A	@GEA-01	CO60-02E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T003467	0	A	@GEA-01	CS13702	SOLID	N/A	9.161e+01	0.0e+000	uCi/g
3	SAMPLE	S96T003467	0	A	@GEA-01	CS13702E	SOLID	N/A	6.35	0.0e+000	% Ct. Error
4	DUP	S96T003467	0	A	@GEA-01	CO60-02	SOLID	<1.89e0	<2.57e0		RPD
4	DUP	S96T003467	0	A	@GEA-01	CO60-02E	SOLID	1	n/a		% Ct Error
4	DUP	S96T003467	0	A	@GEA-01	CS13702	SOLID	9.16e+01	7.95e+01	14.144	RPD
4	DUP	S96T003467	0	A	@GEA-01	CS13702E	SOLID	1.00	8.44	8.440	% Ct Error

Comments Section:

Comments for sample# S96T003467 **and test** @GEA-01 .
R(0) DL=0 => n/a. Contminated Blnk-rerun requested.PPB
R(1) DL=0 => n/a.

Final page for worklist# 10294

Analyst Signature **Date**

Analyst Signature **Date**

D B Bachelor 6/28/96
Reviewer Signature **Date**

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

****
* 222-S Laboratory Counting Room 27-JUN-1996 14:04:56.56 *
****

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

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

Worklist #: 10294
Sample ID: WL10294-STD
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

Removed by: VR

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

Detector ID: GEA3
File Number: dka300:[spec.GEA3]3g3828.cnf
Geometry: 42
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:09.11 sec
Dead Time: 0.3%

Verified by: RJ Bachelor 6/28/96

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

Sample Count Time: 27-JUN-1996 13:14:08.29
Decayed to: 27-JUN-1996 13:14:08.29
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	661.55*	20137	1.56	1323.28	1315	15	1.6		CS-137	22.8
0	1173.13	16089	1.89	2346.53	2338	18	1.7		CO-60	25.4
0	1332.38	14625	1.99	2665.14	2655	21	1.7		CO-60	25.6

Sample ID : WL10294-STD Acquisition date : 27-JUN-1996 13:14:08

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	2.549E+01	2.549E+01	0.031E+01	1.20	
CS-137	30.00Y	1.000	2.276E+01	2.276E+01	0.035E+01	1.55	
Total Activity :			4.825E+01	4.825E+01			
Grand Total Activity :			4.825E+01	4.825E+01			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1176.	477.59	1.1296E+00
NA-22	106.	1274.53	8.0632E-02
NA-24	28.	1368.55	4.5190E-02
K-40	133.	1460.75	9.4334E-01
CR-51	1068.	320.08	8.1012E-01
MN-54	730.	834.83	1.4777E-01
CO-56	762.	846.76	1.5287E-01
CO-57	1190.	122.06	5.9706E-02
CO-58	708.	810.78	1.4267E-01
FE-59	713.	1099.25	3.2731E-01
SE-75	1325.	264.66	1.3519E-01
SR-85	826.	514.01	1.0822E-01
Y-88	15.	1836.06	4.0369E-02
NB-94	812.	871.09	1.6168E-01
ZRNB-95	568.	724.18	2.6390E-01
RU-103	874.	497.08	1.1436E-01
RURH-106	657.	621.93	2.1963E+00
AG-108m	581.	722.94	1.2822E-01
CD-109	1117.	88.03	1.9150E+00
AG-110M	1027.	657.76	1.5099E-01
SN-113	1096.	391.69	1.5054E-01
TE-123m	1269.	159.00	6.3430E-02
SB-124	625.	602.73	1.0582E-01
SB-125	1144.	427.89	3.5902E-01
TE-125m	1129.	109.27	1.8929E+01
I-131	1035.	364.48	1.0934E-01
CS-134	617.	604.70	1.0566E-01
BA-140	670.	537.31	3.9844E-01
LA-140	13.	1596.21	3.5579E-02
CEPR-144	1223.	133.51	9.1546E-01
EU-152	31.	1408.01	2.2795E-01
EU-154	106.	1274.51	2.3444E-01
EU-155	1081.	105.31	2.4738E-01
HG-203	1253.	279.20	9.8044E-02
TL-208	1265.	277.36	1.2653E+00
BI-212	608.	727.18	1.8003E+00
PB-212	1556.	238.63	1.8219E-01
BI-214	669.	609.31	2.4109E-01
PB-214	1081.	351.92	4.4017E-01
RA-224	1482.	240.99	1.9746E+00
RA-226	1445.	186.10	1.7798E+00
AC-228	918.	911.21	6.7104E-01
TH-228	1076.	84.37	5.7903E+00
TH-229	1128.	88.47	2.7897E-01
PA-233	1135.	312.17	2.1401E-01
UTH-233	1414.	245.34	7.2282E+01
PA-234M	750.	1001.03	2.9657E-01
TH-234	948.	63.29	3.6603E+00
U-235	1441.	185.71	1.0801E-01
NP-237	1115.	86.48	5.7476E-01
NP-239	1063.	106.12	2.3312E-01

