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

Document number: SD-WM-DP-147

Section 3 **of** 5

Title: 60 DAY WASTE COMPATIBILITY SAFETY ISSUE and FINAL RESULTS for TANK 241-AW-106, GRAB SAMPLES 6AW-95-1, 6AW-95-2 and 6AW-95-3

Date: 10/31/95 **Revision:** 0

Originator: RUTH A. ESCH
Co: WHC

Recipient:
Co:

References: EDT-613457

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THE FOLLOWING ANALYSES ARE INCLUDED IN THE DATA PACKAGE BUT THE RESULTS HAVE NOT BEEN REPORTED IN THE FINAL SUMMARY REPORTS.

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LABCORE Data Entry Template for Worklist# 2488

Analyst: S. CL **Instrument:** AB00 16 **Book #** 14085-2

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

Worklist Comment: Determine sample size using Ludlum. SLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST		MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@AB-01	ALPHA01	SOLID			N/A	uCi/g
		1	STD				@AB-01	ALPHA01E	SOLID			N/A	% Ct. Error
		1	STD				@AB-01	BETA-01	SOLID			N/A	uCi/g
		1	STD				@AB-01	BETA-01E	SOLID			N/A	% Ct. Error
		2	BLNK-PREP				@AB-01	ALPHA01	SOLID			N/A	uCi/g
		2	BLNK-PREP				@AB-01	ALPHA01E	SOLID			N/A	% Ct. Error
		2	BLNK-PREP				@AB-01	BETA-01	SOLID			N/A	uCi/g
		2	BLNK-PREP				@AB-01	BETA-01E	SOLID			N/A	% Ct. Error
		3	BLNK/BKG				@AB-01	ALPHA01	SOLID			N/A	uCi/g
		3	BLNK/BKG				@AB-01	BETA-01	SOLID			N/A	uCi/g
95000126	AW-106 GRAB	4	SAMPLE	S95T002021	0	F	@AB-01	ALPHA01	SOLID	N/A			uCi/g
95000126	AW-106 GRAB	4	SAMPLE	S95T002021	0	F	@AB-01	ALPHA01E	SOLID	N/A			% Ct. Error
95000126	AW-106 GRAB	4	SAMPLE	S95T002021	0	F	@AB-01	BETA-01	SOLID	N/A			uCi/g
95000126	AW-106 GRAB	4	SAMPLE	S95T002021	0	F	@AB-01	BETA-01E	SOLID	N/A			% Ct. Error
95000126	AW-106 GRAB	5	DUP	S95T002021	0	F	@AB-01	ALPHA01	SOLID			N/A	uCi/g
95000126	AW-106 GRAB	5	DUP	S95T002021	0	F	@AB-01	ALPHA01E	SOLID			N/A	% Ct. Error
95000126	AW-106 GRAB	5	DUP	S95T002021	0	F	@AB-01	BETA-01	SOLID			N/A	uCi/g
95000126	AW-106 GRAB	5	DUP	S95T002021	0	F	@AB-01	BETA-01E	SOLID			N/A	% Ct. Error

DATA NOT USED IN PACKAGE

Data Entry Comments: AT Blnk indicates possible contamination. Batch will be rerun. [illegible] 10/3/95

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# 2488

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------		MATRIX	ACTUAL	FOUND	DL	UNIT
95000126	AW-106 GRAB	6 SAMPLE	S95T002037	0	F	@AB-01	ALPHA01	SOLID	N/A			uCi/g
95000126	AW-106 GRAB	6 SAMPLE	S95T002037	0	F	@AB-01	ALPHA01E	SOLID	N/A			% Ct. Error
95000126	AW-106 GRAB	6 SAMPLE	S95T002037	0	F	@AB-01	BETA-01	SOLID	N/A			uCi/g
95000126	AW-106 GRAB	6 SAMPLE	S95T002037	0	F	@AB-01	BETA-01E	SOLID	N/A			% Ct. Error
95000126	AW-106 GRAB	7 DUP	S95T002037	0	F	@AB-01	ALPHA01	SOLID			N/A	uCi/g
95000126	AW-106 GRAB	7 DUP	S95T002037	0	F	@AB-01	ALPHA01E	SOLID			N/A	% Ct. Error
95000126	AW-106 GRAB	7 DUP	S95T002037	0	F	@AB-01	BETA-01	SOLID			N/A	uCi/g
95000126	AW-106 GRAB	7 DUP	S95T002037	0	F	@AB-01	BETA-01E	SOLID			N/A	% Ct. Error

Final page for worklist # 2488

Sue Lai 9-21-95
Analyst Signature Date

Raymond 9-22-95
Analyst Signature Date

DATA NOT USED IN PACKAGE

Data Entry Comments:

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
DETECTOR NUMBER			16	16
DISH SIZE (1 , 2 , or 5)	(MS)		2	2
GROSS COUNTS	(GC)		37963	37803
COUNT TIME in MINUTES	(CT)		30	30
BACKGROUND in cpm	(BKG)		19	19
SAMPLE SIZE in mL	(SS)		10.000	10.000
DILUTION FACTOR	(DF)		1	1
STANDARD BOOK NUMBER	(Std BN)		140B52	140B52
EFFICIENCY FACTOR	(EFF)		0.4195	0.4195
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			1246.433	1241.100
Standard Value in µCi/mL			1.19E-04	
Concentration in µCi/L		=	1.34E-01	
Replicate Concentration in µCi/L		=	1.33E-01	
AVERAGE CONCENTRATION in µCi/L		=	1.3355E-01	

Type	STD
Work List	2488
AT or TB ?	TB
Test Code	@AB-01
Matrix	LIQUID
Batch Number	95002635
Rerun	0
Sample Prep	N/A
Sample #	WRKLIST#2488
Instrument Code	WB27806
Prepared By	VAR
Chemist	SLF
Analyst	SCL
Date Complete	09/22/95
Analysis Date	09/21/95
Analysis Time	11:45 AM
Sample Point	AW-106 GRAB

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

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

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

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

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

			DETECTION LEVEL
TOTAL BETA CONTRATION in µCi/mL		1.34E-04	
RELATIVE COUNTING ERROR	=	1.0%	4.09E-07 µCi/mL

Analyst:	VAR		Date: 22-Sep-95
Signature of Chemist:	SLF		Date: 9/25/95

STANDARD.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: STD2

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

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	4563	4494
2488	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.62	0.62
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	STANDARD BOOK NUMBER	(Std BN)	140B52	140B52
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		151.480	149.180
Batch Number	Standard Value in µCi/mL		2.96E-05	
95002635	Concentration in µCi/L	=	3.24E-02	
Rerun	Replicate Concentration in µCi/L	=	3.19E-02	
0	AVERAGE CONCENTRATION in µCi/L	=	3.2185E-02	

Sample Prep: N/A

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

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

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

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

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

Sample # WRKLIST#2488

Instrument Code WB27806

Prepared By VAR

Checked SLF

Analyst SCL

Date Completed 09/22/95

Analysis Date 09/21/95

Analysis Time 11:45 AM

Sample Point AW-106 GRAB

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL		3.22E-05	1.63E-07 µCi/mL
RELATIVE COUNTING ERROR	=	2.9%	

Analyst:	VAR		Date: 22-Sep-95
Signature of Chemist:		SLF	Date: 9/25/95

STANDARD.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: BLANK3

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

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		16	16
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	525	539
2488	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	19	19
TB	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.262	2.262
Matrix	EFFICIENCY FACTOR	(EFF)	0.4195	0.4195
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.857	1.857
Batch Number				
95002635	Blank Concentration in µCi/g	<	1.76E-02	
Rerun	Replicate Concentration in µCi/g	<	1.76E-02	
0	Maximum Concentration in µCi/g	<	1.7631E-02	

Sample Prep: N/A

Sample #: S95T2021

Instrument Code: WB27806

Prepared By: VAR

Chemist: SLF

Analyst: SCL

Date Completed: 09/22/95

Analysis Date: 09/21/95

Analysis Time: 11:45 AM

Sample Point: AW-106 GRAB

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

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

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

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

	v RESULTS v			DETECTION LEVEL
TOTAL BETA	in µCi/g	< 1.76E-02		
	LESS Than Value was Determined from L			3.61E-02 µCi/g
RELATIVE COUNTING ERROR		500.0%		

Analyst:		VAR	Date: 22-Sep-95
Signature of Chemist:		SLF	Date: 9/25/95

BLANK.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: BLANK4

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

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		16	16
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	117	9
2488	COUNT TIME in MINUTES	(CT)	30	30
AT or TS ?	BACKGROUND in cpm	(BKG)	0.62	0.62
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.262	2.262
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.280	0.335

Batch Number			
95002635	Blank Concentration in µCi/g		6.21E-02
Rerun	Replicate Concentration in µCi/g	<	6.35E-03
0	Maximum Concentration in µCi/g	<	6.2089E-02

Sample Prep: N/A

Sample # S95T2021

Instrument Code: WB27806

Prepared By: VAR

Chemist: SLF

Analyst: SCL

Date Completed: 09/22/95

Analysis Date: 09/21/95

Analysis Time: 11:45 AM

Sample Point: AW-106 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.

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g	< 6.21E-02	
	LESS THAN Value was Determined from		1.44E-02 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst:		VAR	Date: 22-Sep-95
Signature of Chemist:		SLF	Date: 9/25/95

BLANK.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM7

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	358403	364164
2488	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	19	19
TB	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.262	2.262
Matrix	EFFICIENCY FACTOR	(EFF)	0.4195	0.4195
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11927.767	12119.800

Batch Number		
95002635	Blank Concentration in µCi/g	1.13E+02
Rerun	Replicate Concentration in µCi/g	1.15E+02
0	Average Concentration in µCi/g	1.1415E+02

Sample Prep: FUSION01

Sample # S95T002021

Instrument Code: WB27806

Prepared By: VAR

Chemist: SLF

Analyst: SCL

Date Completed: 09/22/95

Analysis Date: 09/21/95

Analysis Time: 11:45 AM

Sample Point: AW-106 GRAB

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

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

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

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

v RESULTS v

			DETECTION LEVEL
TOTAL BETA	in µCi/g	1.14E+02	3.61E-02 µCi/g
RELATIVE COUNTING ERROR		0.3%	

Analyst:	VAR	Date: 22-Sep-95	
Signature of Chemist:	SLF	Date: 9/25/95	

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM8

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	256	253
2488	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.62	0.62
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.262	2.262
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7.913	7.813

Batch Number	
95002635	Blank Concentration in µCi/g 1.50E-01
Rerun	Replicate Concentration in µCi/g 1.48E-01
0	Average Concentration in µCi/g 1.4885E-01

Sample Prep: FUSION01

Sample # S95T002021

Instrument Code WB27806

Prepared By VAR

Chemist SLF

Analyst SCL

Date Completed 09/22/95

Analysis Date 09/21/95

Analysis Time 11:45 AM

Sample Point AW-106 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.

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g	1.49E-01	1.44E-02 µCi/g
RELATIVE COUNTING ERROR		13.8%	

Analyst:	VAR		Date: 22-Sep-95
Signature of Chemist:		SLF	Date: 9/25/95

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP9

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	332281	335074
2488	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	19	19
TB	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2628	2.2628
Matrix	EFFICIENCY FACTOR	(EFF)	0.4195	0.4195
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11057.033	11150.133

Blank Concentration in µCi/g	1.05E+02
Replicate Concentration in µCi/g	1.06E+02
Average Concentration in µCi/g	1.0538E+02

Batch Number: 95002635
Rerun: 0
Sample Prep: FUSION01
Sample #: S95T002021
Instrument Code: WB27806
Prepared By: VAR
Checked: SLF
Analyzed: SCL
Date Completed: 09/22/95
Analysis Date: 09/21/95
Analysis Time: 11:45 AM
Sample Point: AW-106 GRAB

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

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

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

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

v RESULTS v

			DETECTION LEVEL
TOTAL BETA	in µCi/g	1.05E+02	3.61E-02 µCi/g
RELATIVE COUNTING ERROR		0.3%	

Analyst:	VAR	Date: 22-Sep-95	
Signature of Chemist:	SLF	Date: 9/25/95	

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP1

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	213	230
2488	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.62	0.62
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2628	2.2628
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.480	7.047

Batch Number	
95002635	Blank Concentration in µCi/g 1.23E-01
Rerun	Replicate Concentration in µCi/g 1.33E-01
0	Average Concentration in µCi/g 1.2798E-01

Sample Prep: FUSION01

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

Sample # S95T002021

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

Instrument Code WB27806

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

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

Prepared By: VAR

Chemist: SLF

Analyst: BCL

Date Completed: 09/22/95

Analysis Date: 09/21/95

Analysis Time: 11:45 AM

Sample Point: AW-106 GRAB

v RESULTS v

			DETECTION LEVEL *
ALPHA TOTAL	in µCi/g	1.28E-01	
RELATIVE COUNTING ERROR		15.3%	1.44E-02 µCi/g

Analyst:	VAR		Date: 22-Sep-95
Signature of Chemist:		SLF	Date: 9/25/95

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM1

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	524876	532663
2488	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	19	19
TB	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2012	2.2012
Matrix	EFFICIENCY FACTOR	(EFF)	0.4195	0.4195
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		17476.867	17736.433

Batch Number	
95002635	Blank Concentration in µCi/g 1.71E+02
Rerun	Replicate Concentration in µCi/g 1.73E+02
0	Average Concentration in µCi/g 1.7178E+02

Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S95T002037	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB278D6	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
VAR	
Chemist	
SLF	
Analyst	
SCL	
Date Completed	
09/22/95	
Analysis Date	
09/21/95	
Analysis Time	
11:45 AM	
Sample Point	
AW-106 GRAB	

v RESULTS v

				DETECTION LEVEL
TOTAL BETA	in µCi/g	1.72E+02		
RELATIVE COUNTING ERROR		0.3%		3.71E-02 µCi/g

Analyst:		VAR	Date: 22-Sep-95
Signature of Chemist:		SLF	Date: 9/25/95

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM1

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	391	414
2488	COUNT TIME in MINUTES	(CT)	30	30
AT or TS ?	BACKGROUND in cpm	(BKG)	0.62	0.62
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2012	2.2012
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12.413	13.180

Batch Number	
95002635	Blank Concentration in µCi/g 2.41E-01
Rerun	Replicate Concentration in µCi/g 2.56E-01
0	Average Concentration in µCi/g 2.4893E-01

Sample Prep: FUSION01

Sample #: S95T002037

Instrument Code: WB27806

Prepared By: VAR

Chemist: SLF

Analyst: SCL

Date Complete: 09/22/95

Analysis Date: 09/21/95

Analysis Time: 11:45 AM

Sample Point: AW-106 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.

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g	2.49E-01	1.48E-02 µCi/g
RELATIVE COUNTING ERROR		10.7%	

Analyst:		VAR	Date: 22-Sep-95
Signature of Chemist:		SLF	Date: 9/25/95

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP1

WHC-SD-WM-DP-147, REV. 0

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	543086	539353
2488	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	19	19
TB	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2148	2.2148
Matrix	EFFICIENCY FACTOR	(EFF)	0.4195	0.4195
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		18083.867	17959.433

Batch Number	
95002635	Blank Concentration in µCi/g 1.75E+02
Rerun	Replicate Concentration in µCi/g 1.74E+02
0	Average Concentration in µCi/g 1.7475E+02
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S95T002037	
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	
VAR	
Chemist	
SLF	
Analyst	
SCL	
Date Completed	
09/22/95	
Analysis Date	
09/21/95	
Analysis Time	
11:45 AM	
Sample Point	
AW-106 GRAB	

v RESULTS v

			DETECTION LEVEL
TOTAL BETA	in µCi/g	1.75E+02	
RELATIVE COUNTING ERROR		0.3%	3.69E-02 µCi/g

Analyst:	VAR		Date: 22-Sep-95
Signature of Chemist:	SLF		Date: 9/25/95

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP1

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	437	408
2488	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.62	0.62
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	1	1
@AB-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2148	2.2148
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		13.947	12.980

Batch Number	
95002635	Blank Concentration in µCi/g 2.70E-01
Rerun	Replicate Concentration in µCi/g 2.51E-01
0	Average Concentration in µCi/g 2.6029E-01

Sample Prep: FUSION01

Sample # S95T002037

Instrument Code WB27806

Prepared By VAR

Chemist SLF

Analyst SCL

Date Complete 09/22/95

Analysis Date 09/21/95

Analysis Time 11:45 AM

Sample Point AW-106 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.

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/g	2.60E-01	1.47E-02 µCi/g
RELATIVE COUNTING ERROR		10.4%	

Analyst:	VAR		Date: 22-Sep-95
Signature of Chemist:		SLF	Date: 9/25/95

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

LABCORE Data Entry Template for Worklist# 2311

Analyst: KEH 9-27-95 KH **Instrument:** GEA00 ~~W3893~~ 2 9/28/95 **Book#** 144652

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

Worklist Comment: GEA AW-106; use 0.100 ml sample. R(0) -PPB

RUSH

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S95T002031	0		@GEA-01	LIQUID	95000126	AW-106 GRAB
		Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
4	DUP	S95T002031	0		@GEA-01	LIQUID		
5	SAMPLE	S95T002039	0		@GEA-01	LIQUID	95000126	AW-106 GRAB
		Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
6	DUP	S95T002039	0		@GEA-01	LIQUID		

Final page for worklist # 2311

[signature] 9-27-95
Analyst Signature **Date**

[signature] 9/28/95
Analyst Signature **Date**

Data Entry Comments:

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

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-SEP-1995 17:48:16.67                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2311
Sample ID:               2311-STD                          Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00                       D.H. Vilicia

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2                              Verified by:
File Number:             dka300:[spec.GEA2]2g2075.cnf
Geometry:                42                                B Bracheler 9/27/95
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:07.34 sec
Dead Time:               0.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 16:57:23.82
Decayed to:              27-SEP-1995 16:57:23.82
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 SEH
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

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

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.40*	17649	1.50	1322.82	1314	17	1.7		CS-137	24.5
0	1172.83	10422	1.84	2345.72	2336	19	2.2		CO-60	20.5
0	1332.10	9578	1.91	2664.35	2654	21	2.1		CO-60	20.8

Sample ID : 2311-STD
Acquisition date : 27-SEP-1995 16:57:23

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	2.066E+01	2.066E+01	0.031E+01	1.52	
CS-137	30.00Y	1.000	2.449E+01	2.449E+01	0.041E+01	1.69	
		Total Activity :	4.515E+01	4.515E+01			
		Grand Total Activity :	**4.515E+01**	**4.515E+01**			

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

Sample ID : 2311-STD
Acquisition date : 27-SEP-1995 16:57:23

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	944.	477.59	1.2462E+00
NA-22	85.	1274.53	9.0248E-02
NA-24	22.	1368.55	4.8973E-02
K-40	114.	1460.75	1.0910E+00
SC-46	427.	1120.55	1.8087E-01
CR-51	929.	320.08	9.2245E-01
MN-54	533.	834.83	1.5469E-01
CO-56	565.	846.76	1.6122E-01
CO-57	1076.	122.06	7.3331E-02
CO-58	492.	810.78	1.4578E-01
FE-59	525.	1099.25	3.4851E-01
ZN-65	470.	1115.55	3.7245E-01
SE-75	1110.	264.66	1.5223E-01
KR-85	647.	514.00	2.6214E+01
SR-85	647.	514.01	1.1854E-01
Y-88	8.	1836.06	3.7259E-02
Y-90	8.	1760.70	1.2978E-01
Y-91	158.	1204.67	3.9052E+01
NB-94	547.	871.09	1.6253E-01
NB-95	468.	765.78	1.3499E-01
ZR-95	427.	756.73	2.3361E-01
RU-103	694.	497.08	1.2589E-01
RURH-106	508.	621.93	2.3752E+00
AG-108m	455.	722.94	1.3919E-01
CD-109	964.	88.03	2.3833E+00
AG-110M	1112.	657.76	1.9291E-01
SN-113	920.	391.69	1.6690E-01
TE-123m	1153.	159.00	7.5985E-02
SB-124	506.	602.73	1.1719E-01
SB-125	966.	427.89	4.0131E-01
TE-125m	1012.	109.27	2.3581E+01
I-129	951.	39.60	0.0000E+00
I-131	894.	364.48	1.2326E-01
XE-131m	1065.	163.93	3.1688E+00
BA-133	915.	356.02	1.6028E-01
CS-134	501.	604.70	1.1707E-01
CS-136	507.	818.51	1.4883E-01
CS-138	16.	1435.86	9.1300E-02
CE-139	1073.	165.85	7.8367E-02
BA-140	576.	537.31	4.5719E-01
LA-140	17.	1596.21	5.1595E-02
CE-141	1185.	145.44	1.3169E-01
CE-144	1063.	133.51	5.4519E-01
CEPR-144	1063.	133.51	1.0893E+00
EU-152	19.	1408.01	2.1922E-01
EU-154	86.	1274.51	2.6232E-01
EU-155	917.	86.54	2.6336E-01
HF-181	845.	482.18	1.5291E-01
TA-182	864.	67.75	3.5406E-01
HG-203	1047.	279.20	1.0995E-01
BI-207	518.	569.70	1.1329E-01

Sample ID : 2311-STD Acquisition date : 27-SEP-1995 16:57:23

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	1069.	277.36	1.4278E+00
PB-210	902.	46.50	0.0000E+00
BI-212	450.	727.18	1.8993E+00
PB-212	1312.	238.63	2.0667E-01
BI-214	537.	609.31	2.6570E-01
PB-214	907.	351.92	4.8975E-01
RA-224	1270.	240.99	2.2568E+00
RA-226	1230.	186.10	2.0456E+00
AC-228	685.	911.21	7.1022E-01
TH-228	904.	84.37	7.0893E+00
TH-229	996.	88.47	3.5118E-01
U-232	880.	57.78	1.3358E+02
PA-233	942.	312.17	2.3820E-01
PA-234M	528.	1001.03	3.0700E-01
TH-234	843.	63.29	3.9882E+00
U-235	1217.	185.71	1.2367E-01
NP-237	914.	86.48	6.9649E-01
U-237	925.	59.54	6.9317E-01
NP-238	586.	984.45	6.7929E-01
NP-239	1014.	106.12	3.0085E-01
PU-239	1152.	129.30	9.9110E+02
AM-241	925.	59.54	6.6490E-01
AM-243	937.	74.67	1.9616E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-SEP-1995 18:52:16.72                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2311
Sample ID:               WORKLIST2311-BLK                Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01                     D Martinez

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2                            Verified by:
File Number:             dka300:[spec.GEA2]2g2076.cnf
Geometry:                42                              R Bachelor 9/27/95
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.49 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 18:01:33.28
Decayed to:              27-SEP-1995 18:01:33.28
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	1460.52*	13	1.44	2921.30	2915	14184.0			K-40	2.85

Summary of Nuclide Activity
Sample ID : WORKLIST2311-BLK

Page : 2
Acquisition date : 27-SEP-1995 18:01:33

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~2.847E+00~~	~~2.847E+00~~	~~5.239E+00~~	~~184.05~~	BKG 9/27/95
			---	---			
	Total Activity :		2.847E+00	2.847E+00			
	Grand Total Activity :		2.847E+00	2.847E+00			

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

Sample ID : WORKLIST2311-BLK
Acquisition date : 27-SEP-1995 18:01:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	34.	477.59	2.3633E+00
NA-22	10.	1274.53	3.1339E-01
NA-24	5.	1368.55	2.3481E-01
SC-46	17.	1120.55	3.5637E-01
CR-51	52.	320.08	2.1758E+00
MN-54	13.	834.83	2.4054E-01
CO-56	16.	846.76	2.7132E-01
CO-57	64.	122.06	1.7830E-01
CO-58	23.	810.78	3.1445E-01
FE-59	11.	1099.25	5.1262E-01
CO-60	8.	1332.50	2.9344E-01
ZN-65	12.	1115.55	5.9520E-01
SE-75	61.	264.66	3.5717E-01
KR-85	51.	514.00	7.3640E+01
SR-85	51.	514.01	3.3247E-01
Y-88	1.	1836.06	1.3173E-01
Y-90	3.	1760.70	7.3797E-01
Y-91	7.	1204.67	8.4902E+01
NB-94	10.	871.09	2.2058E-01
NB-95	21.	765.78	2.8353E-01
ZR-95	19.	756.73	4.8901E-01
RU-103	31.	497.08	2.6711E-01
RURH-106	20.	621.93	4.7614E+00
AG-108m	28.	722.94	3.4750E-01
CD-109	51.	88.03	5.5062E+00
AG-110M	26.	657.76	2.9559E-01
SN-113	41.	391.69	3.5249E-01
TE-123m	84.	159.00	2.0474E-01
SB-124	27.	602.73	2.7206E-01
SB-125	46.	427.89	8.7127E-01
TE-125m	69.	109.27	6.1694E+01
I-129	51.	39.60	0.0000E+00
I-131	29.	364.48	2.2324E-01
XE-131m	81.	163.93	8.7656E+00
BA-133	41.	356.02	3.3835E-01
CS-134	26.	604.70	2.6691E-01
CS-136	13.	818.51	2.4081E-01
CS-137	109.	661.66	6.7355E-01
CS-138	7.	1435.86	6.0803E-01
CE-139	77.	165.85	2.1050E-01
BA-140	33.	537.31	1.0902E+00
LA-140	3.	1596.21	2.1599E-01
CE-141	73.	145.44	3.2633E-01
CE-144	53.	133.51	1.2179E+00
CEPR-144	53.	133.51	2.4319E+00
EU-152	14.	1408.01	1.8682E+00
EU-154	10.	1274.51	9.0871E-01
EU-155	53.	86.54	6.3051E-01
HF-181	30.	482.18	2.8578E-01
TA-182	63.	67.75	9.5936E-01
HG-203	49.	279.20	2.3686E-01

Sample ID : WORKLIST2311-BLK Acquisition date : 27-SEP-1995 18:01:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	24.	569.70	2.4377E-01
TL-208	55.	277.36	3.2377E+00
PB-210	52.	46.50	0.0000E+00
BI-212	16.	727.18	3.5448E+00
PB-212	84.	238.63	5.2365E-01
BI-214	48.	609.31	7.9314E-01
PB-214	50.	351.92	1.1539E+00
RA-224	71.	240.99	5.3314E+00
RA-226	83.	186.10	5.3238E+00
AC-228	28.	911.21	1.4316E+00
TH-228	67.	84.37	1.9291E+01
TH-229	54.	88.47	8.1913E-01
U-232	57.	57.78	3.3890E+02
PA-233	46.	312.17	5.2729E-01
PA-234M	17.	1001.03	5.5526E-01
TH-234	69.	63.29	1.1399E+01
U-235	86.	185.71	3.2960E-01
NP-237	54.	86.48	1.6886E+00
U-237	53.	59.54	1.6639E+00
NP-238	15.	984.45	1.0742E+00
NP-239	58.	106.12	7.1642E-01
PU-239	50.	129.30	2.0588E+03
AM-241	53.	59.54	1.5960E+00
AM-243	59.	74.67	4.9302E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-SEP-1995 20:05:08.57                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2311
Sample ID:               S95T2031-SAM                    Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01                     D. H Miteria

