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

Document number: SD-WM-DP-099

Section 5 **of** 6

Title: FINAL REPORT FOR TANK 241-C-103 PUSH MODE SAMPLE CORES 63 and 66

Date: 9/29/95 **Revision:** 1

Originator: K.E. BELL
Co: WHC

Recipient:
Co:

References: ECN-625705

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RADIOCHEMICAL ANALYSES

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C103

LABCORE Data Entry Template for Worklist# 587

Analyst: GRL **Instrument:** AB00 16 **Method:** LA-508-101 D-2

Worklist Comment: Determine sample size using Ludlum. Use .1mL A-SPK. SLF

Seg	Type	Sample#	Rep	Al	Test		Matrix	Actual	Found	DL	Unit
1	STD				@ALPHA01	ALPHA01	SOLID			N/A	uCi/
1	STD	91B52			@ALPHA01	ALPHA01E	SOLID			N/A	% Ct
2	BLNK-PREP				@ALPHA01	ALPHA01	SOLID			N/A	uCi/
2	BLNK-PREP				@ALPHA01	ALPHA01E	SOLID			N/A	% Ct
3	SAMPLE	S95T000053	0	F	@ALPHA01	ALPHA01	SOLID	N/A			uCi/
3	SAMPLE	S95T000053	0	F	@ALPHA01	ALPHA01E	SOLID	N/A			% Ct
4	DUP	S95T000053	0	F	@ALPHA01	ALPHA01	SOLID			N/A	uCi/
4	DUP	S95T000053	0	F	@ALPHA01	ALPHA01E	SOLID			N/A	% Ct
5	SPK	S95T000053	0	F	@ALPHA01	ALPHA01	SOLID			N/A	uCi/
6	SAMPLE	S95T000054	0	F	@ALPHA01	ALPHA01	SOLID	N/A			uCi/
6	SAMPLE	S95T000054	0	F	@ALPHA01	ALPHA01E	SOLID	N/A			% Ct
7	DUP	S95T000054	0	F	@ALPHA01	ALPHA01	SOLID			N/A	uCi/
7	DUP	S95T000054	0	F	@ALPHA01	ALPHA01E	SOLID			N/A	% Ct
8	SPK	S95T000054	0	F	@ALPHA01	ALPHA01	SOLID			N/A	uCi/

Final page for worklist # 587

Alta Lewis
Analyst Signature

2-16-95
Date

M G Brown

2-22-95

WHC-SD-WM-DP-099, REV. 1

Data Entry Comments:

Units shown for QC (SPK) may not reflect the actual units.

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP-019, REV. 1

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

LA-548-101 (A-3) LIQUIDS

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STANDARD	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	3874	3877
587	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA-01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		128.633	128.733
Sample #	Sample Concentration in µCi/L		2.75E-02	BOOK#
WORKLIST#587	Replicate Concentration in µCi/L		2.76E-02	91B52
Instrument Code				
WB27806	Average Concentration in µCi/L		2.7550E-02	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
02/16/95	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
12:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/mL	(Average) =	2.76E-05	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	3.2%	1.48E-07 µCi/mL

Data Entry by: [signature] Date: 02/17/95

Approved by: [signature] Date: 2/22/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP-199 REV. 1

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

LA-548-101 (A-3) SOLIDS

			BLANK	REPLICATE
Type	DETECTOR NUMBER		16	16
BLANK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	3	1
587	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.0188	2.0188
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.301	0.301
Sample #	Sample Concentration in µCi/g	<	3.23E-01	BOOK#
S95T53	Replicate Concentration in µCi/g	<	3.23E-01	
Instrument Code				
WB27606	Maximum Concentration in µCi/g	<	3.2267E-01	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
02/16/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
12:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Maximum) =	< 3.23E-01	DETECTION LEVEL
LESS Than Value was Determined from Lc.				7.42E-01 µCi/g
RELATIVE COUNTING ERROR		=	69.3%	

Data Entry by:		Date:	02/17/95
Approved by:		Date:	2/22/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP- 099, REV. 1

AT : LA-508-101 (D-2)
LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE 1, 2, or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	377	363
587	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE SIZE in mL	(SS)	0.090	0.090
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.0188	2.0188
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12.067	11.600
Sample #	Sample Concentration in µCi/g		1.44E+01	BOOK#
S95T53	Replicate Concentration in µCi/g		1.38E+01	
Instrument Code				
WB27806	Average Concentration in µCi/g		1.4083E+01	
Analyst				
AKL				
Date				
02/16/95				
Time				
12:00 PM				

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

ALPHA TOTAL	in µCi/g	(Average) =	1.41E+01	DETECTION LEVEL
				8.25E-01 µCi/g
RELATIVE COUNTING ERROR		=	11.0%	

Data Entry by:	[signature]	Date:	02/17/95
Approved by:	[signature]	Date:	2/22/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
DUPLICATE	DISH SIZE 1, 2, or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	357	372
587	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE SIZE in mL	(SS)	0.090	0.090
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.0352	2.0352
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11.400	11.900
Sample #	Sample Concentration in µCi/g		1.35E+01	BOOK#
S95T53	Replicate Concentration in µCi/g		1.40E+01	
Instrument Code				
WB27806	Average Concentration in µCi/g		1.3753E+01	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
02/16/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
12:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL in µCi/g (Average)	=	1.38E+01	DETECTION LEVEL
			8.18E-01 µCi/g
RELATIVE COUNTING ERROR	=	11.1%	

Data Entry by:		Date:	02/17/95
Approved by:		Date:	2/22/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP-099, REV. 1

AT : LA-508-101 (D-2)
LA-548-101 (A-3) SOLIDS

			SPIKE	REPLICATE
DETECTOR NUMBER			16	16
DISH SIZE 1 , 2 , or 5		(MS)	2	2
TOTAL COUNTS		(TC)	54158	52355
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.5	0.5
SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	0.090	0.090
SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	101	101
DIGEST GRAMS of SOLIDS/L		(Dg/L)	2.0188	2.0188
SPIKE VOLUME in mL		(SVol)	0.100	0.100
SPIKE DILUTION FACTOR		(SDF)	1	1
SPIKE VALUE in µCi/L		(SVal)	36.382	36.382
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2104	0.2104
SAMPLE + SPIKE µCi/g		(S+S)	2.15E+03	2.08E+03
AVERAGE or MAXIMUM µCi/g from FORM C			1.4083E+01	
BOOK#			94B43	

Type
SPIKE
Work List
587
AT or TB ?
AT
Test Code
@ALPHA-01
Matrix
SOLID
Sample #
S95T53
Instrument Code
WB27806
Analyst
AKL
Date
02/16/95
Time
12:00 PM

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

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

PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100

RESULT **AVG. PERCENT SPIKE RECOVERY = 103.7%**

Data Entry by:		Date:	17-Feb-95
Approved by:		Date:	2-22-95

Form 508101_X Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-099, REV. 1

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	396	388
587	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	1.9956	1.9956
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12.700	12.433
Sample #	Sample Concentration in µCi/g		1.38E+01	BOOK#
S95T54	Replicate Concentration in µCi/g		1.35E+01	
Instrument Code				
WB27806	Average Concentration in µCi/g		1.3617E+01	
Analyst				
AKL				
Date				
02/16/95				
Time				
12:00 PM				

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

ALPHA TOTAL	in µCi/g	(Average) =	1.36E+01	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	10.5%	7.51E-01 µCi/g

Data Entry by:		Date:	02/17/95
Approved by:		Date:	2/22/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-099, REV. 1

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
DUPLICATE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	368	380
587	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	1.9996	1.9996
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		11.767	12.167
Sample #	Sample Concentration in µCi/g		1.27E+01	BOOK#
S95T54	Replicate Concentration in µCi/g		1.32E+01	
Instrument Code				
WB27806	Average Concentration in µCi/g		1.2941E+01	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
02/16/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
12:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	1.29E+01	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	10.9%	7.50E-01 µCi/g

Data Entry by:		Date:	02/17/95
Approved by:		Date:	2/22/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

LA-548-101 (A-3) SOLIDS

			SPIKE	REPLICATE
DETECTOR NUMBER			16	16
DISH SIZE 1 , 2 , or 5		(MS)	2	2
TOTAL COUNTS		(TC)	54599	57883
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.5	0.5
SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	0.100	0.100
SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	101	101
DIGEST GRAMS of SOLIDS/L		(Dg/L)	1.9956	1.9956
SPIKE VOLUME in mL		(SVol)	0.100	0.100
SPIKE DILUTION FACTOR		(SDF)	1	1
SPIKE VALUE in µCi/L		(SVal)	36.382	36.382
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2104	0.2104
SAMPLE + SPIKE µCi/g		(S+S)	1.97E+03	2.09E+03
AVERAGE or MAXIMUM µCi/g from FORM C			1.3617E+01	
BOOK#			94B43	

Type
SPIKE
Work List
587
AT or TB ?
AT
Test Code
@ALPHA-01
Matrix
SOLID
Sample #
S95T54
Instrument Code
WB27808
Analyst
AKL
Date
02/16/95
Time
12:00 PM

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

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

PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100

RESULT AVG. PERCENT SPIKE RECOVERY = 109.5%

Data Entry by: [signature] Date: 17-Feb-95

Approved by: [signature] Date: 2/22/95

Form 508101_X Rev. 1.3

LABCORE Data Entry Template for Worklist# 649

Analyst: JMV **Instrument:** AB00 15 **Book #** 98552 SLF 3-3-5

Method: LA-508-101 Rev/Mod D-2 WHC-CD-WM-DF-001, REV. 7

Worklist Comment: Run under RWP 268. Determine S.S. using Ludlum detector-SLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		1	STD				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		2	BLNK-PREP				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		2	BLNK-PREP				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		3	BLNK/BKG				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
94000012	C-103	4	SAMPLE	S95T000055	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
94000012	C-103	4	SAMPLE	S95T000055	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
94000012	C-103	5	DUP	S95T000055	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
94000012	C-103	5	DUP	S95T000055	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
94000012	C-103	6	SPK .100 alpha	S95T000055	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
94000012	C-103	7	SAMPLE	S95T000056	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
94000012	C-103	7	SAMPLE	S95T000056	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
94000012	C-103	8	DUP	S95T000056	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
94000012	C-103	8	DUP	S95T000056	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
94000012	C-103	9	SPK	S95T000056	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g

Final page for worklist # 649

Data Entry Comments: Samples have Solids present on Bottom of Plastic Bottle - Samples Taken From Top

SPK recovery are out of project limits - both will be rerun 3-3-5

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# 649

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
Analyst Signature		Date				Analyst Signature			Date	
Jose M Urquiola		3/6/95				M S Bicima			3/7/95	

WHC-SD-WM-DP-049, REV. 1

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.

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-099, REV. 1

AT : LA-508-101 (D-2)
LA-548-101 (A-3) LIQUIDS

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		15	15
STANDARD	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	3572	3483
649	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA-01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		118.567	115.600
Sample #	Sample Concentration in µCi/L		2.24E-02	BOOK#
WORKLIST#649	Replicate Concentration in µCi/L		2.19E-02	98B52
Instrument Code				
WB26872	Average Concentration in µCi/L		2.2160E-02	
Analyst				
JMV				
Date				
03/07/95				
Time				
12:00 PM				

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

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

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

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

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

v RESULTS v

ALPHA TOTAL	in µCi/mL	(Average) =	2.22E-05	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	3.3%	1.31E-07 µCi/mL

Data Entry by:	[signature]	Date:	03/08/95
Approved by:	[signature]	Date:	3/8/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP-099 REV 1

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

LA-548-101 (A-3) SOLIDS

				BLANK	REPLICATE
Type	DETECTOR NUMBER			15	15
BLANK	DISH SIZE 1 , 2 , or 5	(MS)		2	2
Work List	TOTAL COUNTS	(TC)		7	8
649	COUNT TIME in MINUTES	(CT)		30	30
AT or TB ?	BACKGROUND in cpm	(BKG)		0.5	0.5
AT	SAMPLE SIZE in mL	(SS)		0.100	0.100
Test Code	DILUTION FACTOR	(DF)		101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)		0.468	0.468
Matrix	EFFICIENCY FACTOR	(EFF)		0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			0.301	0.301
Sample #	Sample Concentration in µCi/g		<	1.23E+00	BOOK#
S95T55	Replicate Concentration in µCi/g		<	1.23E+00	
Instrument Code					
WB26872	Maximum Concentration in µCi/g		<	1.2305E+00	
Analyst					
JMV					
Date					
03/07/95					
Time					
12:30 PM					

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

ALPHA TOTAL	in µCi/g	(Maximum)	=	< 1.23E+00	DETECTION LEVEL
LESS Than Value was Determined from Lc.					2.83E+00 µCi/g
RELATIVE COUNTING ERROR			=	134.3%	

Data Entry by:	[signature]	Date:	03/08/95
Approved by:	[signature]	Date:	3/8/95

Form 508101_C Rev. 1.3

WHC-SD-WM-DP-099, REV. 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE 1, 2, or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	68	82
649	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.468	0.468
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.767	2.233
Sample #	Sample Concentration in µCi/g		7.22E+00	BOOK#
S95T55	Replicate Concentration in µCi/g		9.12E+00	
Instrument Code				
WB26872	Average Concentration in µCi/g		8.1691E+00	
Analyst				
JMV				
Date				
03/07/95				
Time				
12:30 PM				

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

ALPHA TOTAL	in µCi/g	(Average) =	8.17E+00	DETECTION LEVEL
				2.83E+00 µCi/g
RELATIVE COUNTING ERROR		=	33.7%	

Data Entry by:	[signature]	Date:	03/08/95
Approved by:	[signature]	Date:	3/8/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-099, REV. 1

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
DUPLICATE	DISH SIZE 1, 2, or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	89	86
649	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.364	0.364
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.467	2.367
Sample #	Sample Concentration in µCi/g		1.30E+01	BOOK#
S95T55	Replicate Concentration in µCi/g		1.24E+01	
Instrument Code				
WB26872	Average Concentration in µCi/g		1.2691E+01	
Analyst				
JMV	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
03/07/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
12:30 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	1.27E+01	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	27.7%	3.64E+00 µCi/g

Data Entry by:	[signature]	Date:	03/08/95
Approved by:	[signature]	Date:	3/8/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-099, REV 1

AT : LA-508-101 (D-2)
LA-548-101 (A-3) SOLIDS

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPIKE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	47265	44926
649	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.468	0.468
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Sample #	SPIKE VALUE in µCi/L	(SVal)	36.379	36.379
S95T55	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
Instrument Code	SAMPLE + SPIKE µCi/g	(S+S)	6.43E+03	6.11E+03
WB26872	AVERAGE or MAXIMUM µCi/g from FORM C		8.1691E+00	
Analyst	BOOK#		94B43	
JMV				
Date				
03/07/95				
Time				
12:30 PM				

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

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

PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100

RESULT | AVG. PERCENT SPIKE RECOVERY = 79.8%

Data Entry by:		Date:	08-Mar-95
Approved by:		Date:	3-8-95

Form 508101_X Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP- 099 , REV. 1

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	126	107
649	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.404	0.404
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.700	3.067
Sample #	Sample Concentration in µCi/g		1.75E+01	BOOK#
S95T58	Replicate Concentration in µCi/g		1.45E+01	
Instrument Code				
WB26872	Average Concentration in µCi/g		1.6009E+01	
Analyst				
JMV				
Date				
03/07/95				
Time				
12:30 PM				

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

ALPHA TOTAL	in µCi/g	(Average) =	1.60E+01	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	23.5%	3.28E+00 µCi/g

Data Entry by: [signature] Date: 03/08/95

Approved by: [signature] Date: 3/8/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP-099, REV 1

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
DUPLICATE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	200	60
649	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.376	0.376
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.167	1.500
Sample #	Sample Concentration in µCi/g		3.14E+01	BOOK#
S95T58	Replicate Concentration in µCi/g		7.63E+00	
Instrument Code				
WB26872	Average Concentration in µCi/g		1.9489E+01	
Analyst				
JMV	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
03/07/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
12:30 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	1.95E+01	DETECTION LEVEL
				3.52E+00 µCi/g
RELATIVE COUNTING ERROR		=	37.7%	

Data Entry by:	[signature]	Date:	03/08/95
Approved by:	[signature]	Date:	3/8/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-CD-WM-DP- 099, REV. 1

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

LA-548-101 (A-3) SOLIDS

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPIKE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	44529	55036
649	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.404	0.404
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Sample #	SPIKE VALUE in µCi/L	(SVal)	36.379	36.379
S95T56	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
Instrument Code	SAMPLE + SPIKE µCi/g	(S+S)	7.02E+03	8.68E+03
WB26872	AVERAGE or MAXIMUM µCi/g from FORM C		1.6009E+01	
Analyst	BOOK#		94B43	
JMV				
Date				
03/07/95				
Time				
12:30 PM				

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

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

PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100

RESULT **AVG. PERCENT SPIKE RECOVERY = 86.1%**

Data Entry by:	[signature]	Date:	08-Mar-95
Approved by:	[signature]	Date:	3-8-95

Form 508101_X Rev. 1.3

LABCORE Data Entry Template for Worklist# 650

Analyst: JMV **Instrument:** AB00 14 **Book #** 91852

Method: LA-508-101 Rev/Mod D-2 WHC-SD-WM-DP-099, REV 01

Worklist Comment: Run under RWP 268. Determine S.S. using Ludlum detector-SLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		1	STD				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		2	BLNK-PREP				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		2	BLNK-PREP				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		3	BLNK/BKG				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
94000012	C-103	4	SAMPLE	S95T000057	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
94000012	C-103	4	SAMPLE	S95T000057	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
94000012	C-103	5	DUP	S95T000057	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
94000012	C-103	5	DUP	S95T000057	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
94000012	C-103	6	SPK	S95T000057	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g

Final page for worklist # 650

Joel M Van Sant 3-6-95
Analyst Signature **Date**

[illegible] 3-7-95
Analyst Signature **Date**

Data Entry Comments:
Although there is a high RPD between the samples and the replicates, no rerun is required. High RPD is the result of low alpha activity. [illegible] 3-7-95

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.