Sample ID : WL10294-STD Acquisition date : 27-JUN-1996 13:14:08

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1224.	129.30	7.9681E+02
AM-241	1000.	59.54	6.6336E-01
AM-243	1034.	74.67	1.5854E-01

```
**********************************************************************
* 222-S Laboratory Counting Room   28-JUN-1996 08:09:53.56           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              10294
Sample ID:               WL10294-BLK
Sample Size:             5.00000E-04 L
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             NI3AC:1.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.45 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-JUN-1996 15:11:09.26
Decayed to:              27-JUN-1996 15:11:09.26
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 SLH2
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: Sharon L Wahl 6-28-96

Verified by: B Machelor 6/28/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	585.43	49	2.18	1171.05	1164	18	56.2			
0	608.87*	34	1.57	1217.93	1210	16	64.3			
0	661.43*	30	1.48	1323.03	1317	13	98.6		CS-137	6.94

Sample ID : WL10294-BLK Acquisition date : 27-JUN-1996 15:11:09

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~6.941E+00~~	~~6.941E+00~~	~~6.844E+00~~	~~98.60~~	~~BKG~~
Total Activity :			6.941E+00	6.941E+00			
Grand Total Activity :			6.941E+00	6.941E+00			

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

Sample ID : WL10294-BLK Acquisition date : 27-JUN-1996 15:11:09

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	38.	477.59	4.0790E+01
NA-22	8.	1274.53	4.4845E+00
NA-24	6.	1368.55	4.1898E+00
K-40	123.	1460.75	1.8367E+02
CR-51	53.	320.08	3.6317E+01
MN-54	25.	834.83	5.5704E+00
CO-56	17.	846.76	4.5698E+00
CO-57	68.	122.06	2.8785E+00
CO-58	23.	810.78	5.2369E+00
FE-59	12.	1099.25	8.4210E+00
CO-60	11.	1332.50	5.3388E+00
SE-75	52.	264.66	5.3917E+00
SR-85	47.	514.01	5.2144E+00
Y-88	2.	1836.06	2.9973E+00
NB-94	21.	871.09	5.1966E+00
ZRNB-95	23.	724.18	1.0794E+01
RU-103	33.	497.08	4.5225E+00
RURH-106	13.	621.93	6.1420E+01
AG-108m	21.	722.94	4.9587E+00
CD-109	54.	88.03	8.5354E+01
AG-110M	30.	657.76	5.2020E+00
SN-113	47.	391.69	6.3278E+00
TE-123m	67.	159.00	2.9420E+00
SB-124	25.	602.73	4.2947E+00
SB-125	35.	427.89	1.2619E+01
TE-125m	57.	109.27	8.5776E+02
I-131	40.	364.48	4.3184E+00
CS-134	21.	604.70	3.9535E+00
BA-140	19.	537.31	1.3452E+01
LA-140	3.	1596.21	3.1923E+00
CEPR-144	79.	133.51	4.6905E+01
EU-152	8.	1408.01	2.3237E+01
EU-154	8.	1274.51	1.3029E+01
EU-155	64.	105.31	1.2161E+01
HG-203	57.	279.20	4.2317E+00
TL-208	59.	277.36	5.5041E+01
BI-212	33.	727.18	8.4953E+01
PB-212	81.	238.63	8.4003E+00
BI-214	57.	609.31	1.4223E+01
PB-214	49.	351.92	1.8812E+01
RA-224	72.	240.99	8.7935E+01
RA-226	83.	186.10	8.6321E+01
AC-228	26.	911.21	2.2690E+01
TH-228	72.	84.37	3.0353E+02
TH-229	54.	88.47	1.2276E+01
PA-233	51.	312.17	9.1927E+00
UTH-233	69.	245.34	3.2220E+03
PA-234M	17.	1001.03	9.0387E+00
TH-234	57.	63.29	1.8101E+02
U-235	85.	185.71	5.2916E+00
NP-237	61.	86.48	2.7226E+01

Sample ID : WL10294-BLK Acquisition date : 27-JUN-1996 15:11:09

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	66.	106.12	1.1711E+01
PU-239	66.	129.30	3.7522E+04
AM-241	54.	59.54	3.1188E+01
AM-243	70.	74.67	8.3624E+00

****
* 222-S Laboratory Counting Room 28-JUN-1996 08:13:05.46 *
****

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

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

Worklist #:	10294
Sample ID:	S96T3467-SAM
Sample Size:	5.00000E-04 L
Dilution Factor:	1.01000E+02

Removed by: [signature] 6/28/96

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

Detector ID:	GEA3
File Number:	NI3AC:1.cnf
Geometry:	42
Count Time:	0 00:50:00.00 sec
Real Time:	0 00:50:00.80 sec
Dead Time:	0.0%

Verified by: [signature] 6/28/96

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

Sample Count Time:	27-JUN-1996 16:33:01.81
Decayed to:	27-JUN-1996 16:33:01.81
Standard Deviations:	2
Analysis Library:	ENVGEA
Analyst:	SLH2
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	105.05	83	0.95	210.59	207	8	76.2			
0	122.70	80	1.35	245.88	241	10	95.6		CO-57	5.99
0	661.54*	1244	1.60	1323.25	1317	15	6.4		CS-137	284.
0	1275.48	24	1.75	2551.28	2546	14	51.2			
0	1460.56*	11	2.25	2921.61	2913	17	223.7		K-40	38.0

Sample ID : S96T3467-SAM Acquisition date : 27-JUN-1996 16:33:01

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~~	~~3.804E+01~~	~~3.804E+01~~	~~8.511E+01~~	~~223.74~~	
~~CO-57~~	~~271.80D~~	~~1.000~~	~~5.993E+00~~	~~5.994E+00~~	~~5.732E+00~~	~~95.64~~	
CS-137	30.00Y	1.000	2.841E+02	2.841E+02	0.181E+02	6.35	
Total Activity :			3.282E+02	3.282E+02			
Grand Total Activity :			3.282E+02	3.282E+02			

BKG

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	84.	477.59	6.0822E+01
NA-22	27.	1274.53	8.2673E+00
NA-24	8.	1368.55	4.8380E+00
CR-51	105.	320.08	5.1293E+01
MN-54	24.	834.83	5.4193E+00
CO-56	21.	846.76	5.0689E+00
CO-58	12.	810.78	3.7971E+00
FE-59	16.	1099.25	9.9715E+00
CO-60	13.	1332.50	5.8471E+00
SE-75	129.	264.66	8.5073E+00
SR-85	79.	514.01	6.7546E+00
Y-88	2.	1836.06	2.9973E+00
NB-94	23.	871.09	5.5520E+00
ZRNB-95	35.	724.18	1.3306E+01
RU-103	56.	497.08	5.8544E+00
RURH-106	32.	621.93	9.8475E+01
AG-108m	34.	722.94	6.2264E+00
CD-109	324.	88.03	2.0821E+02
AG-110M	50.	657.76	6.7252E+00
SN-113	80.	391.69	8.1900E+00
TE-123m	225.	159.00	5.3927E+00
SB-124	36.	602.73	5.1003E+00
SB-125	80.	427.89	1.9207E+01
TE-125m	252.	109.27	1.8062E+03
I-131	89.	364.48	6.4710E+00
CS-134	34.	604.70	5.0385E+00
BA-140	47.	537.31	2.1327E+01
LA-140	3.	1596.21	3.4525E+00
CEPR-144	254.	133.51	8.4305E+01
EU-152	8.	1408.01	2.3237E+01
EU-154	27.	1274.51	2.4037E+01
EU-155	333.	105.31	2.7723E+01
HG-203	110.	279.20	5.8716E+00
TL-208	127.	277.36	8.0858E+01
BI-212	29.	727.18	7.9987E+01
PB-212	170.	238.63	1.2179E+01
BI-214	48.	609.31	1.3086E+01
PB-214	106.	351.92	2.7844E+01
RA-224	129.	240.99	1.1785E+02
RA-226	203.	186.10	1.3460E+02
AC-228	28.	911.21	2.3828E+01
TH-228	289.	84.37	6.0557E+02
TH-229	307.	88.47	2.9382E+01
PA-233	100.	312.17	1.2849E+01
UTH-233	145.	245.34	4.6775E+03
PA-234M	17.	1001.03	9.1008E+00
TH-234	223.	63.29	3.5824E+02
U-235	199.	185.71	8.1127E+00
NP-237	359.	86.48	6.5903E+01
NP-239	320.	106.12	2.5840E+01
PU-239	262.	129.30	7.4483E+04

Sample ID : S96T3467-SAM Acquisition date : 27-JUN-1996 16:33:01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	220.	59.54	6.2848E+01
AM-243	289.	74.67	1.6919E+01

```
**********************************************************************
* 222-S Laboratory Counting Room   27-JUN-1996 19:16:11.93           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              10294
Sample ID:               S96T003467-DUP
Sample Size:             5.00000E-04 L
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3832.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.68 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-JUN-1996 18:25:31.90
Decayed to:              27-JUN-1996 18:25:31.90
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 6-27-96

Verified by: Machelor 6/28/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.54*	732	1.49	1323.25	1317	13	8.4		CS-137	167.
0	1120.66*	6	1.42	2241.57	2239		8147.2			
0	1460.81*	16	2.18	2922.11	2914		20155.1		K-40	55.8