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2                            Verified by:
File Number:             dka300:[spec.GEA2]2g2077.cnf
Geometry:                43                              B Machelor 9/27/95
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:54:20.45 sec
Dead Time:               8.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 19:10:06.30
Decayed to:              27-SEP-1995 19:10:06.30
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 09:54:47.36
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	604.41	4236	1.49	1208.86	1204	10	11.3		CS-134	181.
0	661.41*	1684870	1.53	1322.83	1314	18	0.2		CS-137	8.732E+04
0	795.61	2710	1.55	1591.20	1585	12	9.1		CS-134	161.
0	801.61	196	1.47	1603.22	1600	9	88.5		CS-134	114.
0	1321.95	778	2.70	2644.05	2636	19	15.9			
0	1332.04	82	1.79	2664.25	2656	15	33.4			
0	1364.65	35	1.41	2729.48	2728	11	95.2			

Sample ID : S95T2031-SAM
Acquisition date : 27-SEP-1995 19:10:06

Total number of lines in spectrum	7	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	5	71.43%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-134	2.06Y	1.000	1.669E+02	1.669E+02	0.119E+02	7.11	
CS-137	30.00Y	1.000	8.732E+04	8.732E+04	0.014E+04	0.16	
		Total Activity :	8.748E+04	8.748E+04			
		Grand Total Activity :	8.748E+04	8.748E+04			

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

Sample ID : S95T2031-SAM Acquisition date : 27-SEP-1995 19:10:06

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	55279.	477.59	3.7065E+02
NA-22	308.	1274.53	6.2866E+00
NA-24	48.	1368.55	2.6825E+00
K-40	90.	1460.75	3.5532E+01
SC-46	571.	1120.55	7.6211E+00
CR-51	50582.	320.08	2.6058E+02
MN-54	2097.	834.83	1.1182E+01
CO-56	1986.	846.76	1.1000E+01
CO-57	55748.	122.06	2.4388E+01
CO-58	2309.	810.78	1.1546E+01
FE-59	697.	1099.25	1.4620E+01
CO-60	92.	1332.50	3.5763E+00
ZN-65	621.	1115.55	1.5600E+01
SE-75	56642.	264.66	4.2538E+01
KR-85	30015.	514.00	6.9910E+03
SR-85	30008.	514.01	3.1609E+01
Y-88	2.	1836.06	6.7718E-01
Y-90	3.	1760.70	2.9178E+00
Y-91	284.	1204.67	1.9150E+03
NB-94	1697.	871.09	1.0380E+01
NB-95	2751.	765.78	1.2038E+01
ZR-95	2828.	756.73	2.2145E+01
RU-103	36208.	497.08	3.5542E+01
RURH-106	13989.	621.93	4.6981E+02
AG-108m	3470.	722.94	1.4229E+01
CD-109	46521.	88.03	7.1246E+02
AG-110M	66574.	657.76	5.5776E+01
SN-113	51987.	391.69	4.7166E+01
TE-123m	57238.	159.00	2.2263E+01
SB-124	17448.	602.73	2.6115E+01
SB-125	58911.	427.89	1.1893E+02
TE-125m	50701.	109.27	7.6107E+03
I-129	42461.	39.60	0.0000E+00
I-131	50244.	364.48	3.4915E+01
XE-131m	57441.	163.93	9.5342E+02
BA-133	49983.	356.02	4.4886E+01
CS-136	2193.	818.51	1.1313E+01
CS-138	18.	1435.86	3.7438E+00
CE-139	57411.	165.85	2.3358E+01
BA-140	22505.	537.31	1.1146E+02
LA-140	10.	1596.21	1.4305E+00
CE-141	57955.	145.44	4.0206E+01
CE-144	57169.	133.51	1.8133E+02
CEPR-144	57169.	133.51	3.6234E+02
EU-152	37.	1408.01	1.1264E+01
EU-154	308.	1274.51	1.8270E+01
EU-155	46188.	86.54	8.0161E+01
HF-181	45632.	482.18	4.3741E+01
TA-182	42421.	67.75	1.0598E+02
HG-203	54789.	279.20	3.0867E+01
BI-207	16261.	569.70	2.4434E+01

Sample ID : S95T2031-SAM Acquisition date : 27-SEP-1995 19:10:06

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	55149.	277.36	3.9831E+02
PB-210	41615.	46.50	0.0000E+00
BI-212	3361.	727.18	1.9205E+02
PB-212	60377.	238.63	5.5554E+01
BI-214	13892.	609.31	5.1185E+01
PB-214	49470.	351.92	1.4318E+02
RA-224	60147.	240.99	6.1513E+02
RA-226	73036.	186.10	6.2237E+02
AC-228	1392.	911.21	3.6614E+01
TH-228	45659.	84.37	2.1510E+03
TH-229	46554.	88.47	1.0342E+02
U-232	41610.	57.78	4.2208E+04
PA-233	51149.	312.17	6.7318E+01
PA-234M	958.	1001.03	1.5013E+01
TH-234	42131.	63.29	1.2260E+03
U-235	72144.	185.71	3.7608E+01
NP-237	46181.	86.48	2.1227E+02
U-237	41801.	59.54	2.0908E+02
NP-238	1085.	984.45	3.3570E+01
NP-239	49649.	106.12	9.5330E+01
PU-239	56724.	129.30	3.1839E+05
AM-241	41801.	59.54	2.0052E+02
AM-243	44416.	74.67	5.7176E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-SEP-1995 21:16:20.09                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2311
Sample ID:               S95T2031-DUP                    Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01                     D.H. Nielsen

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2                            Verified by:
File Number:             dka300:[spec.GEA2]2g2078.cnf
Geometry:                43                              Bmachelor 9/27/95
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:54:20.75 sec
Dead Time:               8.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 20:21:15.50
Decayed to:              27-SEP-1995 20:21:15.50
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 09:54:47.36
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	568.79	601	1.28	1137.63	1135	8	68.3		CS-134	157.
0	604.39	4243	1.52	1208.83	1204	11	12.2		CS-134	181.
0	661.40*	1687968	1.53	1322.82	1314	18	0.2		CS-137	8.748E+04
0	795.47	2939	1.58	1590.92	1583	15	9.9		CS-134	174.
0	801.63	265	1.58	1603.25	1600	8	60.2		CS-134	155.
0	1322.06	720	2.29	2644.26	2637	19	17.2			
0	1331.27	65	1.63	2662.69	2657	14	47.4			
0	1364.20	59	2.49	2728.57	2723	19	64.1			

Sample ID : S95T2031-DUP
Acquisition date : 27-SEP-1995 20:21:15

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
CS-134	2.06Y	1.000	1.762E+02	1.762E+02	0.133E+02	7.58	
CS-137	30.00Y	1.000	8.748E+04	8.748E+04	0.014E+04	0.16	
			---	---			
Total Activity :			8.765E+04	8.765E+04			
Grand Total Activity :			8.765E+04	8.765E+04			

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

Minimum Detectable Activity Report
Sample ID : S95T2031-DUP

Acquisition date : 27-SEP-1995 20:21:15

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	55375.	477.59	3.7097E+02
NA-22	289.	1274.53	6.0831E+00
NA-24	47.	1368.55	2.6507E+00
K-40	126.	1460.75	4.1919E+01
SC-46	626.	1120.55	7.9787E+00
CR-51	50684.	320.08	2.6085E+02
MN-54	2043.	834.83	1.1038E+01
CO-56	1943.	846.76	1.0882E+01
CO-57	55526.	122.06	2.4339E+01
CO-58	2296.	810.78	1.1515E+01
FE-59	679.	1099.25	1.4430E+01
CO-60	97.	1332.50	3.6700E+00
ZN-65	630.	1115.55	1.5712E+01
SE-75	56873.	264.66	4.2624E+01
KR-85	30049.	514.00	6.9950E+03
SR-85	30044.	514.01	3.1627E+01
Y-88	6.	1836.06	1.2053E+00
Y-90	7.	1760.70	4.2856E+00
Y-91	322.	1204.67	2.0401E+03
NB-94	1770.	871.09	1.0601E+01
NB-95	2764.	765.78	1.2065E+01
ZR-95	2940.	756.73	2.2581E+01
RU-103	36213.	497.08	3.5545E+01
RURH-106	13860.	621.93	4.6764E+02
AG-108m	3588.	722.94	1.4469E+01
CD-109	46188.	88.03	7.0991E+02
AG-110M	67808.	657.76	5.6291E+01
SN-113	52031.	391.69	4.7186E+01
TE-123m	57088.	159.00	2.2234E+01
SB-124	17379.	602.73	2.6062E+01
SB-125	58881.	427.89	1.1890E+02
TE-125m	50717.	109.27	7.6119E+03
I-129	42372.	39.60	0.0000E+00
I-131	50306.	364.48	3.4937E+01
XE-131m	57066.	163.93	9.5030E+02
BA-133	50006.	356.02	4.4896E+01
CS-136	2191.	818.51	1.1308E+01
CS-138	23.	1435.86	4.2362E+00
CE-139	57144.	165.85	2.3303E+01
BA-140	22391.	537.31	1.1118E+02
LA-140	9.	1596.21	1.3366E+00
CE-141	57799.	145.44	4.0152E+01
CE-144	57352.	133.51	1.8162E+02
CEPR-144	57350.	133.51	3.6291E+02
EU-152	30.	1408.01	1.0143E+01
EU-154	289.	1274.51	1.7687E+01
EU-155	46290.	86.54	8.0250E+01
HF-181	45529.	482.18	4.3691E+01
TA-182	42805.	67.75	1.0646E+02
HG-203	54748.	279.20	3.0855E+01
BI-207	16171.	569.70	2.4366E+01

Sample ID : S95T2031-DUP Acquisition date : 27-SEP-1995 20:21:15

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	54907.	277.36	3.9744E+02
PB-210	42023.	46.50	0.0000E+00
BI-212	3364.	727.18	1.9216E+02
PB-212	60801.	238.63	5.5748E+01
BI-214	13862.	609.31	5.1130E+01
PB-214	50015.	351.92	1.4397E+02
RA-224	60213.	240.99	6.1547E+02
RA-226	73173.	186.10	6.2296E+02
AC-228	1530.	911.21	3.8387E+01
TH-228	45904.	84.37	2.1568E+03
TH-229	46136.	88.47	1.0296E+02
U-232	41854.	57.78	4.2332E+04
PA-233	51798.	312.17	6.7744E+01
PA-234M	994.	1001.03	1.5288E+01
TH-234	42060.	63.29	1.2250E+03
U-235	72174.	185.71	3.7615E+01
NP-237	46296.	86.48	2.1254E+02
U-237	41779.	59.54	2.0902E+02
NP-238	1038.	984.45	3.2830E+01
NP-239	49595.	106.12	9.5279E+01
PU-239	56631.	129.30	3.1813E+05
AM-241	41779.	59.54	2.0047E+02
AM-243	43978.	74.67	5.6893E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-SEP-1995 23:06:43.98                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2311
Sample ID:               S95T2039-SAM                    Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01                     D.H. Williams

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2                            Verified by:
File Number:             NI3AF:1.cnf  2080
Geometry:                43                              B. Bachelor 9/27/95
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:54:17.33 sec
Dead Time:               7.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 21:40:28.90
Decayed to:              27-SEP-1995 21:40:28.90
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 09:54:47.36
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	569.15	794	1.56	1138.35	1136	7	45.8		CS-134	207.
0	604.56	4000	1.41	1209.15	1205	10	12.0		CS-134	171.
0	661.40*	1667834	1.53	1322.82	1314	18	0.2		CS-137	8.643E+04
0	795.47	2897	1.63	1590.93	1585	13	8.9		CS-134	172.
0	801.86	266	1.21	1603.70	1600	9	63.9		CS-134	155.
0	1322.06	663	2.85	2644.27	2636	21	20.8			
0	1332.49	93	1.95	2665.13	2657	19	39.6			
0	1364.68	70	2.01	2729.55	2723	16	37.1			

Sample ID : S95T2039-SAM Acquisition date : 27-SEP-1995 21:40:28

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
CS-134	2.06Y	1.000	1.718E+02	1.718E+02	0.120E+02	6.99	
CS-137	30.00Y	1.000	8.643E+04	8.643E+04	0.014E+04	0.16	
		Total Activity :	8.661E+04	8.661E+04			
		Grand Total Activity :	8.661E+04	8.661E+04			

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

Sample ID : S95T2039-SAM Acquisition date : 27-SEP-1995 21:40:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	54995.	477.59	3.6969E+02
NA-22	309.	1274.53	6.2985E+00
NA-24	36.	1368.55	2.3348E+00
K-40	122.	1460.75	4.1282E+01
SC-46	597.	1120.55	7.7887E+00
CR-51	50294.	320.08	2.5984E+02
MN-54	2033.	834.83	1.1012E+01
CO-56	1891.	846.76	1.0735E+01
CO-57	54713.	122.06	2.4160E+01
CO-58	2304.	810.78	1.1534E+01
FE-59	666.	1099.25	1.4296E+01
CO-60	106.	1332.50	3.8211E+00
ZN-65	554.	1115.55	1.4738E+01
SE-75	56591.	264.66	4.2519E+01
KR-85	30024.	514.00	6.9920E+03
SR-85	30019.	514.01	3.1614E+01
Y-88	5.	1836.06	1.0650E+00
Y-90	10.	1760.70	5.2534E+00
Y-91	331.	1204.67	2.0694E+03
NB-94	1667.	871.09	1.0289E+01
NB-95	2731.	765.78	1.1993E+01
ZR-95	2761.	756.73	2.1885E+01
RU-103	35669.	497.08	3.5277E+01
RURH-106	13588.	621.93	4.6303E+02
AG-108m	3268.	722.94	1.3809E+01
CD-109	45768.	88.03	7.0667E+02
AG-110M	66977.	657.76	5.5944E+01
SN-113	51924.	391.69	4.7138E+01
TE-123m	56450.	159.00	2.2110E+01
SB-124	17175.	602.73	2.5910E+01
SB-125	58579.	427.89	1.1859E+02
TE-125m	50106.	109.27	7.5659E+03
I-129	41579.	39.60	0.0000E+00
I-131	49507.	364.48	3.4658E+01
XE-131m	56648.	163.93	9.4681E+02
BA-133	49473.	356.02	4.4657E+01
CS-136	2227.	818.51	1.1400E+01
CS-138	21.	1435.86	4.0467E+00
CE-139	56780.	165.85	2.3229E+01
BA-140	22034.	537.31	1.1029E+02
LA-140	7.	1596.21	1.1675E+00
CE-141	57434.	145.44	4.0025E+01
CE-144	56763.	133.51	1.8068E+02
CEPR-144	56761.	133.51	3.6104E+02
EU-152	19.	1408.01	8.1265E+00
EU-154	310.	1274.51	1.8305E+01
EU-155	45203.	86.54	7.9302E+01
HF-181	45112.	482.18	4.3491E+01
TA-182	42643.	67.75	1.0625E+02
HG-203	54053.	279.20	3.0659E+01
BI-207	15798.	569.70	2.4083E+01