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-099, REV. ~~0~~ 1 [illegible] 9/27/95

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

LA-548-101 (A-3) LIQUIDS

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		14	14
STANDARD	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	3634	3758
650	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA-01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		120.833	124.967
Sample #	Sample Concentration in µCi/L		2.39E-02	BOOK#
WORKLIST#650	Replicate Concentration in µCi/L		2.48E-02	91B52
Instrument Code				
WB27807	Average Concentration in µCi/L		2.4345E-02	
Analyst				
JMV	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
03/06/95	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:30 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/mL	(Average) =	2.43E-05	DETECTION LEVEL
				1.10E-07 µCi/mL
RELATIVE COUNTING ERROR		=	3.3%	

Data Entry by:	[illegible]	Date:	03/07/95
Approved by:	[illegible]	Date:	3/2/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-099, REV. ~~0~~ 1 9/12/95

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

LA-548-101 (A-3) SOLIDS

			BLANK	REPLICATE
Type	DETECTOR NUMBER		14	14
BLANK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	10	5
650	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.408	0.408
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.273	0.233
Sample #	Sample Concentration in µCi/g	<	1.34E-01	BOOK#
S95T57	Replicate Concentration in µCi/g	<	1.14E-01	
Instrument Code				
WB27807	Maximum Concentration in µCi/g	<	1.3390E-01	
Analyst				
JMV				
Date				
03/06/95				
Time				
02:30 PM				

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

ALPHA TOTAL	in µCi/g	(Maximum) =	< 1.34E-01	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.				2.73E-01 µCi/g
RELATIVE COUNTING ERROR		=	500.0%	

Data Entry by:	[signature]	Date:	03/07/95
Approved by:	[signature]	Date:	3/7/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-099, REV. 01

9/25/95

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	111	139
650	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.408	0.408
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.400	4.333
Sample #	Sample Concentration in µCi/g		1.67E+00	BOOK#
S95T57	Replicate Concentration in µCi/g		2.12E+00	
Instrument Code				
WB27807	Average Concentration in µCi/g		1.8961E+00	
Analyst				
JMV	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
03/06/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:30 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	1.90E+00	DETECTION LEVEL
				2.73E-01 µCi/g
RELATIVE COUNTING ERROR		=	21.0%	

Data Entry by:	[signature]	Date:	03/07/95
Approved by:	[signature]	Date:	3/7/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-099, REV. ~~0~~ 1 3/7/95

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
DUPLICATE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	57	170
650	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.444	0.444
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.600	5.367
Sample #	Sample Concentration in µCi/g		7.21E-01	BOOK#
S95T57	Replicate Concentration in µCi/g		2.42E+00	
Instrument Code				
WB27807	Average Concentration in µCi/g		1.5696E+00	
Analyst				
JMV	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
03/06/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:30 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	1.57E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	33.2%	2.51E-01 µCi/g

Data Entry by:	[signature]	Date:	03/07/95
Approved by:	[signature]	Date:	3/7/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-099, REV. 0

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

LA-548-101 (A-3) SOLIDS

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		14	14
SPIKE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	46093	50346
650	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.408	0.408
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Sample #	SPIKE VALUE in µCi/L	(SVal)	36.379	36.379
S95T57	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
Instrument Code	SAMPLE + SPIKE µCi/g	(S+S)	7.53E+02	8.23E+02
WB27807	AVERAGE or MAXIMUM µCi/g from FORM C		1.8961E+00	
Analyst	BOOK#		94b43	
JMV				
Date				
03/06/95				
Time				
02:30 PM				

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

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

PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100

RESULT | AVG. PERCENT SPIKE RECOVERY = 87.3%

Data Entry by:		Date:	07-Mar-95
Approved by:		Date:	3/7/95

Form 508101_X Rev. 1.3

LABCORE Data Entry Template for Worklist# 683

Analyst: AKL **Instrument:** AB00 16 **Book #** 91B52

Method: LA-508-101 Rev/Mod D-2 WHC-SD-WM-DP-099, REV. 1

Worklist Comment: AT rerun 1. Use .100-10-.100 mL sample & .100 mL A-SPK. SLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		1	STD				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		2	BLNK-PREP				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		2	BLNK-PREP				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		3	BLNK/BKG				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
94000012	C-103	4	SAMPLE	S95T000055	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
94000012	C-103	4	SAMPLE	S95T000055	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
94000012	C-103	5	DUP	S95T000055	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
94000012	C-103	5	DUP	S95T000055	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
94000012	C-103	6	SPK	S95T000055	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
94000012	C-103	7	SAMPLE	S95T000056	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
94000012	C-103	7	SAMPLE	S95T000056	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
94000012	C-103	8	DUP	S95T000056	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
94000012	C-103	8	DUP	S95T000056	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
94000012	C-103	9	SPK	S95T000056	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g

Final page for worklist # 683

Alita Lewis

MB 3-9-95

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# 683

GROUP	PROJECT	S TYPE	SAMPLE#	R A -------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
Analyst Signature		Date			Analyst Signature			Date	
					M G Bierman			3-9-95	

WHC-SD-WM-DP-099, REV. 1

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.

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP-099, REV.1

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

LA-548-101 (A-3) LIQUIDS

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STANDARD	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	3629	3748
683	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA-01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		120.567	124.533
Sample #	Sample Concentration in µCi/L		2.58E-02	BOOK#
WORKLIST#683	Replicate Concentration in µCi/L		2.67E-02	91B52
Instrument Code				
WB27806	Average Concentration in µCi/L		2.6237E-02	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
03/08/95	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:40 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

				DETECTION LEVEL
ALPHA TOTAL	in µCi/mL	(Average) =	2.62E-05	
RELATIVE COUNTING ERROR		=	3.3%	1.35E-07 µCi/mL

Data Entry by:		Date:	03/09/95
Approved by:		Date:	3/9/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP-019, REV. 1

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

LA-548-101 (A-3) SOLIDS

			BLANK	REPLICATE
Type	DETECTOR NUMBER		16	16
BLANK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	5	7
683	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.468	0.468
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.269	0.269
Sample #	Sample Concentration in µCi/g	<	1.24E+00	BOOK#
S95T55	Replicate Concentration in µCi/g	<	1.24E+00	
Instrument Code				
WB27806	Maximum Concentration in µCi/g	<	1.2449E+00	
Analyst				
AKL				
Date				
03/08/95				
Time				
02:40 PM				

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

ALPHA TOTAL	in µCi/g	(Maximum) =	< 1.24E+00	DETECTION LEVEL
LESS Than Value was Determined from Lc.				2.91E+00 µCi/g
RELATIVE COUNTING ERROR		=	170.9%	

Data Entry by: [signature] Date: 03/09/95

Approved by: [signature] Date: 3/9/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP-099, REV. 1

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE 1, 2, or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	112	83
683	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.468	0.468
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.333	2.367
Sample #	Sample Concentration in µCi/g		1.54E+01	BOOK#
S95T55	Replicate Concentration in µCi/g		1.09E+01	
Instrument Code				
WB27806	Average Concentration in µCi/g		1.3168E+01	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
03/08/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:40 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	1.32E+01	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	26.9%	2.91E+00 µCi/g

Data Entry by:	[signature]	Date:	03/09/95
Approved by:	[signature]	Date:	3/9/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP- 049, REV. 1

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
DUPLICATE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	91	78
683	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.364	0.364
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.633	2.200
Sample #	Sample Concentration in µCi/g		1.56E+01	BOOK#
S95T55	Replicate Concentration in µCi/g		1.31E+01	
Instrument Code				
WB27806	Average Concentration in µCi/g		1.4356E+01	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
03/08/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:40 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	1.44E+01	DETECTION LEVEL
				3.74E+00 µCi/g
RELATIVE COUNTING ERROR		=	28.2%	

Data Entry by:	[signature]	Date:	03/09/95
Approved by:	[signature]	Date:	3/9/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP-099, REV. 1

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

LA-548-101 (A-3) SOLIDS

			SPIKE	REPLICATE
DETECTOR NUMBER			16	16
DISH SIZE 1 , 2 , or 5		(MS)	2	2
TOTAL COUNTS		(TC)	53605	46504
COUNT TIME in MINUTES		(CT)	30	30
BACKGROUND in cpm		(BKG)	0.4	0.4
SAMPLE VOLUME in mL	(Spiked Vial)	(SS)	0.100	0.100
SAMPLE DILUTION FACTOR	(Spiked Vial)	(DF)	101	101
DIGEST GRAMS of SOLIDS/L		(Dg/L)	0.468	0.468
SPIKE VOLUME in mL		(SVol)	0.100	0.100
SPIKE DILUTION FACTOR		(SDF)	1	1
SPIKE VALUE in µCi/L		(SVal)	36.378	36.378
INSTRUMENT EFFICIENCY FACTOR		(EFF)	0.2104	0.2104
SAMPLE + SPIKE µCi/g		(S+S)	8.25E+03	7.16E+03
AVERAGE or MAXIMUM µCi/g from FORM C			1.3168E+01	
BOOK#			94B43	

Type	Work List	AT or TB ?	Test Code	Matrix	Sample #	Instrument Code	Analyst	Date	Time
SPIKE	683	AT	@ALPHA-01	SOLID	S95T55	WB27806	AKL	03/08/95	02:40 PM

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

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

PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100

RESULT AVG. PERCENT SPIKE RECOVERY = 98.0%

Data Entry by:		Date:	09-Mar-95
Approved by:		Date:	3-9-95

Form 508101_X Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP-099, REV. 1

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	117	114
683	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.404	0.404
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.500	3.400
Sample #	Sample Concentration in µCi/g		1.87E+01	BOOK#
S95T56	Replicate Concentration in µCi/g		1.82E+01	
Instrument Code				
WB27806	Average Concentration in µCi/g		1.8465E+01	
Analyst				
AKL				
Date				
03/08/95				
Time				
02:40 PM				

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

ALPHA TOTAL	in µCi/g	(Average) =	1.85E+01	DETECTION LEVEL
				3.37E+00 µCi/g
RELATIVE COUNTING ERROR		=	21.6%	

Data Entry by:	[signature]	Date:	03/09/95
Approved by:	[signature]	Date:	3/9/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
DUPLICATE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	105	124
683	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.376	0.376
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.100	3.733
Sample #	Sample Concentration in µCi/g		1.78E+01	BOOK#
S95T56	Replicate Concentration in µCi/g		2.15E+01	
Instrument Code				
WB27806	Average Concentration in µCi/g		1.9649E+01	
Analyst				
AKL				
Date				
03/08/95				
Time				
02:40 PM				

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

ALPHA TOTAL	in µCi/g	(Average) =	1.96E+01	DETECTION LEVEL
				3.62E+00 µCi/g
RELATIVE COUNTING ERROR		=	22.8%	

Data Entry by:	[signature]	Date:	03/09/95
Approved by:	[signature]	Date:	3/9/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP- 099 , REV. 1

AT : LA-508-101 (D-2)
LA-548-101 (A-3) SOLIDS

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPIKE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	47836	46123
683	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.4	0.4
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.404	0.404
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Sample #	SPIKE VALUE in µCi/L	(SVal)	36.378	36.378
S95T56	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Instrument Code	SAMPLE + SPIKE µCi/g	(S+S)	8.53E+03	8.23E+03
WB27806	AVERAGE or MAXIMUM µCi/g from FORM C		1.8465E+01	
Analyst	BOOK#		94B43	
AKL				
Date				
03/08/95				
Time				
02:40 PM				

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

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

PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100

RESULT | AVG. PERCENT SPIKE RECOVERY = 91.9% |

Data Entry by:	[illegible]	Date:	09-Mar-95
Approved by:	[illegible]	Date:	5/9/95

Form 508101_X Rev. 1.3

LABCORE Data Entry Template for Worklist# 691

Analyst: AKL **Instrument:** AB00 13 **Book #** 98B57

Method: LA-508-101 Rev/Mod D-2 WHC-SD-WM-DP-099, REV. 1

Worklist Comment: Run under RWP 268. Determine sample size using Ludlum. SLF

	GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
1-2			1	STD				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
			1	STD				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
3-4			2	BLNK-PREP				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
			2	BLNK-PREP				@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
			3	BLNK/BKG				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
5-6	95000013	C-103	4	SAMPLE	S95T000226	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
	95000013	C-103	4	SAMPLE	S95T000226	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
7-8	95000013	C-103	5	DUP	S95T000226	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
	95000013	C-103	5	DUP	S95T000226	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
9-10	95000013	C-103	6	SPK	S95T000226	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
11-12	95000013	C-103	7	SAMPLE	S95T000227	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
	95000013	C-103	7	SAMPLE	S95T000227	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
13-14	95000013	C-103	8	DUP	S95T000227	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
	95000013	C-103	8	DUP	S95T000227	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error

Final page for worklist # 691

G. Lewis 3-10-95
Analyst Signature **Date**

[illegible] 3-13-95
Analyst Signature **Date**

Data Entry Comments: The high RPD value for S95T000226 is due to the low activity of the parent sample. No [illegible] required. [illegible] 3/13/95

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.

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP-099, REV.1

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

LA-548-101 (A-3) LIQUIDS

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		13	13
STANDARD	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	3523	3415
691	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.6	0.6
AT	SAMPLE SIZE in mL	(SS)	10.000	10.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA-01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2322	0.2322
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		116.833	113.233
Sample #	Sample Concentration in µCi/L		2.27E-02	BOOK#
WORKLIST#691	Replicate Concentration in µCi/L		2.20E-02	98B52
Instrument Code				
WB27810	Average Concentration in µCi/L		2.2316E-02	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
03/10/95	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
01:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/mL	(Average) =	2.23E-05	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	3.4%	1.46E-07 µCi/mL

Data Entry by:	[signature]	Date:	03/13/95
Approved by:	[signature]	Date:	3/13/95

Form 508101_C Rev. 1.3 Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

AT : LA-508-101 (D-2)
LA-548-101 (A-3) SOLIDS

			BLANK	REPLICATE
Type	DETECTOR NUMBER		13	13
BLANK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	10	7
691	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.6	0.6
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.42	0.42
Matrix	EFFICIENCY FACTOR	(EFF)	0.2322	0.2322
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.330	0.330
Sample #	Sample Concentration in µCi/g	<	3.08E-01	BOOK#
S95T226	Replicate Concentration in µCi/g	<	3.08E-01	
Instrument Code				
WB27810	Maximum Concentration in µCi/g	<	3.0789E-01	
Analyst				
AKL				
Date				
03/10/95				
Time				
01:00 PM				

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

ALPHA TOTAL	in µCi/g	(Maximum) =	< 3.08E-01	DETECTION LEVEL
LESS Than Value was Determined from Lc.				7.00E-01 µCi/g
RELATIVE COUNTING ERROR		=	129.6%	

Data Entry by: [signature] Date: 03/13/95

Approved by: [signature] Date: 3/13/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	241	228
691	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.6	0.6
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.42	0.42
Matrix	EFFICIENCY FACTOR	(EFF)	0.2322	0.2322
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7.433	7.000
Sample #	Sample Concentration in µCi/g		6.94E+00	BOOK#
S95T226	Replicate Concentration in µCi/g		6.53E+00	
Instrument Code				
WB27810	Average Concentration in µCi/g		6.7332E+00	
Analyst				
AKL				
Date				
03/10/95				
Time				
01:00 PM				

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	(Average) =	6.73E+00	
RELATIVE COUNTING ERROR		=	14.6%	7.00E-01 µCi/g

Data Entry by: [signature] Date: 03/13/95

Approved by: [signature] Date: 3/13/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-099, REV 1

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
DUPLICATE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	203	186
691	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.6	0.6
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.464	0.464
Matrix	EFFICIENCY FACTOR	(EFF)	0.2322	0.2322
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.167	5.600
Sample #	Sample Concentration in µCi/g		5.21E+00	BOOK#
S95T226	Replicate Concentration in µCi/g		4.73E+00	
Instrument Code				
WB27810	Average Concentration in µCi/g		4.9687E+00	
Analyst				
AKL				
Date				
03/10/95				
Time				
01:00 PM				

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

ALPHA TOTAL	in µCi/g	(Average) =	4.97E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	16.7%	6.34E-01 µCi/g

Data Entry by: [signature] Date: 03/13/95

Approved by: [signature] Date: 3/13/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER WHC-SD-WM-DP-099, REV. 1

AT : LA-508-101 (D-2)
LA-548-101 (A-3) SOLIDS

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		13	13
SPIKE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	52096	58739
691	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.6	0.6
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.42	0.42
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Sample #	SPIKE VALUE in µCi/L	(SVal)	36.378	36.378
S95T226	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2322	0.2322
Instrument Code	SAMPLE + SPIKE µCi/g	(S+S)	1.62E+03	1.83E+03
WB27810	AVERAGE or MAXIMUM µCi/g from FORM C		6.7332E+00	
Analyst	BOOK#		94B43	
AKL				
Date				
03/10/95				
Time				
01:00 PM				

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

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

PERCENT SPIKE RECOVERY = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal)*100

RESULT **AVG. PERCENT SPIKE RECOVERY = 98.1%**

Data Entry by: [signature] Date: 13-Mar-95

Approved by: [signature] Date: 3/13/95

Form 508101_X Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-099, REV. 1

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	390	338
691	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.6	0.6
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.404	0.404
Matrix	EFFICIENCY FACTOR	(EFF)	0.2322	0.2322
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		12.400	10.667
Sample #	Sample Concentration in µCi/g		1.20E+01	BOOK#
S95T227	Replicate Concentration in µCi/g		1.03E+01	
Instrument Code				
WB27810	Average Concentration in µCi/g		1.1187E+01	
Analyst				
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
03/10/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
01:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	1.12E+01	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	11.6%	7.28E-01 µCi/g

Data Entry by:	[signature]	Date:	03/13/95
Approved by:	[signature]	Date:	3/13/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-019, REV. 1

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

LA-548-101 (A-3) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
DUPLICATE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	441	471
691	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.6	0.6
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	0.452	0.452
Matrix	EFFICIENCY FACTOR	(EFF)	0.2322	0.2322
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		14.100	15.100
Sample #	Sample Concentration in µCi/g		1.22E+01	BOOK#
S95T227	Replicate Concentration in µCi/g		1.31E+01	
Instrument Code				
WB27810	Average Concentration in µCi/g		1.2658E+01	
Analyst				
AKL				
Date				
03/10/95				
Time				
01:00 PM				

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

ALPHA TOTAL	in µCi/g	(Average) =	1.27E+01	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	9.9%	6.51E-01 µCi/g

Data Entry by: [signature] Date: 03/13/95

Approved by: [signature] Date: 3/13/95

Form 508101_C Rev. 1.3

C103

LABCORE Data Entry Template for Worklist# 594

Analyst: 534 **Instrument:** GEA00 2 **Method:** LA-548-121 D-1

Worklist Comment: Use 1 mL sample size. RUSH SAMPLE. -PPB WHC-SD-WM-DB-030, REV. 1

64B52

Seg	Type	Sample#	Rep	Al	Test		Matrix	Actual	Found	DL	Unit
1	STD				@GEA-02	CO60-02	SOLID			N/A	uCi/
1	STD				@GEA-02	CO60-02E	SOLID			N/A	% Ct
1	STD				@GEA-02	CS13702	SOLID			N/A	uCi/
1	STD				@GEA-02	CS13702E	SOLID			N/A	% Ct
2	BLNK-PREP				@GEA-02	CO60-02	SOLID			N/A	uCi/
2	BLNK-PREP				@GEA-02	CS13702	SOLID			N/A	uCi/
2	BLNK-PREP				@GEA-02	EU15402	SOLID			N/A	uCi/
2	BLNK-PREP				@GEA-02	EU15502	SOLID			N/A	uCi/
3	SAMPLE	S95T000054	0		@GEA-02	CO60-02	SOLID	N/A			uCi/
3	SAMPLE	S95T000054	0		@GEA-02	CO60-02E	SOLID	N/A			% Ct
3	SAMPLE	S95T000054	0		@GEA-02	CS13702	SOLID	N/A			uCi/
3	SAMPLE	S95T000054	0		@GEA-02	CS13702E	SOLID	N/A			% Ct
3	SAMPLE	S95T000054	0		@GEA-02	EU15402	SOLID	N/A			uCi/
3	SAMPLE	S95T000054	0		@GEA-02	EU15402E	SOLID	N/A			% Ct
3	SAMPLE	S95T000054	0		@GEA-02	EU15502	SOLID	N/A			uCi/
3	SAMPLE	S95T000054	0		@GEA-02	EU15502E	SOLID	N/A			% Ct
4	DUP	S95T000054	0		@GEA-02	CO60-02	SOLID			N/A	uCi/
4	DUP	S95T000054	0		@GEA-02	CO60-02E	SOLID			N/A	% Ct
4	DUP	S95T000054	0		@GEA-02	CS13702	SOLID			N/A	uCi/
4	DUP	S95T000054	0		@GEA-02	CS13702E	SOLID			N/A	% Ct

Data Entry Comments:

Units shown for QC (SPK) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 594

Analyst: KGH **Instrument:** GEA00 _____ **Method:** LA-548-121

Worklist Comment: Use 1 mL sample size. RUSH SAMPLE. -PPB WHC-SD-WM-DP- 0099, REV 1 9/25/95

Seg Type	Sample#	Rep Al	Test		Matrix	Actual	Found	DL	Unit
4 DUP	S95T000054	0	@GEA-02	EU15402	SOLID			N/A	uCi/
4 DUP	S95T000054	0	@GEA-02	EU15402E	SOLID			N/A	% Ct
4 DUP	S95T000054	0	@GEA-02	EU15502	SOLID			N/A	uCi/
4 DUP	S95T000054	0	@GEA-02	EU15502E	SOLID			N/A	% Ct

Final page for worklist # 594

Analyst Signature M G Brown

Date 2-17-95

Data Entry Comments:

Units shown for QC (SPK) may not reflect the actual units.