Sample ID : S96T003467-DUP Acquisition date : 27-JUN-1996 18:25:31

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

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~5.581E+01~~	~~5.581E+01~~	~~8.658E+01~~	~~155.12~~	~~BKG~~
CS-137	30.00Y	1.000	1.670E+02	1.670E+02	0.141E+02	8.44	
	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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	65.	477.59	5.3634E+01
NA-22	21.	1274.53	7.2640E+00
NA-24	5.	1368.55	3.6859E+00
CR-51	99.	320.08	4.9746E+01
MN-54	18.	834.83	4.7473E+00
CO-56	15.	846.76	4.3771E+00
CO-57	264.	122.06	5.6790E+00
CO-58	17.	810.78	4.5154E+00
FE-59	12.	1099.25	8.6123E+00
CO-60	11.	1332.50	5.4007E+00
SE-75	113.	264.66	7.9735E+00
SR-85	61.	514.01	5.9512E+00
Y-88	0.	1836.06	0.0000E+00
NB-94	22.	871.09	5.3878E+00
ZRNB-95	40.	724.18	1.4111E+01
RU-103	53.	497.08	5.6941E+00
RURH-106	34.	621.93	1.0031E+02
AG-108m	39.	722.94	6.7369E+00
CD-109	205.	88.03	1.6558E+02
AG-110M	46.	657.76	6.4307E+00
SN-113	68.	391.69	7.5958E+00
TE-123m	154.	159.00	4.4614E+00
SB-124	35.	602.73	5.0241E+00
SB-125	65.	427.89	1.7334E+01
TE-125m	207.	109.27	1.6367E+03
I-131	64.	364.48	5.5084E+00
CS-134	31.	604.70	4.7510E+00
BA-140	47.	537.31	2.1382E+01
LA-140	4.	1596.21	3.8830E+00
CEPR-144	183.	133.51	7.1583E+01
EU-152	11.	1408.01	2.7042E+01
EU-154	21.	1274.51	2.1144E+01
EU-155	219.	105.31	2.2484E+01
HG-203	101.	279.20	5.6097E+00
TL-208	101.	277.36	7.2389E+01
BI-212	30.	727.18	8.1286E+01
PB-212	132.	238.63	1.0715E+01
BI-214	60.	609.31	1.4574E+01
PB-214	77.	351.92	2.3675E+01
RA-224	140.	240.99	1.2257E+02
RA-226	161.	186.10	1.2003E+02
AC-228	38.	911.21	2.7690E+01
TH-228	231.	84.37	5.4156E+02
TH-229	198.	88.47	2.3625E+01
PA-233	86.	312.17	1.1871E+01
UTH-233	101.	245.34	3.8949E+03
PA-234M	19.	1001.03	9.4424E+00
TH-234	173.	63.29	3.1604E+02
U-235	161.	185.71	7.2830E+00
NP-237	241.	86.48	5.4008E+01
NP-239	220.	106.12	2.1433E+01

Sample ID : S96T003467-DUP Acquisition date : 27-JUN-1996 18:25:31

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	184.	129.30	6.2344E+04
AM-241	168.	59.54	5.4863E+01
AM-243	207.	74.67	1.4317E+01

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#: 10169

Analyst: jds **Instrument:** GEA01 **Book#** 54B 56

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

Worklist Comment: AY-101 @GEA-01 Use 0.1-10-1mL sample size.

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-01 CO60-02	SOLID	2.425e-02		2.62e-02	108.041	% Recovery
1	STD		0		@GEA-01 CO60-02E	SOLID	1		1.30	1.300	% Ct Error
1	STD		0		@GEA-01 CS13702	SOLID	2.216e-02		2.31e-02	104.242	% Recovery
1	STD		0		@GEA-01 CS13702E	SOLID	1		1.71	1.710	% Ct Error
2	BLNK-PREP		0		@GEA-01 CO60-02	SOLID	1		<1.62e0		uCi/g
2	BLNK-PREP		0		@GEA-01 CS13702	SOLID	1		5.29e+00	5.290	uCi/g
3	SAMPLE	S96T003467	0	A	@GEA-01 CO60-02	SOLID	N/A	<	1.616e+00	161.6e-002	uCi/g
3	SAMPLE	S96T003467	0	A	@GEA-01 CO60-02E	SOLID	N/A		n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T003467	0	A	@GEA-01 CS13702	SOLID	N/A		9.387e+01	0.0e+000	uCi/g
3	SAMPLE	S96T003467	0	A	@GEA-01 CS13702E	SOLID	N/A		4.81	0.0e+000	% Ct. Error
4	DUP	S96T003467	0	A	@GEA-01 CO60-02	SOLID	<1.62e0		<2.15e0	RPD	
4	DUP	S96T003467	0	A	@GEA-01 CO60-02E	SOLID	1		n/a		% Ct Error
4	DUP	S96T003467	0	A	@GEA-01 CS13702	SOLID	9.39e+01		1.40e+02	39.419	RPD
4	DUP	S96T003467	0	A	@GEA-01 CS13702E	SOLID	1.00		4.66	4.660	% Ct Error

Comments Section:

Comments for sample# S96T003467 **and test** @GEA-01 .
DL=0 => n/a. Contminated Blnk-rerun requested.PPB

Final page for worklist# 10169

Analyst Signature **Date**

Analyst Signature **Date**

R Bachelor 6/24/96
Reviewer Signature **Date**

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

LABCORE Data Entry Template for Worklist# 10169

Analyst: JDS **Instrument:** GEA00 / **Book#** 54356

Method: LA-548-121 Rev/Mod _____

Worklist Comment: AY-101 @GEA-01 Use 0.1-10-1mL sample size.

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S96T003467	0	A	@GEA-01	SOLID	96000210	AY-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S96T003467	0	A	@GEA-01	SOLID		

Final page for worklist # 10169

JDS 6-21-96
Analyst Signature **Date**

6/24/96
Analyst Signature **Date**

Data Entry Comments:

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

****
* 222-S Laboratory Counting Room 21-JUN-1996 15:08:48.49 *
****

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

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

Worklist #: 10169
Sample ID: WL1069-STD
Sample Size: 1.00000E-03 L
Dilution Factor: 1.00000E+00

Removed by:

ALJ 6-21-96

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

Detector ID:
File Number: dka300:[spec.GEA1]lg1200.cnf
Geometry: 41
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:26.99 sec
Dead Time: 0.9%

Verified by:

DMacheler 6/24/96

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

Sample Count Time: 21-JUN-1996 14:17:43.00
Decayed to: 21-JUN-1996 14:17:43.00
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: ALJ
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	31.80	3166	1.08	64.25	60	10	7.3			
0	36.25	790	0.78	73.15	69	9	22.0			
0	661.30*	19087	1.42	1323.22	1315	16	1.7		CS-137	23.1
0	1172.49	15238	1.75	2345.88	2336	19	1.8		CO-60	26.2
0	1331.66	13684	1.93	2664.34	2654	20	1.8		CO-60	26.1
0	1763.85*	22	2.43	3529.21	3522	13	98.0			