Sample ID : S95T2039-SAM Acquisition date : 27-SEP-1995 21:40:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	54356.	277.36	3.9544E+02
PB-210	41286.	46.50	0.0000E+00
BI-212	3310.	727.18	1.9059E+02
PB-212	59872.	238.63	5.5321E+01
BI-214	13677.	609.31	5.0787E+01
PB-214	49282.	351.92	1.4283E+02
RA-224	59593.	240.99	6.1230E+02
RA-226	71867.	186.10	6.1737E+02
AC-228	1415.	911.21	3.6915E+01
TH-228	45195.	84.37	2.1401E+03
TH-229	45859.	88.47	1.0265E+02
U-232	41525.	57.78	4.2165E+04
PA-233	50911.	312.17	6.7161E+01
PA-234M	999.	1001.03	1.5332E+01
TH-234	41748.	63.29	1.2204E+03
U-235	71069.	185.71	3.7327E+01
NP-237	45219.	86.48	2.1005E+02
U-237	41545.	59.54	2.0844E+02
NP-238	1023.	984.45	3.2597E+01
NP-239	48952.	106.12	9.4659E+01
PU-239	56471.	129.30	3.1768E+05
AM-241	41545.	59.54	1.9990E+02
AM-243	43989.	74.67	5.6901E+01

```
*****************************************************************************
*. 222-S Laboratory Counting Room   28-SEP-1995 00:09:10.77                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2311
Sample ID:               S95T2039-DUP                    Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA2                            Verified by:
File Number:             dka300:[spec.GEA2]2g2081.cnf
Geometry:                43
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:54:15.71 sec
Dead Time:               7.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 23:14:16.85
Decayed to:              27-SEP-1995 23:14:16.85
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 SEH
Background Subtract:     DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:54:47.36
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	568.78	364	1.26	1137.61	1135	7	100.5		CS-134	95.1
0	604.45	3776	1.55	1208.93	1205	10	12.6		CS-134	161.
0	661.41*	1660169	1.53	1322.83	1314	18	0.2		CS-137	8.604E+04
0	795.56	2765	1.56	1591.11	1585	13	9.2		CS-134	164.
0	801.40	293	1.46	1602.79	1598	10	64.2		CS-134	171.
0	1321.81	732	3.70	2643.77	2636	23	19.0			
0	1332.41	66	2.26	2664.97	2659	13	46.1			
0	1364.97	71	1.13	2730.12	2724	14	39.4			

Summary of Nuclide Activity
Sample ID : S95T2039-DUP

Acquisition date : 27-SEP-1995 23:14:16

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
CS-134	2.06Y	1.000	1.620E+02	1.620E+02	0.120E+02	7.39	
CS-137	30.00Y	1.000	8.604E+04	8.604E+04	0.014E+04	0.16	
		Total Activity :	8.620E+04	8.620E+04			
		Grand Total Activity :	8.620E+04	8.620E+04			

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

Sample ID : S95T2039-DUP
Acquisition date : 27-SEP-1995 23:14:16

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	54240.	477.59	3.6715E+02
NA-22	289.	1274.53	6.0827E+00
NA-24	42.	1368.55	2.5046E+00
K-40	112.	1460.75	3.9599E+01
SC-46	585.	1120.55	7.7140E+00
CR-51	49908.	320.08	2.5884E+02
MN-54	2021.	834.83	1.0979E+01
CO-56	1892.	846.76	1.0738E+01
CO-57	54246.	122.06	2.4057E+01
CO-58	2223.	810.78	1.1329E+01
FE-59	686.	1099.25	1.4513E+01
CO-60	99.	1332.50	3.7058E+00
ZN-65	562.	1115.55	1.4846E+01
SE-75	55741.	264.66	4.2198E+01
KR-85	29630.	514.00	6.9460E+03
SR-85	29627.	514.01	3.1407E+01
Y-88	1.	1836.06	4.7884E-01
Y-90	6.	1760.70	3.8877E+00
Y-91	286.	1204.67	1.9220E+03
NB-94	1691.	871.09	1.0361E+01
NB-95	2673.	765.78	1.1865E+01
ZR-95	2690.	756.73	2.1602E+01
RU-103	35463.	497.08	3.5175E+01
RURH-106	13447.	621.93	4.6062E+02
AG-108m	3246.	722.94	1.3763E+01
CD-109	45468.	88.03	7.0435E+02
AG-110M	66148.	657.76	5.5597E+01
SN-113	51386.	391.69	4.6893E+01
TE-123m	56563.	159.00	2.2132E+01
SB-124	16825.	602.73	2.5644E+01
SB-125	58194.	427.89	1.1820E+02
TE-125m	49946.	109.27	7.5538E+03
I-129	41566.	39.60	0.0000E+00
I-131	49086.	364.48	3.4511E+01
XE-131m	56066.	163.93	9.4194E+02
BA-133	49265.	356.02	4.4563E+01
CS-136	2121.	818.51	1.1126E+01
CS-138	34.	1435.86	5.1258E+00
CE-139	56758.	165.85	2.3225E+01
BA-140	21889.	537.31	1.0993E+02
LA-140	8.	1596.21	1.3075E+00
CE-141	56427.	145.44	3.9672E+01
CE-144	56067.	133.51	1.7957E+02
CEPR-144	56065.	133.51	3.5882E+02
EU-152	32.	1408.01	1.0543E+01
EU-154	289.	1274.51	1.7670E+01
EU-155	45341.	86.54	7.9423E+01
HF-181	44532.	482.18	4.3210E+01
TA-182	42452.	67.75	1.0602E+02
HG-203	54016.	279.20	3.0648E+01
BI-207	15905.	569.70	2.4164E+01

Sample ID : S95T2039-DUP Acquisition date : 27-SEP-1995 23:14:16

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	54104.	277.36	3.9452E+02
PB-210	40889.	46.50	0.0000E+00
BI-212	3185.	727.18	1.8697E+02
PB-212	59308.	238.63	5.5060E+01
BI-214	13665.	609.31	5.0766E+01
PB-214	49016.	351.92	1.4240E+02
RA-224	59158.	240.99	6.1005E+02
RA-226	71638.	186.10	6.1639E+02
AC-228	1430.	911.21	3.7115E+01
TH-228	45112.	84.37	2.1381E+03
TH-229	45552.	88.47	1.0230E+02
U-232	40885.	57.78	4.1839E+04
PA-233	50480.	312.17	6.6877E+01
PA-234M	933.	1001.03	1.4816E+01
TH-234	41444.	63.29	1.2160E+03
U-235	70824.	185.71	3.7262E+01
NP-237	45346.	86.48	2.1035E+02
U-237	40973.	59.54	2.0700E+02
NP-238	988.	984.45	3.2032E+01
NP-239	48559.	106.12	9.4277E+01
PU-239	55897.	129.30	3.1606E+05
AM-241	40973.	59.54	1.9852E+02
AM-243	43405.	74.67	5.6521E+01

LABCORE Data Entry Template for Worklist# 2312

Analyst: KGH **Instrument:** GEA00 3 **Book#** 144153

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

Worklist Comment: GEA AW-106; use ~~1 mL~~ .004L KH 9-27-95 sample. R(0) -PPB

RUSH

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-03	LIQUID		
2	BLNK				@GEA-03	LIQUID		
3	SAMPLE	S95T002017	0		@GEA-03	LIQUID	95000126	AW-106 GRAB

Analytes Requested: CE14402 , CE14402E, CO60-02 , CO60-02E, CS13402 , CS13402E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E, NB94-02 , NB94-02E, RA22602 , RA22602E, RU10602 , RU10602E

Final page for worklist # 2312

Analyst Signature Date 9-27-95

Analyst Signature Date 9/28/95

Data Entry Comments:

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

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-SEP-1995 19:10:16.72                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2312
Sample ID:               WORKLIST2312-STD                Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00                     D. H. Malicia

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3                            Verified by:
File Number:             dka300:[spec.GEA3]3g3311.cnf
Geometry:                42                              B Bachelor 9/28/95
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.56 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 18:19:21.96
Decayed to:              27-SEP-1995 18:19:21.96
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.53*	22785	1.55	1323.24	1315	17	1.5		CS-137	25.8
0	1173.03	13633	1.94	2346.33	2338	19	1.9		CO-60	21.5
0	1332.29	12116	2.01	2664.96	2656	20	1.9		CO-60	21.2

Summary of Nuclide Activity
Sample ID : WORKLIST2312-STD Acquisition date : 27-SEP-1995 18:19:21

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	2.135E+01	2.135E+01	0.028E+01	1.33	
CS-137	30.00Y	1.000	2.575E+01	2.575E+01	0.038E+01	1.46	
			---	---			
Total Activity :			4.710E+01	4.710E+01			
Grand Total Activity :			4.710E+01	4.710E+01			

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

Sample ID : WORKLIST2312-STD
Acquisition date : 27-SEP-1995 18:19:21

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1125.	477.59	1.1052E+00
NA-22	83.	1274.53	7.1718E-02
NA-24	24.	1368.55	4.1576E-02
K-40	155.	1460.75	1.0199E+00
SC-46	496.	1120.55	1.5686E-01
CR-51	1101.	320.08	8.2277E-01
MN-54	606.	834.83	1.3458E-01
CO-56	595.	846.76	1.3507E-01
CO-57	1225.	122.06	6.0580E-02
CO-58	574.	810.78	1.2842E-01
FE-59	622.	1099.25	3.0592E-01
ZN-65	617.	1115.55	3.4364E-01
SE-75	1256.	264.66	1.3165E-01
KR-85	788.	514.00	2.3387E+01
SR-85	788.	514.01	1.0575E-01
Y-88	16.	1836.06	4.1481E-02
Y-90	15.	1760.70	1.3898E-01
Y-91	186.	1204.67	3.4010E+01
NB-94	687.	871.09	1.4874E-01
NB-95	534.	765.78	1.1755E-01
ZR-95	524.	756.73	2.1101E-01
RU-103	848.	497.08	1.1267E-01
RURH-106	560.	621.93	2.0279E+00
AG-108m	497.	722.94	1.1859E-01
CD-109	1032.	88.03	1.8411E+00
AG-110M	1002.	657.76	1.4909E-01
SN-113	1047.	391.69	1.4708E-01
TE-123m	1164.	159.00	6.0747E-02
SB-124	565.	602.73	1.0058E-01
SB-125	1182.	427.89	3.6490E-01
TE-125m	1074.	109.27	1.8469E+01
I-129	1005.	39.60	0.0000E+00
I-131	1044.	364.48	1.0984E-01
XE-131m	1262.	163.93	2.7506E+00
BA-133	1047.	356.02	1.4124E-01
CS-134	570.	604.70	1.0149E-01
CS-136	615.	818.51	1.3376E-01
CS-138	30.	1435.86	1.0100E-01
CE-139	1309.	165.85	6.9073E-02
BA-140	664.	537.31	3.9655E-01
LA-140	16.	1596.21	4.0035E-02
CE-141	1226.	145.44	1.0584E-01
CE-144	1177.	133.51	4.4940E-01
CEPR-144	1177.	133.51	8.9790E-01
EU-152	20.	1408.01	1.7961E-01
EU-154	83.	1274.51	2.0836E-01
EU-155	1035.	86.54	2.0903E-01
HF-181	995.	482.18	1.3465E-01
TA-182	981.	67.75	3.0568E-01
HG-203	1175.	279.20	9.4956E-02
BI-207	555.	569.70	9.4994E-02

Sample ID : WORKLIST2312-STD Acquisition date : 27-SEP-1995 18:19:21

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	1159.	277.36	1.2115E+00
PB-210	906.	46.50	0.0000E+00
BI-212	495.	727.18	1.6245E+00
PB-212	1444.	238.63	1.7551E-01
BI-214	575.	609.31	2.2353E-01
PB-214	1055.	351.92	4.3467E-01
RA-224	1434.	240.99	1.9418E+00
RA-226	1417.	186.10	1.7627E+00
AC-228	790.	911.21	6.2258E-01
TH-228	992.	84.37	5.5576E+00
TH-229	1000.	88.47	2.6261E-01
U-232	909.	57.78	1.4113E+02
PA-233	1166.	312.17	2.1684E-01
PA-234M	643.	1001.03	2.7469E-01
TH-234	934.	63.29	3.6320E+00
U-235	1419.	185.71	1.0719E-01
NP-237	1034.	86.48	5.5348E-01
U-237	942.	59.54	6.7106E-01
NP-238	680.	984.45	5.9399E-01
NP-239	1101.	106.12	2.3725E-01
PU-239	1178.	129.30	7.8174E+02
AM-241	942.	59.54	6.4368E-01
AM-243	979.	74.67	1.5428E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-SEP-1995 20:11:53.20                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2312
Sample ID:               WORKLIST-2312-BL                Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01                     D.H.Mitcia

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3                            Verified by:
File Number:             dka300:[spec.GEA3]3g3312.cnf
Geometry:                42                              BBachelor 9/28/95
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.46 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 19:21:10.54
Decayed to:              27-SEP-1995 19:21:10.54
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 SEH
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	661.49*	64	1.70	1323.15	1319	14	48.4		CS-137	0.728

WHC-SD-WM-DP-147, REV. 0

Summary of Nuclide Activity
Sample ID : WORKLIST-2312-BL

Acquisition date : 27-SEP-1995 19:21:10

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	7.280E-01	7.280E-01	3.522E-01	48.38	
		Total Activity :	7.280E-01	7.280E-01			
		Grand Total Activity :	7.280E-01	7.280E-01			

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

Sample ID : WORKLIST-2312-BL Acquisition date : 27-SEP-1995 19:21:10

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	35.	477.59	1.9583E+00
NA-22	10.	1274.53	2.4821E-01
NA-24	9.	1368.55	2.5156E-01
K-40	132.	1460.75	9.4019E+00
SC-46	25.	1120.55	3.5397E-01
CR-51	53.	320.08	1.8049E+00
MN-54	10.	834.83	1.7580E-01
CO-56	15.	846.76	2.1392E-01
CO-57	92.	122.06	1.6633E-01
CO-58	21.	810.78	2.4766E-01
FE-59	6.	1099.25	3.0549E-01
CO-60	9.	1332.50	2.4274E-01
ZN-65	14.	1115.55	5.1390E-01
SE-75	64.	264.66	2.9767E-01
KR-85	46.	514.00	5.6336E+01
SR-85	46.	514.01	2.5468E-01
Y-88	1.	1836.06	1.0492E-01
Y-90	8.	1760.70	9.8446E-01
Y-91	14.	1204.67	9.2276E+01
NB-94	10.	871.09	1.8352E-01
NB-95	20.	765.78	2.2781E-01
ZR-95	21.	756.73	4.2540E-01
RU-103	35.	497.08	2.2863E-01
RURH-106	25.	621.93	4.2421E+00
AG-108m	17.	722.94	2.2065E-01
CD-109	86.	88.03	5.3052E+00
AG-110M	15.	657.76	1.8360E-01
SN-113	32.	391.69	2.5741E-01
TE-123m	90.	159.00	1.6858E-01
SB-124	24.	602.73	2.0940E-01
SB-125	35.	427.89	6.3036E-01
TE-125m	69.	109.27	4.6718E+01
I-129	55.	39.60	0.0000E+00
I-131	39.	364.48	2.1308E-01
XE-131m	73.	163.93	6.6063E+00
BA-133	45.	356.02	2.9348E-01
CS-134	25.	604.70	2.1050E-01
CS-136	17.	818.51	2.2234E-01
CS-138	4.	1435.86	3.6884E-01
CE-139	76.	165.85	1.6650E-01
BA-140	34.	537.31	8.9665E-01
LA-140	6.	1596.21	2.3278E-01
CE-141	74.	145.44	2.6059E-01
CE-144	65.	133.51	1.0579E+00
CEPR-144	65.	133.51	2.1139E+00
EU-152	10.	1408.01	1.2751E+00
EU-154	10.	1274.51	7.2113E-01
EU-155	76.	86.54	5.6523E-01
HF-181	35.	482.18	2.5193E-01
TA-182	58.	67.75	7.4401E-01
HG-203	61.	279.20	2.1683E-01

Sample ID : WORKLIST-2312-BL Acquisition date : 27-SEP-1995 19:21:10

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	22.	569.70	1.9038E-01
TL-208	68.	277.36	2.9375E+00
PB-210	41.	46.50	0.0000E+00
BI-212	22.	727.18	3.4423E+00
PB-212	82.	238.63	4.1910E-01
BI-214	54.	609.31	6.8294E-01
PB-214	64.	351.92	1.0700E+00
RA-224	74.	240.99	4.4256E+00
RA-226	105.	186.10	4.8092E+00
AC-228	25.	911.21	1.1141E+00
TH-228	62.	84.37	1.3902E+01
TH-229	79.	88.47	7.3728E-01
U-232	54.	57.78	3.4421E+02
PA-233	61.	312.17	4.9672E-01
PA-234M	25.	1001.03	5.3748E-01
TH-234	53.	63.29	8.6596E+00
U-235	104.	185.71	2.9005E-01
NP-237	75.	86.48	1.4939E+00
U-237	65.	59.54	1.7628E+00
NP-238	13.	984.45	8.1240E-01
NP-239	66.	106.12	5.7887E-01
PU-239	65.	129.30	1.8380E+03
AM-241	65.	59.54	1.6909E+00
AM-243	84.	74.67	4.5232E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-SEP-1995 21:21:29.40                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2312
Sample ID:               S95T2017-SAM                    Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+01                     D. Hamilton

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3                            Verified by:
File Number:             dka300:[spec.GEA3]3g3313.cnf
Geometry:                43                              Bachelor 9/28/95
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:56:11.08 sec
Dead Time:                11%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 20:24:35.83
Decayed to:              27-SEP-1995 20:24:35.83
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	84.53*	1067	1.19	169.58	167	6	70.3		TH-228	1.751E+03
0	569.13	936	1.57	1138.46	1136	7	44.9		CS-134	205.
0	604.53	6022	1.50	1209.25	1204	10	9.0		CS-134	217.
0	661.52*	2534013	1.54	1323.22	1315	17	0.1		CS-137	1.117E+05
0	795.67	4525	1.66	1591.51	1585	13	8.0		CS-134	232.
0	801.94	340	1.40	1604.04	1601	8	65.7		CS-134	172.
0	1322.36	1347	2.12	2645.08	2640	15	12.3			
0	1364.79	113	2.11	2729.98	2725	12	36.9			

Sample ID : S95T2017-SAM Acquisition date : 27-SEP-1995 20:24:35

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
CS-134	2.06Y	1.000	2.240E+02	2.240E+02	0.132E+02	5.88	
CS-137	30.00Y	1.000	1.117E+05	1.117E+05	0.001E+05	0.13	
~~TH-228~~	~~1.91Y~~	~~1.000~~	~~1.751E+03~~	~~1.751E+03~~	~~1.231E+03~~	~~70.~~ 30	BKG
			---	---			
Total Activity :			1.136E+05	1.136E+05			
Grand Total Activity :			1.136E+05	1.136E+05			

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

Sample ID : S95T2017-SAM
Acquisition date : 27-SEP-1995 20:24:35

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	79382.	477.59	3.7331E+02
NA-22	709.	1274.53	7.7834E+00
NA-24	109.	1368.55	3.2854E+00
K-40	162.	1460.75	3.8451E+01
SC-46	1279.	1120.55	9.4390E+00
CR-51	68806.	320.08	2.6186E+02
MN-54	4247.	834.83	1.3836E+01
CO-56	4183.	846.76	1.3907E+01
CO-57	71059.	122.06	1.8758E+01
CO-58	4637.	810.78	1.4181E+01
FE-59	1430.	1099.25	1.7431E+01
CO-60	197.	1332.50	4.2557E+00
ZN-65	1388.	1115.55	1.9329E+01
SE-75	77076.	264.66	4.2241E+01
KR-85	42266.	514.00	6.9264E+03
SR-85	42257.	514.01	3.1317E+01
Y-88	12.	1836.06	1.3054E+00
Y-90	11.	1760.70	4.2212E+00
Y-91	681.	1204.67	2.4221E+03
NB-94	3580.	871.09	1.3184E+01
NB-95	5347.	765.78	1.4473E+01
ZR-95	5723.	756.73	2.7144E+01
RU-103	50961.	497.08	3.5277E+01
RURH-106	16268.	621.93	4.2911E+02
AG-108m	6726.	722.94	1.6990E+01
CD-109	58216.	88.03	5.9583E+02
AG-110M	60528.	657.76	4.5206E+01
SN-113	71661.	391.69	4.7741E+01
TE-123m	74044.	159.00	2.0834E+01
SB-124	22164.	602.73	2.4872E+01
SB-125	83507.	427.89	1.2110E+02
TE-125m	63945.	109.27	5.8792E+03
I-129	51491.	39.60	0.0000E+00
I-131	67748.	364.48	3.4919E+01
XE-131m	74200.	163.93	9.1524E+02
BA-133	67995.	356.02	4.5057E+01
CS-136	4592.	818.51	1.4202E+01
CS-138	48.	1435.86	4.9883E+00
CE-139	74528.	165.85	2.2678E+01
BA-140	31492.	537.31	1.1017E+02
LA-140	16.	1596.21	1.4444E+00
CE-141	74586.	145.44	3.4505E+01
CE-144	74219.	133.51	1.4609E+02
CEPR-144	74219.	133.51	2.9192E+02
EU-152	77.	1408.01	1.3240E+01
EU-154	709.	1274.51	2.2602E+01
EU-155	58041.	86.54	6.7585E+01
HF-181	65228.	482.18	4.3899E+01
TA-182	52811.	67.75	9.4077E+01
HG-203	74772.	279.20	3.0950E+01
BI-207	21084.	569.70	2.3375E+01

Sample ID : S95T2017-SAM Acquisition date : 27-SEP-1995 20:24:35

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	74968.	277.36	3.9825E+02
PB-210	50823.	46.50	0.0000E+00
BI-212	6613.	727.18	2.3118E+02
PB-212	82556.	238.63	5.4893E+01
BI-214	16954.	609.31	4.7825E+01
PB-214	68010.	351.92	1.4711E+02
RA-224	82218.	240.99	6.0755E+02
RA-226	98809.	186.10	6.4553E+02
AC-228	2902.	911.21	4.6210E+01
TH-229	58191.	88.47	8.6285E+01
U-232	51013.	57.78	3.7748E+04
PA-233	69862.	312.17	6.7840E+01
PA-234M	2040.	1001.03	1.8647E+01
TH-234	52009.	63.29	1.0928E+03
U-235	97609.	185.71	3.9002E+01
NP-237	58077.	86.48	1.7908E+02
U-237	51114.	59.54	1.8646E+02
NP-238	2184.	984.45	4.0730E+01
NP-239	62712.	106.12	7.4381E+01
PU-239	72813.	129.30	2.5051E+05
AM-241	51115.	59.54	1.7882E+02
AM-243	55141.	74.67	4.9842E+01

LABCORE Data Entry Template for Worklist# 2690

Analyst: Kim Thomas KNT **Instrument:** GEA00 3 **Book#** 144652

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

Worklist Comment: RUSH GEA AW-106; use 1 mL sample. Re-run 1 (CB, RPD). -PPB

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S95T002021	0	F	@GEA-01	SOLID	95000126	AW-106 GRAB
		Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
4	DUP	S95T002021	0	F	@GEA-01	SOLID		
5	SAMPLE	S95T002037	0	F	@GEA-01	SOLID	95000126	AW-106 GRAB
		Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E						
6	DUP	S95T002037	0	F	@GEA-01	SOLID		

Final page for worklist # 2690

Kim Thomas 10-2-95
Analyst Signature **Date**

J. Owen 10/5/95
Analyst Signature **Date**

Data Entry Comments:

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

```
*****************************************************************************
* 222-S Laboratory Counting Room    2-OCT-1995 15:32:27.43                  *
*****************************************************************************
     >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:            2690
Sample ID:             WORKLIST#2690-ST
Sample Size:           1.00000E-03 LI
Dilution Factor:       1.00000E+00

     >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:           GEA3
File Number:           dka300:[spec.GEA3]3g3361.cnf
Geometry:              42
Count Time:            0 00:50:00.00 sec
Real Time:             0 00:50:08.49 sec
Dead Time:             0.3%

     >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:     2-OCT-1995 14:41:37.65
Decayed to:            2-OCT-1995 14:41:37.65
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: Raymond

Verified by: B Machelor 10/3/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	661.51*	22546	1.53	1323.20	1316	15	1.5		CS-137	25.5
0	1173.00	13527	1.90	2346.26	2337	17	1.9		CO-60	21.3
0	1332.22	12153	1.96	2664.82	2656	19	1.8		CO-60	21.3

Sample ID : WORKLIST#2690-ST Acquisition date : 2-OCT-1995 14:41:37

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/LI	Wtd Mean Decay Corr uCi/LI	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.130E+01	2.130E+01	0.028E+01	1.31	
CS-137	30.00Y	1.000	2.548E+01	2.548E+01	0.037E+01	1.46	
			---	---			
Total Activity :			**4.678E+01**	**4.678E+01**			
Grand Total Activity :			4.678E+01	4.678E+01			

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

Minimum Detectable Activity Report
Sample ID : WORKLIST#2690-ST

Acquisition date : 2-OCT-1995 14:41:37

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	1123.	477.59	1.1039E+00
NA-22	95.	1274.53	7.6532E-02
NA-24	26.	1368.55	4.2889E-02
K-40	156.	1460.75	1.0226E+00
SC-46	519.	1120.55	1.6050E-01
CR-51	1138.	320.08	8.3622E-01
MN-54	611.	834.83	1.3512E-01
CO-56	624.	846.76	1.3829E-01
CO-57	1252.	122.06	6.1229E-02
CO-58	542.	810.78	1.2484E-01
FE-59	651.	1099.25	3.1292E-01
ZN-65	617.	1115.55	3.4372E-01
SE-75	1276.	264.66	1.3270E-01
KR-85	746.	514.00	2.2752E+01
SR-85	746.	514.01	1.0286E-01
Y-88	14.	1836.06	3.8950E-02
Y-90	15.	1760.70	1.3660E-01
Y-91	157.	1204.67	3.1284E+01
NB-94	683.	871.09	1.4829E-01
NB-95	529.	765.78	1.1703E-01
ZR-95	499.	756.73	2.0593E-01
RU-103	836.	497.08	1.1183E-01
RURH-106	585.	621.93	2.0724E+00
AG-108m	508.	722.94	1.1988E-01
CD-109	1023.	88.03	1.8325E+00
AG-110M	1006.	657.76	1.4937E-01
SN-113	1054.	391.69	1.4758E-01
TE-123m	1215.	159.00	6.2057E-02
SB-124	562.	602.73	1.0037E-01
SB-125	1129.	427.89	3.5668E-01
TE-125m	1096.	109.27	1.8655E+01
I-129	984.	39.60	0.0000E+00
I-131	1044.	364.48	1.0984E-01
XE-131m	1246.	163.93	2.7336E+00
BA-133	999.	356.02	1.3795E-01
CS-134	570.	604.70	1.0148E-01
CS-136	597.	818.51	1.3187E-01
CS-138	26.	1435.86	9.3409E-02
CE-139	1209.	165.85	6.6395E-02
BA-140	678.	537.31	4.0069E-01
LA-140	23.	1596.21	4.7351E-02
CE-141	1254.	145.44	1.0707E-01
CE-144	1223.	133.51	4.5809E-01
CEPR-144	1223.	133.51	9.1532E-01
EU-152	27.	1408.01	2.0970E-01
EU-154	95.	1274.51	2.2230E-01
EU-155	1010.	86.54	2.0652E-01
HF-181	1007.	482.18	1.3543E-01
TA-182	959.	67.75	3.0230E-01
HG-203	1259.	279.20	9.8287E-02
BI-207	555.	569.70	9.4978E-02

Sample ID : WORKLIST#2690-ST Acquisition date : 2-OCT-1995 14:41:37

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
TL-208	1220.	277.36	1.2428E+00
PB-210	975.	46.50	0.0000E+00
BI-212	510.	727.18	1.6485E+00
PB-212	1449.	238.63	1.7584E-01
BI-214	574.	609.31	2.2342E-01
PB-214	1123.	351.92	4.4862E-01
RA-224	1408.	240.99	1.9247E+00
RA-226	**1417.**	**186.10**	**1.7628E+00**
AC-228	**752.**	**911.21**	**6.0763E-01**
TH-228	**1021.**	**84.37**	**5.6400E+00**
TH-229	**1029.**	**88.47**	**2.6642E-01**
U-232	1024.	57.78	1.4982E+02
PA-233	1124.	312.17	2.1291E-01
PA-234M	635.	1001.03	2.7291E-01
TH-234	978.	63.29	3.7169E+00
U-235	1415.	185.71	1.0705E-01
NP-237	**1012.**	**86.48**	**5.4759E-01**
U-237	**1001.**	**59.54**	**6.9203E-01**
NP-238	**635.**	**984.45**	**5.7436E-01**
NP-239	1088.	106.12	2.3581E-01
PU-239	1159.	129.30	7.7538E+02
AM-241	1001.	59.54	6.6375E-01
AM-243	1011.	74.67	1.5679E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    2-OCT-1995 17:48:48.60                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2690
Sample ID:               WRKLST2690-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3362.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.47 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       2-OCT-1995 16:58:03.92
Decayed to:              2-OCT-1995 16:58:03.92
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: Raymond

Verified by: D Bachelor 10/3/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	511.16*	22	3.50	1022.54	1016	16	132.5			
0	609.21*	23	1.23	1218.62	1212	12	98.3			
0	661.53*	86	1.37	1323.23	1317	14	37.4		CS-137	9.748E-02
0	775.30	10	0.75	1550.75	1548		7117.5			
0	**915.72**	**33**	**11.66**	**1831.63**	**1813**	**37**	**123.1**			
0	1102.63	16	3.50	2205.49	2199	15	72.6			
0	1460.58*	15	2.08	2921.64	2913	19	184.3		K-40	0.256

Summary of Nuclide Activity
Sample ID : WRKLST2690-BLK

Acquisition date : 2-OCT-1995 16:58:03

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
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~2.560E-01~~	~~2.560E-01~~	~~4.717E-01~~	~~184.27~~	~~BKG~~
CS-137	30.00Y	1.000	9.748E-02	9.748E-02	3.650E-02	37.44	
		Total Activity :	3.535E-01	3.535E-01			
		Grand Total Activity :	3.535E-01	3.535E-01			

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

Sample ID : WRKLST2690-BLK
Acquisition date : 2-OCT-1995 16:58:03

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	34.	477.59	1.9304E-01
NA-22	12.	1274.53	2.7179E-02
NA-24	8.	1368.55	2.3676E-02
SC-46	17.	1120.55	2.9283E-02
CR-51	65.	320.08	1.9930E-01
MN-54	20.	834.83	2.4658E-02
CO-56	16.	846.76	2.2097E-02
CO-57	83.	122.06	1.5775E-02
CO-58	25.	810.78	2.6782E-02
FE-59	12.	1099.25	4.2635E-02
CO-60	13.	1332.50	2.9108E-02
ZN-65	15.	1115.55	5.3467E-02
SE-75	54.	264.66	2.7284E-02
KR-85	37.	514.00	5.0621E+00
SR-85	37.	514.01	2.2841E-02
Y-88	8.	1836.06	2.9634E-02
Y-90	10.	1760.70	1.1293E-01
Y-91	17.	1204.67	1.0307E+01
NB-94	18.	871.09	2.3983E-02
NB-95	17.	765.78	2.1232E-02
ZR-95	18.	756.73	3.8861E-02
RU-103	37.	497.08	2.3508E-02
RURH-106	18.	621.93	3.5939E-01
AG-108m	15.	722.94	2.0930E-02
CD-109	64.	88.03	4.5681E-01
AG-110M	15.	657.76	1.8053E-02
SN-113	38.	391.69	2.8204E-02
TE-123m	80.	159.00	1.5903E-02
SB-124	18.	602.73	1.8045E-02
SB-125	48.	427.89	7.3716E-02
TE-125m	67.	109.27	4.6055E+00
I-129	47.	39.60	0.0000E+00
I-131	53.	364.48	2.4761E-02
XE-131m	70.	163.93	6.4587E-01
BA-133	47.	356.02	2.9823E-02
CS-134	18.	604.70	1.7885E-02
CS-136	10.	818.51	1.6774E-02
CS-138	7.	1435.86	4.7356E-02
CE-139	83.	165.85	1.7417E-02
BA-140	45.	537.31	1.0269E-01
LA-140	5.	1596.21	2.2065E-02
CE-141	76.	145.44	2.6283E-02
CE-144	74.	133.51	1.1238E-01
CEPR-144	74.	133.51	2.2462E-01
EU-152	8.	1408.01	1.1796E-01
EU-154	12.	1274.51	7.9225E-02
EU-155	58.	86.54	4.9284E-02
HF-181	32.	482.18	2.3981E-02
TA-182	57.	67.75	7.3620E-02
HG-203	60.	279.20	2.1401E-02
BI-207	28.	569.70	2.1336E-02

Sample ID : WRKLST2690-BLK Acquisition date : 2-OCT-1995 16:58:03

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	63.	277.36	2.8280E-01
PB-210	46.	46.50	0.0000E+00
BI-212	24.	727.18	3.5667E-01
PB-212	83.	238.63	4.2088E-02
BI-214	60.	609.31	7.2342E-02
PB-214	101.	351.92	1.3417E-01
RA-224	70.	240.99	4.3050E-01
RA-226	87.	186.10	4.3571E-01
AC-228	29.	911.21	1.1866E-01
TH-228	72.	84.37	1.5009E+00
TH-229	67.	88.47	6.8086E-02
U-232	48.	57.78	3.2393E+01
PA-233	54.	312.17	4.6755E-02
PA-234M	16.	1001.03	4.3384E-02
TH-234	51.	63.29	8.4672E-01
U-235	87.	185.71	2.6566E-02
NP-237	58.	86.48	1.3089E-01
U-237	50.	59.54	1.5465E-01
NP-238	14.	984.45	8.5255E-02
NP-239	65.	106.12	5.7821E-02
PU-239	75.	129.30	1.9663E+02
AM-241	50.	59.54	1.4836E-01
AM-243	86.	74.67	4.5765E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room    2-OCT-1995 19:17:20.31                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2690
Sample ID:               S95T2021-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3363.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:07.56 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       2-OCT-1995 18:26:32.39
Decayed to:              2-OCT-1995 18:26:32.39
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: Raymond

Verified by: B Machelor 10/2/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	604.67	106	1.38	1209.53	1206	7	54.1		CS-134	9.700E-02
0	661.54*	55847	1.51	1323.25	1316	16	0.9		CS-137	63.1
0	725.01	50	4.56	1450.19	1442	20	68.0			
0	795.83	94	1.79	1591.81	1586	12	28.2		CS-134	0.125
0	1274.02	30	2.03	2548.36	2542	17	77.4		NA-22	5.133E-02
0	1460.57*	8	2.06	2921.64	2915	14	315.0		K-40	0.135
0	1764.53*	19	1.61	3529.90	3523	13	58.6			

Summary of Nuclide Activity
Sample ID : S95T2021-SAM

Acquisition date : 2-OCT-1995 18:26:32

Total number of lines in spectrum	7	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	7	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~NA-22~~	~~2.60Y~~	~~1.000~~	~~5.132E-02~~	~~5.133E-02~~	~~3.970E-02~~	~~77.36~~	BKG 10/03/95
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~1.346E-01~~	~~1.346E-01~~	~~4.239E-01~~	~~315.00~~	
CS-134	2.06Y	1.000	1.162E-01	1.162E-01	0.292E-01	25.14	
CS-137	30.00Y	1.000	6.312E+01	6.312E+01	0.054E+01	0.86	
			---	---			
	Total Activity :		6.342E+01	6.342E+01			

Grand Total Activity : 6.342E+01 6.342E+01

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

Sample ID : S95T2021-SAM
Acquisition date : 2-OCT-1995 18:26:32

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1735.	477.59	1.3722E+00
NA-24	3.	1368.55	1.4235E-02
SC-46	22.	1120.55	3.2941E-02
CR-51	1381.	320.08	9.2142E-01
MN-54	20.	834.83	2.4498E-02
CO-56	30.	846.76	3.0180E-02
CO-57	1745.	122.06	7.2299E-02
CO-58	30.	810.78	2.9418E-02
FE-59	14.	1099.25	4.5151E-02
CO-60	21.	1332.50	3.7295E-02
ZN-65	22.	1115.55	6.4256E-02
SE-75	1532.	264.66	1.4539E-01
KR-85	891.	514.00	2.4868E+01
SR-85	891.	514.01	1.1245E-01
Y-88	3.	1836.06	1.8173E-02
Y-90	6.	1760.70	8.7045E-02
Y-91	10.	1204.67	7.8956E+00
NB-94	30.	871.09	3.0915E-02
NB-95	35.	765.78	3.0070E-02
ZR-95	31.	756.73	5.1188E-02
RU-103	1070.	497.08	1.2656E-01
RURH-106	293.	621.93	1.4668E+00
AG-108m	47.	722.94	3.6625E-02
CD-109	1505.	88.03	2.2231E+00
AG-110M	1324.	657.76	1.7143E-01
SN-113	1465.	391.69	1.7401E-01
TE-123m	1655.	159.00	7.2429E-02
SB-124	446.	602.73	8.9400E-02
SB-125	1809.	427.89	4.5138E-01
TE-125m	1569.	109.27	2.2319E+01
I-129	1325.	39.60	0.0000E+00
I-131	1406.	364.48	1.2746E-01
XE-131m	1594.	163.93	3.0919E+00
BA-133	1500.	356.02	1.6902E-01
CS-136	23.	818.51	2.5666E-02
CS-138	4.	1435.86	3.6090E-02
CE-139	1617.	165.85	7.6780E-02
BA-140	614.	537.31	3.8133E-01
LA-140	6.	1596.21	2.3279E-02
CE-141	1686.	145.44	1.2413E-01
CE-144	1697.	133.51	5.3962E-01
CEPR-144	1697.	133.51	1.0784E+00
EU-152	11.	1408.01	1.3489E-01
EU-154	41.	1274.51	1.4602E-01
EU-155	1577.	86.54	2.5805E-01
HF-181	1365.	482.18	1.5767E-01
TA-182	1367.	67.75	3.6088E-01
HG-203	1506.	279.20	1.0750E-01
BI-207	462.	569.70	8.6639E-02
TL-208	1512.	277.36	1.3835E+00
PB-210	1293.	46.50	0.0000E+00