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP- 080, REV. 1

099 [illegible] 09/25/95

PREPARATION OF SAMPLE MOUNTS FOR GAMMA ENERGY ANALYSIS : LA-548-121 (D-1)

3 < Choose Sample Units: 1=µCi/Sample, 2=µCi/g, 3=µCi/L

3 < Choose Report Units: 1=µCi/L, 2=pCi/L, 3=µCi/mL, 4=µCi/g

Type	ANALYTE	? <	SAMPLE µCi/L	REPORT µCi/mL	COUNTING ERROR %	? <	DUPLICATE µCi/L	REPORT µCi/mL	COUNTING ERROR %	AVERAGE µCi/mL	RPD
STANDARD	CO60		2.04E+01	2.04E-02	4.91			0.00E+00			
Work List	CS137		2.52E+01	2.52E-02	5.36			0.00E+00			
594				0.00E+00				0.00E+00			
Test Code				0.00E+00				0.00E+00			
GEA-02				0.00E+00				0.00E+00			
Matrix				0.00E+00				0.00E+00			
LIQUID				0.00E+00				0.00E+00			
Sample #				0.00E+00				0.00E+00			
WORKLIST0594				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
DUP's Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Instrument Code				0.00E+00				0.00E+00			
WC38831				0.00E+00				0.00E+00			
Analyst				0.00E+00				0.00E+00			
KGH				0.00E+00				0.00E+00			
Date											
02/16/95											
Time											
02:35 PM											

REPORT (µCi/mL) = SAMPLE (µCi/L) / 1000mL/L * DF

AVERAGE = (SAMPLE + DUPLICATE) / 2

RPD = |(SAMPLE - DUPLICATE)| / AVERAGE * 100

Data Entry by: [signature] Date: 02/17/95

Approved by: [signature] Date: 2/17/95

Form 548121_1 Rev. 2.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-~~040~~ 099, REV. 1

2/21/95

PREPARATION OF SAMPLE MOUNTS FOR GAMMA ENERGY ANALYSIS : LA-548-121 (D-1)

3 < Choose Sample Units: 1=µCi/Sample, 2=µCi/g, 3=µCi/L

4 < Choose Report Units: 1=µCi/L, 2=pCi/L, 3=µCi/mL, 4=µCi/g

1.9966 < Enter SAMPLE g/L < Enter DUPLICATE g/L

Type	ANALYTE	? <	SAMPLE µCi/L	REPORT µCi/g	COUNTING ERROR %	? <	DUPLICATE µCi/L	REPORT µCi/g	COUNTING ERROR %	AVERAGE µCi/g	RPD
BLANK	CO60	<	1.07E+00	5.37E-01				ERR			
Work List	CS137	<	2.56E+00	1.28E+00				ERR			
594	EU154	<	3.81E+00	1.91E+00				ERR			
Test Code	EU155	<	2.82E+00	1.41E+00				ERR			
@GEA-02				0.00E+00				ERR			
Matrix				0.00E+00				ERR			
SOLID				0.00E+00				ERR			
Sample #				0.00E+00				ERR			
595T54				0.00E+00				ERR			
				0.00E+00				ERR			
Digest ID				0.00E+00				ERR			
1				0.00E+00				ERR			
				0.00E+00				ERR			
DUP + Digest ID				0.00E+00				ERR			
1				0.00E+00				ERR			
				0.00E+00				ERR			
Instrument Code				0.00E+00				ERR			
WC38931				0.00E+00				ERR			
Analyst				0.00E+00				ERR			
KGH				0.00E+00				ERR			
Date											
02/16/95											
Time											
02:35 PM											

REPORT (µCi/g) = SAMPLE (µCi/L) / (g/L) * DF

AVERAGE = (SAMPLE + DUPLICATE) / 2

RPD = |(SAMPLE - DUPLICATE)| / AVERAGE * 100

Data Entry by: [signature] Date: 02/17/95

Approved by: [signature] Date: 2/17/95

Form 548121_1 Rev. 2.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-~~[illegible]~~, REV. 1

9/23/9 >

PREPARATION OF SAMPLE MOUNTS FOR GAMMA ENERGY ANALYSIS : LA-548-121 (D-1)

3 < Choose Sample Units: 1=µCi/Sample, 2=µCi/g, 3=µCi/L

4 < Choose Report Units: 1=µCi/L, 2=pCi/L, 3=µCi/mL, 4=µCi/g

1.9956 < Enter SAMPLE g/L 1.9996 < Enter DUPLICATE g/L

Type	ANALYTE	? <	SAMPLE µCi/L	REPORT µCi/g	COUNTING ERROR %	? <	DUPLICATE µCi/L	REPORT µCi/g	COUNTING ERROR %	AVERAGE µCi/g	RPD
SAMPLE/DUPLICATE	CO60		3.60E+00	1.80E+00	32.77		4.61E+00	2.31E+00	25.9	2.05E+00	24.4
Work List	CS137		2.66E+02	1.33E+02	3.05		2.61E+02	1.31E+02	3.07	1.32E+02	2.1
584	EU154		2.79E+01	1.40E+01	20.18		1.79E+01	8.95E+00	28.58	1.15E+01	43.9
Test Code	EU155		1.80E+01	9.02E+00	46.85		1.69E+01	8.45E+00	64.1	8.74E+00	6.5
@GEA-02				0.00E+00				0.00E+00			
Matrix				0.00E+00				0.00E+00			
SOLID				0.00E+00				0.00E+00			
Sample #				0.00E+00				0.00E+00			
594T64				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Dup's Dilnal DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Instrument Code				0.00E+00				0.00E+00			
WC38831				0.00E+00				0.00E+00			
Analyst				0.00E+00				0.00E+00			
KGH				0.00E+00				0.00E+00			
Date											
02/16/95											
Time											
02:35 PM											