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
CO-60	5.27Y	1.000	2.616E+01	2.616E+01	0.034E+01	1.30	
CS-137	30.00Y	1.000	2.311E+01	2.311E+01	0.039E+01	1.71	
Total Activity :			4.927E+01	4.927E+01			
Grand Total Activity :			4.927E+01	4.927E+01			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1223.	477.59	1.1974E+00
NA-22	111.	1274.53	9.0152E-02
NA-24	49.	1368.55	6.4739E-02
K-40	541.	1460.75	2.0759E+00
CR-51	1256.	320.08	8.7118E-01
MN-54	789.	834.83	1.6693E-01
CO-56	837.	846.76	1.7417E-01
CO-57	1520.	122.06	5.8783E-02
CO-58	752.	810.78	1.5952E-01
FE-59	764.	1099.25	3.7048E-01
SE-75	1329.	264.66	1.3180E-01
SR-85	911.	514.01	1.1925E-01
Y-88	23.	1836.06	5.4670E-02
NB-94	885.	871.09	1.8380E-01
ZRNB-95	677.	724.18	3.1068E-01
RU-103	932.	497.08	1.2337E-01
RURH-106	661.	621.93	2.3483E+00
AG-108m	635.	722.94	1.4452E-01
CD-109	1291.	88.03	1.1644E+00
AG-110M	1550.	657.76	1.9857E-01
SN-113	1206.	391.69	1.6045E-01
TE-123m	1396.	159.00	6.5843E-02
SB-124	689.	602.73	1.1810E-01
SB-125	1270.	427.89	3.8826E-01
TE-125m	1314.	109.27	1.5950E+01
I-131	1190.	364.48	1.1801E-01
CS-134	691.	604.70	1.1883E-01
BA-140	854.	537.31	4.7407E-01
LA-140	30.	1596.21	5.8935E-02
CEPR-144	1464.	133.51	9.2989E-01
EU-152	52.	1408.01	3.1984E-01
EU-154	111.	1274.51	2.6216E-01
EU-155	1329.	105.31	2.0492E-01
HG-203	1314.	279.20	9.8298E-02
TL-208	1313.	277.36	1.2611E+00
BI-212	695.	727.18	2.0753E+00
PB-212	1559.	238.63	1.7661E-01
BI-214	868.	609.31	2.9217E-01
PB-214	1372.	351.92	4.9808E-01
RA-224	1492.	240.99	1.9183E+00
RA-226	1681.	186.10	1.9120E+00
AC-228	1110.	911.21	8.0507E-01
TH-228	1404.	84.37	3.4369E+00
TH-229	1273.	88.47	1.6914E-01
PA-233	1281.	312.17	2.2488E-01
UTH-233	1384.	245.34	6.9257E+01
PA-234M	818.	1001.03	3.3845E-01
TH-234	1182.	63.29	8.7765E-01
U-235	1655.	185.71	1.1535E-01
NP-237	1298.	86.48	3.3882E-01
NP-239	1328.	106.12	1.9650E-01

Sample ID : WL1069-STD Acquisition date : 21-JUN-1996 14:17:43

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1455.	129.30	7.9075E+02
AM-241	1103.	59.54	1.0703E-01
AM-243	1394.	74.67	7.1312E-02

****
* 222-S Laboratory Counting Room 21-JUN-1996 16:25:17.00 *
****

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

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

Worklist #: 10169
Sample ID: WL10169-BLK
Sample Size: 1.00000E-03 L
Dilution Factor: 1.01000E+02

Removed by: 6-21-96

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

Detector ID:
File Number: dka300:[spec.GEA1]1g1201.cnf
Geometry: 41
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:11.29 sec
Dead Time: 0.4%

Verified by: Bachelor 6/24/96

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

Sample Count Time: 21-JUN-1996 15:34:26.08
Decayed to: 21-JUN-1996 15:34:26.08
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	661.52*	134	1.67	1323.68	1319	10	28.2		CS-137	16.4
0	1460.06*	41	1.99	2921.26	2913	16	128.3		K-40	79.7
0	1592.31*	12	2.23	3185.92	3181	16	134.7			

Sample ID : WL10169-BLK Acquisition date : 21-JUN-1996 15:34:26

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	7.969E+01	7.969E+01	10.22E+01	128.28	
CS-137	30.00Y	1.000	1.645E+01	1.645E+01	0.464E+01	28.19	
	Total Activity :		9.614E+01	9.614E+01			
	Grand Total Activity :		9.614E+01	9.614E+01			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	111.	477.59	3.6508E+01
NA-22	37.	1274.53	5.2577E+00
NA-24	20.	1368.55	4.1674E+00
CR-51	224.	320.08	3.7184E+01
MN-54	67.	834.83	4.8965E+00
CO-56	57.	846.76	4.5802E+00
CO-57	500.	122.06	3.4063E+00
CO-58	54.	810.78	4.3025E+00
FE-59	33.	1099.25	7.7874E+00
CO-60	31.	1332.50	5.0099E+00
SE-75	283.	264.66	6.1438E+00
SR-85	137.	514.01	4.6782E+00
Y-88	3.	1836.06	2.1126E+00
NB-94	53.	871.09	4.5334E+00
ZRNB-95	79.	724.18	1.0737E+01
RU-103	118.	497.08	4.4318E+00
RURH-106	73.	621.93	7.8615E+01
AG-108m	65.	722.94	4.6549E+00
CD-109	416.	88.03	6.6749E+01
AG-110M	64.	657.76	4.0623E+00
SN-113	169.	391.69	6.0754E+00
TE-123m	497.	159.00	3.9663E+00
SB-124	91.	602.73	4.3270E+00
SB-125	111.	427.89	1.1576E+01
TE-125m	513.	109.27	1.0068E+03
I-131	177.	364.48	4.5949E+00
CS-134	99.	604.70	4.5506E+00
BA-140	102.	537.31	1.6524E+01
LA-140	6.	1596.21	2.6878E+00
CEPR-144	502.	133.51	5.4975E+01
EU-152	20.	1408.01	2.0025E+01
EU-154	37.	1274.51	1.5284E+01
EU-155	476.	105.31	1.2383E+01
HG-203	274.	279.20	4.5334E+00
TL-208	278.	277.36	5.8653E+01
BI-212	86.	727.18	7.3768E+01
PB-212	447.	238.63	9.5513E+00
BI-214	216.	609.31	1.4707E+01
PB-214	325.	351.92	2.4420E+01
RA-224	373.	240.99	9.6854E+01
RA-226	480.	186.10	1.0323E+02
AC-228	125.	911.21	2.7291E+01
TH-228	469.	84.37	2.0055E+02
TH-229	415.	88.47	9.7486E+00
PA-233	237.	312.17	9.7689E+00
UTH-233	312.	245.34	3.3221E+03
PA-234M	52.	1001.03	8.6038E+00
TH-234	413.	63.29	5.2395E+01
U-235	487.	185.71	6.3171E+00
NP-237	465.	86.48	2.0473E+01
NP-239	492.	106.12	1.2086E+01

Sample ID : WL10169-BLK Acquisition date : 21-JUN-1996 15:34:26

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	561.	129.30	4.9578E+04
AM-241	411.	59.54	6.6001E+00
AM-243	551.	74.67	4.5279E+00

****
* 222-S Laboratory Counting Room 21-JUN-1996 17:41:51.70 *
****

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

Worklist #:	10169
Sample ID:	S96T003467-SAM
Sample Size:	1.00000E-03 L
Dilution Factor:	1.01000E+02

Removed by: D. H. Gribbin

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

Detector ID:	
File Number:	dka300:[spec.GEA1]1g1202.cnf
Geometry:	41
Count Time:	0 00:50:00.00 sec
Real Time:	0 00:50:13.50 sec
Dead Time:	0.4%

Verified by: B Bracken 6/24/96

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

Sample Count Time:	21-JUN-1996 16:50:57.70
Decayed to:	21-JUN-1996 16:50:57.70
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	31.81	472	1.07	64.26	61	8	36.8			
0	59.49	130	0.66	119.61	117	7	108.3		AM-241	9.09
0	122.90	176	1.00	246.41	243	8	70.9		CO-57	5.75
0	609.05*	55	1.03	1218.72	1213	12	103.7			
0	661.41*	2379	1.41	1323.46	1315	16	4.8		CS-137	291.
0	769.88	52	5.23	1540.43	1533	15	78.9			
0	1763.80*	15	1.94	3529.10	3519	19	128.4			