Sample ID : S95T2021-SAM Acquisition date : 2-OCT-1995 18:26:32

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-212	44.	727.18	4.8564E-01
PB-212	1735.	238.63	1.9243E-01
BI-214	377.	609.31	1.8115E-01
PB-214	1403.	351.92	5.0122E-01
RA-224	1716.	240.99	2.1243E+00
RA-226	2070.	186.10	2.1303E+00
AC-228	33.	911.21	1.2773E-01
TH-228	1522.	84.37	6.8844E+00
TH-229	1483.	88.47	3.1980E-01
U-232	1332.	57.78	1.7087E+02
PA-233	1403.	312.17	2.3789E-01
PA-234M	13.	1001.03	3.9331E-02
TH-234	1370.	63.29	4.3995E+00
U-235	2042.	185.71	1.2860E-01
NP-237	1579.	86.48	6.8383E-01
U-237	1372.	59.54	8.1000E-01
NP-238	14.	984.45	8.4257E-02
NP-239	1643.	106.12	2.8983E-01
PU-239	1679.	129.30	9.3336E+02
AM-241	1372.	59.54	7.7693E-01
AM-243	1495.	74.67	1.9063E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    2-OCT-1995 20:12:31.43                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2690
Sample ID:               S95T2021-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             CEA3
File Number:             dka300:[spec.GEA3]3g3364.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:09.15 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       2-OCT-1995 19:21:41.62
Decayed to:              2-OCT-1995 19:21:41.62
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: Raymond

Verified by: D Bachelor 10/3/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	604.54	140	1.13	1209.28	1206	8	48.1		CS-134	0.128
0	661.53*	69113	1.52	1323.25	1315	17	0.8		CS-137	78.1
0	795.75	109	1.49	1591.66	1587	12	26.9		CS-134	0.144
0	1004.73	17	1.16	2009.66	2005	12	87.6			
0	1274.89	18	1.28	2550.12	2540	15	107.8		NA-22	2.959E-02
0	1332.48	20	1.22	2665.34	2660	11	55.8			

Sample ID : S95T2021-DUP
Acquisition date : 2-OCT-1995 19:21:41

Total number of lines in spectrum	6	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	6	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~NA-22~~	~~2.60Y~~	~~1.000~~	~~2.959E-02~~	~~2.959E-02~~	~~3.189E-02~~	~~107.78~~	BKG 10/03/95
CS-134	2.06Y	1.000	1.394E-01	1.394E-01	0.328E-01	23.50	
CS-137	30.00Y	1.000	7.812E+01	7.812E+01	0.061E+01	0.78	
		Total Activity :	7.828E+01	7.829E+01			

Grand Total Activity : 7.828E+01 7.829E+01

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

Minimum Detectable Activity Report
Sample ID : S95T2021-DUP

Acquisition date : 2-OCT-1995 19:21:41

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2065.	477.59	1.4972E+00
NA-24	7.	1368.55	2.2860E-02
K-40	132.	1460.75	9.4182E-01
SC-46	24.	1120.55	3.4228E-02
CR-51	1668.	320.08	1.0126E+00
MN-54	23.	834.83	2.6253E-02
CO-56	29.	846.76	2.9586E-02
CO-57	2007.	122.06	7.7528E-02
CO-58	26.	810.78	2.7569E-02
FE-59	14.	1099.25	4.5346E-02
CO-60	22.	1332.50	3.8173E-02
ZN-65	18.	1115.55	5.8593E-02
SE-75	1827.	264.66	1.5877E-01
KR-85	1085.	514.00	2.7437E+01
SR-85	1084.	514.01	1.2400E-01
Y-88	4.	1836.06	2.0984E-02
Y-90	5.	1760.70	8.1120E-02
Y-91	18.	1204.67	1.0705E+01
NB-94	24.	871.09	2.7513E-02
NB-95	30.	765.78	2.7739E-02
ZR-95	32.	756.73	5.2209E-02
RU-103	1289.	497.08	1.3887E-01
RURH-106	383.	621.93	1.6777E+00
AG-108m	33.	722.94	3.0492E-02
CD-109	1738.	88.03	2.3891E+00
AG-110M	1588.	657.76	1.8769E-01
SN-113	1839.	391.69	1.9498E-01
TE-123m	1903.	159.00	7.7667E-02
SB-124	492.	602.73	9.3852E-02
SB-125	2187.	427.89	4.9635E-01
TE-125m	1857.	109.27	2.4282E+01
I-129	1514.	39.60	0.0000E+00
I-131	1714.	364.48	1.4073E-01
XE-131m	1915.	163.93	3.3889E+00
BA-133	1711.	356.02	1.8052E-01
CS-136	35.	818.51	3.2102E-02
CS-138	5.	1435.86	4.1290E-02
CE-139	1868.	165.85	8.2515E-02
BA-140	765.	537.31	4.2585E-01
LA-140	11.	1596.21	3.2075E-02
CE-141	1995.	145.44	1.3503E-01
CE-144	2015.	133.51	5.8796E-01
CEPR-144	2015.	133.51	1.1750E+00
EU-152	7.	1408.01	1.0632E-01
EU-154	30.	1274.51	1.2571E-01
EU-155	1784.	86.54	2.7449E-01
HF-181	1734.	482.18	1.7772E-01
TA-182	1612.	67.75	3.9193E-01
HG-203	1767.	279.20	1.1642E-01
BI-207	493.	569.70	8.9536E-02
TL-208	1840.	277.36	1.5263E+00

Sample ID : S95T2021-DUP Acquisition date : 2-OCT-1995 19:21:41

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PB-210	1503.	46.50	0.0000E+00
BI-212	28.	727.18	3.8919E-01
PB-212	2270.	238.63	2.2006E-01
BI-214	419.	609.31	1.9089E-01
PB-214	1833.	351.92	5.7306E-01
RA-224	2076.	240.99	2.3367E+00
RA-226	2549.	186.10	2.3638E+00
AC-228	22.	911.21	1.0503E-01
TH-228	1738.	84.37	7.3576E+00
TH-229	1731.	88.47	3.4553E-01
U-232	1519.	57.78	1.8243E+02
PA-233	1730.	312.17	2.6413E-01
PA-234M	11.	1001.03	3.6263E-02
TH-234	1592.	63.29	4.7430E+00
U-235	2512.	185.71	1.4264E-01
NP-237	1787.	86.48	7.2750E-01
U-237	1515.	59.54	8.5113E-01
NP-238	17.	984.45	9.2748E-02
NP-239	1850.	106.12	3.0755E-01
PU-239	2021.	129.30	1.0242E+03
AM-241	1515.	59.54	8.1640E-01
AM-243	1692.	74.67	2.0284E-01

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*****************************************************************************
* 222-S Laboratory Counting Room    2-OCT-1995 22:15:06.13                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2690
Sample ID:               S95T2037-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3365.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.27 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       2-OCT-1995 21:24:15.97
Decayed to:              2-OCT-1995 21:24:15.97
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: Raymond

Verified by: RJ Bachelor 10/3/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	122.40	187	0.90	245.28	242	7	81.0		CO-57	6.976E-02
									EU-154	0.148
0	604.68	181	2.12	1209.56	1206	11	45.1		CS-134	0.165
0	661.52*	60114	1.53	1323.23	1315	17	0.8		CS-137	67.9
0	722.92	57	2.99	1446.01	1438	14	40.9		EU-154	0.295
0	795.72	124	1.64	1591.60	1586	11	22.6		CS-134	0.164
0	1005.08	37	1.40	2010.35	2003	13	51.4		EU-154	0.288
0	1274.23	26	1.32	2548.79	2542	12	66.2		EU-154	0.127
									NA-22	4.357E-02

Summary of Nuclide Activity
Sample ID : S95T2037-SAM

Acquisition date : 2-OCT-1995 21:24:15

Total number of lines in spectrum	7	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	7	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~NA-22~~	~~2.60Y~~	~~1.000~~	~~4.357E-02~~	~~4.357E-02~~	~~2.884E-02~~	~~66.20~~	
~~CO-57~~	~~271.80D~~	~~1.000~~	~~6.975E-02~~	~~6.976E-02~~	~~5.649E-02~~	~~80.99~~	154Eu 10/03/95
CS-134	2.06Y	1.000	1.639E-01	1.639E-01	0.331E-01	20.22	
CS-137	30.00Y	1.000	6.795E+01	6.795E+01	0.057E+01	0.83	
EU-154	8.59Y	1.000	2.923E-01	2.923E-01	0.935E-01	32.00	
			---	---			
	Total Activity :		6.851E+01	6.851E+01			

Grand Total Activity : 6.851E+01 6.851E+01

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

Sample ID : S95T2037-SAM Acquisition date : 2-OCT-1995 21:24:15

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1837.	477.59	1.4119E+00
NA-24	7.	1368.55	2.3119E-02
K-40	115.	1460.75	8.7930E-01
SC-46	31.	1120.55	3.9186E-02
CR-51	1513.	320.08	9.6419E-01
MN-54	21.	834.83	2.5101E-02
CO-56	30.	846.76	3.0331E-02
CO-58	23.	810.78	2.5900E-02
FE-59	20.	1099.25	5.5157E-02
CO-60	21.	1332.50	3.7686E-02
ZN-65	12.	1115.55	4.8250E-02
SE-75	1708.	264.66	1.5350E-01
KR-85	1005.	514.00	2.6404E+01
SR-85	1004.	514.01	1.1936E-01
Y-88	4.	1836.06	2.0525E-02
Y-90	9.	1760.70	1.0720E-01
Y-91	17.	1204.67	1.0345E+01
NB-94	34.	871.09	3.2966E-02
NB-95	26.	765.78	2.6050E-02
ZR-95	36.	756.73	5.5552E-02
RU-103	1135.	497.08	1.3034E-01
RURH-106	324.	621.93	1.5423E+00
AG-108m	64.	722.94	4.2727E-02
CD-109	1855.	88.03	2.4680E+00
AG-110M	1387.	657.76	1.7545E-01
SN-113	1609.	391.69	1.8238E-01
TE-123m	1819.	159.00	7.5925E-02
SB-124	472.	602.73	9.1983E-02
SB-125	1975.	427.89	4.7170E-01
TE-125m	1788.	109.27	2.3824E+01
I-129	1423.	39.60	0.0000E+00
I-131	1556.	364.48	1.3408E-01
XE-131m	1813.	163.93	3.2975E+00
BA-133	1508.	356.02	1.6946E-01
CS-136	27.	818.51	2.8126E-02
CS-138	6.	1435.86	4.5928E-02
CE-139	1828.	165.85	8.1623E-02
BA-140	681.	537.31	4.0168E-01
LA-140	5.	1596.21	2.1084E-02
CE-141	1793.	145.44	1.2800E-01
CE-144	1866.	133.51	5.6592E-01
CEPR-144	1866.	133.51	1.1307E+00
EU-152	10.	1408.01	1.2699E-01
EU-155	1933.	86.54	2.8565E-01
HF-181	1470.	482.18	1.6365E-01
TA-182	1609.	67.75	3.9156E-01
HG-203	1623.	279.20	1.1157E-01
BI-207	438.	569.70	8.4406E-02
TL-208	1624.	277.36	1.4338E+00
PB-210	1433.	46.50	0.0000E+00
BI-212	36.	727.18	4.3710E-01

Sample ID : S95T2037-SAM Acquisition date : 2-OCT-1995 21:24:15

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PB-212	1905.	238.63	2.0163E-01
BI-214	406.	609.31	1.8789E-01
PB-214	1622.	351.92	5.3908E-01
RA-224	1850.	240.99	2.2060E+00
RA-226	2247.	186.10	2.2196E+00
AC-228	49.	911.21	1.5459E-01
TH-228	1785.	84.37	7.4565E+00
TH-229	1784.	88.47	3.5080E-01
U-232	1576.	57.78	1.8584E+02
PA-233	1462.	312.17	2.4280E-01
PA-234M	22.	1001.03	5.0668E-02
TH-234	1525.	63.29	4.6428E+00
U-235	2224.	185.71	1.3420E-01
NP-237	1935.	86.48	7.5702E-01
U-237	1644.	59.54	8.8675E-01
NP-238	13.	984.45	8.3246E-02
NP-239	1788.	106.12	3.0229E-01
PU-239	1917.	129.30	9.9742E+02
AM-241	1644.	59.54	8.5056E-01
AM-243	1656.	74.67	2.0067E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    2-OCT-1995 23:32:35.58                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2690
Sample ID:               S95T2037-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3367.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.80 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       2-OCT-1995 22:41:44.86
Decayed to:              2-OCT-1995 22:41:44.86
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: Raymond

Verified by: DB Machelor 10/3/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	86.42	186	0.79	173.35	171	5	64.3		NP-237	0.688
0	123.10	240	1.18	246.68	243	8	72.8		CO-57	8.941E-02
0	604.81	161	1.20	1209.81	1205	10	48.8		CS-134	0.147
0	609.19*	85	1.57	1218.57	1215	9	79.5			
0	661.53*	64738	1.53	1323.24	1315	16	0.8		CS-137	73.2
0	724.73	46	1.91	1449.63	1441	20	90.5			
0	795.85	122	1.49	1591.86	1587	12	23.6		CS-134	0.161
0	1274.60	42	1.57	2549.52	2546	10	47.7		NA-22	7.028E-02
0	1332.14	26	1.97	2664.65	2659	12	54.4			

Summary of Nuclide Activity
Sample ID : S95T2037-DUP

Acquisition date : 2-OCT-1995 22:41:44

Total number of lines in spectrum	9	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	9	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
~~NA-22~~	~~2.60Y~~	~~1.000~~	~~7.028E-02~~	~~7.028E-02~~	~~3.355E-02~~	~~47.73~~	~~154Eu~~
~~CO-57~~	~~271.80D~~	~~1.000~~	~~8.941E-02~~	~~8.941E-02~~	~~6.505E-02~~	~~72.76~~	
CS-134	2.06Y	1.000	1.576E-01	1.576E-01	0.335E-01	21.23	
CS-137	30.00Y	1.000	7.317E+01	7.317E+01	0.058E+01	0.80	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~6.877E-01~~	~~6.877E-01~~	~~4.421E-01~~	~~64.28~~	BMG 10/3/95
Total Activity :			7.418E+01	7.418E+01			

Grand Total Activity : 7.418E+01 7.418E+01

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

Sample ID : S95T2037-DUP Acquisition date : 2-OCT-1995 22:41:44

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1955.	477.59	1.4566E+00
NA-24	10.	1368.55	2.7150E-02
K-40	125.	1460.75	9.1461E-01
SC-46	24.	1120.55	3.4728E-02
CR-51	1656.	320.08	1.0088E+00
MN-54	23.	834.83	2.6445E-02
CO-56	24.	846.76	2.7085E-02
CO-58	22.	810.78	2.5424E-02
FE-59	15.	1099.25	4.8141E-02
CO-60	33.	1332.50	4.6503E-02
ZN-65	19.	1115.55	5.9619E-02
SE-75	1826.	264.66	1.5870E-01
KR-85	1047.	514.00	2.6954E+01
SR-85	1047.	514.01	1.2188E-01
Y-88	1.	1836.06	1.0492E-02
Y-90	5.	1760.70	7.6856E-02
Y-91	16.	1204.67	9.8801E+00
NB-94	44.	871.09	3.7598E-02
NB-95	39.	765.78	3.1688E-02
ZR-95	38.	756.73	5.6494E-02
RU-103	1197.	497.08	1.3385E-01
RURH-106	362.	621.93	1.6297E+00
AG-108m	66.	722.94	4.3087E-02
CD-109	1899.	88.03	2.4972E+00
AG-110M	1394.	657.76	1.7589E-01
SN-113	1703.	391.69	1.8760E-01
TE-123m	1945.	159.00	7.8515E-02
SB-124	495.	602.73	9.4147E-02
SB-125	2156.	427.89	4.9277E-01
TE-125m	1899.	109.27	2.4554E+01
I-129	1526.	39.60	0.0000E+00
I-131	1617.	364.48	1.3668E-01
XE-131m	1964.	163.93	3.4315E+00
BA-133	1673.	356.02	1.7850E-01
CS-136	31.	818.51	2.9809E-02
CS-138	8.	1435.86	5.3692E-02
CE-139	1909.	165.85	8.3420E-02
BA-140	731.	537.31	4.1608E-01
LA-140	4.	1596.21	1.9736E-02
CE-141	1972.	145.44	1.3424E-01
CE-144	1942.	133.51	5.7723E-01
CEPR-144	1942.	133.51	1.1534E+00
EU-152	8.	1408.01	1.1504E-01
EU-154	57.	1274.51	1.7275E-01
EU-155	2047.	86.54	2.9396E-01
HF-181	1597.	482.18	1.7059E-01
TA-182	1639.	67.75	3.9521E-01
HG-203	1710.	279.20	1.1453E-01
BI-207	455.	569.70	8.6007E-02
TL-208	1716.	277.36	1.4737E+00
PB-210	1480.	46.50	0.0000E+00

Sample ID : S95T2037-DUP Acquisition date : 2-OCT-1995 22:41:44

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-212	40.	727.18	4.6229E-01
PB-212	2131.	238.63	2.1323E-01
BI-214	427.	609.31	1.9264E-01
PB-214	1711.	351.92	5.5370E-01
RA-224	1985.	240.99	2.2852E+00
RA-226	2469.	186.10	2.3266E+00
AC-228	34.	911.21	1.3004E-01
TH-228	1880.	84.37	7.6526E+00
TH-229	1838.	88.47	3.5608E-01
U-232	1633.	57.78	1.8919E+02
PA-233	1625.	312.17	2.5605E-01
PA-234M	35.	1001.03	6.3948E-02
TH-234	1624.	63.29	4.7899E+00
U-235	2452.	185.71	1.4091E-01
U-237	1712.	59.54	9.0498E-01
NP-238	15.	984.45	8.8846E-02
NP-239	1974.	106.12	3.1764E-01
PU-239	1888.	129.30	9.8967E+02
AM-241	1712.	59.54	8.6803E-01
AM-243	1764.	74.67	2.0705E-01

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THE FOLLOWING ANALYSES ARE INCLUDED IN THE DATA PACKAGE BUT THE RESULTS HAVE NOT BEEN REPORTED IN THE FINAL SUMMARY REPORTS.

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LABCORE Data Entry Template for Worklist# 2486

Analyst: KNT **Instrument:** GEA00 3 **Book#** 144652

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

Worklist Comment: GEA AW-106; use 1 mL sample size. R(0) -PPB

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	SOLID		
2	BLNK-PREP				@GEA-01	SOLID		
3	SAMPLE	S95T002021	0	F	@GEA-01	SOLID	95000126	AW-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S95T002021	0	F	@GEA-01	SOLID		
5	SAMPLE	S95T002037	0	F	@GEA-01	SOLID	95000126	AW-106 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S95T002037	0	F	@GEA-01	SOLID		

Final page for worklist # 2486

Kim Thomas 9-27-95
Analyst Signature **Date**

[illegible] 9/28/95
Analyst Signature **Date**

DATA NOT USED IN PACKAGE

Data Entry Comments:

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

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-SEP-1995 11:44:44.85                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2486
Sample ID:               WORKLIST#2486-STD
Sample Size:             1.00000E-03 LI
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3304.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.57 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 10:53:57.17
Decayed to:              27-SEP-1995 10:53:57.17
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-147, REV. 0

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Verified by: [signature] 9/27/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	661.52*	22860	1.54	1323.21	1315	16	1.4		CS-137	25.8
0	1173.00	13592	1.95	2346.27	2338	17	1.9		CO-60	21.4
0	1332.24	12292	1.92	2664.85	2655	20	1.8		CO-60	21.5

DATA NOT USED IN PACKAGE

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/LI	Wtd Mean Decay Corr uCi/LI	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.147E+01	2.147E+01	0.028E+01	1.32	
CS-137	30.00Y	1.000	2.584E+01	2.584E+01	0.037E+01	1.45	
		Total Activity :	4.731E+01	4.731E+01			

Grand Total Activity : 4.731E+01 4.731E+01

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

DATA
NOT USED
IN PACKAGE

Sample ID : WORKLIST#2486-ST Acquisition date : 27-SEP-1995 10:53:57

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	1123.	477.59	1.1038E+00
NA-22	82.	1274.53	7.1291E-02
NA-24	27.	1368.55	4.4002E-02
K-40	157.	1460.75	1.0268E+00
SC-46	507.	1120.55	1.5861E-01
CR-51	1093.	320.08	8.1960E-01
MN-54	667.	834.83	1.4117E-01
CO-56	683.	846.76	1.4468E-01
CO-57	1180.	122.06	5.9445E-02
CO-58	546.	810.78	1.2527E-01
FE-59	701.	1099.25	3.2460E-01
ZN-65	610.	1115.55	3.4177E-01
SE-75	1279.	264.66	1.3283E-01
KR-85	809.	514.00	2.3693E+01
SR-85	809.	514.01	1.0711E-01
Y-88	10.	1836.06	3.2852E-02
Y-90	12.	1760.70	1.2360E-01
Y-91	179.	1204.67	3.3413E+01
NB-94	692.	871.09	1.4932E-01
NB-95	516.	765.78	1.1564E-01
ZR-95	516.	756.73	2.0949E-01
RU-103	841.	497.08	1.1216E-01
RURH-106	587.	621.93	2.0766E+00
AG-108m	511.	722.94	1.2029E-01
CD-109	1030.	88.03	1.8387E+00
AG-110M	986.	657.76	1.4791E-01
SN-113	1062.	391.69	1.4817E-01
TE-123m	1258.	159.00	6.3160E-02
SB-124	568.	602.73	1.0087E-01
SB-125	1127.	427.89	3.5624E-01
TE-125m	1174.	109.27	1.9306E+01
I-129	1069.	39.60	0.0000E+00
I-131	1078.	364.48	1.1159E-01
XE-131m	1129.	163.93	2.6021E+00
BA-133	1078.	356.02	1.4328E-01
CS-134	564.	604.70	1.0094E-01
CS-136	592.	818.51	1.3132E-01
CS-138	19.	1435.86	8.1442E-02
CE-139	1142.	165.85	6.4510E-02
BA-140	660.	537.31	3.9543E-01
LA-140	17.	1596.21	4.0440E-02
CE-141	1206.	145.44	1.0499E-01
CE-144	1202.	133.51	4.5413E-01
CEPR-144	1202.	133.51	9.0734E-01
EU-152	23.	1408.01	1.9328E-01
EU-154	82.	1274.51	2.0702E-01
EU-155	1046.	86.54	2.1018E-01
HF-181	1029.	482.18	1.3693E-01
TA-182	1011.	67.75	3.1042E-01
HG-203	1276.	279.20	9.8919E-02
BI-207	563.	569.70	9.5673E-02

DATA NOT USED IN PACKAGE

Sample ID : WORKLIST#2486-ST Acquisition date : 27-SEP-1995 10:53:57

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
TL-208	1249.	277.36	1.2577E+00
PB-210	1029.	46.50	0.0000E+00
BI-212	479.	727.18	1.5978E+00
PB-212	1449.	238.63	1.7583E-01
BI-214	556.	609.31	2.1989E-01
PB-214	1062.	351.92	4.3613E-01
RA-224	1432.	240.99	1.9408E+00
RA-226	1443.	186.10	1.7788E+00
AC-228	790.	911.21	6.2279E-01
TH-228	1050.	84.37	5.7180E+00
TH-229	1037.	88.47	2.6747E-01
U-232	972.	57.78	1.4595E+02
PA-233	1057.	312.17	2.0648E-01
PA-234M	645.	1001.03	2.7497E-01
TH-234	931.	63.29	3.6278E+00
U-235	1450.	185.71	1.0835E-01
NP-237	1048.	86.48	5.5724E-01
U-237	947.	59.54	6.7295E-01
NP-238	660.	984.45	5.8526E-01
NP-239	1095.	106.12	2.3659E-01
PU-239	1220.	129.30	7.9556E+02
AM-241	947.	59.54	6.4550E-01
AM-243	1014.	74.67	1.5698E-01

DATA
NOT USED
IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-SEP-1995 13:44:16.18                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2486
Sample ID:               WORKLIST#2486-BLK
Sample Size:             1.00000E-03 LI
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3305.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.48 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 12:53:34.93
Decayed to:              27-SEP-1995 12:53:34.93
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

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Verified by: [signature] 9/27/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	609.08*	31	1.02	1218.35	1213	10	60.6			
0	661.54*	225	1.53	1323.26	1317	12	16.6		CS-137	0.254
0	755.55	33	3.89	1511.26	1501	23	64.6			

WHC-SD-WM-DP-147, REV. 0

DATA
NOT USED
IN PACKAGE

Sample ID : WORKLIST#2486-BL
Acquisition date : 27-SEP-1995 12:53:34

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/LI	Wtd Mean Decay Corr uCi/LI	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.542E-01	2.542E-01	0.423E-01	16.64	
		Total Activity :	2.542E-01	2.542E-01			
		Grand Total Activity :	2.542E-01	2.542E-01			

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

DATA
NOT USED
IN PACKAGE

Sample ID : WORKLIST#2486-BLA
Acquisition date : 27-SEP-1995 12:53:34

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	28.	477.59	1.7537E-01
NA-22	10.	1274.53	2.4573E-02
NA-24	3.	1368.55	1.4667E-02
K-40	141.	1460.75	9.7280E-01
SC-46	23.	1120.55	3.3455E-02
CR-51	38.	320.08	1.5322E-01
MN-54	14.	834.83	2.0786E-02
CO-56	7.	846.76	1.5132E-02
CO-57	68.	122.06	1.4242E-02
CO-58	14.	810.78	1.9893E-02
FE-59	12.	1099.25	4.2269E-02
CO-60	14.	1332.50	3.0451E-02
ZN-65	19.	1115.55	6.0784E-02
SE-75	70.	264.66	3.1145E-02
KR-85	49.	514.00	5.8424E+00
SR-85	49.	514.01	2.6360E-02
Y-88	2.	1836.06	1.3493E-02
Y-90	7.	1760.70	9.4336E-02
Y-91	7.	1204.67	6.6060E+00
NB-94	17.	871.09	2.3134E-02
NB-95	14.	765.78	1.8775E-02
ZR-95	19.	756.73	4.0243E-02
RU-103	20.	497.08	1.7407E-02
RURH-106	23.	621.93	4.1474E-01
AG-108m	11.	722.94	1.7869E-02
CD-109	72.	88.03	4.8467E-01
AG-110M	24.	657.76	2.3305E-02
SN-113	35.	391.69	2.7065E-02
TE-123m	87.	159.00	1.6619E-02
SB-124	27.	602.73	2.2015E-02
SB-125	44.	427.89	7.0704E-02
TE-125m	71.	109.27	4.7372E+00
I-129	52.	39.60	0.0000E+00
I-131	53.	364.48	2.4670E-02
XE-131m	73.	163.93	6.6066E-01
BA-133	45.	356.02	2.9423E-02
CS-134	27.	604.70	2.1989E-02
CS-136	14.	818.51	2.0389E-02
CS-138	6.	1435.86	4.5173E-02
CE-139	85.	165.85	1.7576E-02
BA-140	30.	537.31	8.4881E-02
LA-140	1.	1596.21	9.8677E-03
CE-141	78.	145.44	2.6662E-02
CE-144	58.	133.51	9.9615E-02
CEPR-144	58.	133.51	1.9901E-01
EU-152	11.	1408.01	1.3331E-01
EU-154	10.	1274.51	7.1538E-02
EU-155	81.	86.54	5.8620E-02
HF-181	30.	482.18	2.3256E-02
TA-182	62.	67.75	7.6718E-02
HG-203	63.	279.20	2.1915E-02