REPORT (µCi/g) = SAMPLE (µCi/L) / (g/L) * DF

AVERAGE = (SAMPLE + DUPLICATE) / 2

RPD = |(SAMPLE - DUPLICATE)| / AVERAGE * 100

Data Entry by: [signature] Date: 02/17/95

Approved by: [signature] Date: 2/17/95

Form 548121_1 Rev. 2.3

```
*****************************************************************************
* 222-S Laboratory Counting Room   17-FEB-1995 02:25:59.54                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                WORKLIST-594-STD
  mple Size:              1.00000E-03 LI
  lution Factor:          1.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA2
File Number:              dka300:[spec.GEA2]2g2015.cnf
Geometry:                 42
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:01.13 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        17-FEB-1995 01:35:22.85
Decayed to:               17-FEB-1995 01:35:22.85
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  EMB
Background Subtract:      DKA300:[SPEC.GEA2]2GBACK

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

Removed by: Em Baucla

date: 2-17-95

WHC-SD-WM-DP-080, REV. 1

699

Post-NID Peak Search Report

	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	661.69*	1818	1.48	1323.40	1317	14	5.4		CS-137	25.2
0	1173.30	1023	1.98	2346.67	2340	18	7.1		CO-60	20.1
0	1332.54	953	2.06	2665.23	2655	21	6.8		CO-60	20.7

Sample ID : WORKLIST-594-STD Acquisition date : 17-FEB-1995 01:35:22

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	2.042E+01	2.042E+01	0.100E+01	4.91	
CS-137	30.00Y	1.000	2.523E+01	2.523E+01	0.135E+01	5.36	
		Total Activity :	4.565E+01	4.565E+01			
		Grand Total Activity :	4.565E+01	4.565E+01			

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

WHC-SD-WM-DP-~~080~~ 099, REV. 1
JLW 9/25/95

Minimum Detectable Activity Report
Sample ID : WORKLIST-594-STD

Acquisition date : 17-FEB-1995 01:35:22

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
[illegible]-7	131.	477.59	4.6410E+00
NA-22	15.	1274.53	3.7752E-01
NA-24	10.	1368.55	3.2532E-01
K-40	125.	1460.75	1.1395E+01
SC-46	71.	1120.55	7.3779E-01
CR-51	146.	320.08	3.6625E+00
MN-54	65.	834.83	5.4031E-01
CO-56	84.	846.76	6.2157E-01
CO-57	175.	122.06	2.9541E-01
CO-58	62.	810.78	5.1594E-01
FE-59	62.	1099.25	1.1960E+00
ZN-65	69.	1115.55	1.4313E+00
SE-75	158.	264.66	5.7511E-01
KR-85	107.	514.00	1.0640E+02
SR-85	106.	514.01	4.8055E-01
Y-88	1.	1836.06	1.3173E-01
Y-90	5.	1760.70	1.0395E+00
Y-91	26.	1204.67	1.5863E+02
NB-94	62.	871.09	5.4532E-01
NB-95	67.	765.78	5.0933E-01
ZR-95	58.	756.73	8.6277E-01
RU-103	98.	497.08	4.7241E-01
RURH-106	66.	621.93	8.5627E+00
AG-108m	54.	722.94	4.8046E-01
CD-109	147.	88.03	9.3238E+00
AG-110M	113.	657.76	6.1483E-01
[illegible]-113	122.	391.69	6.0833E-01
[illegible]-123m	188.	159.00	3.0647E-01
SB-124	82.	602.73	4.7080E-01
SB-125	135.	427.89	1.4996E+00
TE-125m	155.	109.27	9.2245E+01
I-129	160.	39.60	0.0000E+00
I-131	122.	364.48	4.5483E-01
XE-131m	175.	163.93	1.2841E+01
BA-133	130.	356.02	6.0526E-01
CS-134	69.	604.70	4.3396E-01
CS-136	66.	818.51	5.3817E-01
CS-138	5.	1435.86	4.9690E-01
CE-139	176.	165.85	3.1723E-01
BA-140	63.	537.31	1.5158E+00
LA-140	3.	1596.21	2.2616E-01
CE-141	179.	145.44	5.1187E-01
CE-144	162.	133.51	2.1258E+00
CEPR-144	161.	133.51	4.2464E+00
EU-152	8.	1408.01	1.4327E+00
EU-154	15.	1274.51	1.0983E+00
EU-155	157.	86.54	1.0900E+00
HF-181	110.	482.18	5.5276E-01
TA-182	168.	67.75	1.5633E+00
HG-203	153.	279.20	4.2037E-01
BI-207	72.	569.70	4.2208E-01

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Sample ID : WORKLIST-594-STD Acquisition date : 17-FEB-1995 01:35:22

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
208	172.	277.36	5.7241E+00
PB-210	159.	46.50	0.0000E+00
BI-212	54.	727.18	6.6092E+00
PB-212	185.	238.63	7.7628E-01
BI-214	101.	609.31	1.1555E+00
PB-214	159.	351.92	2.0501E+00
RA-224	176.	240.99	8.3942E+00
RA-226	190.	186.10	8.0416E+00
AC-228	76.	911.21	2.3579E+00
TH-228	176.	84.37	3.1279E+01
TH-229	147.	88.47	1.3510E+00
U-232	150.	57.78	5.5122E+02
PA-233	138.	312.17	9.1179E-01
PA-234M	60.	1001.03	3.0604E+01
TH-234	115.	63.29	1.4713E+01
U-235	189.	185.71	4.8801E-01
NP-237	157.	86.48	2.8845E+00
U-237	147.	59.54	2.7606E+00
NP-238	67.	984.45	2.2929E+00
NP-239	147.	106.12	1.1463E+00
PU-239	173.	129.30	3.8417E+03
AM-241	147.	59.54	2.6480E+00
AM-243	155.	74.67	7.9698E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   17-FEB-1995 03:19:35.53                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                WORKLIST-594-BLA
Sample Size:              1.00000E-03 LI
Dilution Factor:          4.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA2
File Number:              dka300:[spec.GEA2]2g2016.cnf
Geometry:                 42
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:00.46 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        17-FEB-1995 02:28:59.77
Decayed to:               17-FEB-1995 02:28:59.77
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  EMB
Background Subtract:      DKA300:[SPEC.GEA2]2GBACK

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

Removed by: Em Barela

date: 2-17-95

WHC-SD-WM-DP-099 080 REV 1

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	609.43*	20	1.00	1218.90	1215	9	92.0			

Sample ID : WORKLIST-594-BLA Acquisition date : 17-FEB-1995 02:28:59

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

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

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

WHC-SD-WM-DP-085, REV. 1

Sample ID : WORKLIST-594-BLA
Acquisition date : 17-FEB-1995 02:28:59

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	28.	477.59	8.6319E+00
NA-22	11.	1274.53	1.3103E+00
NA-24	13.	1368.55	1.4901E+00
K-40	99.	1460.75	4.0579E+01
SC-46	21.	1120.55	1.6169E+00
CR-51	45.	320.08	8.1587E+00
MN-54	19.	834.83	1.1721E+00
CO-56	18.	846.76	1.1498E+00
CO-57	81.	122.06	8.0268E-01
CO-58	15.	810.78	1.0171E+00
FE-59	10.	1099.25	1.9634E+00
CO-60	7.	1332.50	1.0708E+00
ZN-65	17.	1115.55	2.8337E+00
SE-75	70.	264.66	1.5272E+00
KR-85	39.	514.00	2.5690E+02
SR-85	39.	514.01	1.1602E+00
Y-88	4.	1836.06	1.0092E+00
Y-90	5.	1760.70	4.1578E+00
Y-91	9.	1204.67	3.7117E+02
NB-94	15.	871.09	1.0596E+00
NB-95	23.	765.78	1.1856E+00
ZR-95	21.	756.73	2.0782E+00
RU-103	34.	497.08	1.1224E+00
RURH-106	18.	621.93	1.7914E+01
AG-108m	15.	722.94	9.9455E-01
CD-109	68.	88.03	2.5308E+01
AG-110M	21.	657.76	1.0543E+00
SN-113	37.	391.69	1.3450E+00
TE-123m	78.	159.00	7.8999E-01
SB-124	26.	602.73	1.0710E+00
SB-125	32.	427.89	2.9239E+00
TE-125m	63.	109.27	2.3624E+02
I-129	64.	39.60	0.0000E+00
I-131	50.	364.48	1.1616E+00
XE-131m	89.	163.93	3.6674E+01
BA-133	57.	356.02	1.6061E+00
CS-134	27.	604.70	1.0960E+00
CS-136	12.	818.51	9.3384E-01
CS-137	99.	661.66	2.5620E+00
CS-138	6.	1435.86	2.3211E+00
CE-139	81.	165.85	8.6102E-01
BA-140	18.	537.31	3.2650E+00
LA-140	5.	1596.21	1.1034E+00
CE-141	75.	145.44	1.3220E+00
CE-144	72.	133.51	5.6770E+00
CEPR-144	72.	133.51	1.1348E+01
EU-152	9.	1408.01	5.9212E+00
EU-154	11.	1274.51	3.8067E+00
EU-155	66.	86.54	2.8199E+00
HF-181	32.	482.18	1.1935E+00
TA-182	64.	67.75	3.8693E+00

REV.

Sample ID : WORKLIST-594-BLA Acquisition date : 17-FEB-1995 02:28:59

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
-203	46.	279.20	9.2139E-01
BI-207	34.	569.70	1.1548E+00
TL-208	54.	277.36	1.2794E+01
PB-210	56.	46.50	0.0000E+00
BI-212	26.	727.18	1.8361E+01
PB-212	88.	238.63	2.1356E+00
BI-214	53.	609.31	3.3451E+00
PB-214	75.	351.92	5.6110E+00
RA-224	70.	240.99	2.1243E+01
RA-226	107.	186.10	2.4109E+01
AC-228	26.	911.21	5.5784E+00
TH-228	78.	84.37	8.3502E+01
TH-229	67.	88.47	3.6546E+00
U-232	61.	57.78	1.4066E+03
PA-233	62.	312.17	2.4407E+00
PA-234M	10.	1001.03	4.9692E+01
TH-234	51.	63.29	3.9329E+01
U-235	104.	185.71	1.4436E+00
NP-237	65.	86.48	7.4384E+00
U-237	47.	59.54	6.2318E+00
NP-238	15.	984.45	4.4107E+00
NP-239	67.	106.12	3.0918E+00
PU-239	95.	129.30	1.1396E+04
AM-241	47.	59.54	5.9780E+00
AM-243	59.	74.67	1.9736E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   17-FEB-1995 05:21:20.34                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                S95T54-SAMPLE
Sample Size:              1.00000E-03 LI
Dilution Factor:          4.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA2
File Number:              dka300:[spec.GEA2]2g2019.cnf
Geometry:                 42
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:01.79 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        17-FEB-1995 04:30:42.30
Decayed to:               17-FEB-1995 04:30:42.30
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  EMB
Background Subtract:      DKA300:[SPEC.GEA2]2GBACK

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

Removed by: Em Barker

date: 2-17-95

WHC-SD-WM-DP-080, REV. 1

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	59.52	88	0.88	119.55	116	7	100.6		AM-241	16.5
0	86.09*	331	1.02	172.66	167	11	43.5		NP-237	65.5
									EU-155	24.7
0	105.18	210	1.16	210.81	208	7	45.8		EU-155	17.9
0	123.07	483	1.16	246.58	241	10	26.6		CO-57	9.28
									EU-154	19.6
0	248.13	99	1.27	496.56	493	7	60.2		EU-154	31.9
0	609.11*	65	2.05	1218.25	1213	13	59.5			
0	661.72*	4791	1.52	1323.46	1316	15	3.1		CS-137	266.
0	723.15	99	1.74	1446.30	1440	12	28.1		EU-154	25.3
0	873.80	65	1.32	1747.59	1743	12	32.3		EU-154	32.4
0	1001.83	85	9.54	2003.67	1988	27	49.9			
0	1173.48	48	2.17	2347.01	2341	16	47.5		CO-60	3.76
0	1274.37	111	1.51	2548.85	2541	15	20.4		EU-154	27.1
									NA-22	9.33
0	1333.19	40	1.82	2666.54	2659	13	45.2		CO-60	3.48

Sample ID : S95T54-SAMPLE Acquisition date : 17-FEB-1995 04:30:42

Total number of lines in spectrum 13
Number of unidentified lines 0
Number of lines tentatively identified by NID 13 100.00%

WHC-SD-WM-DP-080, REV. 1

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	9.334E+00	9.334E+00	1.908E+00	20.44	
CO-57	271.80D	1.000	9.281E+00	9.281E+00	2.470E+00	26.61	
CO-60	5.27Y	1.000	3.602E+00	3.602E+00	1.180E+00	32.77	
CS-137	30.00Y	1.000	2.660E+02	2.660E+02	0.081E+02	3.05	
EU-154	8.59Y	1.000	2.791E+01	2.791E+01	0.563E+01	20.16	
EU-155	4.68Y	1.000	1.795E+01	1.795E+01	0.823E+01	45.85	
NP-237	2.14E+06Y	1.000	6.550E+01	6.550E+01	2.849E+01	43.50	
AM-241	432.20Y	1.000	1.648E+01	1.648E+01	1.658E+01	100.59	
	Total Activity :		4.160E+02	4.160E+02			
	Grand Total Activity :		4.160E+02	4.160E+02			

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

Minimum Detectable Activity Report

Sample ID : S95T54-SAMPLE
Acquisition date : 17-FEB-1995 04:30:42

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	221.	477.59	2.4107E+01
NA-24	6.	1368.55	1.0322E+00
K-40	103.	1460.75	4.1418E+01
SC-46	35.	1120.55	2.0670E+00
CR-51	267.	320.08	1.9766E+01
MN-54	26.	834.83	1.3530E+00
CO-56	27.	846.76	1.4091E+00
CO-58	37.	810.78	1.5925E+00
FE-59	18.	1099.25	2.5649E+00
ZN-65	18.	1115.55	2.9072E+00
SE-75	291.	264.66	3.1146E+00
KR-85	162.	514.00	5.2453E+02
SR-85	162.	514.01	2.3696E+00
Y-88	5.	1836.06	1.1782E+00
Y-90	7.	1760.70	4.8616E+00
Y-91	11.	1204.67	4.0357E+02
NB-94	55.	871.09	2.0533E+00
NB-95	42.	765.78	1.6181E+00
ZR-95	57.	756.73	3.4120E+00
RU-103	158.	497.08	2.4052E+00
RURH-106	82.	621.93	3.8191E+01
AG-108m	122.	722.94	2.8841E+00
CD-109	882.	88.03	9.1182E+01
AG-110M	144.	657.76	2.7803E+00
SN-113	207.	391.69	3.1696E+00
TE-123m	529.	159.00	2.0574E+00
SB-124	85.	602.73	1.9239E+00
SB-125	300.	427.89	8.9438E+00
TE-125m	691.	109.27	7.7956E+02
I-129	489.	39.60	0.0000E+00
I-131	242.	364.48	2.5662E+00
XE-131m	513.	163.93	8.7955E+01
BA-133	227.	356.02	3.1910E+00
CS-134	71.	604.70	1.7616E+00
CS-136	22.	818.51	1.2420E+00
CS-138	6.	1435.86	2.2521E+00
CE-139	485.	165.85	2.1080E+00
BA-140	90.	537.31	7.2117E+00
LA-140	7.	1596.21	1.3056E+00
CE-141	575.	145.44	3.6695E+00
CE-144	608.	133.51	1.6499E+01
CEPR-144	608.	133.51	3.2967E+01
EU-152	8.	1408.01	5.7823E+00
HF-181	172.	482.18	2.7574E+00
TA-182	676.	67.75	1.2533E+01
HG-203	302.	279.20	2.3626E+00
BI-207	75.	569.70	1.7237E+00
TL-208	274.	277.36	2.8902E+01
PB-210	529.	46.50	0.0000E+00
BI-212	34.	727.18	2.0947E+01
PB-212	377.	238.63	4.4331E+00

Sample ID : S95T54-SAMPLE Acquisition date : 17-FEB-1995 04:30:42

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
-214	125.	609.31	5.1380E+00
PB-214	238.	351.92	1.0019E+01
RA-224	381.	240.99	4.9423E+01
RA-226	524.	186.10	5.3431E+01
AC-228	42.	911.21	7.0201E+00
TH-228	822.	84.37	2.7032E+02
TH-229	817.	88.47	1.2726E+01
U-232	601.	57.78	4.4165E+03
PA-233	272.	312.17	5.1150E+00
PA-234M	27.	1001.03	8.2667E+01
TH-234	624.	63.29	1.3727E+02
U-235	512.	185.71	3.2098E+00
U-237	671.	59.54	2.3626E+01
NP-238	24.	984.45	5.4852E+00
NP-239	927.	106.12	1.1503E+01
PU-239	659.	129.30	2.9986E+04
AM-243	718.	74.67	6.8684E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   17-FEB-1995 06:59:12.04                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                S95T54-DUP
Sample Size:              1.00000E-03 LI
Dilution Factor:          4.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA2
File Number:              dka300:[spec.GEA2]2g2020.cnf
Geometry:                 42
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:01.72 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        17-FEB-1995 06:08:30.18
Decayed to:               17-FEB-1995 06:08:30.18
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  EMB
Background Subtract:      DKA300:[SPEC.GEA2]2GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       21-MAR-1994 09:31:55.15
 Date of last efficiency calibration:   21-MAR-1994 09:43:42.61
*****************************************************************************
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Removed by: [illegible]

date: 2-17-95

WHC-SD-WM-DP-~~080~~ 099, REV. 1

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	59.35	119	0.95	119.20	115	7	72.3		AM-241	22.5
0	86.75	343	1.41	173.98	169	10	37.4		NP-237	68.1
									EU-155	25.7
									CD-109	227.
0	105.28	198	0.89	211.00	206	10	64.1		EU-155	16.9
0	122.85	553	1.11	246.14	241	10	22.0		CO-57	10.6
									EU-154	22.5
0	661.72*	4705	1.52	1323.45	1316	16	3.1		CS-137	261.
0	723.52	63	1.85	1447.04	1441	11	51.6		EU-154	16.1
0	873.78	38	0.96	1747.55	1739	14	67.5		EU-154	18.8
0	996.18	24	1.05	1992.36	1989	9	79.6		EU-154	15.6
0	1004.74	56	1.01	2009.47	2004	12	45.4		EU-154	21.3
0	1173.43	57	1.90	2346.93	2342	13	34.7		CO-60	4.48
0	1274.54	98	2.13	2549.19	2544	15	22.0		EU-154	24.0
									NA-22	8.25
0	1332.44	55	1.91	2665.05	2657	16	38.9		CO-60	4.79

Sample ID : S95T54-DUP
Acquisition date : 17-FEB-1995 06:08:30

Total number of lines in spectrum	12	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	12	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
NA-22	2.60Y	1.000	8.246E+00	8.246E+00	1.817E+00	22.04	
CO-57	271.80D	1.000	1.065E+01	1.065E+01	0.234E+01	21.96	
CO-60	5.27Y	1.000	4.610E+00	4.610E+00	1.194E+00	25.90	
CD-109	462.90D	1.000	2.268E+02	2.269E+02	0.850E+02	37.45	
CS-137	30.00Y	1.000	2.612E+02	2.612E+02	0.080E+02	3.07	
EU-154	8.59Y	1.000	1.794E+01	1.794E+01	0.515E+01	28.68	
EU-155	4.68Y	1.000	1.694E+01	1.694E+01	1.086E+01	64.10	
NP-237	2.14E+06Y	1.000	6.807E+01	6.807E+01	2.549E+01	37.45	
AM-241	432.20Y	1.000	2.245E+01	2.245E+01	1.622E+01	72.25	
			---	---			
	Total Activity :		6.369E+02	6.369E+02			

Grand Total Activity : 6.369E+02 6.369E+02

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

WHC-SD-WM-DP-[illegible], REV 1
1999 [illegible] 11/24/95

Minimum Detectable Activity Report
Sample ID : S95T54-DUP

Acquisition date : 17-FEB-1995 06:08:30

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	237.	477.59	2.4995E+01
NA-24	7.	1368.55	1.0747E+00
K-40	115.	1460.75	4.3714E+01
SC-46	30.	1120.55	1.9118E+00
CR-51	247.	320.08	1.9023E+01
MN-54	33.	834.83	1.5339E+00
CO-56	24.	846.76	1.3297E+00
CO-58	29.	810.78	1.4074E+00
FE-59	18.	1099.25	2.6083E+00
ZN-65	16.	1115.55	2.7887E+00
SE-75	317.	264.66	3.2550E+00
KR-85	135.	514.00	4.7968E+02
SR-85	135.	514.01	2.1679E+00
Y-88	2.	1836.06	7.4519E-01
Y-90	4.	1760.70	3.6667E+00
Y-91	11.	1204.67	4.1270E+02
NB-94	52.	871.09	2.0097E+00
NB-95	38.	765.78	1.5387E+00
ZR-95	52.	756.73	3.2711E+00
RU-103	155.	497.08	2.3801E+00
RURH-106	70.	621.93	3.5129E+01
AG-108m	112.	722.94	2.7593E+00
AG-110M	145.	657.76	2.7885E+00
SN-113	201.	391.69	3.1211E+00
TE-123m	527.	159.00	2.0554E+00
SB-124	95.	602.73	2.0351E+00
SB-125	281.	427.89	8.6584E+00
TE-125m	675.	109.27	7.7020E+02
I-129	418.	39.60	0.0000E+00
I-131	224.	364.48	2.4668E+00
XE-131m	488.	163.93	8.5813E+01
BA-133	204.	356.02	3.0303E+00
CS-134	98.	604.70	2.0719E+00
CS-136	30.	818.51	1.4406E+00
CS-138	6.	1435.86	2.2615E+00
CE-139	469.	165.85	2.0726E+00
BA-140	113.	537.31	8.1000E+00
LA-140	11.	1596.21	1.6668E+00
CE-141	541.	145.44	3.5602E+00
CE-144	585.	133.51	1.6176E+01
CEPR-144	585.	133.51	3.2321E+01
EU-152	5.	1408.01	4.5590E+00
HF-181	201.	482.18	2.9810E+00
TA-182	673.	67.75	1.2504E+01
HG-203	296.	279.20	2.3374E+00
BI-207	86.	569.70	1.8413E+00
TL-208	256.	277.36	2.7928E+01
PB-210	437.	46.50	0.0000E+00
BI-212	39.	727.18	2.2359E+01
PB-212	385.	238.63	4.4769E+00
BI-214	132.	609.31	5.2675E+00

Sample ID : S95T54-DUP Acquisition date : 17-FEB-1995 06:08:30

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
-214	241.	351.92	1.0090E+01
RA-224	360.	240.99	4.8053E+01
RA-226	469.	186.10	5.0532E+01
AC-228	39.	911.21	6.7956E+00
TH-228	747.	84.37	2.5776E+02
TH-229	784.	88.47	1.2463E+01
U-232	594.	57.78	4.3919E+03
PA-233	264.	312.17	5.0399E+00
PA-234M	35.	1001.03	9.3636E+01
TH-234	585.	63.29	1.3283E+02
U-235	478.	185.71	3.1015E+00
U-237	635.	59.54	2.2982E+01
NP-238	25.	984.45	5.5989E+00
NP-239	883.	106.12	1.1229E+01
PU-239	567.	129.30	2.7802E+04
AM-243	713.	74.67	6.8438E+00

LABCORE Data Entry Template for Worklist# 614

Analyst: SMF **Instrument:** GEA00 2 **Book #** ~~68B~~ 64B52 3-13-95

Method: LA-548-121 Rev/Mod 0-1

Worklist Comment: Use 0.100 mL sample. R(0). -PPB

WHC-SD-WM-DP-070, REV. 1 9/25/95

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST		MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@GEA-02	CO60-02	SOLID			N/A	uCi/g
		1	STD				@GEA-02	CO60-02E	SOLID			N/A	% Ct. Error
		1	STD				@GEA-02	CS13702	SOLID			N/A	uCi/g
		1	STD				@GEA-02	CS13702E	SOLID			N/A	% Ct. Error
		2	BLNK-PREP				@GEA-02	CO60-02	SOLID			N/A	uCi/g
		2	BLNK-PREP				@GEA-02	CS13702	SOLID			N/A	uCi/g
		2	BLNK-PREP				@GEA-02	EU15402	SOLID			N/A	uCi/g
		2	BLNK-PREP				@GEA-02	EU15502	SOLID			N/A	uCi/g
94000012	C-103	3	SAMPLE	S95T000053	0	F	@GEA-02	CO60-02	SOLID	N/A			uCi/g
94000012	C-103	3	SAMPLE	S95T000053	0	F	@GEA-02	CO60-02E	SOLID	N/A			% Ct. Error
94000012	C-103	3	SAMPLE	S95T000053	0	F	@GEA-02	CS13702	SOLID	N/A			uCi/g
94000012	C-103	3	SAMPLE	S95T000053	0	F	@GEA-02	CS13702E	SOLID	N/A			% Ct. Error
94000012	C-103	3	SAMPLE	S95T000053	0	F	@GEA-02	EU15402	SOLID	N/A			uCi/g
94000012	C-103	3	SAMPLE	S95T000053	0	F	@GEA-02	EU15402E	SOLID	N/A			% Ct. Error
94000012	C-103	3	SAMPLE	S95T000053	0	F	@GEA-02	EU15502	SOLID	N/A			uCi/g
94000012	C-103	3	SAMPLE	S95T000053	0	F	@GEA-02	EU15502E	SOLID	N/A			% Ct. Error
94000012	C-103	4	DUP	S95T000053	0	F	@GEA-02	CO60-02	SOLID			N/A	uCi/g
94000012	C-103	4	DUP	S95T000053	0	F	@GEA-02	CO60-02E	SOLID			N/A	% Ct. Error

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# 614

ROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------		MATRIX	ACTUAL	FOUND	DL	UNIT
94000012	C-103	4 DUP	S95T000053	0	F	@GEA-02	CS13702	SOLID			N/A	uCi/g
94000012	C-103	4 DUP	S95T000053	0	F	@GEA-02	CS13702E	SOLID			N/A	% Ct. Error
94000012	C-103	4 DUP	S95T000053	0	F	@GEA-02	EU15402	SOLID			N/A	uCi/g
94000012	C-103	4 DUP	S95T000053	0	F	@GEA-02	EU15402E	SOLID			N/A	% Ct. Error
94000012	C-103	4 DUP	S95T000053	0	F	@GEA-02	EU15502	SOLID			N/A	uCi/g
94000012	C-103	4 DUP	S95T000053	0	F	@GEA-02	EU15502E	SOLID			N/A	% Ct. Error

Final page for worklist # 614

Lori M. Fulton 3-13-95 — 3-13-55

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

WHC-SD-WM-DP-080, REV. 1
099

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.

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-080, REV. 1

099 9/25/95

PREPARATION OF SAMPLE MOUNTS FOR GAMMA ENERGY ANALYSIS : LA-548-121 (D-1)

3 < Choose Sample Units: 1=µCi/Sample, 2=µCi/g, 3=µCi/L

3 < Choose Report Units: 1=µCi/L, 2=pCi/L, 3=µCi/mL, 4=µCi/g

Type	ANALYTE	? <	SAMPLE µCi/L	REPORT µCi/mL	COUNTING ERROR %	? <	DUPLICATE µCi/L	REPORT µCi/mL	COUNTING ERROR %	AVERAGE µCi/mL	RPD
STANDARD	CO60		2.00E+01	2.00E-02	4.86			0.00E+00			
Work List	CS137		2.60E+01	2.60E-02	5.36			0.00E+00			
614				0.00E+00				0.00E+00			
Test Code				0.00E+00				0.00E+00			
@GEA-02				0.00E+00				0.00E+00			
Matrix				0.00E+00				0.00E+00			
LIQUID				0.00E+00				0.00E+00			
Sample #				0.00E+00				0.00E+00			
WORKLIST#614				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
DUP's Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Instrument Code				0.00E+00				0.00E+00			
WC38931				0.00E+00				0.00E+00			
Analyst				0.00E+00				0.00E+00			
SMF				0.00E+00				0.00E+00			
Date											
03/12/95											
Time											
10:00 PM											

REPORT (µCi/mL) = SAMPLE (µCi/L) / 1000mL/L * DF

AVERAGE = (SAMPLE + DUPLICATE) / 2

RPD = |(SAMPLE - DUPLICATE)| / AVERAGE * 100

Data Entry by: [signature] Date: 03/13/95

Approved by: [signature] Date: 3/15/95

Form 548121_1 Rev. 2.3

WHC-SD-WM-DP- 050, REV. 1
099

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

PREPARATION OF SAMPLE MOUNTS FOR GAMMA ENERGY ANALYSIS : LA-548-121 (D-1)

3 < Choose Sample Units: 1=µCi/Sample, 2=µCi/g, 3=µCi/L

4 < Choose Report Units: 1=µCi/L, 2=pCi/L, 3=µCi/mL, 4=µCi/g

2.0188 < Enter SAMPLE g/L < Enter DUPLICATE g/L

Type	ANALYTE	? <	SAMPLE µCi/L	REPORT µCi/g	COUNTING ERROR %	? <	DUPLICATE µCi/L	REPORT µCi/g	COUNTING ERROR %	AVERAGE µCi/g	RPD
BLANK	CO60	<	2.83E-01	1.40E-01				ERR			
Work List	CS137	<	7.02E-01	3.48E-01				ERR			
614	EU154	<	8.50E-01	4.21E-01				ERR			
Test Code	EU155	<	7.53E-01	3.73E-01				ERR			
@GEA-02				0.00E+00				ERR			
Matrix				0.00E+00				ERR			
SOLID				0.00E+00				ERR			
Sample #				0.00E+00				ERR			
S95T53				0.00E+00				ERR			
				0.00E+00				ERR			
Digest DF				0.00E+00				ERR			
1				0.00E+00				ERR			
				0.00E+00				ERR			
DUP's Digest DF				0.00E+00				ERR			
1				0.00E+00				ERR			
				0.00E+00				ERR			
Instrument Code				0.00E+00				ERR			
WC38931				0.00E+00				ERR			
Analyst				0.00E+00				ERR			
SMF				0.00E+00				ERR			
Date											
03/12/95											
Time											
10:00 PM											

REPORT (µCi/g) = SAMPLE (µCi/L) / (g/L) * DF

AVERAGE = (SAMPLE + DUPLICATE) / 2

RPD = |(SAMPLE - DUPLICATE)| / AVERAGE * 100

Data Entry by: [signature] Date: 03/13/95

Approved by: [signature] Date: 3/15/95

Form 548121_1 Rev. 2.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

PREPARATION OF SAMPLE MOUNTS FOR GAMMA ENERGY ANALYSIS : LA-548-121 (D-1)

3 < Choose Sample Units: 1=µCi/Sample, 2=µCi/g, 3=µCi/L

4 < Choose Report Units: 1=µCi/L, 2=pCi/L, 3=µCi/mL, 4=µCi/g

2.0188 < Enter SAMPLE g/L 2.0362 < Enter DUPLICATE g/L

Type	ANALYTE	? <	SAMPLE µCi/L	REPORT µCi/g	COUNTING ERROR %	? <	DUPLICATE µCi/L	REPORT µCi/g	COUNTING ERROR %	AVERAGE µCi/g	RPD
SAMPLE/DUPLICATE	CO60		5.01E+00	2.48E+00	11.03		4.48E+00	2.20E+00	11.75	2.34E+00	12.0
Work List	CS137		2.80E+02	1.39E+02	1.48		2.64E+02	1.30E+02	1.51	1.34E+02	6.7
614	EU154		2.56E+01	1.27E+01	11.04		2.40E+01	1.18E+01	12.71	1.22E+01	7.3
Test Code	EU155		1.86E+01	9.21E+00	25.53		1.87E+01	9.19E+00	21.71	9.20E+00	0.3
@GEA-02				0.00E+00				0.00E+00			
Matrix				0.00E+00				0.00E+00			
SOLID				0.00E+00				0.00E+00			
Sample #				0.00E+00				0.00E+00			
S95T53				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
DUP's Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Instrument Code				0.00E+00				0.00E+00			
WC38931				0.00E+00				0.00E+00			
Analyst				0.00E+00				0.00E+00			
SMF				0.00E+00				0.00E+00			
Date											
03/12/95											
Time											
10:00 PM											

REPORT (µCi/g) = SAMPLE (µCi/L) / (g/L) * DF

AVERAGE = (SAMPLE + DUPLICATE) / 2

RPD = |(SAMPLE - DUPLICATE)| / AVERAGE * 100

Data Entry by: [signature] Date: 03/13/95

Approved by: [signature] Date: 3/13/95

Form 548121_1 Rev. 2.3

```
*****************************************************************************
* 222-S Laboratory Counting Room   12-MAR-1995 23:41:37.39                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                WORKLIST614-STD
 ple Size:                1.00000E-03 LI
  ution Factor:           1.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA2
File Number:              dka300:[spec.GEA2]2g2200.cnf
Geometry:                 42
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:01.20 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        12-MAR-1995 22:51:01.84
Decayed to:               12-MAR-1995 22:51:01.84
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  DM
Background Subtract:      DKA300:[SPEC.GEA2]2GBACK

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

Removed by: [signature]

date: 3-13-95

[signature] 3/13/95

Post-NID Peak Search Report

	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	661.78*	1871	1.59	1323.57	1316	16	5.4		CS-137	26.0
0	1173.50	981	1.79	2347.05	2341	12	6.9		CO-60	19.3
0	1332.74	957	1.75	2665.65	2658	18	6.8		CO-60	20.8

WHC-SD-WM-DP-080, REV. 1

[signature] 9/25/95

Sample ID : WORKLIST614-STD Acquisition date : 12-MAR-1995 22:51:01

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	2.001E+01	2.001E+01	0.097E+01	4.86	
CS-137	30.00Y	1.000	2.596E+01	2.596E+01	0.139E+01	5.36	
		Total Activity :	4.597E+01	4.597E+01			
		Grand Total Activity :	4.597E+01	4.597E+01			