Sample ID : S96T003467-SAM Acquisition date : 21-JUN-1996 16:50:57

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

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
~~CO-57~~	~~271.80D~~	~~1.000~~	~~5.752E+00~~	~~5.752E+00~~	~~4.077E+00~~	~~70.89~~	~~BKG~~
CS-137	30.00Y	1.000	2.909E+02	2.909E+02	0.140E+02	4.81	
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~9.086E+00~~	~~9.086E+00~~	~~9.840E+00~~	~~108.29~~	~~BKG~~
Total Activity :			3.057E+02	3.057E+02			
Grand Total Activity :			3.057E+02	3.057E+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	213.	477.59	5.0434E+01
NA-22	80.	1274.53	7.7366E+00
NA-24	21.	1368.55	4.2946E+00
K-40	593.	1460.75	2.1951E+02
CR-51	329.	320.08	4.5054E+01
MN-54	68.	834.83	4.9344E+00
CO-56	48.	846.76	4.2180E+00
CO-58	61.	810.78	4.5891E+00
FE-59	29.	1099.25	7.3205E+00
CO-60	31.	1332.50	5.0099E+00
SE-75	415.	264.66	7.4392E+00
SR-85	176.	514.01	5.2956E+00
Y-88	8.	1836.06	3.3156E+00
NB-94	50.	871.09	4.4019E+00
ZRNB-95	106.	724.18	1.2394E+01
RU-103	157.	497.08	5.1112E+00
RURH-106	90.	621.93	8.7683E+01
AG-108m	110.	722.94	6.0664E+00
CD-109	1090.	88.03	1.0803E+02
AG-110M	173.	657.76	6.6964E+00
SN-113	263.	391.69	7.5738E+00
TE-123m	773.	159.00	4.9486E+00
SB-124	83.	602.73	4.1357E+00
SB-125	239.	427.89	1.6999E+01
TE-125m	948.	109.27	1.3682E+03
I-131	272.	364.48	5.6957E+00
CS-134	102.	604.70	4.6116E+00
BA-140	140.	537.31	1.9386E+01
LA-140	10.	1596.21	3.3802E+00
CEPR-144	878.	133.51	7.2733E+01
EU-152	17.	1408.01	1.8203E+01
EU-154	80.	1274.51	2.2479E+01
EU-155	1100.	105.31	1.8833E+01
HG-203	375.	279.20	5.3022E+00
TL-208	361.	277.36	6.6797E+01
BI-212	75.	727.18	6.8848E+01
PB-212	597.	238.63	1.1036E+01
BI-214	291.	609.31	1.7094E+01
PB-214	419.	351.92	2.7724E+01
RA-224	513.	240.99	1.1362E+02
RA-226	697.	186.10	1.2435E+02
AC-228	128.	911.21	2.7592E+01
TH-228	1197.	84.37	3.2056E+02
TH-229	1028.	88.47	1.5350E+01
PA-233	327.	312.17	1.1478E+01
UTH-233	464.	245.34	4.0526E+03
PA-234M	59.	1001.03	9.1941E+00
TH-234	1309.	63.29	9.3295E+01
U-235	692.	185.71	7.5301E+00
NP-237	1205.	86.48	3.2964E+01
NP-239	1095.	106.12	1.8022E+01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	926.	129.30	6.3692E+04
AM-243	1368.	74.67	7.1343E+00

```
**********************************************************************
* 222-S Labcratory Counting Room   21-JUN-1996 18:56:06.56           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              10169
Sample ID:               S96T3467-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1203.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:12.45 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-JUN-1996 18:05:11.85
Decayed to:              21-JUN-1996 18:05:11.85
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DMM
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. McVicar

Verified by: B Bachelor 6/24/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.95	423	1.12	64.55	62	7	36.5			
0	42.79	312	1.18	86.23	83	8	52.9			
0	59.32	207	1.04	119.28	116	7	66.8		AM-241	14.5
0	123.19	241	0.94	247.00	243	8	51.3		CO-57	7.88
0	351.38*	127	1.51	703.36	698	10	54.1			
0	661.48*	2395	1.37	1323.58	1316	14	4.7		CS-137	293.
0	785.51	35	1.44	1571.70	1567	11	91.6			
0	1274.16	36	1.40	2549.30	2545	10	57.2			

Sample ID : S96T3467-DUP Acquisition date : 21-JUN-1996 18:05:11

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

Total number of lines in spectrum	8	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	6	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-57~~	~~271.80D~~	~~1.000~~	~~7.878E+00~~	~~7.879E+00~~	~~4.043E+00~~	~~51.32~~	~~BKG~~
CS-137	30.00Y	1.000	2.929E+02	2.929E+02	0.136E+02	4.66	
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~1.450E+01~~	~~1.450E+01~~	~~0.969E+01~~	~~66.82~~	~~BKG~~
Total Activity :			3.153E+02	3.153E+02			

Grand Total Activity : 3.153E+02 3.153E+02

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

Sample ID : S96T3467-DUP Acquisition date : 21-JUN-1996 18:05:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	190.	477.59	4.7687E+01
NA-22	58.	1274.53	6.5893E+00
NA-24	19.	1368.55	4.0561E+00
K-40	563.	1460.75	2.1383E+02
CR-51	292.	320.08	4.2431E+01
MN-54	63.	834.83	4.7503E+00
CO-56	70.	846.76	5.0724E+00
CO-58	57.	810.78	4.4351E+00
FE-59	36.	1099.25	8.1673E+00
CO-60	25.	1332.50	4.5236E+00
SE-75	397.	264.66	7.2715E+00
SR-85	155.	514.01	4.9704E+00
Y-88	5.	1836.06	2.6614E+00
NB-94	70.	871.09	5.2249E+00
ZRNB-95	112.	724.18	1.2748E+01
RU-103	180.	497.08	5.4791E+00
RURH-106	89.	621.93	8.6931E+01
AG-108m	112.	722.94	6.1259E+00
CD-109	1136.	88.03	1.1032E+02
AG-110M	176.	657.76	6.7590E+00
SN-113	259.	391.69	7.5134E+00
TE-123m	769.	159.00	4.9376E+00
SB-124	124.	602.73	5.0580E+00
SB-125	236.	427.89	1.6899E+01
TE-125m	976.	109.27	1.3882E+03
I-131	275.	364.48	5.7273E+00
CS-134	116.	604.70	4.9177E+00
BA-140	126.	537.31	1.8379E+01
LA-140	9.	1596.21	3.1737E+00
CEPR-144	856.	133.51	7.1814E+01
EU-152	15.	1408.01	1.7528E+01
EU-154	58.	1274.51	1.9139E+01
EU-155	1029.	105.31	1.8210E+01
HG-203	382.	279.20	5.3551E+00
TL-208	384.	277.36	6.8921E+01
BI-212	87.	727.18	7.4293E+01
PB-212	565.	238.63	1.0741E+01
BI-214	231.	609.31	1.5223E+01
PB-214	428.	351.92	2.8014E+01
RA-224	488.	240.99	1.1083E+02
RA-226	761.	186.10	1.2998E+02
AC-228	117.	911.21	2.6438E+01
TH-228	1139.	84.37	3.1260E+02
TH-229	1102.	88.47	1.5897E+01
PA-233	297.	312.17	1.0931E+01
UTH-233	493.	245.34	4.1754E+03
PA-234M	56.	1001.03	8.9103E+00
TH-234	1240.	63.29	9.0799E+01
U-235	767.	185.71	7.9282E+00
NP-237	1208.	86.48	3.3005E+01
NP-239	1044.	106.12	1.7600E+01

Sample ID : S96T3467-DUP Acquisition date : 21-JUN-1996 18:05:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	910.	129.30	6.3152E+04
AM-243	1363.	74.67	7.1220E+00

LABCORE Data Entry Template for Worklist# 6771

Analyst: SLH **Instrument:** AB00 #12 **Book#** 9B56

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

Worklist Comment: AY-101, Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T001263	0		@SR90-01	LIQUID	96000210	AY-101 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S96T001263	0		@SR90-01	LIQUID		
6	SAMPLE	S96T001264	0		@SR90-01	LIQUID	96000210	AY-101 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
7	DUP	S96T001264	0		@SR90-01	LIQUID		
8	SAMPLE	S96T001265	0		@SR90-01	LIQUID	96000210	AY-101 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
9	DUP	S96T001265	0		@SR90-01	LIQUID		

Final page for worklist # 6771

Sandra L Hood Beatright
Analyst Signature **Date** 3-28-96

[signature] 3-29-96
Analyst Signature **Date**