DATA NOT USED IN PACKAGE

Sample ID : WORKLIST#2486-BL Acquisition date : 27-SEP-1995 12:53:34

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BI-207	26.	569.70	2.0542E-02
TL-208	59.	277.36	2.7239E-01
PB-210	51.	46.50	0.0000E+00
BI-212	29.	727.18	3.8992E-01
PB-212	94.	238.63	4.4743E-02
BI-214	57.	609.31	7.0490E-02
PB-214	70.	351.92	1.1177E-01
RA-224	67.	240.99	4.1832E-01
RA-226	82.	186.10	4.2402E-01
AC-228	31.	911.21	1.2358E-01
TH-228	75.	84.37	1.5293E+00
TH-229	64.	88.47	6.6411E-02
U-232	63.	57.78	3.7151E+01
PA-233	66.	312.17	5.1687E-02
PA-234M	20.	1001.03	4.8011E-02
TH-234	60.	63.29	9.2341E-01
U-235	80.	185.71	2.5517E-02
NP-237	82.	86.48	1.5633E-01
U-237	60.	59.54	1.6964E-01
NP-238	17.	984.45	9.4006E-02
NP-239	64.	106.12	5.7313E-02
PU-239	88.	129.30	2.1394E+02
AM-241	60.	59.54	1.6273E-01
AM-243	80.	74.67	4.4003E-02

DATA
NOT USED
IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-SEP-1995 14:41:15.05                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2486
Sample ID:               S95T2021-SAM
Sample Size:             1.00000E-03 LI
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3306.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:07.62 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 13:50:23.60
Decayed to:              27-SEP-1995 13:50:23.60
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:

Verified by: 9/27/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	122.98	197	1.42	246.45	242	8	80.4		CO-57	7.333E-02
0	661.53*	56378	1.53	1323.23	1315	16	0.9		CS-137	63.7
0	723.32	32	1.09	1446.80	1443	8	53.8			
0	795.92	88	1.62	1592.00	1587	10	27.6			
0	877.39	45	10.78	1754.96	1743	32	88.4			
0	1275.64	50	2.58	2551.61	2542	24	37.8		NA-22	8.500E-02
0	1332.79	16	0.79	2665.95	2658	13	95.5			

DATA NOT USED IN PACKAGE

Sample ID : S95T2021-SAM
Acquisition date : 27-SEP-1995 13:50:23

Total number of lines in spectrum	7	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	6	85.71%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/LI	Wtd Mean Decay Corr uCi/LI	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~NA-22~~	~~2.60Y~~	~~1.000~~	~~8.500E-02~~	~~8.500E-02~~	~~3.220E-02~~	~~37.89~~	
~~CO-57~~	~~271.80D~~	~~1.000~~	~~7.332E-02~~	~~7.333E-02~~	~~5.898E-02~~	~~80.44~~	15 Eu
CS-137	30.00Y	1.000	6.372E+01	6.372E+01	0.055E+01	0.86	
			---	---			
Total Activity :			6.388E+01	6.388E+01			

Grand Total Activity : 6.388E+01 6.388E+01

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

WHC-SD-WM-DP-147, REV. 0

DATA
NOT USED
IN PACKAGE

Minimum Detectable Activity Report
Sample ID : S95T2021-SAM

Acquisition date : 27-SEP-1995 13:50:23

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	1747.	477.59	1.3771E+00
NA-24	7.	1368.55	2.2111E-02
K-40	117.	1460.75	8.8613E-01
SC-46	23.	1120.55	3.3725E-02
CR-51	1411.	320.08	9.3125E-01
MN-54	22.	834.83	2.5668E-02
CO-56	24.	846.76	2.7223E-02
CO-58	23.	810.78	2.5693E-02
FE-59	18.	1099.25	5.1301E-02
CO-60	22.	1332.50	3.8173E-02
ZN-65	15.	1115.55	5.4119E-02
SE-75	1593.	264.66	1.4822E-01
KR-85	888.	514.00	2.4819E+01
SR-85	887.	514.01	1.1221E-01
Y-88	3.	1836.06	1.8104E-02
Y-90	8.	1760.70	9.8447E-02
Y-91	15.	1204.67	9.6495E+00
NB-94	29.	871.09	3.0499E-02
NB-95	26.	765.78	2.5815E-02
ZR-95	40.	756.73	5.8530E-02
RU-103	1068.	497.08	1.2644E-01
RURH-106	318.	621.93	1.5281E+00
AG-108m	48.	722.94	3.6835E-02
CD-109	1577.	88.03	2.2757E+00
AG-110M	1259.	657.76	1.6711E-01
SN-113	1518.	391.69	1.7716E-01
TE-123m	1682.	159.00	7.3016E-02
SB-124	447.	602.73	8.9478E-02
SB-125	1840.	427.89	4.5524E-01
TE-125m	1686.	109.27	2.3138E+01
I-129	1274.	39.60	0.0000E+00
I-131	1406.	364.48	1.2747E-01
XE-131m	1606.	163.93	3.1031E+00
BA-133	1502.	356.02	1.6915E-01
CS-134	446.	604.70	8.9816E-02
CS-136	18.	818.51	2.2677E-02
CS-138	6.	1435.86	4.4544E-02
CE-139	1591.	165.85	7.6163E-02
BA-140	637.	537.31	3.8858E-01
LA-140	7.	1596.21	2.6533E-02
CE-141	1701.	145.44	1.2466E-01
CE-144	1662.	133.51	5.3408E-01
CEPR-144	1662.	133.51	1.0672E+00
EU-152	8.	1408.01	1.1318E-01
EU-154	40.	1274.51	1.4464E-01
EU-155	1663.	86.54	2.6500E-01
HF-181	1352.	482.18	1.5695E-01
TA-182	1418.	67.75	3.6756E-01
HG-203	1474.	279.20	1.0635E-01
BI-207	416.	569.70	8.2247E-02
TL-208	1536.	277.36	1.3946E+00

DATA NOT USED IN PACKAGE

Sample ID : S95T2021-SAM Acquisition date : 27-SEP-1995 13:50:23

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
B-210	1268.	46.50	0.0000E+00
BI-212	32.	727.18	4.0993E-01
PB-212	1740.	238.63	1.9270E-01
BI-214	384.	609.31	1.8277E-01
PB-214	1378.	351.92	4.9678E-01
RA-224	1682.	240.99	2.1033E+00
RA-226	2190.	186.10	2.1912E+00
AC-228	23.	911.21	1.0691E-01
TH-228	1583.	84.37	7.0217E+00
TH-229	1544.	88.47	3.2634E-01
U-232	1351.	57.78	1.7206E+02
PA-233	1431.	312.17	2.4021E-01
PA-234M	15.	1001.03	4.1423E-02
TH-234	1328.	63.29	4.3323E+00
U-235	2162.	185.71	1.3231E-01
NP-237	1661.	86.48	7.0152E-01
U-237	1386.	59.54	8.1406E-01
NP-238	17.	984.45	9.3609E-02
NP-239	1670.	106.12	2.9218E-01
PU-239	1671.	129.30	9.3123E+02
AM-241	1386.	59.54	7.8084E-01
AM-243	1436.	74.67	1.8685E-01

DATA
NOT USED
IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-SEP-1995 16:01:29.66                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2486
Sample ID:               S95T2021-DUP                    Removed by:
Sample Size:             1.00000E-03 LI
Dilution Factor:         1.00000E+00                     D H Milicia

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3                            Verified by:
File Number:             dka300:[spec.GEA3]3g3307.cnf
Geometry:                42                              B Machelon 9/27/95
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:09.32 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 15:10:37.22
Decayed to:              27-SEP-1995 15:10:37.22
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	604.49	158	1.97	1209.17	1206	8	42.8		CS-134	0.144
0	661.52*	71083	1.54	1323.21	1317	15	0.8		CS-137	80.3
0	724.17	33	0.93	1448.50	1441	16	94.9			
0	795.74	104	1.76	1591.64	1587	14	32.9		CS-134	0.137

WHC-SD-WM-DP-147, REV. 0

DATA
NOT USED
IN PACKAGE

Sample ID : S95T2021-DUP
Acquisition date : 27-SEP-1995 15:10:37

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/LI	Wtd Mean Decay Corr uCi/LI	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-134	2.06Y	1.000	1.397E-01	1.397E-01	0.365E-01	26.09	
CS-137	30.00Y	1.000	8.034E+01	8.034E+01	0.061E+01	0.76	
			---	---			
Total Activity :			8.048E+01	8.048E+01			
Grand Total Activity :			8.048E+01	8.048E+01			

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

DATA
NOT USED
IN PACKAGE

Sample ID : S95T2021-DUP
Acquisition date : 27-SEP-1995 15:10:37

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	2146.	477.59	1.5260E+00
NA-22	23.	1274.53	3.7797E-02
NA-24	8.	1368.55	2.3400E-02
K-40	139.	1460.75	9.6480E-01
SC-46	19.	1120.55	3.0661E-02
CR-51	1676.	320.08	1.0149E+00
MN-54	21.	834.83	2.5257E-02
CO-56	26.	846.76	2.8321E-02
CO-57	2132.	122.06	7.9917E-02
CO-58	33.	810.78	3.0714E-02
FE-59	12.	1099.25	4.2635E-02
CO-60	20.	1332.50	3.6076E-02
ZN-65	23.	1115.55	6.6547E-02
SE-75	1920.	264.66	1.6274E-01
KR-85	1090.	514.00	2.7503E+01
SR-85	1090.	514.01	1.2438E-01
Y-88	6.	1836.06	2.5327E-02
Y-90	8.	1760.70	1.0148E-01
Y-91	20.	1204.67	1.1219E+01
NB-94	25.	871.09	2.8608E-02
NB-95	27.	765.78	2.6581E-02
ZR-95	31.	756.73	5.1384E-02
RU-103	1349.	497.08	1.4209E-01
RURH-106	407.	621.93	1.7295E+00
AG-108m	53.	722.94	3.8844E-02
CD-109	1918.	88.03	2.5094E+00
AG-110M	1565.	657.76	1.8637E-01
SN-113	1801.	391.69	1.9296E-01
TE-123m	1923.	159.00	7.8070E-02
SB-124	525.	602.73	9.7011E-02
SB-125	2238.	427.89	5.0208E-01
TE-125m	1819.	109.27	2.4030E+01
I-129	1522.	39.60	0.0000E+00
I-131	1792.	364.48	1.4391E-01
XE-131m	1947.	163.93	3.4170E+00
BA-133	1723.	356.02	1.8115E-01
CS-136	21.	818.51	2.4890E-02
CS-138	8.	1435.86	5.1645E-02
CE-139	2026.	165.85	8.5941E-02
BA-140	749.	537.31	4.2137E-01
LA-140	10.	1596.21	3.1716E-02
CE-141	1975.	145.44	1.3435E-01
CE-144	2095.	133.51	5.9956E-01
CEPR-144	2095.	133.51	1.1980E+00
EU-152	9.	1408.01	1.2088E-01
EU-154	23.	1274.51	1.0991E-01
EU-155	1887.	86.54	2.8230E-01
HF-181	1784.	482.18	1.8027E-01
TA-182	1622.	67.75	3.9305E-01
HG-203	1815.	279.20	1.1799E-01
BI-207	495.	569.70	8.9745E-02

DATA NOT USED IN PACKAGE

Sample ID : S95T2021-DUP Acquisition date : 27-SEP-1995 15:10:37

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
TL-208	1865.	277.36	1.5367E+00
PB-210	1528.	46.50	0.0000E+00
BI-212	29.	727.18	3.9536E-01
PB-212	2200.	238.63	2.1668E-01
BI-214	401.	609.31	1.8663E-01
PB-214	1679.	351.92	5.4849E-01
RA-224	2139.	240.99	2.3720E+00
RA-226	2556.	186.10	2.3670E+00
AC-228	34.	911.21	1.2870E-01
TH-228	1811.	84.37	7.5104E+00
TH-229	1878.	88.47	3.5994E-01
U-232	1544.	57.78	1.8392E+02
PA-233	1750.	312.17	2.6565E-01
PA-234M	20.	1001.03	4.8098E-02
TH-234	1666.	63.29	4.8521E+00
U-235	2521.	185.71	1.4290E-01
NP-237	1883.	86.48	7.4687E-01
U-237	1581.	59.54	8.6962E-01
NP-238	20.	984.45	1.0242E-01
NP-239	1837.	106.12	3.0640E-01
PU-239	1999.	129.30	1.0186E+03
AM-241	1581.	59.54	8.3410E-01
AM-243	1708.	74.67	2.0378E-01

DATA
NOT USED
IN PACKAGE

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*****************************************************************************
* 222-S Laboratory Counting Room   27-SEP-1995 17:19:11.90                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2486
Sample ID:               S95T2037-SHM
Sample Size:             2.20000E-02 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3309.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.27 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 16:28:22.63
Decayed to:              27-SEP-1995 16:28:22.63
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 SEH
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: SE Hoga

Verified by: B Machelor 9/27/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	604.89	121	1.51	1209.97	1206	11	69.2		CS-134	5.045E-03
0	661.52*	60221	1.53	1323.21	1315	17	0.8		CS-137	3.09
0	724.67	27	1.68	1449.50	1442	16	119.4			
0	795.45	117	1.70	1591.07	1584	12	22.7		CS-134	7.004E-03
0	996.15	22	1.08	1992.50	1988	9	59.4			
0	1332.17	29	2.58	2664.72	2658	16	57.3			

DATA NOT USED IN PACKAGE

Summary of Nuclide Activity
Sample ID : S95T2037-DUP

Acquisition date : 27-SEP-1995 16:28:22

Total number of lines in spectrum	6	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	6	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-134	2.06Y	1.000	6.668E-03	6.668E-03	1.446E-03	21.69	
CS-137	30.00Y	1.000	3.094E+00	3.094E+00	0.026E+00	0.83	
		Total Activity :	3.101E+00	3.101E+00			
		Grand Total Activity :	3.101E+00	3.101E+00			

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

DATA NOT USED IN PACKAGE

Minimum Detectable Activity Report
Sample ID : S95T2037-DUP

Acquisition date : 27-SEP-1995 16:28:22

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1812.	477.59	6.3750E-02
NA-22	31.	1274.53	1.9801E-03
NA-24	7.	1368.55	1.0509E-03
K-40	127.	1460.75	4.1896E-02
SC-46	25.	1120.55	1.5851E-03
CR-51	1507.	320.08	4.3749E-02
MN-54	26.	834.83	1.2759E-03
CO-56	30.	846.76	1.3805E-03
CO-57	2117.	122.06	3.6194E-03
CO-58	21.	810.78	1.1245E-03
FE-59	15.	1099.25	2.1226E-03
CO-60	33.	1332.50	2.1393E-03
ZN-65	20.	1115.55	2.7792E-03
SE-75	1668.	264.66	6.8956E-03
KR-85	936.	514.00	1.1583E+00
SR-85	936.	514.01	5.2371E-03
Y-88	6.	1836.06	1.1660E-03
Y-90	10.	1760.70	5.1331E-03
Y-91	21.	1204.67	5.1584E-01
NB-94	36.	871.09	1.5516E-03
NB-95	24.	765.78	1.1399E-03
ZR-95	25.	756.73	2.0757E-03
RU-103	1115.	497.08	5.8717E-03
RURH-106	350.	621.93	7.2842E-02
AG-108m	51.	722.94	1.7308E-03
CD-109	1752.	88.03	1.0904E-01
AG-110M	1430.	657.76	8.0966E-03
SN-113	1665.	391.69	8.4317E-03
TE-123m	1789.	159.00	3.4226E-03
SB-124	448.	602.73	4.0719E-03
SB-125	1959.	427.89	2.1355E-02
TE-125m	1760.	109.27	1.0744E+00
I-129	1466.	39.60	0.0000E+00
I-131	1485.	364.48	5.9550E-03
XE-131m	1767.	163.93	1.4797E-01
BA-133	1429.	356.02	7.4988E-03
CS-136	24.	818.51	1.2076E-03
CS-138	6.	1435.86	2.0557E-03
CE-139	1833.	165.85	3.7151E-03
BA-140	664.	537.31	1.8035E-02
LA-140	5.	1596.21	1.0159E-03
CE-141	1922.	145.44	6.0238E-03
CE-144	1821.	133.51	2.5406E-02
CEPR-144	1821.	133.51	5.0770E-02
EU-152	7.	1408.01	4.8613E-03
EU-154	31.	1274.51	5.7565E-03
EU-155	1835.	86.54	1.2652E-02
HF-181	1445.	482.18	7.3759E-03
TA-182	1608.	67.75	1.7791E-02
HG-203	1573.	279.20	4.9930E-03
BI-207	432.	569.70	3.8076E-03

DATA NOT USED IN PACKAGE

Sample ID : S95T2037-DUP Acquisition date : 27-SEP-1995 16:28:22

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	1601.	277.36	6.4701E-02
PB-210	1430.	46.50	0.0000E+00
BI-212	31.	727.18	1.8590E-02
PB-212	1955.	238.63	9.2827E-03
BI-214	389.	609.31	8.3601E-03
PB-214	1509.	351.92	2.3632E-02
RA-224	1858.	240.99	1.0050E-01
RA-226	2246.	186.10	1.0087E-01
AC-228	37.	911.21	6.1490E-03
TH-228	1754.	84.37	3.3599E-01
TH-229	1734.	88.47	1.5723E-02
U-232	1498.	57.78	8.2356E+00
PA-233	1559.	312.17	1.1399E-02
PA-234M	25.	1001.03	2.4501E-03
TH-234	1465.	63.29	2.0682E-01
U-235	2230.	185.71	6.1083E-03
NP-237	1838.	86.48	3.3544E-02
U-237	1595.	59.54	3.9702E-02
NP-238	20.	984.45	4.6054E-03
NP-239	1955.	106.12	1.4370E-02
PU-239	1933.	129.30	4.5521E+01
AM-241	1595.	59.54	3.8082E-02
AM-243	1687.	74.67	9.2063E-03

DATA
NOT USED
IN PACKAGE

```
*****************************************************************************
* 222-S Laboratory Counting Room   27-SEP-1995 18:12:46.98                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2486
Sample ID:               S95T2037-DUP                    Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00                     D.H. Milicia

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3                            Verified by:
File Number:             dka300:[spec.GEA3]3g3310.cnf
Geometry:                42                              B Bachelor 9/27/95
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.85 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       27-SEP-1995 17:21:56.45
Decayed to:              27-SEP-1995 17:21:56.45
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 SEH
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	86.07	269	1.67	172.66	169	9	69.9		NP-237	0.995
0	123.09	469	1.50	246.67	243	9	39.8		CO-57	0.175
0	604.58	182	1.67	1209.35	1206	10	43.0		CS-134	0.166
0	661.52*	65007	1.52	1323.21	1316	16	0.8		CS-137	73.5
0	722.79	60	1.91	1445.75	1440	18	56.4			
0	795.47	108	1.47	1591.10	1585	14	27.4		CS-134	0.143
0	1274.80	43	1.86	2549.94	2543	17	37.5		NA-22	7.200E-02

DATA NOT USED IN PACKAGE

WHC-SD-WM-DP-147, REV. 0

Summary of Nuclide Activity
Sample ID : S95T2037-DUP Acquisition date : 27-SEP-1995 17:21:56

Total number of lines in spectrum	7	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	7	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~NA-22~~	~~2.60Y~~	~~1.000~~	~~7.200E-02~~	~~7.200E-02~~	~~2.702E-02~~	~~37.53~~	154Eu
~~CO-57~~	~~271.80D~~	~~1.000~~	~~1.746E-01~~	~~1.747E-01~~	~~0.695E-01~~	~~39.80~~	
CS-134	2.06Y	1.000	1.482E-01	1.482E-01	0.343E-01	23.14	
CS-137	30.00Y	1.000	7.347E+01	7.348E+01	0.059E+01	0.80	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~9.945E-01~~	~~9.945E-01~~	~~6.949E-01~~	~~69.87~~	BKG
			---	---			
Total Activity :			7.486E+01	7.486E+01			
Grand Total Activity :			7.486E+01	7.486E+01			

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

WHC-SD-WM-DP-147, REV. 0

DATA NOT USED IN PACKAGE

Minimum Detectable Activity Report
Sample ID : S95T2037-DUP

Acquisition date : 27-SEP-1995 17:21:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2007.	477.59	1.4759E+00
NA-24	9.	1368.55	2.5146E-02
K-40	117.	1460.75	8.8473E-01
SC-46	32.	1120.55	3.9814E-02
CR-51	1578.	320.08	9.8491E-01
MN-54	17.	834.83	2.2777E-02
CO-56	32.	846.76	3.1217E-02
CO-58	27.	810.78	2.7712E-02
FE-59	19.	1099.25	5.3322E-02
CO-60	24.	1332.50	3.9870E-02
ZN-65	25.	1115.55	6.8525E-02
SE-75	1735.	264.66	1.5472E-01
KR-85	1053.	514.00	2.7034E+01
SR-85	1052.	514.01	1.2218E-01
Y-88	4.	1836.06	2.0924E-02
Y-90	4.	1760.70	7.2462E-02
Y-91	9.	1204.67	7.4905E+00
NB-94	34.	871.09	3.3112E-02
NB-95	27.	765.78	2.6452E-02
ZR-95	37.	756.73	5.6137E-02
RU-103	1183.	497.08	1.3307E-01
RURH-106	400.	621.93	1.7147E+00
AG-108m	74.	722.94	4.5838E-02
CD-109	1938.	88.03	2.5227E+00
AG-110M	1496.	657.76	1.8221E-01
SN-113	1769.	391.69	1.9122E-01
TE-123m	1898.	159.00	7.7565E-02
SB-124	498.	602.73	9.4419E-02
SB-125	2134.	427.89	4.9023E-01
TE-125m	2020.	109.27	2.5324E+01
I-129	1546.	39.60	0.0000E+00
I-131	1574.	364.48	1.3485E-01
XE-131m	1946.	163.93	3.4162E+00
BA-133	1633.	356.02	1.7636E-01
CS-136	29.	818.51	2.9028E-02
CS-138	4.	1435.86	3.6929E-02
CE-139	1985.	165.85	8.5064E-02
BA-140	742.	537.31	4.1937E-01
LA-140	7.	1596.21	2.6108E-02
CE-141	1953.	145.44	1.3358E-01
CE-144	1907.	133.51	5.7209E-01
CEPR-144	1907.	133.51	1.1431E+00
EU-152	12.	1408.01	1.3941E-01
EU-154	40.	1274.51	1.4464E-01
EU-155	2059.	86.54	2.9489E-01
HF-181	1596.	482.18	1.7053E-01
TA-182	1658.	67.75	3.9749E-01
HG-203	1719.	279.20	1.1483E-01
BI-207	469.	569.70	8.7307E-02
TL-208	1716.	277.36	1.4740E+00
PB-210	1531.	46.50	0.0000E+00

DATA NOT USED IN PACKAGE

Sample ID : S95T2037-DUP Acquisition date : 27-SEP-1995 17:21:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-212	34.	727.18	4.2273E-01
PB-212	2091.	238.63	2.1121E-01
BI-214	415.	609.31	1.8984E-01
PB-214	1633.	351.92	5.4087E-01
RA-224	2101.	240.99	2.3507E+00
RA-226	2423.	186.10	2.3046E+00
AC-228	35.	911.21	1.3172E-01
TH-228	1875.	84.37	7.6416E+00
TH-229	1879.	88.47	3.5999E-01
U-232	1643.	57.78	1.8972E+02
PA-233	1634.	312.17	2.5671E-01
PA-234M	22.	1001.03	5.1122E-02
TH-234	1692.	63.29	4.8899E+00
U-235	2380.	185.71	1.3882E-01
U-237	1733.	59.54	9.1056E-01
NP-238	19.	984.45	9.9320E-02
NP-239	2052.	106.12	3.2389E-01
PU-239	2048.	129.30	1.0308E+03
AM-241	1733.	59.54	8.7340E-01
AM-243	1868.	74.67	2.1308E-01

DATA NOT USED IN PACKAGE

LABCORE Data Entry Template for Worklist# 2358

Analyst: SAC **Instrument:** GEA00 7 **Book #** 120B52

Method: LA-378-103 Rev/Mod C/O

Worklist Comment: Use 1 mL sample size and 1 mL of standard. sac

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@I129-01 I129-01	LIQUID			N/A	uCi/mL
		1	STD				@I129-01 I129-01C	LIQUID			N/A	% Recovery
		1	STD				@I129-01 I129-01E	LIQUID			N/A	% Ct. Error
		2	BLNK				@I129-01 I129-01	LIQUID			N/A	uCi/mL
		2	BLNK				@I129-01 I129-01E	LIQUID			N/A	% Ct. Error
95000126	AW-106 GRAB	3	SAMPLE	S95T002017	0		@I129-01 I129-01	LIQUID	N/A			uCi/mL
95000126	AW-106 GRAB	3	SAMPLE	S95T002017	0		@I129-01 I129-01C	LIQUID	N/A			% Recovery
95000126	AW-106 GRAB	3	SAMPLE	S95T002017	0		@I129-01 I129-01E	LIQUID	N/A			% Ct. Error

Final page for worklist # 2358

Analyst Signature 10/2/95 Date

Analyst Signature OCT 5 1995 Date

Data Entry Comments: Carrier 4751-D 1mL

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.

I-129: LA-378-101 (C-0), 103 (C-0) IODINE-129

			STD
	GROSS WEIGHT	(wt2)	2.1189
STD	TARE WEIGHT	(wt1)	2.0935
	MASS PRECIPITATE	(net wt)	0.0254
2358	I-129 µCi / SAMPLE from GEA	(I-129 GEA)	3.902E-4
	SAMPLE VOLUME in mL	(SS)	1.0000
@I129-01	DILUTION FACTOR	(DF)	1.0000
	DIGEST DILUTION FACTOR	(DDF)	1.0000
LIQUID	CARRIER FRACTIONAL RECOVERY	(Rec)	0.8328
	COUNT TIME IN MINUTES		100
95002522	COUNTING UNCERTAINTY	(%)	3.52
	STANDARD BOOK NUMBER		120B52
0	STANDARD VALUE in µCi /mL		5.34E-04

NOT LISTED

NOT LISTED — One mL of the solution is equivalent to 0.0305 grams.

WC38931 — Carrier Percent Recovery = (wt2-wt1)*100/0.0305

I-129 µCi/mL = (I-129 GEA)(DF)(DDF) / [(Rec)(SS)]

SAC

SAC

SAC

10/05/95

10/04/95

	Iodine 129 in µCi / mL	=	**4.69E-04**
04:00 PM	**Carrier Percent Recovery**		**83.3%**
	Counting Uncertainty		**3.5%**
AW-106	**Standard Recovery**	=	**87.7%**

Analyst:	SAC	Date:	10/05/95
Signature of Chemist:	SAC	Date:	OCT 5 1995

STANDARD.WB1 REV. 1.2 37810NML

WORKBOOK PAGE: BLANK2

I-129: LA-378-101 (C-0), 103 (C-0) IODINE-129

			BLNK
	GROSS WEIGHT	(wt2)	2.1397
BLNK	TARE WEIGHT	(wt1)	2.1146
	MASS PRECIPITATE	(net wt)	0.0251
2358	I-129 µCi / SAMPLE from GEA	(I-129 GEA)	<3.0567E-6
	SAMPLE VOLUME in mL	(SS)	1.0000
@I129-01	DILUTION FACTOR	(DF)	1.0000
	DIGEST DILUTION FACTOR	(DDF)	1.0000
LIQUID	CARRIER FRACTIONAL RECOVERY	(Rec)	0.8230
	COUNT TIME IN MINUTES		100
95002522	COUNTING UNCERTAINTY	(%)	N/A
	DETECTION LIMIT in µCi / mL	(DL)	3.7143E-06
0			
NOT LISTED			
NOT LISTED	One mL of the solution is equivalent to 0.0305 grams.		
WC38931	Carrier Percent Recovery = (wt2-wt1)*100/0.0305		
	I-129 µCi/mL = (I-129 GEA)(DF)(DDF) / [(Rec)(SS)]		
SAC	Detection Limit = I-129 µCi/mL		
SAC			
SAC			
10/05/95			
10/04/95			
	Iodine 129 in µCi / mL	<	**3.71E-06**
04:00 PM	**Carrier Percent Recovery**		**82.3%**
	Counting Uncertainty		**0.0%**
AW-106			

Analyst:	SAC	Date:	10/05/95
Signature of Chemist:	SAC	Date:	OCT 5 1995

BLANK.WB1 REV. 1.2 37810NML

WORKBOOK PAGE: SAM3

I-129: LA-378-101 (C-0), 103 (C-0) IODINE-129

			SAMPLE
	GROSS WEIGHT	(wt2)	2.1346
SAMPLE	TARE WEIGHT	(wt1)	2.1091
	MASS PRECIPITATE	(net wt)	0.0255
2358	I-129 µCi / SAMPLE from GEA	(I-129 GEA)	4.813E-5
	SAMPLE VOLUME in mL	(SS)	1.0000
@I129-01	DILUTION FACTOR	(DF)	1.0000
	DIGEST DILUTION FACTOR	(DDF)	1.0000
LIQUID	CARRIER FRACTIONAL RECOVERY	(Rec)	0.8361
	COUNT TIME IN MINUTES		100
95002522	COUNTING UNCERTAINTY	(%)	3.77
	DETECTION LIMIT in µCi / mL	(DL)	3.7143E-06
0			
NOT LISTED			
S95T002017	One mL of the solution is equivalent to 0.0305 grams.		
WC38931	Carrier Percent Recovery = (wt2-wt1)*100/0.0305		
	I-129 µCi/mL = (I-129 GEA)(DF)(DDF) / [(Rec)(SS)]		
SAC			
SAC			
SAC			
10/05/95			
10/04/95			
	Iodine 129 in µCi / mL	=	**5.76E-05**
04:00 PM	**Carrier Percent Recovery**		**83.6%**
	Counting Uncertainty		**3.8%**
AW-106			

Analyst:	SAC	Date:	10/05/95
Signature of Chemist:	SAC	Date:	OCT 5 1995

SAMPLE.WB1 REV 1. 37810NML