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

WHC-SD-WM-DP-~~138~~ 099, REV. 1

Sample ID : WORKLIST614-STD Acquisition date : 12-MAR-1995 22:51:01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
-7	113.	477.59	4.3047E+00
NA-22	22.	1274.53	4.5285E-01
NA-24	5.	1368.55	2.4643E-01
K-40	109.	1460.75	1.0639E+01
SC-46	54.	1120.55	6.4456E-01
CR-51	129.	320.08	3.4308E+00
MN-54	49.	834.83	4.6863E-01
CO-56	62.	846.76	5.3438E-01
CO-57	175.	122.06	2.9549E-01
CO-58	54.	810.78	4.8472E-01
FE-59	49.	1099.25	1.0654E+00
ZN-65	60.	1115.55	1.3317E+00
SE-75	153.	264.66	5.6560E-01
KR-85	135.	514.00	1.1985E+02
SR-85	135.	514.01	5.4130E-01
Y-88	3.	1836.06	2.2817E-01
Y-90	3.	1760.70	8.0121E-01
Y-91	31.	1204.67	1.7311E+02
NB-94	62.	871.09	5.4823E-01
NB-95	65.	765.78	5.0313E-01
ZR-95	57.	756.73	8.5161E-01
RU-103	99.	497.08	4.7487E-01
RURH-106	68.	621.93	8.6961E+00
AG-108m	63.	722.94	5.1611E-01
CD-109	146.	88.03	9.2825E+00
AG-110M	82.	657.76	5.2371E-01
-113	119.	391.69	6.0022E-01
[illegible]-123m	167.	159.00	2.8933E-01
SB-124	73.	602.73	4.4412E-01
SB-125	135.	427.89	1.5021E+00
TE-125m	177.	109.27	9.8582E+01
I-129	148.	39.60	0.0000E+00
I-131	124.	364.48	4.5812E-01
XE-131m	175.	163.93	1.2853E+01
BA-133	133.	356.02	6.1206E-01
CS-134	73.	604.70	4.4651E-01
CS-136	60.	818.51	5.1375E-01
CS-138	12.	1435.86	7.9783E-01
CE-139	171.	165.85	3.1327E-01
BA-140	87.	537.31	1.7729E+00
LA-140	7.	1596.21	3.2791E-01
CE-141	176.	145.44	5.0698E-01
CE-144	200.	133.51	2.3663E+00
CEPR-144	200.	133.51	4.7284E+00
EU-152	7.	1408.01	1.3479E+00
EU-154	22.	1274.51	1.3157E+00
EU-155	147.	86.54	1.0540E+00
HF-181	124.	482.18	5.8557E-01
TA-182	156.	67.75	1.5040E+00
HG-203	139.	279.20	4.0106E-01
BI-207	62.	569.70	3.9253E-01

Sample ID : WORKLIST614-STD Acquisition date : 12-MAR-1995 22:51:01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
TL-208	143.	277.36	5.2289E+00
PB-210	129.	46.50	0.0000E+00
BI-212	62.	727.18	7.0327E+00
PB-212	213.	238.63	8.3265E-01
BI-214	90.	609.31	1.0856E+00
PB-214	148.	351.92	1.9743E+00
RA-224	189.	240.99	8.7055E+00
RA-226	191.	186.10	8.0574E+00
AC-228	95.	911.21	2.6452E+00
TH-228	159.	84.37	2.9751E+01
TH-229	154.	88.47	1.3826E+00
U-232	146.	57.78	5.4447E+02
PA-233	169.	312.17	1.0095E+00
PA-234M	80.	1001.03	3.5341E+01
TH-234	131.	63.29	1.5722E+01
U-235	199.	185.71	4.9999E-01
NP-237	148.	86.48	2.8003E+00
U-237	159.	59.54	2.8775E+00
NP-238	62.	984.45	2.2147E+00
NP-239	168.	106.12	1.2243E+00
PU-239	171.	129.30	3.8198E+03
AM-241	159.	59.54	2.7603E+00
AM-243	153.	74.67	7.9196E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   13-MAR-1995 00:57:37.96                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                S95T53-BLK
 ple Size:                1.00000E-03 LI
 .ution Factor:           1.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA2
File Number:              dka300:[spec.GEA2]2g2201.cnf
Geometry:                 42
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:00.51 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        13-MAR-1995 00:07:02.75
Decayed to:               13-MAR-1995 00:07:02.75
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  EMB
Background Subtract:      DKA300:[SPEC.GEA2]2GBACK

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

Removed by: Gm Baelle

date: 3-13-95

Bachelor 3/13/95

Post-NID Peak Search Report

	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	511.14*	60	3.24	1022.37	1015	16	44.0			
0	1461.32*	7	1.54	2922.91	2915	17	323.8		K-40	1.49

WHC-SD-WM-DP-080, REV. 1

Summary of Nuclide Activity
Sample ID : S95T53-BLK

Acquisition date : 13-MAR-1995 00:07:02

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/LI	Wtd Mean Decay Corr uCi/LI	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~1.486E+00~~	~~1.486E+00~~	~~4.813E+00~~	~~323.78~~	BKG 3/13/95
Total Activity :			1.486E+00	1.486E+00			
Grand Total Activity :			1.486E+00	1.486E+00			

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

WHC-SD-WM-DP-150, REV. 1
9/23/95

Minimum Detectable Activity Report
Sample ID : S95T53-BLK

Acquisition date : 13-MAR-1995 00:07:02

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
·7	34.	477.59	2.3717E+00
NA-22	9.	1274.53	2.9136E-01
NA-24	5.	1368.55	2.3481E-01
SC-46	22.	1120.55	4.0849E-01
CR-51	53.	320.08	2.2075E+00
MN-54	14.	834.83	2.5140E-01
CO-56	15.	846.76	2.6259E-01
CO-57	68.	122.06	1.8437E-01
CO-58	11.	810.78	2.1677E-01
FE-59	15.	1099.25	5.9169E-01
CO-60	8.	1332.50	2.8297E-01
ZN-65	9.	1115.55	5.0931E-01
SE-75	59.	264.66	3.4950E-01
KR-85	38.	514.00	6.3115E+01
SR-85	37.	514.01	2.8458E-01
Y-88	2.	1836.06	1.8630E-01
Y-90	9.	1760.70	1.3362E+00
Y-91	13.	1204.67	1.1172E+02
NB-94	11.	871.09	2.2906E-01
NB-95	22.	765.78	2.9155E-01
ZR-95	20.	756.73	4.9939E-01
RU-103	33.	497.08	2.7543E-01
RURH-106	18.	621.93	4.4250E+00
AG-108m	18.	722.94	2.7956E-01
CD-109	60.	88.03	5.9579E+00
AG-110M	26.	657.76	2.9521E-01
-113	42.	391.69	3.5610E-01
:123m	64.	159.00	1.7853E-01
SB-124	21.	602.73	2.3624E-01
SB-125	31.	427.89	7.2194E-01
TE-125m	61.	109.27	5.8003E+01
I-129	42.	39.60	0.0000E+00
I-131	42.	364.48	2.6718E-01
XE-131m	85.	163.93	8.9530E+00
BA-133	57.	356.02	4.0086E-01
CS-134	23.	604.70	2.5323E-01
CS-136	22.	818.51	3.1216E-01
CS-137	118.	661.66	7.0232E-01
CS-138	2.	1435.86	3.2500E-01
CE-139	80.	165.85	2.1373E-01
BA-140	23.	537.31	9.0846E-01
LA-140	4.	1596.21	2.4673E-01
CE-141	65.	145.44	3.0763E-01
CE-144	73.	133.51	1.4253E+00
CEPR-144	73.	133.51	2.8487E+00
EU-152	10.	1408.01	1.6018E+00
EU-154	9.	1274.51	8.5029E-01
EU-155	75.	86.54	7.5256E-01
HF-181	32.	482.18	2.9570E-01
TA-182	72.	67.75	1.0249E+00
HG-203	58.	279.20	2.5844E-01

Sample ID : S95T53-BLK Acquisition date : 13-MAR-1995 00:07:02

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BI-207	26.	569.70	2.5242E-01
TL-208	58.	277.36	3.3316E+00
PB-210	63.	46.50	0.0000E+00
BI-212	23.	727.18	4.2773E+00
PB-212	81.	238.63	5.1325E-01
BI-214	51.	609.31	8.2227E-01
PB-214	69.	351.92	1.3523E+00
RA-224	73.	240.99	5.4029E+00
RA-226	88.	186.10	5.4878E+00
AC-228	17.	911.21	1.1135E+00
TH-228	87.	84.37	2.2020E+01
TH-229	64.	88.47	8.8767E-01
U-232	64.	57.78	3.6002E+02
PA-233	50.	312.17	5.4790E-01
PA-234M	8.	1001.03	1.1191E+01
TH-234	66.	63.29	1.1132E+01
U-235	94.	185.71	3.4296E-01
NP-237	76.	86.48	2.0106E+00
U-237	63.	59.54	1.8156E+00
NP-238	6.	984.45	7.1205E-01
NP-239	73.	106.12	8.0652E-01
PU-239	69.	129.30	2.4321E+03
AM-241	63.	59.54	1.7416E+00
AM-243	81.	74.67	5.7746E-01

WHC-SD-WM-DP-~~052~~ 099, REV. 1
9/23/95

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*****************************************************************************
* 222-S Laboratory Counting Room   13-MAR-1995 02:05:13.57                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                S95T-53-SAMLPE
Sample Size:              1.00000E-03 LI
Dilution Factor:          1.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA2
File Number:              dka300:[spec.GEA2]2g2202.cnf
Geometry:                 42
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:06.20 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        13-MAR-1995 01:14:32.44
Decayed to:               13-MAR-1995 01:14:32.44
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  EMB
Background Subtract:      DKA300:[SPEC.GEA2]2GBACK

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

date: 3-13-95

B Bachelor 3/13/95

WHC-SD-WM-DP-~~040~~ 099, Rev 1

JHW 4/12/96

Post-NID Peak Search Report

	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	59.50	534	0.96	119.51	115	9	39.6		AM-241	25.1
0	86.51	1111	1.11	173.50	170	8	20.6		~~NP-237~~	55.1
									EU-155	20.8
0	105.26	866	0.98	210.97	208	8	25.5		EU-155	18.5
0	123.12	2314	1.13	246.67	242	10	11.1		~~CO-57~~	11.1
									EU-154	23.6
0	247.93	263	0.84	496.14	493	8	50.2		EU-154	21.2
0	428.28	194	1.21	856.70	853	9	58.8			
0	591.99	135	1.34	1184.02	1180	11	51.1			
0	600.73	136	1.55	1201.51	1198	9	42.9			
0	661.74*	20182	1.48	1323.50	1316	16	1.5		CS-137	280.
0	693.01	115	3.48	1386.03	1379	22	57.5		CO-57	869.
0	723.34	389	1.35	1446.68	1442	11	13.1		EU-154	24.8
									ZR-95	11.3
0	756.90	90	1.72	1513.79	1507	14	51.4		ZR-95	2.18
0	873.28	223	1.42	1746.53	1740	14	19.6		EU-154	27.5
0	996.44	171	2.12	1992.88	1988	10	19.4		EU-154	27.9
0	1004.88	246	1.85	2009.76	2003	17	19.6		EU-154	23.4
0	1173.38	274	1.76	2346.81	2338	17	14.7		CO-60	5.38
0	1274.53	408	1.91	2549.18	2541	16	9.9		EU-154	24.9
									~~NA-22~~	8.57
0	1332.66	214	1.61	2665.48	2656	18	16.5		CO-60	4.66

Sample ID : S95T-53-SAMLPE Acquisition date : 13-MAR-1995 01:14:32

Total number of lines in spectrum 18
Number of unidentified lines 1
Number of lines tentatively identified by NID 17 94.44%

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~~	~~8.566E+00~~	~~8.566E+00~~	~~0.848E+00~~	~~9.90~~	1.54
~~CO-57~~	~~271.80D~~	~~1.000~~	~~8.688E+02~~	~~8.689E+02~~	~~4.996E+02~~	~~57.50~~	
CO-60	5.27Y	1.000	5.007E+00	5.007E+00	0.552E+00	11.03	
~~ZR-95~~	~~64.02D~~	~~1.000~~	~~2.182E+00~~	~~2.182E+00~~	~~1.121E+00~~	~~51.35~~	
CS-137	30.00Y	1.000	2.801E+02	2.801E+02	0.041E+02	1.48	
EU-154	8.59Y	1.000	2.559E+01	2.559E+01	0.283E+01	11.04	
EU-155	4.68Y	1.000	1.855E+01	1.855E+01	0.474E+01	25.53	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~5.505E+01~~	~~5.505E+01~~	~~1.134E+01~~	~~20.60~~	
AM-241	432.20Y	1.000	2.513E+01	2.513E+01	0.996E+01	39.64	
Total Activity :			1.289E+03	1.289E+03			

Grand Total Activity : 1.289E+03 1.289E+03

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

WHC-SD-WM-DP-080, REV. 1
099

Minimum Detectable Activity Report
Sample ID : S95T-53-SAMLPE

Acquisition date : 13-MAR-1995 01:14:32

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
7	829.	477.59	1.1676E+01
NA-24	16.	1368.55	4.2057E-01
K-40	107.	1460.75	1.0534E+01
SC-46	49.	1120.55	6.1071E-01
CR-51	928.	320.08	9.2181E+00
MN-54	55.	834.83	4.9691E-01
CO-56	84.	846.76	6.2176E-01
CO-58	83.	810.78	5.9922E-01
FE-59	44.	1099.25	1.0139E+00
ZN-65	36.	1115.55	1.0366E+00
SE-75	1233.	264.66	1.6042E+00
KR-85	524.	514.00	2.3578E+02
SR-85	523.	514.01	1.0657E+00
Y-88	1.	1836.06	1.3173E-01
Y-90	6.	1760.70	1.0676E+00
Y-91	17.	1204.67	1.2788E+02
NB-94	198.	871.09	9.7850E-01
NB-95	96.	765.78	6.1236E-01
RU-103	536.	497.08	1.1065E+00
RURH-106	232.	621.93	1.6050E+01
AG-108m	458.	722.94	1.3963E+00
CD-109	3726.	88.03	4.6864E+01
AG-110M	526.	657.76	1.3261E+00
SN-113	830.	391.69	1.5851E+00
TE-123m	2001.	159.00	1.0008E+00
SB-124	316.	602.73	9.2562E-01
SB-125	1077.	427.89	4.2382E+00
125m	2880.	109.27	3.9774E+02
I-129	1770.	39.60	0.0000E+00
I-131	803.	364.48	1.1684E+00
XE-131m	1868.	163.93	4.1979E+01
BA-133	874.	356.02	1.5668E+00
CS-134	253.	604.70	8.3306E-01
CS-136	80.	818.51	5.9257E-01
CS-138	6.	1435.86	5.6340E-01
CE-139	1839.	165.85	1.0261E+00
BA-140	381.	537.31	3.7189E+00
LA-140	20.	1596.21	5.5260E-01
CE-141	2174.	145.44	1.7839E+00
CE-144	2422.	133.51	8.2303E+00
CEPR-144	2422.	133.51	1.6446E+01
EU-152	12.	1408.01	1.7546E+00
HF-181	697.	482.18	1.3886E+00
TA-182	2634.	67.75	6.1825E+00
HG-203	1039.	279.20	1.0958E+00
BI-207	276.	569.70	8.2681E-01
TL-208	1077.	277.36	1.4333E+01
PB-210	1863.	46.50	0.0000E+00
BI-212	95.	727.18	8.7357E+00
PB-212	1377.	238.63	2.1177E+00
BI-214	304.	609.31	2.0009E+00

Sample ID : S95T-53-SAMLPE Acquisition date : 13-MAR-1995 01:14:32

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
PB-214	852.	351.92	4.7444E+00
RA-224	1361.	240.99	2.3367E+01
RA-226	1784.	186.10	2.4639E+01
AC-228	60.	911.21	2.1099E+00
TH-228	3183.	84.37	1.3301E+02
TH-229	3341.	88.47	6.4330E+00
U-232	2307.	57.78	2.1634E+03
PA-233	951.	312.17	2.3933E+00
PA-234M	62.	1001.03	3.1337E+01
TH-234	2451.	63.29	6.7988E+01
U-235	1749.	185.71	1.4828E+00
U-237	2684.	59.54	1.1808E+01
NP-238	40.	984.45	1.7650E+00
NP-239	3897.	106.12	5.8975E+00
PU-239	2445.	129.30	1.4437E+04
AM-243	2894.	74.67	3.4471E+00

WHC-SD-WM-DP-[illegible], REV 1

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*****************************************************************************
* 222-S Laboratory Counting Room   13-MAR-1995 03:02:14.19                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                S95T53-DUP
Sample Size:              1.00000E-03 LI
  Dilution Factor:        1.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA2
File Number:              dka300:[spec.GEA2]2g2203.cnf
Geometry:                 42
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:05.75 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        13-MAR-1995 02:11:31.59
Decayed to:               13-MAR-1995 02:11:31.59
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  EMB
Background Subtract:      DKA300:[SPEC.GEA2]2GBACK

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

date: 3-13-95

Bachelor 3/13/95

WHC-CD-WM-DP-[illegible] REV. 1

Post-NID Peak Search Report

	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	59.59	356	1.06	119.69	116	8	53.2		AM-241	16.7
0	86.74	1092	1.18	173.96	171	8	20.0		~~NP-237~~	54.1
									EU-155	20.4
									~~CD-109~~	180.
0	105.32	874	1.00	211.08	208	7	21.7		EU-155	18.7
0	123.09	2226	1.15	246.61	242	10	11.0		~~CO-57~~	10.7
									EU-154	22.7
8	245.41	72	0.54	491.11	490	11	78.7	2.91E+00		
8	247.70	427	1.83	495.70	490	11	37.5		EU-154	34.3
0	428.01	269	1.65	856.17	853	8	35.4			
0	600.72	125	1.38	1201.49	1198	9	44.6			
0	661.74*	18997	1.48	1323.50	1316	15	1.5		CS-137	264.
0	723.30	375	1.65	1446.60	1439	14	15.1		EU-154	23.9
									~~ZR-95~~	10.8
0	756.95	101	1.99	1513.89	1508	13	41.7		ZR-95	2.47
0	873.22	206	1.71	1746.42	1738	16	21.0		EU-154	25.5
0	996.30	144	1.85	1992.60	1983	19	35.6		EU-154	23.6
0	1004.90	231	1.78	2009.79	2004	16	20.0		EU-154	22.0
0	1173.31	202	1.85	2346.67	2341	16	19.4		CO-60	3.97
0	1274.62	343	1.90	2549.35	2543	16	12.8		EU-154	20.9
									~~NA-22~~	7.20
0	1332.56	227	1.49	2665.27	2659	14	14.6		CO-60	4.93

Sample ID : S95T53-DUP Acquisition date : 13-MAR-1995 02:11:31

Total number of lines in spectrum 17
Number of unidentified lines 0
Number of lines tentatively identified by NID 17 100.00%

099 9/12 KLS

WHC-CD-WM-DP-080, REV. 1

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~~	~~7.197E+00~~	~~7.197E+00~~	~~0.922E+00~~	~~12.81~~	~~^{54}Eu 3/13/95~~
~~CO-57~~	~~271.80D~~	~~1.000~~	~~1.070E+01~~	~~1.070E+01~~	~~0.117E+01~~	~~10.95~~	
CO-60	5.27Y	1.000	4.484E+00	4.484E+00	0.527E+00	11.75	
~~ZR-95~~	~~64.02D~~	~~1.000~~	~~2.468E+00~~	~~2.468E+00~~	~~1.028E+00~~	~~41.67~~	~~BKG 3/13/95~~
~~CD-109~~	~~462.90D~~	~~1.000~~	~~1.803E+02~~	~~1.803E+02~~	~~0.360E+02~~	~~19.96~~	~~^{155}Eu 3/13/95~~
CS-137	30.00Y	1.000	2.636E+02	2.636E+02	0.040E+02	1.51	
EU-154	8.59Y	1.000	2.401E+01	2.401E+01	0.305E+01	12.71	
EU-155	4.68Y	1.000	1.871E+01	1.871E+01	0.406E+01	21.71	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~5.410E+01~~	~~5.410E+01~~	~~1.080E+01~~	~~19.96~~	~~^{155}Eu 3/13/95~~
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~1.675E+01~~	~~1.675E+01~~	~~0.892E+01~~	~~53.24~~	~~BKG 3/13/95~~
		Total Activity :	5.823E+02	5.824E+02			