Sue Hogan 3/29/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 6771

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

Method: _____ Rev/Mod _____

Worklist Comment: AY-101, Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01 SR90-01	LIQUID	1.23E-03	1.26E-3	102.440	% Recovery
1	STD		0		@SR90-01 SR90-01C	LIQUID	100	8.66E+01	86.600	% Recovery
1	STD		0		@SR90-01 SR90-01E	LIQUID	1.00	1.82E+00	1.820	% Ct. Error
2	BLNK		0		@SR90-01 SR90-01	LIQUID	1	<4.31E-4		uCi/mL
2	BLNK		0		@SR90-01 SR90-01C	LIQUID	100	8.32E+01	83.200	% Recovery
2	BLNK		0		@SR90-01 SR90-01E	LIQUID	1.00	3.13E+02	313.000	% Ct. Error
3	BLNK/BKG		0		@SR90-01 SR90-01	LIQUID	1	1.14E+00	1.140	uCi/mL
4	SAMPLE	S96T001263	0		@SR90-01 SR90-01	LIQUID	N/A	1.82E+00	5.820e-004	uCi/mL
4	SAMPLE	S96T001263	0		@SR90-01 SR90-01C	LIQUID	N/A	8.32E+01	1.000e-004	% Recovery
4	SAMPLE	S96T001263	0		@SR90-01 SR90-01E	LIQUID	N/A	6.89E-01	0.000	% Ct. Error
5	DUP	S96T001263	0		@SR90-01 SR90-01	LIQUID	1.82E+0	1.80E+0	1.100	RPD
5	DUP	S96T001263	0		@SR90-01 SR90-01C	LIQUID	100	8.72E+01	87.200	% Recovery
5	DUP	S96T001263	0		@SR90-01 SR90-01E	LIQUID	1.00	6.77E-01	0.680	% Ct. Error
6	SAMPLE	S96T001264	0		@SR90-01 SR90-01	LIQUID	N/A	1.85E+00	6.390e-004	uCi/mL
6	SAMPLE	S96T001264	0		@SR90-01 SR90-01C	LIQUID	N/A	7.54E+01	1.000e-004	% Recovery
6	SAMPLE	S96T001264	0		@SR90-01 SR90-01E	LIQUID	N/A	7.17E-01	0.000	% Ct. Error
7	DUP	S96T001264	0		@SR90-01 SR90-01	LIQUID	1.85E+0	1.86E+0	0.540	RPD
7	DUP	S96T001264	0		@SR90-01 SR90-01C	LIQUID	100	8.08E+01	80.800	% Recovery
7	DUP	S96T001264	0		@SR90-01 SR90-01E	LIQUID	1.00	6.89E-01	0.690	% Ct. Error
8	SAMPLE	S96T001265	0		@SR90-01 SR90-01	LIQUID	N/A	1.81E+00	5.830e-004	uCi/mL
8	SAMPLE	S96T001265	0		@SR90-01 SR90-01C	LIQUID	N/A	8.80E+01	1.000e-004	% Recovery
8	SAMPLE	S96T001265	0		@SR90-01 SR90-01E	LIQUID	N/A	6.92E-01	0.000	% Ct. Error
9	DUP	S96T001265	0		@SR90-01 SR90-01	LIQUID	1.81E+0	1.83E+0	1.100	RPD
9	DUP	S96T001265	0		@SR90-01 SR90-01C	LIQUID	100	7.97E+01	79.700	% Recovery
9	DUP	S96T001265	0		@SR90-01 SR90-01E	LIQUID	1.00	7.23E-01	0.720	% Ct. Error

Final page for worklist# 6771

Analyst Signature **Date**

Analyst Signature **Date**

4/1/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

						STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
STD	TOTAL COUNTS	(TC)	11769	GROSS WEIGHT	(W2)	7.2971
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2105
6771	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0866
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	14.17
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	DDF	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1172.60	SR-90 EFFICIENCY FACTO	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96002483	TIME OF SEPARATION	(ST)	08:00	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	03/28/96	DETECTION LIMIT	(Ld)	2.59
0	TIME OF COUNT	(TOC)	22:10	Sr-89/90 CONC. in µCi/L		1.2599E+00
Sample Prep	DATE OF COUNT	(DOC)	03/28/96			
N/A	STANDARD BOOK #		9B56			
Sample #	STANDARD VALUE in µCi/mL		1.2308E-03			
WL6771						

Instrument Code
WB27811
Prepared By
SLH2
Chemist
SLF
Analyst
SLH
Date Complete
03/29/96
Analysis Date
03/28/96
Analysis Time
08:00 AM
Sample Point
AY-101 GRAB

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	1.26E-03	µCi/mL	
RELATIVE COUNTING ERROR	1.8%		2.78E-06 µCi/L
PERCENT CARRIER RECOVERY	86.6%		

Analyst:		SLH	Date:	29-Mar-96
Signature of Chemist:		SLF	Date:	4/1/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

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

Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	49	GROSS WEIGHT	(W2)	7.2763
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1931
6771	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0832
Test Code	SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	14.37
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	0.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96002483	TIME OF SEPARATION	(ST)	08:00	Rmax		1.91
Rerun	DATE OF SEPARATION	(SD)	03/28/96	DETECTION LIMIT	(Ld)	2.59
0	TIME OF COUNT	(TOC)	22:22	Sr-89/90 CONC in µCi/L	<	4.3143E-01
Sample Prep	DATE OF COUNT	(DOC)	03/28/96			

N/A	
Sample #	
WL6771	
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
SLH	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
03/29/96	
Analysis Date	
03/28/96	
Analysis Time	
08:00 AM	
Sample Point	
AY-101 GRAB	

Sr-89/90 CONCENTRATION	< 4.31E-04	µCi/mL	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			
RELATIVE COUNTING ERROR	313.3%		5.84E-04 µCi/mL
PERCENT CARRIER RECOVERY	83.2%		

Analyst:	SLH	Date:	29-Mar-96
Signature of Chemist:	SLF	Date:	4/1/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

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

Type						SAMPLE
SAMPLE	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	80990	GROSS WEIGHT	(W2)	7.2698
6771	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1866
Test Code	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0832
@SR90-01	SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	14.78
Matrix	DILUTION FACTOR	(DF)	101			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	8094.70	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
96002483	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	08:00	Rmax		N/A
0	DATE OF SEPARATION	(SD)	03/28/96	DETECTION LIMIT	(Ld)	2.59
Sample Prep	TIME OF COUNT	(TOC)	22:47	Sr-89/90 CONC in µCi/L		1.8187E+03
N/A	DATE OF COUNT	(DOC)	03/28/96			

Sample #	
S96T001263	
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
SLH	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
03/29/96	

Analysis Date				DETECTION LEVEL
03/28/96	Sr-89/90 CONCENTRATION	1.82E+00	µCi/mL	
Analysis Time				
08:00 AM	RELATIVE COUNTING ERROR	0.7%		5.82E-04 µCi/mL
Sample Point				
AY-101 GRAB	PERCENT CARRIER RECOVERY	83.2%		

Analyst:	SLH	Date:	29-Mar-96
Signature of Chemist:	SLF	Date:	4/1/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

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

Type						DUP
DUP	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	84040	GROSS WEIGHT	(W2)	7.2735
6771	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1863
Test Code	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0872
@SR90-01	SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	15.12
Matrix	DILUTION FACTOR	(DF)	101			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	8399.70	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
96002483	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	08:00	Rmax		N/A
0	DATE OF SEPARATION	(SD)	03/28/96	DETECTION LIMIT	(Ld)	2.59