```
*****************************************************************************
* 222-S Laboratory Counting Room    5-OCT-1995 03:40:50.26                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              ML
Sample ID:               WRKLST#2358-STD                 Removed by:
Sample Size:             1.00000E+00
Dilution Factor:         1.00000E+00                     [signature] 10/5/95

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA7                            Verified by:
File Number:             dka300:[spec.GEA7]7g7131.cnf
Geometry:                1                                [signature] 10/5/95
Count Time:              0 01:40:00.00 sec
Real Time:               0 01:40:24.98 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       5-OCT-1995 01:59:45.83
Decayed to:              5-OCT-1995 01:59:45.83
Standard Deviations:     2
Analysis Library:        I129
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA7]7GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      5-JUN-1995 14:54:43.68
 Date of last efficiency calibration:  5-JUN-1995 14:57:32.67
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/SAMPLE
6	20.15	1007	1.62	99.28	89	27	12.6	1.93E+00		
6	21.62	626	0.79	106.69	89	27	14.7			
0	24.18	221	0.97	119.61	115	12	39.5			
0	29.88	29488	1.17	148.37	137	21	1.5			
0	33.98	6261	1.29	169.05	160	21	4.0			
0	39.75	4401	1.11	198.18	187	21	3.5		I-129	3.902E-04
0	656.34	157	0.64	3309.50	3306	8	43.1			

Summary of Nuclide Activity
Sample ID : WRKLST#2358-STD

Acquisition date : 5-OCT-1995 01:59:45

Total number of lines in spectrum	7	
Number of unidentified lines	5	
Number of lines tentatively identified by NID	2	28.57%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/SAMPLE	Wtd Mean Decay Corr uCi/SAMPLE	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
I-129	5.73E+09D	1.000	3.902E-04	3.902E-04	0.137E-04	3.52	
		Total Activity :	3.902E-04	3.902E-04			
		Grand Total Activity :	3.902E-04	3.902E-04			

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

Sample ID : WRKLST#2358-STD Acquisition date : 5-OCT-1995 01:59:45

All nuclides have been identified. No MDA report generated.

```
*****************************************************************************
* 222-S Laboratory Counting Room    5-OCT-1995 07:31:06.54                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              ML
Sample ID:               WRKLST#2358-BLNK
Sample Size:             1.00000E+00
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA7
File Number:             dka300:[spec.GEA7]7g7133.cnf
Geometry:                1
Count Time:              0 01:40:00.00 sec
Real Time:               0 01:42:16.50 sec
Dead Time:               2.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       5-OCT-1995 05:48:15.51
Decayed to:              5-OCT-1995 05:48:15.51
Standard Deviations:     2
Analysis Library:        I129
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA7]7GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       5-JUN-1995 14:54:43.68
 Date of last efficiency calibration:   5-JUN-1995 14:57:32.67
*****************************************************************************
```

Removed by: 10/5/95

Verified by: 10/7

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/SAMPLE
0	32.36	159	0.84	160.87	155	14	25.5			
0	656.16	196	1.15	3308.58	3305	8	29.1			

Sample ID : WRKLST#2358-BLNK Acquisition date : 5-OCT-1995 05:48:15

Total number of lines in spectrum	2	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	0	0.00%

**** There are no nuclides meeting summary criteria ****

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

Sample ID : WRKLST#2358-BLNK Acquisition date : 5-OCT-1995 05:48:15

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/SAMPLE)
I-129	55.	39.60	3.0567E-06

```
*****************************************************************************
* 222-S Laboratory Counting Room    5-OCT-1995 09:59:08.88                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2358
Sample ID:               S95T2017-SAM                    Removed by:
Sample Size:             1.00000E+00 ML
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA7                            Verified by:
File Number:             NI3AC:2.cnf
Geometry:                1
Count Time:              0 01:40:00.00 sec
Real Time:               0 01:41:03.49 sec
Dead Time:               1.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       5-OCT-1995 07:55:45.38
Decayed to:              5-OCT-1995 07:55:45.38
Standard Deviations:     2
Analysis Library:        I129
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA7]7GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      5-JUN-1995 14:54:43.68
 Date of last efficiency calibration:  5-JUN-1995 14:57:32.67
*****************************************************************************
```

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/SAMPl
6	20.10	214	1.69	99.04	91	21	26.9	4.27E+00		
6	21.37	181	1.18	105.44	91	21	26.0			
0	29.85	5357	1.10	148.24	137	21	3.8		I-129	4.813E-05
0	34.04	987	1.01	169.38	163	16	12.4			
0	39.79	789	0.90	198.38	191	16	9.1			
0	76.97	122	0.95	385.98	380	14	27.4			
0	349.22	121	1.34	1759.78	1751	21	29.5			
0	656.04	205	0.73	3307.97	3305	7	35.8			

Sample ID : S95T2017 Acquisition date : 5-OCT-1995 07:55:45

Total number of lines in spectrum	8	
Number of unidentified lines	6	
Number of lines tentatively identified by NID	2	25.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/SAMPLE	Wtd Mean Decay Corr uCi/SAMPLE	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
I-129	5.73E+09D	1.000	4.813E-05	4.813E-05	0.181E-05	3.77	
			---	---			
Total Activity :			4.813E-05	4.813E-05			
Grand Total Activity :			4.813E-05	4.813E-05			

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

Sample ID : S95T2017
Acquisition date : 5-OCT-1995 07:55:45

All nuclides have been identified. No MDA report generated.

LABCORE Data Entry Template for Worklist# 2357

Analyst: RJ McCown **Instrument:** LSC00 uc51586 **Book #** 33B52

Method: LA-348-104 Rev/Mod B-1

Worklist Comment: Use 1 mL sample size and 1 mL for standard. sac

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST		MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@C14-01	C14-01	LIQUID			N/A	uCi/mL
		1	STD				@C14-01	C14-01E	LIQUID			N/A	% Ct. Error
		2	BLNK				@C14-01	C14-01	LIQUID			N/A	uCi/mL
		2	BLNK				@C14-01	C14-01E	LIQUID			N/A	% Ct. Error
95000126	AW-106 GRAB	3	SAMPLE	S95T002017	0		@C14-01	C14-01	LIQUID	N/A			uCi/mL
95000126	AW-106 GRAB	3	SAMPLE	S95T002017	0		@C14-01	C14-01E	LIQUID	N/A			% Ct. Error

Final page for worklist # 2357

RJ McCown 9/25/95
Analyst Signature **Date**

M G Brunner 9/26/95
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.

Em Barker
09/25/95

ID: C-14

WHC-SD-WM-DP-147, REV. 0

25 SEP 1995 17:4(

USER: 2

COMMENT:LS 6500

PRESET TIME :	50.00						
DATA CALC :	SL DPM	H#	:YES	SAMPLE REPEATS:	1	PRINTER	: OFF
COUNT BLANK :	YES	IC#	: NO	REPLICATES :	1	RS232	: OFF
TWO PHASE :	NO	AQC	: NO	CYCLE REPEATS :	1	DISK	: OFF
SCINTILLATOR:	LIQUID	LUMEX	:YES	LOW SAMPLE REJ:	0		
LOW LEVEL :	NO	HALF LIFE CORRECTION DATE:				none	

ISOTOPE 1: C-14 %ERROR: 0.00 FACTOR: 1.000000 BKG. SUB: 0

BACKGROUND QUENCH CURVE: Off COLOR QUENCH CORRECTION: Off

Quench Limits Low:-5.577 High:307.61

SAM NO	POS	TIME MIN	H#	C-14 CPM	C-14 %ERROR	C-14 DPM	C-14 EFF-1	LUMEX %	ELAPSED TIME
B1	**-1	50.00	171.2	41.90	4.94	46.40	90.31	17.04	52.74
		Blank Average		DPM for	C-14 :	46.40	COEF. OF VAR:		0.000
1	**-3	50.00	154.1	3153.08	0.50	3397.38	91.56	0.12	105.03
2	**-4	50.00	152.4	40.54	4.52	-2.17	91.67	2.46	156.97
3	**-5	50.00	148.2	318.14	1.59	299.65	91.93	0.43	208.92

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WORKBOOK PAGE: STD1

C-14 : LA-348-104 (B-1) Carbon-14

			STD
Type	Disintegrations per Minute from Counter	(dpm)	3397.38
STD	Sample Volume in mL	(SS)	1
Work List	Dilution Factor	(DF)	1
2357	Digest Dilution Factor	(DDF)	1
Test Code	Background Count Rate in Counts per Minute	(BKG cpm)	41.9
@C14-01	Background Count Time in Minutes	(BKG time)	50
Matrix	Instrument Fractional Efficiency	(EFF)	0.9156
LIQUID	% Counting Uncertainty (from LSC)		0.5
Batch Number	Standard Book Number		33B52
95002523	Standard Value in µCi/mL		1.68E-03
Rerun	Detection Limit (dpm)	(Ld)	4.72
0	Critical Level	(Lc)	2.13

Sample Prep
N/A
Sample Number
WRKLST#2357
Instrument Code
WC51586
Prepared By
MCB
Chemist
SAC
Analyst
PJM
Date Complete
09/26/95
Analysis Date
09/25/95
Analysis Time
12:45 PM
Sample Point
AW-106 GRAB

Critical Level (Lc) = 2.33 [Square Root of (BKG cpm / BKG time)]

Detection Limit (Ld) = [(2.72 / BKG time) + (2) (Lc)] / EFF

C-14 µCi/L = (dpm) (1000mL/L) (DF) (DDF) / [(SS) (2220000dpm/µCi)]

µCi/mL = µCi/L / 1000mL/L

Detection Limit (µCi/mL) = (Ld)(DF)(DDF) / [(SS) (2220000 dpm/µCi)]

% Recovery	91.09%
C-14 Concentration in µCi/L	1.53E+00
C-14 Concentration in µCi/mL	1.53E-03
Detection Limit in µCi/mL	2.13E-06

Analyst:	PJM	Date:	09/26/95
Signature of Chemist:	SAC	Date:	SEP 27 1995

STANDARD.WB1 REV 1. 348104ML

WORKBOOK PAGE: BLANK2

C-14 : LA-348-104 (B-1) Carbon-14

			BLNK
Type	Disintegrations per Minute from Counter	(dpm)	-2.17
BLNK	Sample Volume in mL	(SS)	1
Work List	Dilution Factor	(DF)	1
2357	Digest Dilution Factor	(DDF)	1
Test Code	Background Count Rate in Counts per Minute	(BKG cpm)	41.9
@C14-01	Background Count Time in Minutes	(BKG time)	50
Matrix	Instrument Fractional Efficiency	(EFF)	0.9167
LIQUID	% Counting Uncertainty (from LSC)		4.52
Batch Number	Detection Limit (dpm)	(Ld)	4.71
95002523	Critical Level	(Lc)	2.13

Rerun
0
Sample Prep
N/A
Sample Number
WRKLST#2357
Instrument Code
WC51586
Prepared By
MCB
Chemist
SAC
Analyst
PJM
Date Complete
09/26/95
Analysis Date
09/25/95
Analysis Time
12:45 PM
Sample Point
AW-106 GRAB

Critical Level (Lc) = 2.33 [Square Root of (BKG cpm / BKG time)]

Detection Limit (Ld) = [(2.72 / BKG time) + (2) (Lc)] / EFF

C-14 µCi/L = (dpm) (1000mL/L) (DF) (DDF) / [(SS) (2220000dpm/µCi)]

µCi/mL = µCi/L / 1000mL/L

Detection Limit (µCi/mL) = (Ld)(DF)(DDF) / [(SS)(2220000 dpm/µCi)]

NOTE: Reported result is a LESS THAN value calculated from the statistical Detection Limit (Ld).

C-14 Concentration in µCi/L	<	2.12E-03
C-14 Concentration in µCi/mL	<	2.12E-06
Detection Limit in µCi/mL		2.12E-06

Analyst:	PJM	Date:	09/26/95
Signature of Chemist:	SAC	Date:	SEP 27 1995

BLANK.WB1 REV 1.1 348104ML

WORKBOOK PAGE: SAM3

C-14 : LA-348-104 (B-1) Carbon-14

			SAMPLE
Type	Disintegrations per Minute from Counter	(dpm)	299.65
SAMPLE	Sample Volume in mL	(SS)	1
Work List	Dilution Factor	(DF)	1
2357	Digest Dilution Factor	(DDF)	1
Test Code	Background Count Rate in Counts per Minute	(BKG cpm)	41.9
@C14-01	Background Count Time in Minutes	(BKG time)	50
Matrix	Instrument Fractional Efficiency	(EFF)	0.9193
LIQUID	% Counting Uncertainty (from LSC)		1.59
Batch Number	Detection Limit (dpm)	(Ld)	4.70
95002523	Critical Level	(Lc)	2.13

Rerun
0
Sample Prep
N/A
Sample Number
S95T002017
Instrument Code
WC51586
Prepared By
MCB
Chemist
SAC
Analyst
PJM
Date Complete
09/26/95
Analysis Date
09/25/95
Analysis Time
12:45 PM
Sample Point
AW-106 GRAB

Critical Level (Lc) = 2.33 [Square Root of (BKG cpm / BKG time)]

Detection Limit (Ld) = [(2.72 / BKG time) + (2) (Lc)] / EFF

C-14 µCi/L = (dpm) (1000mL/L) (DF) (DDF) / [(SS) (2220000dpm/µCi)]

µCi/mL = µCi/L / 1000mL/L

Detection Limit (µCi/mL) = (Ld)(DF)(DDF) / [(SS)(2220000 dpm/µCi)]

C-14 Concentration in µCi/L	1.35E-01
C-14 Concentration in µCi/mL	1.35E-04
Detection Limit in µCi/mL	2.12E-06

Analyst:	PJM	Date:	09/26/95
Signature of Chemist:	SAC	Date:	SEP 27 1995

SAMPLE.WB1 REV 1.1 348104ML

LABCORE Data Entry Template for Worklist# 2293

Analyst: SMF **Instrument:** LSC00 WB27818 **Book #** 131B52

Method: LA-438-101 Rev/Mod D-2

Worklist Comment: .25 ml sample size / jls

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@TC99-01 TC99-01	LIQUID	3.80	3.78	N/A	uCi/mL
		1	STD				@TC99-01 TC99-01E	LIQUID	1	1.7	N/A	% Ct. Error
		1	STD				@TC99-01 TC99-01T	LIQUID	100	51.1	N/A	% Recovery
		2	BLNK				@TC99-01 TC99-01	LIQUID	~~3.78~~ 1	<4.06E-05	N/A	uCi/mL
		2	BLNK				@TC99-01 TC99-01E	LIQUID	1	7.98	N/A	% Ct. Error
		2	BLNK				@TC99-01 TC99-01T	LIQUID	100	50.2	N/A	% Recovery
95000075	SEE	3	SAMPLE	S95T002178	0		@TC99-01 TC99-01	LIQUID	N/A	I/S		uCi/mL
95000075	SEE	3	SAMPLE	S95T002178	0		@TC99-01 TC99-01T	LIQUID	N/A	I/S		% Recovery
95000075	SEE	3	SAMPLE	S95T002178	0		@TC99-01 TC99-01E	LIQUID	N/A	I/S		% Ct. Error
95000075	SEE	4	DUP	S95T002178	0		@TC99-01 TC99-01	LIQUID		I/S	N/A	uCi/mL
95000075	SEE	4	DUP	S95T002178	0		@TC99-01 TC99-01E	LIQUID		I/S	N/A	% Ct. Error
95000075	SEE	4	DUP	S95T002178	0		@TC99-01 TC99-01T	LIQUID		I/S	N/A	% Recovery
95000126	AW-106 GRAB	5	SAMPLE	S95T002017	0		@TC99-01 TC99-01	LIQUID	N/A	3.52E-02		uCi/mL
95000126	AW-106 GRAB	5	SAMPLE	S95T002017	0		@TC99-01 TC99-01T	LIQUID	N/A	44.4		% Recovery
95000126	AW-106 GRAB	5	SAMPLE	S95T002017	0		@TC99-01 TC99-01E	LIQUID	N/A	0.6		% Ct. Error

Final page for worklist # 2293

Susie M. Fulton 9-15-95 R Jones 9-18-95

Data Entry Comments:
.250ml Std #131B52 ; .100ml Spk # 80B52
Unable to locate S95T002178 - go ahead per JLS.
REPORTED AS INSSUFICIENT SAMPLE. RJ

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.

A L Johnson 9-15-95

ID: TC 99 15 SEP 1995 20:

USER: 5 COMMENT:LS 6000

PRESET TIME : 20.00

DATA CALC :	SL DPM	H#	:YES	SAMPLE REPEATS:	1	PRINTER	: S
COUNT BLANK :	YES	IC#	: NO	REPLICATES :	1	RS232	:ED
TWO PHASE :	YES	AOC	: NO	CYCLE REPEATS :	1		
SCINTILLATOR:	LIQUID	LUMEX	:YES	LOW SAMPLE REJ:	0		
LOW LEVEL :	NO	HALF LIFE CORRECTION DATE:				none	

ISOTOPE 1: TC99 %ERROR: 0.00 FACTOR: 1.000000 BKG. SUB: 0

BACKGROUND QUENCH CURVE: Off COLOR QUENCH CORRECTION: Off

Quench Limits Low:90.803 High:343.63

SAM NO	POS	TIME MIN	H#	TC99 CPM	TC99 %ERROR	TC99 DPM	TC99 EFF-1	LUMEX %	ELAPSED TIME	2P
21	**-4	20.00	74.7	45.35	6.64	46.85	96.79	0.09	20.59	

WARNING: QUENCH VALUE IS OUTSIDE QUENCH LIMIT

Blank Average DPM for TC99 : 46.85 COEF. OF VAR: 0.000

1	**-3	20.00	168.8	722.25	1.70	714.60	94.85	4.09	43.07	
2	**-4	20.00	170.6	3619.80	0.75	3771.75	94.79	0.80	65.22	
3	**-5	20.00	167.1	48.45	7.98	4.20	94.90	30.62	87.30	
4	**-6	20.00	173.0	2894.95	0.63	3009.60	94.72	0.57	109.21	
5	**-7	20.00	168.3	8066.60	0.50	8456.10	94.87	0.31	131.35	
6	**-8	20.00	170.4	5538.20	0.60	5795.17	94.80	0.48	153.47	

BEST AVAILABLE COPY

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-147, REV. 0

Tc-99 : LA-438-101 (D-2) LIQUID

			BLANK
Type	Spike (Tracer) Book Number		80B52
BLANK	Activity for 100µl of Spike Added in dpm	(dm3)	8982.2
Work List	Volume of Sample in mL	(SS)	0.25
2293	Dilution Factor	(DF)	1
Test Code	Digest Dilution Factor	(DDF)	1
	dpm of Sample from Liquid Scintillation Counter	(dm1)	4.2
Matrix	dpm of Sample+Spike from Liquid Scintillation Counter	(dm2)	3009.6
LIQUID	Background cpm	(BKG cpm)	45.35
Sample #	Background Time Counted in Minutes	(BKG time)	20
BLANK	Instrument Fractional Efficiency	(EFF)	0.949
Instrument Code	% Counting Error		7.98
	Detection Limit	(Ld)	7.54
Analyst	Critical Level	(Lc)	3.51
S. FULTON	Tc-99 Concentration in µCi/L =	<	4.0590E-02
Date			
09/15/95	Critical Level (Lc) = 2.33 * the Square Root of (BKG cpm / BKG time)		
Time	Detection Limit (Ld) = ((2.72 / BKG time) + (2 * Lc)) / EFF		
08:25 PM	Detection Level = Ld * dm3 * DF * DDF / ((2220000dpm/µCi) * SS * (dm2 - dm1))		

Tc-99 µCi/L = (dm1 * (1000mL/L) * dm3 * DF * DDF) / ((2220000dpm/µCi) * SS * (dm2 - dm1))
Tc-99 µCi/mL = µCi/L / (1000mL/L)
Spike (Tracer) Recovery = (dm2 - dm1) * 1.5 * 100 / dm3

NOTE: Reported result is a LESS THAN value calculated from the statistical Detection Limit (Ld).

v RESULTS v

RESULT				DETECTION LEVEL
	Tc-99 Concentration in µCi/mL =	<	4.06E-05	
	% Counting Error =		7.98	
	Spike (Tracer) Recovery =		50.2%	4.06E-05 µCi/mL

Data Entry by:		Date:	09/18/95
Approved by:		Date:	9/18/95

Form 438101_C Rev. 1.0

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-147, REV. 0

Tc-99 : LA-438-101 (D-2) LIQUID

			STANDARD
Type	Spike (Tracer) Book Number		80B52
STANDARD	Activity for 100µl of Spike Added in dpm	(dm3)	8982.2
Work List	Volume of Sample in mL	(SS)	0.25
2293	Dilution Factor	(DF)	1
Test Code	Digest Dilution Factor	(DDF)	1
	dpm of Sample from Liquid Scintillation Counter	(dm1)	714.6
Matrix	dpm of Sample+Spike from Liquid Scintillation Counter	(dm2)	3771.75
LIQUID	Background cpm	(BKG cpm)	45.35
Sample #	Background Time Counted in Minutes	(BKG time)	20
131B52	Instrument Fractional Efficiency	(EFF)	0.9485
Instrument Code	% Counting Error		1.7
	Detection Limit	(Ld)	7.54
Analyst	Critical Level	(Lc)	3.51
S. FULTON	Tc-99 Concentration in µCi/L =		3.7830E+00
Date			
09/15/95	Critical Level (Lc) = 2.33 * the Square Root of (BKG cpm / BKG time)		
Time	Detection Limit (Ld) = ((2.72 / BKG time) + (2 * Lc)) / EFF		
08:25 PM	Detection Level = Ld * dm3 * DF * DDF / ((2220000dpm/µCi) * SS * (dm2 - dm1))		
	Tc-99 µCi/L = (dm1 * (1000mL/L) * dm3 * DF * DDF) / ((2220000dpm/µCi) * SS * (dm2 - dm1))		
	Tc-99 µCi/mL = µCi/L / (1000mL/L)		
	Spike (Tracer) Recovery = (dm2 - dm1) * 1.5 * 100 / dm3		

v RESULTS v

RESULT	Tc-99 Concentration in µCi/mL =	3.78E-03	DETECTION LEVEL
	% Counting Error =	1.7	
	Spike (Tracer) Recovery =	51.1%	3.99E-05 µCi/mL