Grand Total Activity : 5.823E+02 5.824E+02

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

Sample ID : S95T53-DUP Acquisition date : 13-MAR-1995 02:11:31

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
·7	730.	477.59	1.0963E+01
NA-24	9.	1368.55	3.1437E-01
K-40	91.	1460.75	9.7327E+00
SC-46	50.	1120.55	6.1643E-01
CR-51	862.	320.08	8.8841E+00
MN-54	63.	834.83	5.3049E-01
CO-56	72.	846.76	5.7567E-01
CO-58	64.	810.78	5.2711E-01
FE-59	43.	1099.25	9.9433E-01
ZN-65	33.	1115.55	9.8109E-01
SE-75	999.	264.66	1.4435E+00
KR-85	474.	514.00	2.2431E+02
SR-85	474.	514.01	1.0140E+00
Y-88	4.	1836.06	2.6346E-01
Y-90	4.	1760.70	9.3456E-01
Y-91	17.	1204.67	1.2775E+02
NB-94	169.	871.09	9.0232E-01
NB-95	71.	765.78	5.2713E-01
RU-103	531.	497.08	1.1008E+00
RURH-106	189.	621.93	1.4471E+01
AG-108m	436.	722.94	1.3623E+00
AG-110M	512.	657.76	1.3089E+00
SN-113	798.	391.69	1.5543E+00
TE-123m	1874.	159.00	9.6854E-01
SB-124	308.	602.73	9.1466E-01
SB-125	985.	427.89	4.0529E+00
TE-125m	2584.	109.27	3.7676E+02
.29	1661.	39.60	0.0000E+00
I-131	770.	364.48	1.1436E+00
XE-131m	1722.	163.93	4.0303E+01
BA-133	777.	356.02	1.4774E+00
CS-134	269.	604.70	8.5749E-01
CS-136	66.	818.51	5.3637E-01
CS-138	3.	1435.86	4.2257E-01
CE-139	1734.	165.85	9.9633E-01
BA-140	352.	537.31	3.5749E+00
LA-140	15.	1596.21	4.8426E-01
CE-141	2101.	145.44	1.7538E+00
CE-144	2234.	133.51	7.9039E+00
CEPR-144	2234.	133.51	1.5794E+01
EU-152	12.	1408.01	1.7207E+00
HF-181	639.	482.18	1.3297E+00
TA-182	2464.	67.75	5.9799E+00
HG-203	1010.	279.20	1.0804E+00
BI-207	269.	569.70	8.1656E-01
TL-208	990.	277.36	1.3743E+01
PB-210	1725.	46.50	0.0000E+00
BI-212	69.	727.18	7.4604E+00
PB-212	1230.	238.63	2.0014E+00
BI-214	256.	609.31	1.8346E+00
PB-214	779.	351.92	4.5378E+00

Sample ID : S95T53-DUP Acquisition date : 13-MAR-1995 02:11:31

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
RA-224	1213.	240.99	2.2058E+01
RA-226	1752.	186.10	2.4418E+01
AC-228	76.	911.21	2.3628E+00
TH-228	2997.	84.37	1.2905E+02
TH-229	3031.	88.47	6.1276E+00
U-232	2176.	57.78	2.1010E+03
PA-233	832.	312.17	2.2380E+00
PA-234M	71.	1001.03	3.3461E+01
TH-234	2288.	63.29	6.5687E+01
U-235	1748.	185.71	1.4826E+00
U-237	2517.	59.54	1.1436E+01
NP-238	50.	984.45	1.9942E+00
NP-239	3582.	106.12	5.6540E+00
PU-239	2404.	129.30	1.4314E+04
AM-243	2635.	74.67	3.2890E+00

WHC-CD-WM-DP-~~080~~ 099, REV. 1
9/25/95

LABCORE Data Entry Template for Worklist# 684

Analyst: [illegible] **Instrument:** GEA00 3 **Book #** ~~68652~~ 3 3-13-95
64B52

Method: LA-548-121 Rev/Mod D1

Worklist Comment: Use 0.100 mL sample. R(0). -PPB WHC-SD-WM-DP-~~080~~ 099 REV 1 HW 9/25/95

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST		MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@GEA-02	CO60-02	SOLID			N/A	uCi/g
		1	STD				@GEA-02	CO60-02E	SOLID			N/A	% Ct. Error
		1	STD				@GEA-02	CS13702	SOLID			N/A	uCi/g
		1	STD				@GEA-02	CS13702E	SOLID			N/A	% Ct. Error
		2	BLNK-PREP				@GEA-02	CO60-02	SOLID			N/A	uCi/g
		2	BLNK-PREP				@GEA-02	CS13702	SOLID			N/A	uCi/g
		2	BLNK-PREP				@GEA-02	EU15402	SOLID			N/A	uCi/g
		2	BLNK-PREP				@GEA-02	EU15502	SOLID			N/A	uCi/g
94000012	C-103	3	SAMPLE	S95T000055	0	F	@GEA-02	CO60-02	SOLID	N/A			uCi/g
94000012	C-103	3	SAMPLE	S95T000055	0	F	@GEA-02	CO60-02E	SOLID	N/A			% Ct. Error
94000012	C-103	3	SAMPLE	S95T000055	0	F	@GEA-02	CS13702	SOLID	N/A			uCi/g
94000012	C-103	3	SAMPLE	S95T000055	0	F	@GEA-02	CS13702E	SOLID	N/A			% Ct. Error
94000012	C-103	3	SAMPLE	S95T000055	0	F	@GEA-02	EU15402	SOLID	N/A			uCi/g
94000012	C-103	3	SAMPLE	S95T000055	0	F	@GEA-02	EU15402E	SOLID	N/A			% Ct. Error
94000012	C-103	3	SAMPLE	S95T000055	0	F	@GEA-02	EU15502	SOLID	N/A			uCi/g
94000012	C-103	3	SAMPLE	S95T000055	0	F	@GEA-02	EU15502E	SOLID	N/A			% Ct. Error
94000012	C-103	4	DUP	S95T000055	0	F	@GEA-02	CO60-02	SOLID			N/A	uCi/g
94000012	C-103	4	DUP	S95T000055	0	F	@GEA-02	CO60-02E	SOLID			N/A	% Ct. Error

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# 684

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------		MATRIX	ACTUAL	FOUND	DL	UNIT
94000012	C-103	4 DUP	S95T000055	0	F	@GEA-02	CS13702	SOLID			N/A	uCi/g
94000012	C-103	4 DUP	S95T000055	0	F	@GEA-02	CS13702E	SOLID			N/A	% Ct. Error
94000012	C-103	4 DUP	S95T000055	0	F	@GEA-02	EU15402	SOLID			N/A	uCi/g
94000012	C-103	4 DUP	S95T000055	0	F	@GEA-02	EU15402E	SOLID			N/A	% Ct. Error
94000012	C-103	4 DUP	S95T000055	0	F	@GEA-02	EU15502	SOLID			N/A	uCi/g
94000012	C-103	4 DUP	S95T000055	0	F	@GEA-02	EU15502E	SOLID			N/A	% Ct. Error
94000012	C-103	5 SAMPLE	S95T000056	0	F	@GEA-02	CO60-02	SOLID	N/A			uCi/g
94000012	C-103	5 SAMPLE	S95T000056	0	F	@GEA-02	CO60-02E	SOLID	N/A			% Ct. Error
94000012	C-103	5 SAMPLE	S95T000056	0	F	@GEA-02	CS13702	SOLID	N/A			uCi/g
94000012	C-103	5 SAMPLE	S95T000056	0	F	@GEA-02	CS13702E	SOLID	N/A			% Ct. Error
94000012	C-103	5 SAMPLE	S95T000056	0	F	@GEA-02	EU15402	SOLID	N/A			uCi/g
94000012	C-103	5 SAMPLE	S95T000056	0	F	@GEA-02	EU15402E	SOLID	N/A			% Ct. Error
94000012	C-103	5 SAMPLE	S95T000056	0	F	@GEA-02	EU15502	SOLID	N/A			uCi/g
94000012	C-103	5 SAMPLE	S95T000056	0	F	@GEA-02	EU15502E	SOLID	N/A			% Ct. Error
94000012	C-103	6 DUP	S95T000056	0	F	@GEA-02	CO60-02	SOLID			N/A	uCi/g
94000012	C-103	6 DUP	S95T000056	0	F	@GEA-02	CO60-02E	SOLID			N/A	% Ct. Error
94000012	C-103	6 DUP	S95T000056	0	F	@GEA-02	CS13702	SOLID			N/A	uCi/g
94000012	C-103	6 DUP	S95T000056	0	F	@GEA-02	CS13702E	SOLID			N/A	% Ct. Error
94000012	C-103	6 DUP	S95T000056	0	F	@GEA-02	EU15402	SOLID			N/A	uCi/g
94000012	C-103	6 DUP	S95T000056	0	F	@GEA-02	EU15402E	SOLID			N/A	% Ct. Error
94000012	C-103	6 DUP	S95T000056	0	F	@GEA-02	EU15502	SOLID			N/A	uCi/g

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# 684

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
4000012	C-103	6 DUP	S95T000056	0	F	@GEA-02 EU15502E	SOLID			N/A	% Ct. Error

Final page for worklist # 684

Susie M. Fulton 3-12-95
Analyst Signature Date

M C Brown 3/13-95
Analyst Signature Date

WHC-SD-WM-DP-~~080~~ 099, REV. 1
MW 9/25/95

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.

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

PREPARATION OF SAMPLE MOUNTS FOR GAMMA ENERGY ANALYSIS : LA-548-121 (D-1)

3 < Choose Sample Units: 1=µCi/Sample, 2=µCi/g, 3=µCi/L

3 < Choose Report Units: 1=µCi/L, 2=pCi/L, 3=µCi/mL, 4=µCi/g

Type	ANALYTE	? <	SAMPLE µCi/L	REPORT µCi/mL	COUNTING ERROR %	? <	DUPLICATE µCi/L	REPORT µCi/mL	COUNTING ERROR %	AVERAGE µCi/mL	RPD
STANDARD	CO60		2.06E+01	2.06E-02	4.3			0.00E+00			
Work List	CS137		2.72E+01	2.72E-02	4.56			0.00E+00			
684				0.00E+00				0.00E+00			
Test Code				0.00E+00				0.00E+00			
@GEA-02				0.00E+00				0.00E+00			
Matrix				0.00E+00				0.00E+00			
LIQUID				0.00E+00				0.00E+00			
Sample #				0.00E+00				0.00E+00			
WORKLIST#684				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
DUP's Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Instrument Code				0.00E+00				0.00E+00			
WC38931				0.00E+00				0.00E+00			
Analyst				0.00E+00				0.00E+00			
SMF				0.00E+00				0.00E+00			
Date											
03/12/95											
Time											
10:00 PM											

REPORT (µCi/mL) = SAMPLE (µCi/L) / 1000mL/L * DF

AVERAGE = (SAMPLE + DUPLICATE) / 2

RPD = |(SAMPLE - DUPLICATE)| / AVERAGE * 100

Data Entry by: [signature] Date: 03/13/95

Approved by: [signature] Date: 3/15/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

PREPARATION OF SAMPLE MOUNTS FOR GAMMA ENERGY ANALYSIS : LA-548-121 (D-1)

3 < Choose Sample Units: 1=µCi/Sample, 2=µCi/g, 3=µCi/L

4 < Choose Report Units: 1=µCi/L, 2=pCi/L, 3=µCi/mL, 4=µCi/g

0.468 < Enter SAMPLE g/L < Enter DUPLICATE g/L

Type	ANALYTE	? <	SAMPLE µCi/L	REPORT µCi/g	COUNTING ERROR %	? <	DUPLICATE µCi/L	REPORT µCi/g	COUNTING ERROR %	AVERAGE µCi/g	RPD
BLANK	CO60	<	2.80E-01	5.98E-01				ERR			
Work List	CS137	<	3.50E-01	7.48E-01				ERR			
684	EU154	<	5.51E-01	1.18E+00				ERR			
Test Code	EU155	<	4.69E-01	1.00E+00				ERR			
@GEA-02				0.00E+00				ERR			
Matrix				0.00E+00				ERR			
SOLID				0.00E+00				ERR			
Sample #				0.00E+00				ERR			
595T55				0.00E+00				ERR			
				0.00E+00				ERR			
Digest DF				0.00E+00				ERR			
1				0.00E+00				ERR			
				0.00E+00				ERR			
DUP's Digest DF				0.00E+00				ERR			
1				0.00E+00				ERR			
				0.00E+00				ERR			
Instrument Code				0.00E+00				ERR			
WC38931				0.00E+00				ERR			
Analyst				0.00E+00				ERR			
SMF				0.00E+00				ERR			
Date											
03/12/95											
Time											
10:00 AM											

REPORT (µCi/g) = SAMPLE (µCi/L) / (g/L) * DF

AVERAGE = (SAMPLE + DUPLICATE) / 2

RPD = |(SAMPLE - DUPLICATE)| / AVERAGE * 100

Data Entry by: [signature] Date: 03/15/95

Approved by: [signature] Date: 3/15/95

Form 548121_1 Rev. 2.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-~~080~~ 099, REV. 1

PREPARATION OF SAMPLE MOUNTS FOR GAMMA ENERGY ANALYSIS : LA-548-121 (D-1)

3 < Choose Sample Units: 1=µCi/Sample, 2=µCi/g, 3=µCi/L

4 < Choose Report Units: 1=µCi/L, 2=pCi/L, 3=µCi/mL, 4=µCi/g

0.468 < Enter SAMPLE g/L 0.364 < Enter DUPLICATE g/L

Type	ANALYTE	? <	SAMPLE µCi/L	REPORT µCi/g	COUNTING ERROR %	? <	DUPLICATE µCi/L	REPORT µCi/g	COUNTING ERROR %	AVERAGE µCi/g	RPD
SAMPLE/DUPLICATE	CO60		1.17E+00	2.50E+00	22.43		9.44E-01	2.59E+00	29.82	2.55E+00	3.6
Work List	CS137		7.92E+01	1.69E+02	2.52		7.81E+01	2.15E+02	2.5	1.92E+02	23.6
684	EU154		6.66E+00	1.42E+01	17.84		6.80E+00	1.87E+01	20.09	1.64E+01	27.2
Test Code	EU155	<	3.79E+00	8.09E+00	57.12		6.19E+00	1.70E+01	40.07	N/A	NA
@GEA-02				0.00E+00				0.00E+00			
Matrix				0.00E+00				0.00E+00			
SOLID				0.00E+00				0.00E+00			
Sample #				0.00E+00				0.00E+00			
S95T55				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
DUP's Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Instrument Code				0.00E+00				0.00E+00			
WC38931				0.00E+00				0.00E+00			
Analyst				0.00E+00				0.00E+00			
SMF				0.00E+00				0.00E+00			
Date											
03/12/95											
Time											
10:00 PM											

REPORT (µCi/g) = SAMPLE (µCi/L) / (g/L) * DF

AVERAGE = (SAMPLE + DUPLICATE) / 2

RPD = |(SAMPLE - DUPLICATE)| / AVERAGE * 100

Data Entry by: [signature] Date: 03/13/95

Approved by: [signature] Date: 3/15/95

Form 548121_1 Rev. 2.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

099 9/12/95

PREPARATION OF SAMPLE MOUNTS FOR GAMMA ENERGY ANALYSIS : LA-548-121 (D-1)

3 < Choose Sample Units: 1=µCi/Sample, 2=µCi/g, 3=µCi/L

4 < Choose Report Units: 1=µCi/L, 2=pCi/L, 3=µCi/mL, 4=µCi/g

0.404 < Enter SAMPLE g/L 0.376 < Enter DUPLICATE g/L

Type	ANALYTE	? <	SAMPLE µCi/L	REPORT µCi/g	COUNTING ERROR %	? <	DUPLICATE µCi/L	REPORT µCi/g	COUNTING ERROR %	AVERAGE µCi/g	RPD
SAMPLE/DUPLICATE	CO60		1.48E+00	3.65E+00	20.47		1.39E+00	3.70E+00	23.07	3.67E+00	1.2
Work List	CS137		6.73E+01	1.67E+02	2.73		6.79E+01	1.54E+02	2.95	1.60E+02	7.9
684	EU154		9.05E+00	2.24E+01	16.22		7.31E+00	1.94E+01	17.35	2.09E+01	14.1
Test Code	EU155		9.03E+00	2.24E+01	29.67		7.49E+00	1.99E+01	28.23	2.11E+01	11.5
@GEA-02				0.00E+00				0.00E+00			
Matrix				0.00E+00				0.00E+00			
SOLID				0.00E+00				0.00E+00			
Sample #				0.00E+00				0.00E+00			
S95T54				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
DUP's Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Instrument Code				0.00E+00				0.00E+00			
WC38931				0.00E+00				0.00E+00			
Analyst				0.00E+00				0.00E+00			
SMF				0.00E+00				0.00E+00			
Date											
03/12/96											
Time											
10:00 PM											