Sample Prep	TIME OF COUNT	(TOC)	23:07	Sr-89/90 CONC in µCi/L		1.7954E+03
N/A	DATE OF COUNT	(DOC)	03/28/96			
Sample #						
S96T001263						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
SLH	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
03/29/96	

Analysis Date				DETECTION LEVEL
03/28/96	Sr-89/90 CONCENTRATION	1.80E+00	µCi/mL	
Analysis Time				
08:00 AM	RELATIVE COUNTING ERROR	0.7%		5.53E-04 µCi/mL
Sample Point				
AY-101 GRAB	PERCENT CARRIER RECOVERY	87.2%		

Analyst:		SLH	Date:	29-Mar-96
Signature of Chemist:		SLF	Date:	4/1/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM6

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

Type						SAMPLE
SAMPLE	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	74935	GROSS WEIGHT	(W2)	7.2688
6771	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1934
Test Code	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0754
@SR90-01	SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	15.33
Matrix	DILUTION FACTOR	(DF)	101			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	7489.20	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
96002483	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	08:00	Rmax		N/A
0	DATE OF SEPARATION	(SD)	03/28/96	DETECTION LIMIT	(Ld)	2.59
Sample Prep	TIME OF COUNT	(TOC)	23:20	Sr-89/90 CONC in µCi/L		1.8478E+03
N/A	DATE OF COUNT	(DOC)	03/28/96			
Sample #						
S96T001264						

Instrument Code
WB27811
Prepared By
SLH2
Chemist
SLF
Analyst
SLH
Date Complete
03/29/96
Analysis Date
03/28/96
Analysis Time
08:00 AM
Sample Point
AY-101 GRAB

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	1.85E+00	µCi/mL	
RELATIVE COUNTING ERROR	0.7%		6.39E-04 µCi/mL
PERCENT CARRIER RECOVERY	75.4%		

Analyst:		SLH	Date:	29-Mar-96
Signature of Chemist:		SLF	Date:	4/1/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP7

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

Type	DUP
DUP	
Work List	
6771	
Test Code	
@SR90-01	
Matrix	
LIQUID	
Batch Number	
96002483	
Rerun	
0	
Sample Prep	
N/A	
Sample #	
S96T001264	
Instrument Code	
WB27811	
Prepared By	
SLH2	
Chemist	
SLF	
Analyst	
SLH	
Date Complete	
03/29/96	
Analysis Date	
03/28/96	
Analysis Time	
08:00 AM	
Sample Point	
AY-101 GRAB	

DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
TOTAL COUNTS	(TC)	80968	GROSS WEIGHT	(W2)	7.2755
COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1947
BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0808
SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	15.67
DILUTION FACTOR	(DF)	101			
DIGEST DILUTION FACTOR	(DDF)	1			
SAMPLE COUNT RATE	(Rs)	8092.50	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
TIME OF SEPARATION	(ST)	08:00	Rmax		N/A
DATE OF SEPARATION	(SD)	03/28/96	DETECTION LIMIT	(Ld)	2.59
TIME OF COUNT	(TOC)	23:40	Sr-89/90 CONC in µCi/L		1.8579E+03
DATE OF COUNT	(DOC)	03/28/96			

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	1.86E+00	µCi/mL	
RELATIVE COUNTING ERROR	0.7%		5.94E-04 µCi/mL
PERCENT CARRIER RECOVERY	80.8%		

Analyst:	SLH	Date:	29-Mar-96
Signature of Chemist:	SLF	Date:	4/1/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM8

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

						SAMPLE
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	80338	GROSS WEIGHT	(W2)	7.2923
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2043
6771	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0880
	SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	8.50
@SR90-01	DILUTION FACTOR	(DF)	101			
	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	8029.50	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96002483	TIME OF SEPARATION	(ST)	15:35	Rmax		N/A
	DATE OF SEPARATION	(SD)	03/28/96	DETECTION LIMIT	(Ld)	2.59
0	TIME OF COUNT	(TOC)	00:05	Sr-89/90 CONC in µCi/L		1.8093E+03
	DATE OF COUNT	(DOC)	03/29/96			

N/A

S96T001265

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

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

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

SLH2 NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

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

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

NOTE: Expected weight = CVA * 0.1

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

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

03/29/96

				DETECTION LEVEL
03/28/96	Sr-89/90 CONCENTRATION	1.81E+00	µCi/mL	
08:00 AM	RELATIVE COUNTING ERROR	0.7%		5.83E-04 µCi/mL
AY-101 GRAB	PERCENT CARRIER RECOVERY	88.0%		

Analyst:		SLH	Date:	29-Mar-96
Signature of Chemist:		SLF	Date:	4/1/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP9

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

						DUP
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	73697	GROSS WEIGHT	(W2)	7.3027
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2230
6771	BACKGROUND in cpm	(BKG)	4.3	NET WEIGHT	(W3)	0.0797
	SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	8.67
@SR90-01	DILUTION FACTOR	(DF)	101			
	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	7365.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
	CRITICAL LEVEL	(Lc)	1.25	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96002483	TIME OF SEPARATION	(ST)	15:35	Rmax		N/A
	DATE OF SEPARATION	(SD)	03/28/96	DETECTION LIMIT	(Ld)	2.59
0	TIME OF COUNT	(TOC)	00:15	Sr-89/90 CONC in µCi/L		1.8295E+03
	DATE OF COUNT	(DOC)	03/29/96			

N/A

S96T001265

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

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

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

SLH2 NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))

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

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

NOTE: Expected weight = CVA * 0.1

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

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

03/29/96

				DETECTION LEVEL
03/28/96	Sr-89/90 CONCENTRATION	1.83E+00	µCi/mL	
08:00 AM	RELATIVE COUNTING ERROR	0.7%		6.43E-04 µCi/mL
AY-101 GRAB	PERCENT CARRIER RECOVERY	79.7%		

Analyst:		SLH	Date:	29-Mar-96
Signature of Chemist:		SLF	Date:	4/1/96

SAMPLE.WB1 REV 1.2 22010N\L

LABCORE Data Entry Template for Worklist# 6772

Analyst: SLH **Instrument:** AB00 #10 **Book#** 9B56

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

Worklist Comment: AY-101, Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	LIQUID		
2	BLNK				@SR90-01	LIQUID		
3	BLNK/BKG				@SR90-01	LIQUID		