Data Entry by:		Date:	09/18/95
Approved by:		Date:	9/18/95

Form 438101_C Rev. 1.0

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-147, REV. 0

Tc-99 : LA-438-101 (D-2) LIQUID

			SAMPLE
Type	Spike (Tracer) Book Number		80B52
SAMPLE	Activity for 100µl of Spike Added in dpm	(dm3)	8982.2
Work List	Volume of Sample in mL	(SS)	0.25
2293	Dilution Factor	(DF)	1
Test Code	Digest Dilution Factor	(DDF)	1
	dpm of Sample from Liquid Scintillation Counter	(dm1)	5795.17
Matrix	dpm of Sample+Spike from Liquid Scintillation Counter	(dm2)	8456.1
LIQUID	Background cpm	(BKG cpm)	45.35
Sample #	Background Time Counted in Minutes	(BKG time)	20
S95T002017	Instrument Fractional Efficiency	(EFF)	0.948
Instrument Code	% Counting Error		0.6
	Detection Limit	(Ld)	7.55
Analyst	Critical Level	(Lc)	3.51
S. FULTON	Tc-99 Concentration in µCi/L =		3.5247E+01
Date			
09/15/95	Critical Level (Lc) = 2.33 * the Square Root of (BKG cpm / BKG time)		
Time	Detection Limit (Ld) = ((2.72 / BKG time) + (2 * Lc)) / EFF		
08:25 PM	Detection Level = Ld * dm3 * DF * DDF / ((2220000dpm/µCi) * SS * (dm2 - dm1))		

Tc-99 µCi/L = (dm1 * (1000mL/L) * dm3 * DF * DDF) / ((2220000dpm/µCi) * SS * (dm2 - dm1))
Tc-99 µCi/mL = µCi/L / (1000mL/L)
Spike (Tracer) Recovery = (dm2 - dm1) * 1.5 * 100 / dm3

v RESULTS v

RESULT	Tc-99 Concentration in µCi/mL =	3.52E-02	DETECTION LEVEL
	% Counting Error =	0.6	
	Spike (Tracer) Recovery =	44.4%	4.59E-05 µCi/mL

Data Entry by:	[signature]	Date:	09/18/95
Approved by:	[signature]	Date:	9/18/95

Form 438101_C Rev. 1.0

330

LABCORE Data Entry Template for Worklist# 2298

Analyst: S.L **Instrument:** AB00 WB27811 **Book #** 51852

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

Worklist Comment: Determine sample size using Ludlum. SLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
		1	STD				@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
		1	STD				@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
		2	BLNK				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
		2	BLNK				@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
		2	BLNK				@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
		3	BLNK/BKG	2a			@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000126	AW-106 GRAB	4	SAMPLE	S95T002017	0		@SR90-01 SR90-01	LIQUID	N/A			uCi/mL
95000126	AW-106 GRAB	4	SAMPLE	S95T002017	0		@SR90-01 SR90-01C	LIQUID	N/A			% Recovery
95000126	AW-106 GRAB	4	SAMPLE	S95T002017	0		@SR90-01 SR90-01E	LIQUID	N/A			% Ct. Error
95000126	AW-106 GRAB	5	SAMPLE	S95T002031	0		@SR90-01 SR90-01	LIQUID	N/A			uCi/mL
95000126	AW-106 GRAB	5	SAMPLE	S95T002031	0		@SR90-01 SR90-01C	LIQUID	N/A			% Recovery
95000126	AW-106 GRAB	5	SAMPLE	S95T002031	0		@SR90-01 SR90-01E	LIQUID	N/A			% Ct. Error
95000126	AW-106 GRAB	6	DUP	S95T002031	0		@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000126	AW-106 GRAB	6	DUP	S95T002031	0		@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
95000126	AW-106 GRAB	6	DUP	S95T002031	0		@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
95000126	AW-106 GRAB	7	SAMPLE	S95T002039	0		@SR90-01 SR90-01	LIQUID	N/A			uCi/mL
95000126	AW-106 GRAB	7	SAMPLE	S95T002039	0		@SR90-01 SR90-01C	LIQUID	N/A			% Recovery

Data Entry Comments: Sample # S95T002039 will be rerun due to high RPD. A lower dilution will be used. RCE 10/16/95

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# 2298

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
95000126	AW-106 GRAB	7	SAMPLE	S95T002039	0		@SR90-01 SR90-01E	LIQUID	N/A			% Ct. Error
95000126	AW-106 GRAB	8	DUP	S95T002039	0		@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000126	AW-106 GRAB	8	DUP	S95T002039	0		@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
95000126	AW-106 GRAB	8	DUP	S95T002039	0		@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error

Final page for worklist # 2298

Sue C Lai 9-29-95 ~~9-29-95~~ (SL)
Analyst Signature **Date**

[signature] 10/2/95
Analyst Signature **Date**

Data Entry Comments:

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

WORKBOOK PAGE: 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)	9643	GROSS WEIGHT	(W2)	7.9628
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.8707
2298	BACKGROUND in cpm	(BKG)	1.9	NET WEIGHT	(W3)	0.0921
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	8.42
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	DDF	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	962.40	SR-90 EFFICIENCY FACTO	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.83	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95002431	TIME OF SEPARATION	(ST)	11:20	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	09/29/95	DETECTION LIMIT	(Ld)	1.75
0	TIME OF COUNT	(TOC)	19:45	Sr-89/90 CONC. in µCi/L		1.0267E+00
Sample Prep	DATE OF COUNT	(DOC)	09/29/95			
N/A	STANDARD BOOK #		51B52			
Sample #	STANDARD VALUE in µCi/mL		1.0921E-03			
WRKLST#2298						
Instrument Code						
WB27811						
Prepared By						
CMB						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
10/02/95						
Analysis Date						
09/29/95						
Analysis Time						
02:00 PM						
Sample Point						
AW-106 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

Sr-89/90 CONCENTRATION	1.03E-03	µCi/mL
RELATIVE COUNTING ERROR	2.0%	
PERCENT CARRIER RECOVERY	92.1%	

DETECTION LEVEL

1.87E-06 µCi/L

Analyst:	SCL	Date:	02-Oct-95
Signature of Chemist:	SLF	Date:	10/5/95

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)	32	GROSS WEIGHT	(W2)		7.9733
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.8822
2298	BACKGROUND in cpm	(BKG)	1.9	NET WEIGHT	(W3)		0.0911
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		8.67
@SR90-01	DILUTION FACTOR	(DF)	10201				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1.30	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.83	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
95002431	TIME OF SEPARATION	(ST)	11:20	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	09/29/95	DETECTION LIMIT	(Ld)		1.75
0	TIME OF COUNT	(TOC)	20:00	Sr-89/90 CONC in µCi/L			1.4266E+01
Sample Prep	DATE OF COUNT	(DOC)	09/29/95				
N/A							
Sample #							
WRKLST#2298							
Instrument Code							
WB27811							
Prepared By							
CMB							
Chemist							
SLF							
Analyst							
SCL							
Date Complete							
10/02/95							
Analysis Date							
09/29/95							
Analysis Time							
02:00 PM							
Sample Point							
AW-106 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

Sr-89/90 CONCENTRATION	1.43E-02	µCi/m	DETECTION LEVEL
RELATIVE COUNTING ERROR	107.7%		1.92E-02 µCi/mL
PERCENT CARRIER RECOVERY	91.1%		

Analyst:	SCL	Date:	02-Oct-95
Signature of Chemist:	SLF	Date:	10/5/95

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

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

							SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	50	GROSS WEIGHT	(W2)		7.9586
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.8673
2298	BACKGROUND in cpm	(BKG)	1.9	NET WEIGHT	(W3)		0.0913
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		8.92
@SR90-01	DILUTION FACTOR	(DF)	10201				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	3.10	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.83	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
95002431	TIME OF SEPARATION	(ST)	11:20	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	09/29/95	DETECTION LIMIT	(Ld)		1.75
0	TIME OF COUNT	(TOC)	20:15	Sr-89/90 CONC in µCi/L			3.3861E+01
Sample Prep	DATE OF COUNT	(DOC)	09/29/95				
N/A							
Sample #							
S95T002017							
Instrument Code							
WB27811							
Prepared By							
CMB							
Chemist							
SLF							
Analyst							
SCL							
Date Complete							
10/02/95							
Analysis Date							
09/29/95							
Analysis Time							
02:00 PM							
Sample Point							
AW-106 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

Sr-89/90 CONCENTRATION	3.39E-02	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	52.5%		1.91E-02 µCi/mL
PERCENT CARRIER RECOVERY	91.3%		

Analyst:	SCL	Date:	02-Oct-95
Signature of Chemist:	SLF	Date:	10/5/95

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM5

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

							SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	379	GROSS WEIGHT	(W2)		7.9693
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.8782
2298	BACKGROUND in cpm	(BKG)	1.9	NET WEIGHT	(W3)		0.0911
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		9.50
@SR90-01	DILUTION FACTOR	(DF)	10201				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	36.00	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.83	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
95002431	TIME OF SEPARATION	(ST)	11:20	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	09/29/95	DETECTION LIMIT	(Ld)		1.75
0	TIME OF COUNT	(TOC)	20:50	Sr-89/90 CONC in µCi/L			3.9183E+02
Sample Prep	DATE OF COUNT	(DOC)	09/29/95				
N/A							
Sample #							
S95T002031							
Instrument Code							
WB27811							
Prepared By							
CMB							
Chemist							
SLF							
Analyst							
SCL							
Date Complete							
10/02/95							
Analysis Date							
09/29/95							
Analysis Time							
02:00 PM							
Sample Point							
AW-106 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	3.92E-01	µCi/mL	1.91E-02 µCi/mL
RELATIVE COUNTING ERROR	10.9%		
PERCENT CARRIER RECOVERY	91.1%		

Analyst:		SCL	Date:	02-Oct-95
Signature of Chemist:		SLF	Date:	10/5/95

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP6

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

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	367	GROSS WEIGHT	(W2)		7.0333
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		6.9426
2298	BACKGROUND in cpm	(BKG)	1.9	NET WEIGHT	(W3)		0.0907
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		9.75
@SR90-01	DILUTION FACTOR	(DF)	10201				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	34.80	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.83	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
95002431	TIME OF SEPARATION	(ST)	11:20	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	09/29/95	DETECTION LIMIT	(Ld)		1.75
0	TIME OF COUNT	(TOC)	21:05	Sr-89/90 CONC in µCi/L			3.7951E+02
Sample Prep	DATE OF COUNT	(DOC)	09/29/95				
N/A							
Sample #							
S95T002031							
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)						
CMB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
10/02/95							
Analysis Date							DETECTION LEVEL
09/29/95	Sr-89/90 CONCENTRATION			3.80E-01	µCi/mL		
Analysis Time							
02:00 PM	RELATIVE COUNTING ERROR			11.1%			1.91E-02 µCi/mL
Sample Point							
AW-106 GRAB	PERCENT CARRIER RECOVERY			90.7%			

Analyst:		SCL	Date:	02-Oct-95
Signature of Chemist:	[signature]	SLF	Date:	10/5/95

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM7

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

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	134	GROSS WEIGHT	(W2)	8.0434
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9527
2298	BACKGROUND in cpm	(BKG)	1.9	NET WEIGHT	(W3)	0.0907
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	10.10
@SR90-01	DILUTION FACTOR	(DF)	10201			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	11.50	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.83	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95002431	TIME OF SEPARATION	(ST)	11:20	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	09/29/95	DETECTION LIMIT	(Ld)	1.75
0	TIME OF COUNT	(TOC)	21:26	Sr-89/90 CONC in µCi/L		1.2499E+02
Sample Prep	DATE OF COUNT	(DOC)	09/29/95			
N/A						
Sample #						
S95T002039						
Instrument Code						
WB27811						
Prepared By						
CMB						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
10/02/95						
Analysis Date						
09/29/95						
Analysis Time						
02:00 PM						
Sample Point						
AW-106 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

Sr-89/90 CONCENTRATION	1.25E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	21.1%		1.90E-02 µCi/mL
PERCENT CARRIER RECOVERY	90.7%		

Analyst:		SCL	Date:	02-Oct-95
Signature of Chemist:	[signature]	SLF	Date:	10/5/95

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP8

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

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	107	GROSS WEIGHT	(W2)		7.0543
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		6.9665
2298	BACKGROUND in cpm	(BKG)	1.9	NET WEIGHT	(W3)		0.0878
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		10.32
@SR90-01	DILUTION FACTOR	(DF)	10201				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	8.80	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.83	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
95002431	TIME OF SEPARATION	(ST)	11:20	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	09/29/95	DETECTION LIMIT	(Ld)		1.75
0	TIME OF COUNT	(TOC)	21:39	Sr-89/90 CONC in µCi/L			9.8594E+01
Sample Prep	DATE OF COUNT	(DOC)	09/29/95				
N/A							
Sample #							
S95T002039							
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)						
CMB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
10/02/95							
Analysis Date							DETECTION LEVEL
09/29/95	Sr-89/90 CONCENTRATION			9.86E-02		µCi/mL	
Analysis Time							
02:00 PM	RELATIVE COUNTING ERROR			25.0%			1.96E-02 µCi/mL
Sample Point							
AW-106 GRAB	PERCENT CARRIER RECOVERY			87.8%			

Analyst:	SCL	Date:	02-Oct-95
Signature of Chemist:	SLF	Date:	10/5/95

SAMPLE.WB1 REV 1.2 22010NM

LABCORE Data Entry Template for Worklist# 2493

Analyst: Sue C Lai **Instrument:** AB00 12 WB 27811 **Book #** 51852

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

Worklist Comment: Determine sample size using Ludlum. SLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@SR90-01 SR90-01	SOLID			N/A	uCi/g
		1	STD				@SR90-01 SR90-01C	SOLID			N/A	% Recovery
		1	STD				@SR90-01 SR90-01E	SOLID			N/A	% Ct. Error
		2	BLNK-PREP				@SR90-01 SR90-01	SOLID			N/A	uCi/g
		2	BLNK-PREP				@SR90-01 SR90-01C	SOLID			N/A	% Recovery
		2	BLNK-PREP				@SR90-01 SR90-01E	SOLID			N/A	% Ct. Error
		3	BLNK/BKG				@SR90-01 SR90-01	SOLID			N/A	uCi/g
95000126	AW-106 GRAB	4	SAMPLE	S95T002021	0	F	@SR90-01 SR90-01	SOLID	N/A			uCi/g
95000126	AW-106 GRAB	4	SAMPLE	S95T002021	0	F	@SR90-01 SR90-01C	SOLID	N/A			% Recovery
95000126	AW-106 GRAB	4	SAMPLE	S95T002021	0	F	@SR90-01 SR90-01E	SOLID	N/A			% Ct. Error
95000126	AW-106 GRAB	5	DUP	S95T002021	0	F	@SR90-01 SR90-01	SOLID			N/A	uCi/g
95000126	AW-106 GRAB	5	DUP	S95T002021	0	F	@SR90-01 SR90-01C	SOLID			N/A	% Recovery
95000126	AW-106 GRAB	5	DUP	S95T002021	0	F	@SR90-01 SR90-01E	SOLID			N/A	% Ct. Error
95000126	AW-106 GRAB	6	SAMPLE	S95T002037	0	F	@SR90-01 SR90-01	SOLID	N/A			uCi/g
95000126	AW-106 GRAB	6	SAMPLE	S95T002037	0	F	@SR90-01 SR90-01C	SOLID	N/A			% Recovery
95000126	AW-106 GRAB	6	SAMPLE	S95T002037	0	F	@SR90-01 SR90-01E	SOLID	N/A			% Ct. Error
95000126	AW-106 GRAB	7	DUP	S95T002037	0	F	@SR90-01 SR90-01	SOLID			N/A	uCi/g
95000126	AW-106 GRAB	7	DUP	S95T002037	0	F	@SR90-01 SR90-01C	SOLID			N/A	% Recovery

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# 2493

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
95000126	AW-106 GRAB	7 DUP	S95T002037	0	F	@SR90-01 SR90-01E	SOLID			N/A	% Ct. Error

Final page for worklist # 2493

Sue C Lai 10-3-95
Analyst Signature Date

C.J. Ojeme 10-4-95
Analyst Signature Date

Data Entry Comments:

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

WORKBOOK PAGE: 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)	8880	GROSS WEIGHT	(W2)		8.0728
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.9840
2493	BACKGROUND in cpm	(BKG)	2.1	NET WEIGHT	(W3)		0.0888
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		4.25
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	885.90	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.87	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
95002638	TIME OF SEPARATION	(ST)	11:05	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	10/03/95	DETECTION LIMIT	(Ld)		1.84
0	TIME OF COUNT	(TOC)	15:20	Sr-89/90 CONC. in µCi/L			1.0239E+00
Sample Prep	DATE OF COUNT	(DOC)	10/03/95				
N/A	STANDARD BOOK #		51B52				
Sample #	STANDARD VALUE in µCi/mL		1.0918E-03				
workist2493							
Instrument Code							
WB27811							
Prepared By							
CJO							
Chemist							
SLF							
Analyst							
SCL							
Date Computed							
10/04/95							
Analysis Date							
10/03/95							
Analysis Time							
11:05 AM							
Sample Point							
AW-106							

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.02E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	2.1%		2.12E-06 µCi/L
PERCENT CARRIER RECOVERY	88.8%		

Analyst:	SCL	Date:	04-Oct-95
Signature of Chemist:	SLF	Date:	10/5/95

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)

Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
BLNK-PREP	TOTAL COUNTS	(TC)	44	GROSS WEIGHT	(W2)		8.0499
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.9588
2493	BACKGROUND in cpm	(BKG)	2.1	NET WEIGHT	(W3)		0.0911
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		4.50
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST FACTOR (g/L)	(D g/L)	2.262				
SOLID	SAMPLE COUNT RATE	(Rs)	2.30	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.87	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
95002638	TIME OF SEPARATION	(ST)	11:05	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	10/03/95	DETECTION LIMIT	(Ld)		1.84
0	TIME OF COUNT	(TOC)	15:35	Sr-89/90 CONC in µCi/g			1.1424E-02
Sample Prep	DATE OF COUNT	(DOC)	10/03/95				
N/A							
Sample #							
S95T2021-BLK							
Instrument Code							
WB27611							
Prepared By							
CJO							
Chemist							
SLF							
Analyst							
SCL							
Date Complete							
10/04/95							
Analysis Date							
10/03/95							
Analysis Time							
11:05 AM							
Sample Point							
AW-106							

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.14E-02	µCi/g	DETECTION LEVEL
RELATIVE COUNTING ERROR	68.7%		9.12E-03 µCi/g
PERCENT CARRIER RECOVERY	91.1%		

Analyst:	SCL	Date:	04-Oct-95
Signature of Chemist:	SLF	Date:	10/5/95

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

WHC-SD-WM-DP-147, REV. 0

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

							SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	84575	GROSS WEIGHT	(W2)		7.9604
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.8704
2493	BACKGROUND in cpm	(BKG)	2.1	NET WEIGHT	(W3)		0.0900
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		7.75
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.262				
SOLID	SAMPLE COUNT RATE	(Rs)	8455.40	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.87	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
95002638	TIME OF SEPARATION	(ST)	11:05	Rmax			N/A
Reps	DATE OF SEPARATION	(SD)	10/03/95	DETECTION LIMIT	(Ld)		1.84
0	TIME OF COUNT	(TOC)	18:50	Sr-89/90 CONC in µCi/g			4.1082E+01
Sample Prep	DATE OF COUNT	(DOC)	10/03/95				
FUSION01							
Sample #							
S95T002021							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
CJO	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
10/04/95							
Analysis Date							DETECTION LEVEL
10/03/95	Sr-89/90 CONCENTRATION			4.11E+01		µCi/g	
Analysis Time							
11:05 AM	RELATIVE COUNTING ERROR			0.7%			8.92E-03 µCi/g
Sample Point							
AW-106	PERCENT CARRIER RECOVERY			90.0%			

Analyst:	SCL	Date:	04-Oct-95
Signature of Chemist:	SLF	Date:	10/5/95

SAMPLE.WB1 REV 1.2 22010NML

I:\22010N\OUT\SR2493.WB1 10/04/95

WORKBOOK PAGE: DUP5

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

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	75563	GROSS WEIGHT	(W2)		8.0620
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.9715
2493	BACKGROUND in cpm	(BKG)	2.1	NET WEIGHT	(W3)		0.0905
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		8.75
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.2628				
SOLID	SAMPLE COUNT RATE	(Rs)	7554.20	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.87	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
95002638	TIME OF SEPARATION	(ST)	11:05	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	10/03/95	DETECTION LIMIT	(Ld)		1.84
0	TIME OF COUNT	(TOC)	19:50	Sr-89/90 CONC in µCi/g			3.6122E+01
Sample Prep	DATE OF COUNT	(DOC)	10/03/95				
FUSION01							
Sample #							
S95T002021							
Instrument Code							
WB27811							
Prepared By							
CJO							
Chemist							
SLF							
Analyst							
SCL							
Date Completed							
10/04/95							
Analysis Date							
10/03/95							
Analysis Time							
11:05 AM							
Sample Point							
AW-106							

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	3.61E+01	µCi/g	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.7%		8.78E-03 µCi/g
PERCENT CARRIER RECOVERY	90.5%		

Analyst:	SCL	Date:	04-Oct-95
Signature of Chemist:	SLF	Date:	10/5/95

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM6

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

							SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	138605	GROSS WEIGHT	(W2)		8.0376
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.9483
2493	BACKGROUND in cpm	(BKG)	2.1	NET WEIGHT	(W3)		0.0893
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		9.00
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.2012				
SOLID	SAMPLE COUNT RATE	(Rs)	13858.40	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.87	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
95002638	TIME OF SEPARATION	(ST)	11:05	Rmax			N/A
Reviewer	DATE OF SEPARATION	(SD)	10/03/95	DETECTION LIMIT	(Ld)		1.84
0	TIME OF COUNT	(TOC)	20:05	Sr-89/90 CONC in µCi/g			6.8866E+01
Sample Prep	DATE OF COUNT	(DOC)	10/03/95				
FUSION01							
Sample #							
S95T002037							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
CJO	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Completed	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
10/04/95							
Analysis Date							DETECTION LEVEL
10/03/95	Sr-89/90 CONCENTRATION			6.89E+01	µCi/g		
Analysis Time							
11:05 AM	RELATIVE COUNTING ERROR			0.5%			9.13E-03 µCi/g
Sample Point							
AW-106	PERCENT CARRIER RECOVERY			89.3%			

Analyst:		SCL	Date:	04-Oct-95
Signature of Chemist:		SLF	Date:	10/5/95

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP7

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

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	136904	GROSS WEIGHT	(W2)		8.0417
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.9544
2493	BACKGROUND in cpm	(BKG)	2.1	NET WEIGHT	(W3)		0.0873
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		9.17
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.2148				
SOLID	SAMPLE COUNT RATE	(Rs)	13688.30	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.87	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
95002638	TIME OF SEPARATION	(ST)	11:05	Rmax			N/A
Replicate	DATE OF SEPARATION	(SD)	10/03/95	DETECTION LIMIT	(Ld)		1.84
0	TIME OF COUNT	(TOC)	20:15	Sr-89/90 CONC in µCi/g			6.9038E+01
Sample Code	DATE OF COUNT	(DOC)	10/03/95				
FUSION01							
Sample #							
S95T002037							

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)
CJO	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Completed	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
10/04/95	
Analysis Date	
10/03/95	
Analysis Time	
11:05 AM	
Sample Weight	
AW-106	

Sr-89/90 CONCENTRATION	6.90E+01	µCi/g	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.5%		9.26E-03 µCi/g
PERCENT CARRIER RECOVERY	87.3%		

Analyst:	SCL	Date:	04-Oct-95
Signature of Chemist:	SLF	Date:	10/5/95

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 2913

Analyst: AKL **Instrument:** AB00 10 **Book #** 51B52

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

Worklist Comment: Use .100-10-.100 mL sample size. SLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
		1	STD				@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
		1	STD				@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
		2	BLNK-PREP				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
		2	BLNK-PREP				@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
		2	BLNK-PREP				@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
		3	BLNK/BKG				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000126	AW-106 GRAB	4	SAMPLE	S95T002039	0		@SR90-01 SR90-01	LIQUID	N/A			uCi/mL
95000126	AW-106 GRAB	4	SAMPLE	S95T002039	0		@SR90-01 SR90-01C	LIQUID	N/A			% Recovery
95000126	AW-106 GRAB	4	SAMPLE	S95T002039	0		@SR90-01 SR90-01E	LIQUID	N/A			% Ct. Error
95000126	AW-106 GRAB	5	DUP	S95T002039	0		@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000126	AW-106 GRAB	5	DUP	S95T002039	0		@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
95000126	AW-106 GRAB	5	DUP	S95T002039	0		@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error

Final page for worklist # 2913

Aleta Lewis 10/16/95
Analyst Signature **Date**

[signature] 10/17/95
Analyst Signature **Date**

Data Entry Comments:

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

WORKBOOK PAGE: STD1

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

							STANDARD
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	9451	GROSS WEIGHT	(W2)		7.9905
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.9008
2913	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)		0.0897
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		6.33
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	935.10	SR-90 EFFICIENCY FACTO	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
95003175	TIME OF SEPARATION	(ST)	12:05	Rmax			N/A
Report	DATE OF SEPARATION	(SD)	10/16/95	DETECTION LIMIT	(Ld)		3.90
0	TIME OF COUNT	(TOC)	18:25	Sr-89/90 CONC. in µCi/L			1.0798E+00
Sample Prep	DATE OF COUNT	(DOC)	10/16/95				
N/A	STANDARD BOOK #		51B52				
Sample #	STANDARD VALUE in µCi/mL		1.0909E-03				
WRKLST#2913							
Instrument Code							
WB26870							
Prepared By							
MCB							
Chemist							
SLF							
Analyst							
AKL							
Date Completed							
10/17/95							
Analysis Date							
10/16/95							
Analysis Time							
02:30 PM							
Sample Point							
AW-106 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

Sr-89/90 CONCENTRATION	1.08E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	2.0%		4.51E-06 µCi/L
PERCENT CARRIER RECOVERY	89.7%		

Analyst:	AKL	Date:	17-Oct-95
Signature of Chemist:	SLF	Date:	10/17/95

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)

Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	BLNK-PREP 1.000
BLNK-PREP	TOTAL COUNTS	(TC)	99	GROSS WEIGHT	(W2)	7.9838
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.8951
2913	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)	0.0887
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	6.50
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	-0.10	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
95003175	TIME OF SEPARATION	(ST)	12:05	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	10/16/95	DETECTION LIMIT	(Ld)	3.90
0	TIME OF COUNT	(TOC)	18:35	Sr-89/90 CONC in µCi/L	<	2.2433E+00
Sample Prep	DATE OF COUNT	(DOC)	10/16/95			
N/A						
Sample #						
S95T2039						
Instrument Code						
WB26870						
Prepared By						
MCB						
Chemist						
SLF						
Analyst						
AKL						
Date Completed						
10/17/95						
Analysis Date						
10/16/95						
Analysis Time						
02:30 PM						
Sample Point						
AW-106 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