REPORT (µCi/g) = SAMPLE (µCi/L) / (g/L) * DF

AVERAGE = (SAMPLE + DUPLICATE) / 2

RPD = |(SAMPLE - DUPLICATE)| / AVERAGE * 100

Data Entry by: [signature] Date: 03/13/95

Approved by: [signature] Date: 9/15/95

Form 548121_1 Rev. 2.3

```
*****************************************************************************
* 222-S Laboratory Counting Room   12-MAR-1995 23:46:45.17                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                WORKLIST684-STD
Sample Size:              1.00000E-03 LI
Dilution Factor:          1.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA3
File Number:              dka300:[spec.GEA3]3g3584.cnf
Geometry:                 42
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:01.21 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        12-MAR-1995 22:56:07.22
Decayed to:               12-MAR-1995 22:56:07.22
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  DM
Background Subtract:      DKA300:[SPEC.GEA3]3GBACK

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

Removed by: EM Burke

date: 3-13-95

Bachelor 3/13/95

WHC-SD-WM-DP-080, REV. 1

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	661.68*	2410	1.54	1323.54	1316	15	4.6		CS-137	27.2
0	1173.17	1283	2.03	2346.61	2338	17	6.3		CO-60	20.2
0	1332.32	1195	2.18	2665.02	2658	18	5.9		CO-60	20.9
0	1764.70*	11	2.80	3530.24	3525	14	87.3			

Sample ID : WORKLIST684-STD
Acquisition date : 12-MAR-1995 22:56:07

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
CO-60	5.27Y	1.000	2.059E+01	2.059E+01	0.088E+01	4.30	
CS-137	30.00Y	1.000	2.723E+01	2.723E+01	0.124E+01	4.56	
Total Activity :			4.782E+01	4.782E+01			
Grand Total Activity :			4.782E+01	4.782E+01			

WHC-SD-WM-DP-080, REV. 1

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

Sample ID : WORKLIST684-STD Acquisition date : 12-MAR-1995 22:56:07

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	150.	477.59	4.0290E+00
NA-22	18.	1274.53	3.3092E-01
NA-24	8.	1368.55	2.3951E-01
K-40	133.	1460.75	9.4527E+00
SC-46	70.	1120.55	5.8927E-01
CR-51	142.	320.08	2.9522E+00
MN-54	79.	834.83	4.8608E-01
CO-56	91.	846.76	5.2849E-01
CO-57	157.	122.06	2.1676E-01
CO-58	57.	810.78	4.0601E-01
FE-59	67.	1099.25	1.0006E+00
ZN-65	74.	1115.55	1.1918E+00
SE-75	195.	264.66	5.1832E-01
KR-85	114.	514.00	8.8770E+01
SR-85	113.	514.01	4.0112E-01
Y-88	1.	1836.06	1.0492E-01
Y-90	6.	1760.70	8.8555E-01
Y-91	24.	1204.67	1.2329E+02
NB-94	101.	871.09	5.7037E-01
NB-95	73.	765.78	4.3411E-01
ZR-95	59.	756.73	7.0894E-01
RU-103	103.	497.08	3.9167E-01
RURH-106	61.	621.93	6.6808E+00
AG-108m	57.	722.94	4.0217E-01
CD-109	127.	88.03	6.4566E+00
AG-110M	118.	657.76	5.1176E-01
SN-113	127.	391.69	5.1184E-01
TE-123m	182.	159.00	2.3989E-01
SB-124	76.	602.73	3.6852E-01
SB-125	133.	427.89	1.2245E+00
TE-125m	170.	109.27	7.3547E+01
I-129	160.	39.60	0.0000E+00
I-131	148.	364.48	4.1312E-01
XE-131m	185.	163.93	1.0535E+01
BA-133	144.	356.02	5.2376E-01
CS-134	79.	604.70	3.7709E-01
CS-136	77.	818.51	4.7409E-01
CS-138	3.	1435.86	3.1946E-01
CE-139	200.	165.85	2.7035E-01
BA-140	74.	537.31	1.3198E+00
LA-140	5.	1596.21	2.2567E-01
CE-141	171.	145.44	3.9559E-01
CE-144	187.	133.51	1.7893E+00
CEPR-144	186.	133.51	3.5746E+00
EU-152	12.	1408.01	1.4331E+00
EU-154	18.	1274.51	9.6141E-01
EU-155	151.	86.54	7.9872E-01
HF-181	99.	482.18	4.2574E-01
TA-182	141.	67.75	1.1609E+00
HG-203	205.	279.20	3.9659E-01
BI-207	71.	569.70	3.4084E-01

Sample ID : WORKLIST684-STD Acquisition date : 12-MAR-1995 22:56:07

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
208	179.	277.36	4.7657E+00
PB-210	152.	46.50	0.0000E+00
BI-212	60.	727.18	5.6560E+00
PB-212	234.	238.63	7.0588E-01
BI-214	101.	609.31	9.3583E-01
PB-214	177.	351.92	1.7762E+00
RA-224	225.	240.99	7.6979E+00
RA-226	213.	186.10	6.8296E+00
AC-228	87.	911.21	2.0635E+00
TH-228	178.	84.37	2.3562E+01
TH-229	134.	88.47	9.6179E-01
U-232	136.	57.78	5.4632E+02
PA-233	163.	312.17	8.1108E-01
PA-234M	65.	1001.03	2.5880E+01
TH-234	144.	63.29	1.4278E+01
U-235	209.	185.71	4.1135E-01
NP-237	152.	86.48	2.1254E+00
U-237	128.	59.54	2.4721E+00
NP-238	80.	984.45	2.0403E+00
NP-239	145.	106.12	8.6086E-01
PU-239	186.	129.30	3.1050E+03
AM-241	128.	59.54	2.3715E+00
AM-243	178.	74.67	6.5690E-01

WHC-SD-WM-DP- REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   13-MAR-1995 00:58:32.68                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                S95T55-BLK
Sample Size:              1.00000E-03 LI
Dilution Factor:          1.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA3
File Number:              dka300:[spec.GEA3]3g3585.cnf
Geometry:                 42
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:00.43 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        13-MAR-1995 00:07:54.19
Decayed to:               13-MAR-1995 00:07:54.19
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  EMB
Background Subtract:      DKA300:[SPEC.GEA3]3GBACK

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

Removed by: Tom Bailey

date: 3-13-95

Bachelor 3/13/95

WHC-SD-WM-DP-180, REV. 1

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	1460.58*	19	2.09	2921.64	2911	19139.9			K-40	3.42

Sample ID : S95T55-BLK
Acquisition date : 13-MAR-1995 00:07:54

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/LI	Wtd Mean Decay Corr uCi/LI	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~3.418E+00~~	~~3.418E+00~~	~~4.782E+00~~	~~139.91~~	BKG 3/13/95
		Total Activity :	3.418E+00	3.418E+00			
		Grand Total Activity :	3.418E+00	3.418E+00			

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

Minimum Detectable Activity Report
Sample ID : S95T55-BLK

Acquisition date : 13-MAR-1995 00:07:54

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	22.	477.59	1.5445E+00
NA-22	6.	1274.53	1.8905E-01
NA-24	5.	1368.55	1.8586E-01
SC-46	17.	1120.55	2.8997E-01
CR-51	46.	320.08	1.6838E+00
MN-54	16.	834.83	2.2141E-01
CO-56	15.	846.76	2.1669E-01
CO-57	75.	122.06	1.5032E-01
CO-58	7.	810.78	1.4185E-01
FE-59	9.	1099.25	3.6117E-01
CO-60	12.	1332.50	2.8012E-01
ZN-65	12.	1115.55	4.8387E-01
SE-75	51.	264.66	2.6539E-01
KR-85	48.	514.00	5.7530E+01
SR-85	48.	514.01	2.5960E-01
Y-88	2.	1836.06	1.4181E-01
Y-90	4.	1760.70	6.9147E-01
Y-91	17.	1204.67	1.0428E+02
NB-94	11.	871.09	1.9152E-01
NB-95	18.	765.78	2.1797E-01
ZR-95	21.	756.73	4.2536E-01
RU-103	28.	497.08	2.0518E-01
RURH-106	28.	621.93	4.5016E+00
AG-108m	32.	722.94	3.0106E-01
CD-109	52.	88.03	4.1346E+00
AG-110M	26.	657.76	2.4201E-01
SN-113	38.	391.69	2.8074E-01
TE-123m	74.	159.00	1.5282E-01
SB-124	19.	602.73	1.8620E-01
SB-125	35.	427.89	6.3129E-01
TE-125m	82.	109.27	5.1117E+01
I-129	62.	39.60	0.0000E+00
I-131	40.	364.48	2.1436E-01
XE-131m	74.	163.93	6.6732E+00
BA-133	44.	356.02	2.8845E-01
CS-134	23.	604.70	2.0195E-01
CS-136	19.	818.51	2.3299E-01
CS-137	44.	661.66	3.4960E-01
CS-138	9.	1435.86	5.5325E-01
CE-139	62.	165.85	1.5066E-01
BA-140	25.	537.31	7.6859E-01
LA-140	2.	1596.21	1.2344E-01
CE-141	91.	145.44	2.8912E-01
CE-144	70.	133.51	1.0968E+00
CEPR-144	70.	133.51	2.1920E+00
EU-152	2.	1408.01	5.5079E-01
EU-154	6.	1274.51	5.5115E-01
EU-155	52.	86.54	4.6922E-01
HF-181	32.	482.18	2.4014E-01
TA-182	47.	67.75	6.7111E-01
HG-203	56.	279.20	2.0706E-01

Sample ID : S95T55-BLK Acquisition date : 13-MAR-1995 00:07:54

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
-207	29.	569.70	2.1665E-01
TL-208	55.	277.36	2.6308E+00
PB-210	43.	46.50	0.0000E+00
BI-212	19.	727.18	3.2167E+00
PB-212	81.	238.63	4.1669E-01
BI-214	60.	609.31	7.1933E-01
PB-214	61.	351.92	1.0401E+00
RA-224	77.	240.99	4.4951E+00
RA-226	84.	186.10	4.2838E+00
AC-228	30.	911.21	1.2037E+00
TH-228	59.	84.37	1.3577E+01
TH-229	54.	88.47	6.0767E-01
U-232	49.	57.78	3.2869E+02
PA-233	46.	312.17	4.3106E-01
PA-234M	18.	1001.03	1.3613E+01
TH-234	50.	63.29	8.4455E+00
U-235	81.	185.71	2.5545E-01
NP-237	53.	86.48	1.2495E+00
U-237	42.	59.54	1.4181E+00
NP-238	9.	984.45	6.6547E-01
NP-239	73.	106.12	6.1113E-01
PU-239	67.	129.30	1.8678E+03
AM-241	42.	59.54	1.3603E+00
AM-243	91.	74.67	4.7043E-01

WHC-SD-WM-DP-080, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   13-MAR-1995 02:06:08.25                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                S95T55-SAMPLE
Sample Size:              1.00000E-03 LI
Dilution Factor:          1.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA3
File Number:              dka300:[spec.GEA3]3g3586.cnf
Geometry:                 42
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:02.37 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        13-MAR-1995 01:15:30.06
Decayed to:               13-MAR-1995 01:15:30.06
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  EMB
Background Subtract:      DKA300:[SPEC.GEA3]3GBACK

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

Removed by: Em Bailey

date: 3-13-95

Bachelor

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	59.56	82	1.11	119.67	117	6	112.6		AM-241	3.72
0	86.29	547	1.06	173.10	167	11	33.0		~~NP-237~~	20.2
									EU-155	7.64
0	105.28	234	0.81	211.07	208	8	57.1		EU-155	3.78
0	123.15	880	1.22	246.79	241	11	19.2		~~CO-57~~	3.27
									EU-154	6.94
0	248.66	49	0.89	497.69	493	9	177.5		EU-154	3.20
0	600.05	76	2.01	1200.29	1194	17	76.3			
0	661.64*	7010	1.60	1323.46	1315	17	2.5		CS-137	79.2
0	723.38	147	1.36	1446.92	1441	14	24.4		EU-154	7.65
0	873.09	49	1.09	1746.35	1742	10	52.2		EU-154	4.93
0	995.98	67	2.05	1992.16	1984	15	39.6		EU-154	8.80
0	1004.86	78	1.70	2009.92	2004	14	41.8		EU-154	6.01
0	1172.89	78	1.13	2346.05	2339	14	30.4		CO-60	1.23
0	1274.35	138	1.47	2549.04	2543	14	17.0		EU-154	6.77
									~~NA-22~~	2.33
0	1332.19	63	1.19	2664.75	2658	14	33.2		CO-60	1.11

WHC-CD-WM-DP-080, REV. 1
099 7/24/95

Summary of Nuclide Activity
Sample ID : S95T55-SAMPLE Acquisition date : 13-MAR-1995 01:15:30

Total number of lines in spectrum	14	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	14	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
~~NA-22~~	~~2.60Y~~	~~1.000~~	~~2.329E+00~~	~~2.329E+00~~	~~0.397E+00~~	~~17.03~~	154Eu 3/13/9
~~CO-57~~	~~271.80D~~	~~1.000~~	~~3.275E+00~~	~~3.275E+00~~	~~0.629E+00~~	~~19.19~~	
CO-60	5.27Y	1.000	1.171E+00	1.171E+00	0.263E+00	22.43	
CS-137	30.00Y	1.000	7.923E+01	7.923E+01	0.200E+01	2.52	
EU-154	8.59Y	1.000	6.647E+00	6.647E+00	1.186E+00	17.84	
~~EU-155~~	~~4.68Y~~	~~1.000~~	~~3.785E+00~~	~~3.785E+00~~	~~2.162E+00~~	~~57.12~~	BKG 3/13/95
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~2.025E+01~~	~~2.025E+01~~	~~0.668E+01~~	~~32.97~~	155Eu 3/13/95
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~3.719E+00~~	~~3.719E+00~~	~~4.189E+00~~	~~112.64~~	BKG 3/13/95
			---	---			
	Total Activity :		1.204E+02	1.204E+02			
	Grand Total Activity :		1.204E+02	1.204E+02			

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

WHO-CD-VSI-DF-080, REV. 1

Sample ID : S95T55-SAMPLE
Acquisition date : 13-MAR-1995 01:15:30

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	271.	477.59	5.4186E+00
NA-24	6.	1368.55	2.0742E-01
K-40	132.	1460.75	9.4019E+00
SC-46	30.	1120.55	3.8478E-01
CR-51	318.	320.08	4.4214E+00
MN-54	34.	834.83	3.2037E-01
CO-56	37.	846.76	3.3821E-01
CO-58	35.	810.78	3.1677E-01
FE-59	23.	1099.25	5.8435E-01
ZN-65	17.	1115.55	5.7383E-01
SE-75	398.	264.66	7.4109E-01
KR-85	192.	514.00	1.1544E+02
SR-85	192.	514.01	5.2169E-01
Y-88	2.	1836.06	1.4838E-01
Y-90	5.	1760.70	8.1120E-01
Y-91	20.	1204.67	1.1219E+02
NB-94	74.	871.09	4.8866E-01
NB-95	34.	765.78	2.9547E-01
ZR-95	51.	756.73	6.5552E-01
RU-103	224.	497.08	5.7923E-01
RURH-106	79.	621.93	7.6234E+00
AG-108m	168.	722.94	6.8917E-01
CD-109	1404.	88.03	2.1474E+01
AG-110M	158.	657.76	5.9134E-01
SN-113	291.	391.69	7.7512E-01
TE-123m	756.	159.00	4.8965E-01
SB-124	110.	602.73	4.4445E-01
SB-125	372.	427.89	2.0464E+00
TE-125m	1116.	109.27	1.8824E+02
I-129	634.	39.60	0.0000E+00
I-131	308.	364.48	5.9684E-01
XE-131m	740.	163.93	2.1068E+01
BA-133	277.	356.02	7.2576E-01
CS-134	99.	604.70	4.2261E-01
CS-136	33.	818.51	3.0937E-01
CS-138	6.	1435.86	4.3630E-01
CE-139	748.	165.85	5.2208E-01
BA-140	128.	537.31	1.7408E+00
LA-140	13.	1596.21	3.5756E-01
CE-141	900.	145.44	9.0677E-01
CE-144	933.	133.51	4.0009E+00
CEPR-144	933.	133.51	7.9944E+00
EU-152	10.	1408.01	1.2754E+00
HF-181	237.	482.18	6.5709E-01
TA-182	1065.	67.75	3.1859E+00
HG-203	412.	279.20	5.6228E-01
BI-207	99.	569.70	4.0058E-01
TL-208	415.	277.36	7.2526E+00
PB-210	609.	46.50	0.0000E+00
BI-212	42.	727.18	4.7534E+00
PB-212	538.	238.63	1.0712E+00

Sample ID : S95T55-SAMPLE Acquisition date : 13-MAR-1995 01:15:30

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
-214	119.	609.31	1.0156E+00
PB-214	316.	351.92	2.3769E+00
RA-224	540.	240.99	1.1913E+01
RA-226	732.	186.10	1.2668E+01
AC-228	39.	911.21	1.3875E+00
TH-228	1268.	84.37	6.2854E+01
TH-229	1238.	88.47	2.9224E+00
U-232	819.	57.78	1.3397E+03
PA-233	350.	312.17	1.1876E+00
PA-234M	27.	1001.03	1.6764E+01
TH-234	893.	63.29	3.5517E+01
U-235	720.	185.71	7.6362E-01
U-237	901.	59.54	6.5656E+00
NP-238	22.	984.45	1.0746E+00
NP-239	1345.	106.12	2.6221E+00
PU-239	1004.	129.30	7.2196E+03
AM-243	1098.	74.67	1.6334E+00

```
*****************************************************************************
* 222-S Laboratory Counting Room   13-MAR-1995 03:02:55.62                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                S95T55-DUP
Sample Size:              1.00000E-03 LI
Dilution Factor:          1.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA3
File Number:              dka300:[spec.GEA3]3g3587.cnf
Geometry:                 42
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:02.40 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        13-MAR-1995 02:12:17.05
Decayed to:               13-MAR-1995 02:12:17.05
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  EMB
Background Subtract:      DKA300:[SPEC.GEA3]3GBACK

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

Removed by: Em Bucla

date: 3-13-95

B Bachelor 3/13/95

WHC-CD-WM-OP-040, REV. 1

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	59.55	208	1.03	119.64	116	7	50.2		AM-241	9.40
0	86.60	442	1.19	173.72	171	6	26.0		~~NP-237~~	16.3
									EU-155	6.17
									~~CD-109~~	54.4
0	105.36	383	1.13	211.23	207	9	40.1		EU-155	6.19
0	123.13	851	1.25	246.74	243	9	17.3		~~CO-57~~	3.17
									EU-154	6.71
0	247.85	141	1.78	496.08	492	8	54.4		EU-154	9.19
0	427.71	112	1.32	855.68	851	11	69.1			
0	592.21	57	1.12	1184.61	1181	7	55.4			
0	661.66*	6907	1.58	1323.49	1318	14	2.5		CS-137	78.1
0	723.45	157	1.07	1447.06	1442	11	24.6		EU-154	8.15
									ZR-95	3.70
0	756.64	43	2.98	1513.44	1508	15	77.8		ZR-95	0.846
0	873.47	76	1.53	1747.12	1742	14	37.4		EU-154	7.68
0	996.11	56	1.77	1992.41	1986	12	36.4		EU-154	7.41
0	1004.92	73	1.49	2010.03	2006	12	36.7		EU-154	5.60
0	1173.15	87	1.82	2346.57	2338	19	36.6		CO-60	1.36
0	1274.21	150	1.66	2548.75	2542	15	19.8		EU-154	7.36
									~~NA-22~~	2.53
0	1332.37	43	2.03	2665.12	2661	11	45.6		CO-60	0.748

Sample ID : S95T55-DUP
Acquisition date : 13-MAR-1995 02:12:17

Total number of lines in spectrum 16
Number of unidentified lines 1
Number of lines tentatively identified by NID 15 93.75%

WHC-SD-WM-OP-080, REV. 1

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~~	~~2.532E+00~~	~~2.532E+00~~	~~0.502E+00~~	~~19.83~~	~~154Eu 3/13/9~~
~~CO-57~~	~~271.80D~~	~~1.000~~	~~3.168E+00~~	~~3.168E+00~~	~~0.548E+00~~	~~17.31~~	
CO-60	5.27Y	1.000	9.439E-01	9.439E-01	2.815E-01	29.82	
~~ZR-95~~	~~64.02D~~	~~1.000~~	~~8.462E-01~~	~~8.464E-01~~	~~6.587E-01~~	~~77.83~~	~~BKG 3/13/9~~
~~CD-109~~	~~462.90D~~	~~1.000~~	~~5.443E+01~~	~~5.443E+01~~	~~1.415E+01~~	~~26.00~~	~~155Eu 3/13/9~~
CS-137	30.00Y	1.000	7.807E+01	7.807E+01	0.195E+01	2.50	
EU-154	8.59Y	1.000	6.804E+00	6.804E+00	1.367E+00	20.09	
EU-155	4.68Y	1.000	6.191E+00	6.191E+00	2.481E+00	40.07	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~1.635E+01~~	~~1.635E+01~~	~~0.425E+01~~	~~26.00~~	~~155Eu 3/13/95~~
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~9.395E+00~~	~~9.395E+00~~	~~4.717E+00~~	~~50.21~~	~~BKG 3/13/95~~
			---	---			
	Total Activity :		1.787E+02	1.787E+02			

Grand Total Activity : 1.787E+02 1.787E+02

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

Minimum Detectable Activity Report
Sample ID : S95T55-DUP

Acquisition date : 13-MAR-1995 02:12:17

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	285.	477.59	5.5638E+00
NA-24	5.	1368.55	1.8935E-01
K-40	137.	1460.75	9.5943E+00
SC-46	28.	1120.55	3.7425E-01
CR-51	344.	320.08	4.5963E+00
MN-54	40.	834.83	3.4672E-01
CO-56	33.	846.76	3.1924E-01
CO-58	32.	810.78	3.0151E-01
FE-59	22.	1099.25	5.8017E-01
ZN-65	19.	1115.55	6.0095E-01
SE-75	438.	264.66	7.7738E-01
KR-85	194.	514.00	1.1589E+02
SR-85	193.	514.01	5.2358E-01
Y-88	2.	1836.06	1.4838E-01
Y-90	13.	1760.70	1.2939E+00
Y-91	21.	1204.67	1.1366E+02
NB-94	75.	871.09	4.8995E-01
NB-95	38.	765.78	3.1504E-01
RU-103	203.	497.08	5.5171E-01
RURH-106	87.	621.93	7.9749E+00
AG-108m	205.	722.94	7.6110E-01
AG-110M	188.	657.76	6.4597E-01
SN-113	305.	391.69	7.9368E-01
TE-123m	764.	159.00	4.9219E-01
SB-124	116.	602.73	4.5565E-01
SB-125	407.	427.89	2.1419E+00
TE-125m	1143.	109.27	1.9051E+02
I-129	613.	39.60	0.0000E+00
I-131	289.	364.48	5.7738E-01
XE-131m	740.	163.93	2.1072E+01
BA-133	313.	356.02	7.7164E-01
CS-134	105.	604.70	4.3511E-01
CS-136	41.	818.51	3.4525E-01
CS-138	6.	1435.86	4.5186E-01
CE-139	742.	165.85	5.2016E-01
BA-140	143.	537.31	1.8407E+00
LA-140	10.	1596.21	3.1205E-01
CE-141	856.	145.44	8.8419E-01
CE-144	938.	133.51	4.0116E+00
CEPR-144	938.	133.51	8.0158E+00
EU-152	13.	1408.01	1.4522E+00
HF-181	267.	482.18	6.9687E-01
TA-182	962.	67.75	3.0280E+00
HG-203	403.	279.20	5.5622E-01
BI-207	112.	569.70	4.2663E-01
TL-208	390.	277.36	7.0299E+00
PB-210	603.	46.50	0.0000E+00
BI-212	59.	727.18	5.6296E+00
PB-212	590.	238.63	1.1220E+00
BI-214	113.	609.31	9.9019E-01
PB-214	336.	351.92	2.4522E+00