4	SAMPLE	S96T001359	0		@SR90-01	LIQUID	96000257	AY-101 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S96T001359	0		@SR90-01	LIQUID		
6	SAMPLE	S96T001360	0		@SR90-01	LIQUID	96000257	AY-101 GRAB
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
7	DUP	S96T001360	0		@SR90-01	LIQUID		

Final page for worklist # 6772

Sandra Lloyd Boothe WT
Analyst Signature **Date** 3-27-96

Sylvia J Cochran 3/28/96
Analyst Signature **Date**

Sue Hogan 3/28/96

Data Entry Comments:

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

772

LABCORE Completed Worklist Report for Worklist# 6772

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

Method: _____ Rev/Mod _____

Worklist Comment: AY-101, Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01 SR90-01	LIQUID	1.23E-03	1.28E-3	104.070	% Recovery
1	STD		0		@SR90-01 SR90-01C	LIQUID	100	8.57E+01	85.700	% Recovery
1	STD		0		@SR90-01 SR90-01E	LIQUID	1.00	1.90E+00	1.900	% Ct. Error
2	BLNK		0		@SR90-01 SR90-01	LIQUID	1	1.11E-2	1.000e-002	uCi/mL
2	BLNK		0		@SR90-01 SR90-01C	LIQUID	100	8.44E+01	84.400	% Recovery
2	BLNK		0		@SR90-01 SR90-01E	LIQUID	1.00	6.41E+01	64.100	% Ct. Error
3	BLNK/BKG		0		@SR90-01 SR90-01	LIQUID	1	1.51E+00	1.510	uCi/mL
4	SAMPLE	S96T001359	0		@SR90-01 SR90-01	LIQUID	N/A	1.96E+00	8.970e-003	uCi/mL
4	SAMPLE	S96T001359	0		@SR90-01 SR90-01C	LIQUID	N/A	8.41E+01	1.000e-004	% Recovery
4	SAMPLE	S96T001359	0		@SR90-01 SR90-01E	LIQUID	N/A	2.20E+00	0.000	% Ct. Error
5	DUP	S96T001359	0		@SR90-01 SR90-01	LIQUID	1.96E+0	1.87E+0	4.700	RPD
5	DUP	S96T001359	0		@SR90-01 SR90-01C	LIQUID	100	8.50E+01	85.000	% Recovery
5	DUP	S96T001359	0		@SR90-01 SR90-01E	LIQUID	1.00	2.24E+00	2.240	% Ct. Error
6	SAMPLE	S96T001360	0		@SR90-01 SR90-01	LIQUID	N/A	1.91E+00	8.770e-003	uCi/mL
6	SAMPLE	S96T001360	0		@SR90-01 SR90-01C	LIQUID	N/A	8.56E+01	1.000e-004	% Recovery
6	SAMPLE	S96T001360	0		@SR90-01 SR90-01E	LIQUID	N/A	2.21E+00	0.000	% Ct. Error
7	DUP	S96T001360	0		@SR90-01 SR90-01	LIQUID	1.91E+0	1.86E+0	2.650	RPD
7	DUP	S96T001360	0		@SR90-01 SR90-01C	LIQUID	100	8.62E+01	86.200	% Recovery
7	DUP	S96T001360	0		@SR90-01 SR90-01E	LIQUID	1.00	2.23E+00	2.230	% Ct. Error

Final page for worklist# 6772

Analyst Signature **Date**

Analyst Signature **Date**

4/1/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

Type						STANDARD
STD	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	10889	GROSS WEIGHT	(W2)	7.2822
6772	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1965
Test Code	BACKGROUND in cpm	(BKG)	9.0	NET WEIGHT	(W3)	0.0857
@SR90-01	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	8.37
Matrix	DILUTION FACTOR	(DF)	1			
LIQUID	DIGEST DILUTION FACTOR	DDF	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	1079.90	SR-90 EFFICIENCY FACTO	(C1)	0.4051
96002486	CRITICAL LEVEL	(Lc)	1.81	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
Rerun	TIME OF SEPARATION	(ST)	13:13	Rmax		N/A
0	DATE OF SEPARATION	(SD)	03/27/96	DETECTION LIMIT	(Ld)	3.71
Sample Prep	TIME OF COUNT	(TOC)	21:35	Sr-89/90 CONC. in µCi/L		1.2784E+00
N/A	DATE OF COUNT	(DOC)	03/27/96			
Sample #	STANDARD BOOK #		9B56			
WL6772	STANDARD VALUE in µCi/mL		1.2308E-03			
Instrument Code						
WB26870	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
Prepared By	Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0					
SZC	RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
Chemist	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
SLF	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
Analyst	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
SLH	NOTE: Expected weight = CVA * 0.1					
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
03/28/96	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
Analysis Date						DETECTION LEVEL
03/27/96	Sr-89/90 CONCENTRATION		1.28E-03	µCi/mL		
Analysis Time						
01:13 PM	RELATIVE COUNTING ERROR		1.9%			4.39E-06 µCi/L
Sample Point						
AY-101 GRAB	PERCENT CARRIER RECOVERY		85.7%			

Analyst:		SLH	Date:	28-Mar-96
Signature of Chemist:		SLF	Date:	4/1/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

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

Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
BLNK	TOTAL COUNTS	(TC)	136	GROSS WEIGHT	(W2)	7.2797
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1953
6772	BACKGROUND in cpm	(BKG)	9.0	NET WEIGHT	(W3)	0.0844
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	8.70
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	4.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.81	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96002486	TIME OF SEPARATION	(ST)	13:13	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	03/27/96	DETECTION LIMIT	(Ld)	3.71
0	TIME OF COUNT	(TOC)	21:55	Sr-89/90 CONC in µCi/L		1.1133E+01
Sample Prep	DATE OF COUNT	(DOC)	03/27/96			
N/A						
Sample #						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
SZC	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
SLH	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
03/28/96	

				DETECTION LEVEL
Analysis Date				
03/27/96	Sr-89/90 CONCENTRATION	1.11E-02	µCi/mL	
Analysis Time				
01:13 PM	RELATIVE COUNTING ERROR	64.1%		8.97E-03 µCi/mL
Sample Point				
AY-101 GRAB	PERCENT CARRIER RECOVERY	84.4%		

Analyst:	SLH	Date:	28-Mar-96
Signature of Chemist:	SLF	Date:	4/1/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

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

						SAMPLE
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	8192	GROSS WEIGHT	(W2)	7.2696
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1855
6772	BACKGROUND in cpm	(BKG)	9.0	NET WEIGHT	(W3)	0.0841
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	9.03
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	810.20	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.81	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96002486	TIME OF SEPARATION	(ST)	13:13	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	03/27/96	DETECTION LIMIT	(Ld)	3.71
0	TIME OF COUNT	(TOC)	22:15	Sr-89/90 CONC in µCi/L		1.9613E+03
Sample Prep	DATE OF COUNT	(DOC)	03/27/96			
N/A						
Sample #						
S96T001359						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
SZC	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
SLH	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
03/28/96	

				DETECTION LEVEL
Analysis Date				
03/27/96	Sr-89/90 CONCENTRATION	1.96E+00	µCi/mL	
Analysis Time				
01:13 PM	RELATIVE COUNTING ERROR	2.2%		8.97E-03 µCi/mL
Sample Point				
AY-101 GRAB	PERCENT CARRIER RECOVERY	84.1%		

Analyst:	SLH	Date:	28-Mar-96
Signature of Chemist:	SLF	Date:	4/1/96

SAMPLE.WB1 REV 1.2 22010NML