Sr-89/90 CONCENTRATION	< 2.24E-03	µCi/m	DETECTION LEVEL
LESS THAN Value was Determined from Lc.			
RELATIVE COUNTING ERROR	500.0%		4.59E-03 µCi/mL
PERCENT CARRIER RECOVERY	88.7%		

Analyst:		AKL	Date:	17-Oct-95
Signature of Chemist:		SLF	Date:	10/17/95

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)	7274	GROSS WEIGHT	(W2)		8.0042
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.9168
2913	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)		0.0874
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		6.62
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	717.40	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
95003175	TIME OF SEPARATION	(ST)	12:08	Rmax			N/A
Repeat	DATE OF SEPARATION	(SD)	10/16/95	DETECTION LIMIT	(Ld)		3.90
0	TIME OF COUNT	(TOC)	18:45	Sr-89/90 CONC in µCi/L			8.5622E+02
Sample Prep	DATE OF COUNT	(DOC)	10/16/95				
N/A							
Sample #							
S95T002039							
Instrument Code							
WB26870							
Prepared By							
MCB							
Checked							
SLF							
Analyst							
AKL							
Date Completed							
10/17/95							
Analysis Date							
10/16/95							
Analysis Time							
02:30 PM							
Sample Point							
AW-106 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

Sr-89/90 CONCENTRATION	8.56E-01	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	2.3%		4.66E-03 µCi/mL
PERCENT CARRIER RECOVERY	87.4%		

Analyst:		AKL	Date:	17-Oct-95
Signature of Chemist:		SLF	Date:	10/17/95

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

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

							DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	7388	GROSS WEIGHT	(W2)		8.0950
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		8.0070
2913	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)		0.0880
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		6.78
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	728.80	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
95003175	TIME OF SEPARATION	(ST)	12:08	Rmax			N/A
Reps	DATE OF SEPARATION	(SD)	10/16/95	DETECTION LIMIT	(Ld)		3.90
0	TIME OF COUNT	(TOC)	18:55	Sr-89/90 CONC in µCi/L			8.6241E+02
Sample Prep	DATE OF COUNT	(DOC)	10/16/95				
N/A							
Sample #							
S95T002039							

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)
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Checked	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
AKL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Completed	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
10/17/95	

Analysis Date				DETECTION LEVEL
10/16/95	Sr-89/90 CONCENTRATION	8.62E-01	µCi/mL	
Analysis Time				
02:30 PM	RELATIVE COUNTING ERROR	2.3%		4.62E-03 µCi/mL
Sample Type				
AW-106 GRAB	PERCENT CARRIER RECOVERY	88.0%		

Analyst:		AKL	Date:	17-Oct-95
Signature of Chemist:		SLF	Date:	10/17/95

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Completed Worklist Report for Worklist# 2289

Analyst: jmv **Instrument:** NP01 **Book#** 108843

Method: LA-933-141 Rev/Mod H-1

Worklist Comment: Run as normal. --LLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0	@	NP23701 NP23701	LIQUID	3.85E-02		3.32E-2	86.230	% Recovery
1	STD		0	@	NP23701 NP23701E	LIQUID	1		9.16E-01	0.920	% Ct. Error
2	BLNK		0	@	NP23701 NP23701	LIQUID	1		<1.82E-5		uCi/mL
2	BLNK		0	@	NP23701 NP23701E	LIQUID	1		5.00E+02	500.000	% Ct. Error
3	SAMPLE	S95T002017	0	@	NP23701 NP23701	LIQUID	N/A	<	2.06E-05	4.320e-005	uCi/mL
3	SAMPLE	S95T002017	0	@	NP23701 NP23701E	LIQUID	N/A		9.12E+01	0.000	% Ct. Error

Final page for worklist# 2289

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

LLFitts 28 Sep 95
Reviewer Signature **Date**

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

LABCORE Data Entry Template for Worklist# 2289

Analyst: JMV **Instrument:** NP01 1-AL10539 2-AL10540 3-AL10541 **Book #** 108B43

Method: LA-933-141 Rev/Mod H-1

Worklist Comment: Run as normal. --LLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@NP23701 NP23701	LIQUID			N/A	uCi/mL
		1	STD				@NP23701 NP23701E	LIQUID			N/A	% Ct. Error
		2	BLNK				@NP23701 NP23701	LIQUID			N/A	uCi/mL
		2	BLNK				@NP23701 NP23701E	LIQUID			N/A	% Ct. Error
95000126	AW-106 GRAB	3	SAMPLE	S95T002017	0		@NP23701 NP23701	LIQUID	N/A			uCi/mL
95000126	AW-106 GRAB	3	SAMPLE	S95T002017	0		@NP23701 NP23701E	LIQUID	N/A			% Ct. Error

Final page for worklist # 2289

[signature] 9-27-95
Analyst Signature **Date**

[signature] 9/28/95
Analyst Signature **Date**

Data Entry Comments: MT .500mL

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

WORKBOOK PAGE: STD1

Np-237 : LA-933-141 (H-1) LIQUIDS

			STD
Type	Sample Volume in mL	(SS)	0.250
STD	Dilution Factor	(DF)	1
Work List	Mount Factor (1/Mount Volume in mL)	(Mt F)	2
2289	Digest Dilution Factor	(DDF)	1
Test Code	Gross Counts	(Gc)	46240
@NP23701	Time counted in Minutes	(Tc)	30
Matrix	Background in cpm	(bkg)	5
LIQUID	Standard Value in uCi/mL		3.854E-02
Batch Number	Lc, Rmax, or Rs,(Sample Rate) as Appropriate		1536.33
95002403	µCi/L in Sample		3.3218E+01
Rerun	Standard Book No.		108B43
0			
Sample Prep			
N/A			
Sample #			
WRKLST#2289			
Instrument Code			
AL10539			
Prepared By			
MCB			
Chemist			
LLF			
Analyst			
JMV			
Date Complete			
09/28/95			
Analysis Date			
09/27/95			
Analysis Time			
03:00 PM			
Sample Point			
AW-106 GRAB			

Sample Count Rate (Rs) = (Gc / Tc) - bkg

Np-237 µCi/L = Rs * 1000mL/L * DF * 3 * Mt F * DDF / (0.5 * SS * 2220000dpm/µCi)

WHERE: 3 is an Internal Procedure Dilution Factor and 0.5 is the Counting Effeciency Factor.

Np-237 µCi/mL = Np-237 µCi/L / 1000mL/L

Relative Counting Error = [The Square Root of (Gc + bkg * Tc) / | (Gc - bkg * Tc) |] * 1.96 *

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

Np-237 µCi/L = 3.32E+01

Np-237 µCi/mL = 3.32E-02

Relative Counting Error = 0.9%

DETECTION LEVEL

4.32E-05 µCi/mL

Analyst:	JMV	Date:	09/28/95
Signature of Chemist:	LLF	Date:	28 Sep 95

STANDARD.WB1 REV 1.2 933141ML

LESS THAN Value was Determined from Lc.
LESS THAN Value was Determined from Rmax.

WORKBOOK PAGE: BLANK2

Np-237 : LA-933-141 (H-1) LIQUIDS/SOLIDS

			BLNK
Type	Sample Volume in mL	(SS)	0.250
BLNK	Dilution Factor	(DF)	1
Work List	Mount Factor (1/Mount Volume in mL)	(Mt F)	2
2289	Digest Dilution Factor	(DDF)	1
Test Code	Gross Counts	(Gc)	93
@NP23701	Time counted in Minutes	(Tc)	30
Matrix	Background in cpm	(bkg)	3
LIQUID	Lc, Rmax, or Rs,(Sample Rate) as Appropriate		0.84
Batch Number	µCi/L in Sample =		< 1.8249E-02
95002403			
Rerun			
0			
Sample Prep			
N/A			
Sample #			
WRKLST#2289			
Instrument Code			
AL10540			
Prepared By			
MCB			
Checklist			
LLF			
Analyst			
JMV			
Date Complete			
09/28/95			
Analysis Date			
09/27/95			
Analysis Time			
03:00 PM			
Sample Point			
AW-106 GRAB			

Sample Count Rate (Rs) = (Gc / Tc) - bkg

Np-237 µCi/L = Rs * 1000mL/L * DF * 3 * Mt F * DDF / (0.5 * SS * 2220000dpm/µCi)

WHERE: 3 is an Internal Procedure Dilution Factor and 0.5 is the Counting Effeciency Factor

Np-237 µCi/mL = Np-237 µCi/L / 1000mL/L

Relative Counting Error = [The Square Root of (Gc + bkg * Tc) / | (Gc - bkg * Tc) |] * 1.96

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

Np-237 µCi/L = < 1.82E-02

Np-237 µCi/mL = < 1.82E-05

LESS THAN Value was Determined from Rmax.

Relative Counting Error = 500.0%

DETECTION LEVEL

3.39E-05 µCi/mL

Analyst:	JMV	Date:	09/28/95
Signature of Chemist:	LLF	Date:	28 Sep 95

BLANK.WB1 REV 1.2 933141ML

LESS THAN Value was Determined from Lc.
LESS THAN Value was Determined from Rmax.

WORKBOOK PAGE: SAM3

WHC-SD-WM-DP-147, REV. 0

Np-237 : LA-933-141 (H-1) LIQUIDS/SOLIDS

			SAMPLE
Type	Sample Volume in mL	(SS)	0.250
SAMPLE	Dilution Factor	(DF)	1
Work List	Mount Factor (1/Mount Volume in mL)	(Mt F)	2
2289	Digest Dilution Factor	(DDF)	1
Test Code	Gross Counts	(Gc)	115
@NP23701	Time counted in Minutes	(Tc)	30
Matrix	Background in cpm	(bkg)	5
LIQUID	Lc, Rmax, or Rs,(Sample Rate) as Appropriate		0.95
Batch Number	µCi/mL in Sample		< 2.0597E-05
95002403			
Rerun			
0			
Sample Prep			
N/A			
Sample #			
S95T002017			
Instrument Code			
AL10541			
Prepared By			
MCB			
Chemist			
LLF			
Analyst			
JMV			
Date Complete			
09/28/95			
Analysis Date			
09/27/95			
Analysis Time			
03:00 PM			
Sample Point			
AW-106 GRAB			

Sample Count Rate (Rs) = (Gc / Tc) - bkg

Np-237 µCi/mL = Rs * DF * 3 * Mt F * DDF / (0.5 * SS * 2220000dpm/µCi)

WHERE: 3 is an Internal Procedure Dilution Factor and 0.5 is the Counting Effeciency Factor

Np-237 µCi/mL = Np-237 µCi/L / 1000mL/L

Relative Counting Error = [The Square Root of (Gc + bkg * Tc) / | (Gc - bkg * Tc) |] * 1.96

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

Np-237 µCi/L = < 2.06E-02

Np-237 µCi/mL = < 2.06E-05

LESS THAN Value was Determined from Lc.

Relative Counting Error = 91.2%

DETECTION LEVEL

4.32E-05 µCi/mL

Analyst:	JMV	Date:	09/28/95
Signature of Chemist:	LLF	Date:	28 Sep 95

SAMPLE.WB1 REV 1.2 933141ML

LESS THAN Value was Determined from Lc.
LESS THAN Value was Determined from Rmax.

LABCORE Completed Worklist Report for Worklist# 2463

Analyst: akl **Instrument:** AM01 **Book#** _____

Method: LA-953-103 Rev/Mod A-4

Worklist Comment: Determine sample size using Ludlum. --LLF

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@AM24101	AM24101	SOLID	0.0307	2.64e-2	85.990	% Recovery
1	STD		0		@AM24101	AM24101E	SOLID	1.00	1.2	1.200	% Ct. Error
1	STD		0		@AM24101	AM24101T	SOLID	100	83.1	83.100	% Recovery
2	BLNK-PREP		0		@AM24101	AM24101	SOLID	1	<1.17e-2		uCi/g
2	BLNK-PREP		0		@AM24101	AM24101E	SOLID	1.00	100.0	100.000	% Ct. Error
2	BLNK-PREP		0		@AM24101	AM24101T	SOLID	100	84.4	84.400	% Recovery
3	SAMPLE	S95T002021	0	F	@AM24101	AM24101	SOLID	N/A	1.22e-1	1.870e-002	uCi/g
3	SAMPLE	S95T002021	0	F	@AM24101	AM24101E	SOLID	N/A	1.2	0.000	% Ct. Error
3	SAMPLE	S95T002021	0	F	@AM24101	AM24101T	SOLID	N/A	88.4	1.000e-007	% Recovery
4	DUP	S95T002021	0	F	@AM24101	AM24101	SOLID	1.22e-1	9.74e-2	22.420	RPD
4	DUP	S95T002021	0	F	@AM24101	AM24101E	SOLID	1.00	1.3	1.300	% Ct. Error
4	DUP	S95T002021	0	F	@AM24101	AM24101T	SOLID	100	89.8	89.800	% Recovery
5	SAMPLE	S95T002037	0	F	@AM24101	AM24101	SOLID	N/A	1.81e-1	6.530e-002	uCi/g
5	SAMPLE	S95T002037	0	F	@AM24101	AM24101E	SOLID	N/A	1.6	0.000	% Ct. Error
5	SAMPLE	S95T002037	0	F	@AM24101	AM24101T	SOLID	N/A	35.3	1.000e-007	% Recovery
6	DUP	S95T002037	0	F	@AM24101	AM24101	SOLID	1.81e-1	2.10e-1	14.830	RPD
6	DUP	S95T002037	0	F	@AM24101	AM24101E	SOLID	1.00	1.0	1.000	% Ct. Error
6	DUP	S95T002037	0	F	@AM24101	AM24101T	SOLID	100	93.6	93.600	% Recovery

Comments Section:

Comments for sample# S95T002037 **and test** @AM24101.
Less than ideal resolution on sample AEA, but duplicate AEA resolution was good. %RPD between sample and duplicate with in QC limits. No rerun requested. --LLF

Final page for worklist# 2463

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

26 Sep 95
Reviewer Signature **Date**

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

53

LABCORE Data Entry Template for Worklist# 2463

Analyst: AKL **Instrument:** AM01 _____ **Book#** 104B43

Method: LA-953-103 Rev/Mod A-4

Worklist Comment: Determine sample size using Ludlum. --LLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AM24101	SOLID		
2	BLNK-PREP				@AM24101	SOLID		
3	SAMPLE	S95T002021	0	F	@AM24101	SOLID	95000126	AW-106 GRAB
		Analytes Requested: AM24101 , AM24101E, AM24101T						
4	DUP	S95T002021	0	F	@AM24101	SOLID		
5	SAMPLE	S95T002037	0	F	@AM24101	SOLID	95000126	AW-106 GRAB
		Analytes Requested: AM24101 , AM24101E, AM24101T						
6	DUP	S95T002037	0	F	@AM24101	SOLID		

Final page for worklist # 2463

A. Lewis 9-25-95
Analyst Signature **Date**

M. G. Bickman 9/26/95
Analyst Signature **Date**

Data Entry Comments:

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

WORKBOOK PAGE: STD1

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID

Type	Date Counted		SEP-25-95	Am 241 AEA Frac.	(C241)	0.364
STD	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.578
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
2463	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		20056
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	6
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		84.51
LIQUID	Detector Number		1	Am 243 cpm		134.02
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002604	Standard Book No		104B43	AEA Count Time	(min)	480
Batch	Standard Value in µCi/mL		0.03067	Am 241 µCi/L =		2.6399E+01
0				Cm 243/244 µCi/L =	<	4.3626E+00
Sample Prep						
N/A						
Sample Number						
WRKLST#2463						
Instrument Code						
AL10539						
Prepared By						
MCB						
Chemist						
LLF						
Analyst						
AKL						
Date Counted						
09/26/95						
Analysis Date						
09/25/95						
Analysis Time						
11:00 AM						
Sample Type						
AW-105 GRAB						

Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

Am 241 µCi/mL	=	2.64E-02	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	1.2%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/mL		< 4.36E-03	4.36E-03
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	83.1%	4.36E-03

Analyst:	AKL	Date:	09/26/95
Signature of Chemist: [signature]	LLF	Date:	26 Sep 95

STANDARD.WB1 REV 1.2 953103ML

WORKBOOK PAGE: BLANK2

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID / SOLID

Type	Date Counted		SEP-25-95	Am 241 AEA Frac.	(C241)	0
BLNK-PREP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.926
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2463	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		12625
Test Code	Digest Grams of Solids/L	(Dg/L)	2.262	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	2
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		0
SOLID	Detector Number		2	Am 243 cpm		137.17
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002604				AEA Count Time	(min)	480
Purge				Am 241 µCi/g =	<	1.1718E-02
0				Cm 243/244 µCi/g =	<	1.1718E-02
Sample Prep						
N/A						
Sample Number						
S95T2021						
Instrument Code						
AL10540						
Prepared By						
MCB						
Chemist						
LLF						
Analyst						
AKL						
Date Completed						
09/26/95						
Analysis Date						
09/25/95						
Analysis Time						
11:00 AM						
Sample Date						
AW-106 GRAB						

Am-241 µCi/g = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]

Cm-243/244 µCi/g = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

NOTE: Am-241 Result is a LESS THAN Value.

Am241 µCi/g	=	< 1.17E-02	DETECTION LEVELS in µCi/g
Relative Counting Error	=	100.0%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/g		< 1.17E-02	1.17E-02
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	84.4%	1.17E-02

Analyst:	AKL	Date:	09/26/95
Signature of Chemist:	LLF	Date:	26 Sep 95

BLANK.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM3

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID / SOLID

						SAMPLE
Type	Date Counted		SEP-25-95	Am 241 AEA Frac.	(C241)	0.37
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.556
Work Unit	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2463	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		22132
Test Code	Digest Grams of Solids/L	(Dg/L)	2.262	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		91.1
SOLID	Detector Number		3	Am 243 cpm		136.77
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002604				AEA Count Time	(min)	480
Rerun				Am 241 µCi/g =		1.2210E-01
0				Cm 243/244 µCi/g =	<	1.8659E-02
Sample Type						
FUSION01						
Sample Number						
S95T002021						
Instrument Code						
AL10541						
Prepared By						
MCB						
Chemist						
LLF						
Analyst						
AKL						
Date Completed						
09/26/95						
Analysis Date						
09/25/95						
Analysis Time						
11:00 AM						
Sample Type						
AW-106 GRAB						

Am-241 µCi/g = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]

Cm-243/244 µCi/g = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

Am241 µCi/g	=	1.22E-01	DETECTION LEVELS in µCi/g
Relative Counting Error	=	1.2%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/g		< 1.87E-02	1.87E-02
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	88.4%	1.87E-02

Analyst:	AKL	Date:	09/26/95
Signature of Chemist: [signature]	LLF	Date:	26 Sep 95

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP4

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID / SOLID

							DUP
Type	Date Counted		SEP-25-95	Am 241 AEA Frac.	(C241)		0.315
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.593
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)		0
2463	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			21119
Test Code	Digest Grams of Solids/L	(Dg/L)	2.263	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)		6
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			78.35
SOLID	Detector Number		1	Am 243 cpm			147.54
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95002604				AEA Count Time	(min)		480
Rerun				Am 241 µCi/g =			9.7433E-02
0				Cm 243/244 µCi/g =		<	1.7214E-02

Sample Prep
FUSION01

Sample Number
S95T002021

Instrument Code
AL10539

Prepared By
MCB

Chemist
LLF

Analyst
AKL

Date Complete
09/26/95

Analysis Date
09/25/95

Analysis Time
11:00 AM

Sample Point
AW-106 GRAB

Am-241 µCi/g = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]
Cm-243/244 µCi/g = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100
Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

Am241 µCi/g	=	9.74E-02	DETECTION LEVELS in µCi/g
Relative Counting Error	=	1.3%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/g		< 1.72E-02	1.72E-02
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	89.8%	1.72E-02

Analyst:	AKL	Date:	09/26/95
Signature of Chemist:	LLF	Date:	26 Sep 95

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM5

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID / SOLID

							SAMPLE
Type	Date Counted		SEP-25-95	Am 241 AEA Frac.	(C241)		0.393
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.409
Work Unit	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)		0
2463	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			11982
Test Code	Digest Grams of Solids/L	(Dg/L)	2.201	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)		2
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			56.29
SOLID	Detector Number		2	Am 243 cpm			60.67
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95002604				AEA Count Time	(min)		480
Dilution				Am 241 µCi/g =			1.8118E-01
0				Cm 243/244 µCi/g =		<	6.5336E-02
Sample Prep							
FUSION01							

Sample Number: S95T002037

Am-241 µCi/g = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]

Cm-243/244 µCi/g = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]

Instrument Code: AL10540

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

Prepared By: MCB

Chemist: LLF

Am241 µCi/g	=	1.81E-01	DETECTION LEVELS in µCi/g
Relative Counting Error	=	1.6%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/g		< 6.53E-02	6.53E-02
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	35.3%	6.53E-02

Analyst: AKL

Date Counted: 09/26/95

Analysis Date: 09/25/95

Analysis Time: 11:00 AM

Sample Point: AW-106 GRAB

Analyst:	AKL	Date:	09/26/95
Signature of Chemist:	LLF	Date:	26 Sep 95

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP6

Am 241 and Cm 243/244: LA-953-103 (A-4) LIQUID / SOLID

							DUP
Type	Date Counted		SEP-25-95	Am 241 AEA Frac.	(C241)		0.495
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)		0.445
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)		0
2463	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts			29206
Test Code	Digest Grams of Solids/L	(Dg/L)	2.215	AT Count Time (min)	(TC)		30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)		5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm			178.49
SOLID	Detector Number		3	Am 243 cpm			159.64
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm			0
95002604				AEA Count Time	(min)		480
Retest				Am 241 µCi/g =			2.0972E-01
0				Cm 243/244 µCi/g =		<	2.2507E-02
Sample Prep							
FUSION01							
Sample Number							
S95T002037							
Instrument Code							
AL10541							
Prepared By							
MCB							
Chemist							
LLF							
Analyst							
AKL							
Date Completed							
09/26/95							
Analysis Date							
09/25/95							
Analysis Time							
11:00 AM							
Sample Point							
AW-106 GRAB							

Am-241 µCi/g = (C241) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]

Cm-243/244 µCi/g = (Cm) (Am-243 Tracer Value) (SPKV) (1000mL/L) (DF) / [(C243) (SS) (D g/L) (2220000dpm/µCi)]

Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100

Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV

Am241 µCi/g	=	2.10E-01	DETECTION LEVELS in µCi/g
Relative Counting Error	=	1.0%	
NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
Cm 243/244 µCi/g		< 2.25E-02	2.25E-02
Relative Counting Error	=	100.0%	Cm 243/244
Am 243 Tracer Recovery	=	93.6%	2.25E-02

Analyst:	AKL	Date:	09/26/95
Signature of Chemist: [signature]	LLF	Date:	26 Sep 95

SAMPLE.WB1 REV 1.2 953103ML

SEHogan 9-25-95

Westinghouse Hanford Co.

G E N E R A L A L P H A E N E R G Y A N A L Y S I S
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
WRKLST#2463-STD
File ID: 25a2563.CNF

Counted on: 9/25/95 @15:21
Detector: AEA25
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	2558.6	2558.6	300.791	300.791	12.000	5.147	6.000	1.968
2	4192.5	4192.5	255.225	255.216	12.000	4.384	6.000	1.667

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.364	5.487	5.465	0.022	0.02	84.51	1.0	9169.9	0.413E-02
	Am241		5.479	5.465	0.014				7023.8	0.316E-0[illegible]
2	Am243	0.578	5.270	5.255	0.015	0.02	134.02	0.8	10576.4	0.476E-02
Totals:		0.942	<--valid peaks only-->				218.53			

DETECTOR CALIBRATION
Energy(MEV) = 4.082 + (0.0046)*Channel
Energy range (MeV): 4.082 TO 6.437
Efficiency = 0.0128 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	111351.0	100.000
Smoothed	111350.6	100.000
Composite fit	104903.8	94.210
Residuals	6447.2	5.790

Analyzed by: _____
MB

Spectrum 25a2563.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 27156.3

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2.......
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WHC-SD-WM-DP-147, REV. 0

Raw Data Dump for AEA Spectrum: 25a2563.CNF

1	0.	0.	0.	1.	0.	1.	2.	0.	1.	0.
11	0.	0.	0.	5.	1.	0.	0.	1.	1.	0.
21	1.	3.	1.	0.	0.	0.	0.	1.	3.	0.
31	1.	0.	1.	1.	0.	0.	6.	2.	1.	1.
41	1.	1.	3.	0.	3.	1.	0.	1.	0.	0.
51	1.	1.	0.	1.	4.	2.	1.	2.	2.	1.
61	1.	3.	1.	2.	3.	0.	1.	3.	0.	1.
71	4.	2.	4.	1.	2.	3.	2.	2.	1.	3.
81	1.	2.	3.	0.	1.	2.	0.	3.	1.	3.
91	1.	1.	5.	2.	1.	1.	0.	0.	4.	3.
101	1.	2.	2.	2.	3.	5.	4.	0.	1.	1.
111	2.	2.	1.	3.	4.	4.	1.	3.	5.	1.
121	4.	2.	2.	5.	4.	3.	7.	2.	1.	3.
131	8.	4.	2.	5.	5.	6.	3.	6.	3.	3.
141	3.	9.	5.	7.	5.	1.	5.	8.	8.	6.
151	7.	3.	7.	11.	8.	10.	7.	7.	13.	9.
161	6.	9.	16.	14.	24.	14.	17.	11.	16.	20.
171	13.	12.	24.	19.	22.	19.	18.	22.	29.	28.
181	26.	31.	35.	24.	34.	40.	45.	34.	47.	43.
191	45.	41.	55.	57.	67.	66.	53.	66.	56.	66.
201	67.	62.	81.	83.	82.	104.	100.	109.	114.	111.
211	113.	129.	132.	152.	162.	147.	169.	193.	179.	210.
221	207.	233.	251.	270.	232.	302.	354.	331.	359.	414.
231	420.	469.	511.	593.	581.	687.	684.	779.	864.	971.
241	1095.	1168.	1346.	1486.	1735.	1937.	2180.	2323.	2604.	2730.
251	3013.	3484.	3947.	4373.	4810.	4915.	4365.	3168.	1871.	932.
261	529.	473.	369.	375.	380.	357.	376.	360.	295.	290.
271	247.	239.	263.	239.	230.	241.	259.	280.	318.	358.
281	391.	379.	481.	484.	513.	613.	671.	801.	833.	990.
291	1132.	1346.	1368.	1455.	1567.	1776.	1932.	2235.	2513.	2716.
301	2982.	2836.	2351.	1614.	923.	657.	462.	384.	339.	266.
311	207.	161.	115.	93.	59.	22.	9.	0.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
331	0.	1.	0.	2.	0.	0.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	1.	0.	2.	0.	0.
351	1.	1.	0.	0.	0.	0.	3.	0.	0.	1.
361	1.	0.	0.	1.	1.	0.	0.	0.	2.	1.
371	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
391	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								