Sample ID : S95T55-DUP Acquisition date : 13-MAR-1995 02:12:17

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
224	535.	240.99	1.1862E+01
RA-226	673.	186.10	1.2148E+01
AC-228	35.	911.21	1.3129E+00
TH-228	1247.	84.37	6.2312E+01
TH-229	1311.	88.47	3.0071E+00
U-232	805.	57.78	1.3281E+03
PA-233	336.	312.17	1.1639E+00
PA-234M	39.	1001.03	2.0076E+01
TH-234	957.	63.29	3.6781E+01
U-235	653.	185.71	7.2715E-01
U-237	985.	59.54	6.8638E+00
NP-238	36.	984.45	1.3683E+00
NP-239	1535.	106.12	2.8007E+00
PU-239	1006.	129.30	7.2245E+03
AM-243	1111.	74.67	1.6431E+00

WHC-SD-WM-DP-080, REV. 1

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*****************************************************************************
* 222-S Laboratory Counting Room   13-MAR-1995 05:09:09.72                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                S95T56-SAMPLE
Sample Size:              1.00000E-03 LI
Dilution Factor:          1.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA3
File Number:              dka300:[spec.GEA3]3g3590.cnf
Geometry:                 42
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:02.18 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        13-MAR-1995 04:18:31.91
Decayed to:               13-MAR-1995 04:18:31.91
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  EMB
Background Subtract:      DKA300:[SPEC.GEA3]3GBACK

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

Removed by: Em Baulu

date: 3-13-95

R Bachelor 3/13/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	59.04	141	1.03	118.63	116	9	89.8		~~U-232~~	1.414E+03
									AM-241	6.34
0	86.42	427	1.19	173.36	170	9	35.4		~~NP-237~~	15.8
									EU-155	5.97
0	105.26	558	1.13	211.03	206	11	29.7		EU-155	9.03
0	123.14	927	1.10	246.76	243	9	15.6		~~CO-57~~	3.45
									EU-154	7.31
0	247.76	180	1.10	495.89	491	11	52.4		EU-154	11.7
0	427.89	125	0.91	856.04	852	8	45.7			
0	600.46	40	1.28	1201.12	1199	9	83.4			
0	661.64*	5958	1.59	1323.46	1316	16	2.7		CS-137	67.3
0	723.12	96	1.47	1446.40	1442	13	46.2		EU-154	5.01
									ZR-95	2.27
0	757.72	34	1.36	1515.61	1510	11	79.2		ZR-95	0.683
0	872.97	94	1.44	1746.12	1738	15	31.5		EU-154	9.50
0	996.21	74	2.00	1992.61	1988	12	36.8		EU-154	9.74
0	1004.58	108	1.80	2009.37	2005	10	24.1		EU-154	8.33
0	1173.39	93	1.64	2347.04	2341	15	28.9		CO-60	1.46
0	1274.40	163	1.33	2549.12	2541	16	20.6		EU-154	7.99
									~~NA-22~~	2.75
0	1332.23	85	1.58	2664.84	2657	17	29.0		CO-60	1.49

WHC-SD-WM-DP-~~080~~ 099, REV. 1

9/25/95

Sample ID : S95T56-SAMPLE Acquisition date : 13-MAR-1995 04:18:31

Total number of lines in spectrum	16	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	16	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
~~NA-22~~	~~2.60Y~~	~~1.000~~	~~2.751E+00~~	~~2.751E+00~~	~~0.568E+00~~	~~20.64~~	3/4 Eu 3/13/9.
~~CO-57~~	~~271.80D~~	~~1.000~~	~~3.451E+00~~	~~3.451E+00~~	~~0.537E+00~~	~~15.56~~	
CO-60	5.27Y	1.000	1.475E+00	1.475E+00	0.302E+00	20.47	
~~ZR-95~~	~~64.02D~~	~~1.000~~	~~6.832E-01~~	~~6.834E-01~~	~~5.416E-01~~	~~79.25~~	BKG 3/13/9.
CS-137	30.00Y	1.000	6.734E+01	6.734E+01	0.184E+01	2.73	
EU-154	8.59Y	1.000	9.044E+00	9.045E+00	1.467E+00	16.22	
EU-155	4.68Y	1.000	9.033E+00	9.033E+00	2.680E+00	29.67	
~~U-232~~	~~68.90Y~~	~~1.000~~	~~1.414E+03~~	~~1.414E+03~~	~~1.270E+03~~	~~89.79~~	BKG 3/13/9.
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~1.581E+01~~	~~1.581E+01~~	~~0.559E+01~~	~~35.37~~	155 Eu 3/13/9.
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~6.339E+00~~	~~6.339E+00~~	~~5.692E+00~~	~~89.79~~	155 Eu 3/13/9.
		Total Activity :	1.530E+03	1.530E+03			
		Grand Total Activity :	1.530E+03	1.530E+03			

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

Sample ID : S95T56-SAMPLE Acquisition date : 13-MAR-1995 04:18:31

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	254.	477.59	5.2544E+00
NA-24	9.	1368.55	2.5156E-01
K-40	133.	1460.75	9.4537E+00
SC-46	29.	1120.55	3.8067E-01
CR-51	288.	320.08	4.2059E+00
MN-54	27.	834.83	2.8174E-01
CO-56	34.	846.76	3.2401E-01
CO-58	41.	810.78	3.4390E-01
FE-59	20.	1099.25	5.5449E-01
ZN-65	28.	1115.55	7.2738E-01
SE-75	403.	264.66	7.4603E-01
KR-85	171.	514.00	1.0896E+02
SR-85	171.	514.01	4.9197E-01
Y-88	6.	1836.06	2.4897E-01
Y-90	11.	1760.70	1.1838E+00
Y-91	19.	1204.67	1.0974E+02
NB-94	83.	871.09	5.1633E-01
NB-95	34.	765.78	2.9467E-01
RU-103	172.	497.08	5.0675E-01
RURH-106	94.	621.93	8.3154E+00
AG-108m	175.	722.94	7.0456E-01
CD-109	1384.	88.03	2.1323E+01
AG-110M	139.	657.76	5.5490E-01
SN-113	233.	391.69	6.9363E-01
TE-123m	708.	159.00	4.7371E-01
SB-124	110.	602.73	4.4303E-01
SB-125	360.	427.89	2.0134E+00
TE-125m	964.	109.27	1.7496E+02
I-129	528.	39.60	0.0000E+00
I-131	268.	364.48	5.5612E-01
XE-131m	682.	163.93	2.0216E+01
BA-133	294.	356.02	7.4822E-01
CS-134	91.	604.70	4.0584E-01
CS-136	36.	818.51	3.2490E-01
CS-138	6.	1435.86	4.5185E-01
CE-139	658.	165.85	4.8977E-01
BA-140	143.	537.31	1.8429E+00
LA-140	8.	1596.21	2.7910E-01
CE-141	775.	145.44	8.4138E-01
CE-144	835.	133.51	3.7851E+00
CEPR-144	835.	133.51	7.5629E+00
EU-152	13.	1408.01	1.4522E+00
HF-181	200.	482.18	6.0416E-01
TA-182	906.	67.75	2.9385E+00
HG-203	330.	279.20	5.0326E-01
BI-207	109.	569.70	4.2160E-01
TL-208	356.	277.36	6.7123E+00
PB-210	557.	46.50	0.0000E+00
BI-212	41.	727.18	4.6627E+00
PB-212	471.	238.63	1.0022E+00
BI-214	115.	609.31	9.9804E-01

Sample ID : S95T56-SAMPLE Acquisition date : 13-MAR-1995 04:18:31

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
214	293.	351.92	2.2882E+00
RA-224	453.	240.99	1.0914E+01
RA-226	606.	186.10	1.1525E+01
AC-228	37.	911.21	1.3422E+00
TH-228	1135.	84.37	5.9468E+01
TH-229	1221.	88.47	2.9017E+00
PA-233	335.	312.17	1.1629E+00
PA-234M	36.	1001.03	1.9267E+01
TH-234	812.	63.29	3.3870E+01
U-235	609.	185.71	7.0233E-01
U-237	928.	59.54	6.6621E+00
NP-238	24.	984.45	1.1100E+00
NP-239	1466.	106.12	2.7373E+00
PU-239	822.	129.30	6.5328E+03
AM-243	1026.	74.67	1.5796E+00

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*****************************************************************************
* 222-S Laboratory Counting Room   13-MAR-1995 06:17:51.06                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                S95T56-DUPLICATE
Sample Size:              1.00000E-03 LI
Dilution Factor:          1.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA3
File Number:              dka300:[spec.GEA3]3g3591.cnf
Geometry:                 42
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:01.96 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        13-MAR-1995 05:27:12.44
Decayed to:               13-MAR-1995 05:27:12.44
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  EMB
Background Subtract:      DKA300:[SPEC.GEA3]3GBACK

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

Removed by: Em Bueler

date: 3-13-95

Bachelor 3/13/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	59.35	317	2.16	119.24	113	14	51.2		AM-241	14.3
0	86.50	583	1.23	173.53	168	11	28.3		~~NP-237~~	21.6
									EU-155	8.15
0	105.43	463	1.28	211.35	208	8	26.2		EU-155	7.49
0	123.07	968	1.20	246.63	241	12	17.1		~~CO-57~~	3.60
									EU-154	7.63
0	248.56	187	1.63	497.50	492	13	57.0		EU-154	12.2
0	428.12	78	1.02	856.51	853	7	61.5			
0	591.70	72	1.50	1183.59	1178	12	53.7			
0	609.80*	46	1.56	1219.78	1215	11	83.6			
0	661.64*	5120	1.52	1323.45	1315	15	2.9		CS-137	57.9
0	723.08	146	1.87	1446.33	1438	15	27.2		EU-154	7.59
0	872.92	71	1.70	1746.01	1741	14	41.3		EU-154	7.15
0	995.55	67	2.08	1991.29	1982	16	40.6		EU-154	8.93
0	1004.81	75	1.38	2009.81	2005	13	41.4		EU-154	5.78
0	1173.28	90	1.74	2346.82	2340	16	34.9		CO-60	1.42
0	1274.24	159	1.80	2548.81	2544	13	17.1		EU-154	7.81
									~~NA-22~~	2.69
0	1332.47	78	1.54	2665.31	2657	17	30.7		CO-60	1.37

Summary of Nuclide Activity
Sample ID : S95T56-DUPLICATE Acquisition date : 13-MAR-1995 05:27:12

Total number of lines in spectrum	16	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	15	93.75%

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~~	~~2.688E+00~~	~~2.688E+00~~	~~0.459E+00~~	~~17.09~~	
~~CO-57~~	~~271.80D~~	~~1.000~~	~~3.601E+00~~	~~3.601E+00~~	~~0.617E+00~~	~~17.12~~	154Eu 3/13/9
CO-60	5.27Y	1.000	1.392E+00	1.392E+00	0.321E+00	23.07	
CS-137	30.00Y	1.000	5.787E+01	5.787E+01	0.171E+01	2.95	
EU-154	8.59Y	1.000	7.314E+00	7.314E+00	1.269E+00	17.35	
EU-155	4.68Y	1.000	7.494E+00	7.494E+00	1.966E+00	26.23	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~2.159E+01~~	~~2.159E+01~~	~~0.611E+01~~	~~28.29~~	155Eu 3/13/95
~~AM-241~~	~~432.20Y~~	~~1.000~~	~~1.430E+01~~	~~1.430E+01~~	~~0.732E+01~~	~~51.23~~	BKG 3/13/95
		Total Activity :	1.162E+02	1.162E+02			

Grand Total Activity : 1.162E+02 1.162E+02

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

REV.

Sample ID : S95T56-DUPLICATE Acquisition date : 13-MAR-1995 05:27:12

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	204.	477.59	4.7106E+00
NA-24	7.	1368.55	2.1826E-01
K-40	138.	1460.75	9.6093E+00
SC-46	35.	1120.55	4.1642E-01
CR-51	287.	320.08	4.2026E+00
MN-54	32.	834.83	3.0802E-01
CO-56	42.	846.76	3.5689E-01
CO-58	27.	810.78	2.7665E-01
FE-59	23.	1099.25	5.8921E-01
ZN-65	23.	1115.55	6.5729E-01
SE-75	330.	264.66	6.7506E-01
KR-85	163.	514.00	1.0648E+02
SR-85	163.	514.01	4.8107E-01
Y-88	4.	1836.06	2.0525E-01
Y-90	12.	1760.70	1.2332E+00
Y-91	18.	1204.67	1.0642E+02
NB-94	81.	871.09	5.0925E-01
NB-95	43.	765.78	3.3393E-01
ZR-95	51.	756.73	6.6064E-01
RU-103	149.	497.08	4.7290E-01
RURH-106	88.	621.93	8.0242E+00
AG-108m	174.	722.94	7.0140E-01
CD-109	1252.	88.03	2.0281E+01
AG-110M	142.	657.76	5.6206E-01
SN-113	262.	391.69	7.3554E-01
TE-123m	575.	159.00	4.2684E-01
SB-124	88.	602.73	3.9609E-01
SB-125	297.	427.89	1.8304E+00
TE-125m	892.	109.27	1.6829E+02
I-129	489.	39.60	0.0000E+00
I-131	230.	364.48	5.1501E-01
XE-131m	618.	163.93	1.9256E+01
BA-133	234.	356.02	6.6751E-01
CS-134	73.	604.70	3.6429E-01
CS-136	32.	818.51	3.0471E-01
CS-138	8.	1435.86	5.2782E-01
CE-139	585.	165.85	4.6186E-01
BA-140	105.	537.31	1.5772E+00
LA-140	10.	1596.21	3.1407E-01
CE-141	715.	145.44	8.0845E-01
CE-144	727.	133.51	3.5327E+00
CEPR-144	727.	133.51	7.0589E+00
EU-152	7.	1408.01	1.0499E+00
HF-181	232.	482.18	6.5042E-01
TA-182	806.	67.75	2.7715E+00
HG-203	302.	279.20	4.8093E-01
BI-207	94.	569.70	3.9048E-01
TL-208	291.	277.36	6.0707E+00
PB-210	475.	46.50	0.0000E+00
BI-212	40.	727.18	4.6263E+00
PB-212	401.	238.63	9.2461E-01

Sample ID : S95T56-DUPLICATE Acquisition date : 13-MAR-1995 05:27:12

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
-214	134.	609.31	1.0799E+00
PB-214	297.	351.92	2.3029E+00
RA-224	414.	240.99	1.0433E+01
RA-226	521.	186.10	1.0687E+01
AC-228	46.	911.21	1.5021E+00
TH-228	1002.	84.37	5.5881E+01
TH-229	1112.	88.47	2.7692E+00
U-232	700.	57.78	1.2381E+03
PA-233	290.	312.17	1.0813E+00
PA-234M	28.	1001.03	1.6988E+01
TH-234	645.	63.29	3.0194E+01
U-235	535.	185.71	6.5816E-01
U-237	836.	59.54	6.3218E+00
NP-238	19.	984.45	9.8242E-01
NP-239	1297.	106.12	2.5746E+00
PU-239	754.	129.30	6.2552E+03
AM-243	903.	74.67	1.4818E+00

LABCORE Data Entry Template for Worklist# 685

Analyst: SME **Instrument:** GEA00 4 **Book #** ~~68B52~~ 64B52 3-13-95

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

Worklist Comment: Use 1 mL sample. R(0). -PPB

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST		MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@GEA-02	CO60-02	SOLID			N/A	uCi/g
		1	STD				@GEA-02	CO60-02E	SOLID			N/A	% Ct. Error
		1	STD				@GEA-02	CS13702	SOLID			N/A	uCi/g
		1	STD				@GEA-02	CS13702E	SOLID			N/A	% Ct. Error
		2	BLNK-PREP				@GEA-02	CO60-02	SOLID			N/A	uCi/g
		2	BLNK-PREP				@GEA-02	CS13702	SOLID			N/A	uCi/g
		2	BLNK-PREP				@GEA-02	EU15402	SOLID			N/A	uCi/g
		2	BLNK-PREP				@GEA-02	EU15502	SOLID			N/A	uCi/g
94000012	C-103	3	SAMPLE	S95T000057	0	F	@GEA-02	CO60-02	SOLID	N/A			uCi/g
94000012	C-103	3	SAMPLE	S95T000057	0	F	@GEA-02	CO60-02E	SOLID	N/A			% Ct. Error
94000012	C-103	3	SAMPLE	S95T000057	0	F	@GEA-02	CS13702	SOLID	N/A			uCi/g
94000012	C-103	3	SAMPLE	S95T000057	0	F	@GEA-02	CS13702E	SOLID	N/A			% Ct. Error
94000012	C-103	3	SAMPLE	S95T000057	0	F	@GEA-02	EU15402	SOLID	N/A			uCi/g
94000012	C-103	3	SAMPLE	S95T000057	0	F	@GEA-02	EU15402E	SOLID	N/A			% Ct. Error
94000012	C-103	3	SAMPLE	S95T000057	0	F	@GEA-02	EU15502	SOLID	N/A			uCi/g
94000012	C-103	3	SAMPLE	S95T000057	0	F	@GEA-02	EU15502E	SOLID	N/A			% Ct. Error
94000012	C-103	4	DUP	S95T000057	0	F	@GEA-02	CO60-02	SOLID			N/A	uCi/g
94000012	C-103	4	DUP	S95T000057	0	F	@GEA-02	CO60-02E	SOLID			N/A	% Ct. Error

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# 685

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------		MATRIX	ACTUAL	FOUND	DL	UNIT
94000012	C-103	4 DUP	S95T000057	0	F	@GEA-02	CS13702	SOLID			N/A	uCi/g
94000012	C-103	4 DUP	S95T000057	0	F	@GEA-02	CS13702E	SOLID			N/A	% Ct. Error
94000012	C-103	4 DUP	S95T000057	0	F	@GEA-02	EU15402	SOLID			N/A	uCi/g
94000012	C-103	4 DUP	S95T000057	0	F	@GEA-02	EU15402E	SOLID			N/A	% Ct. Error
94000012	C-103	4 DUP	S95T000057	0	F	@GEA-02	EU15502	SOLID			N/A	uCi/g
94000012	C-103	4 DUP	S95T000057	0	F	@GEA-02	EU15502E	SOLID			N/A	% Ct. Error

Final page for worklist # 685

Susie M. Fulton 3-12-95
Analyst Signature **Date**

[illegible] 3-13-95
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.

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

PREPARATION OF SAMPLE MOUNTS FOR GAMMA ENERGY ANALYSIS : LA-548-121 (D-1)

3 < Choose Sample Units: 1=µCi/Sample, 2=µCi/g, 3=µCi/L

3 < Choose Report Units: 1=µCi/L, 2=pCi/L, 3=µCi/mL, 4=µCi/g

Type	ANALYTE	? <	SAMPLE µCi/L	REPORT µCi/mL	COUNTING ERROR %	? <	DUPLICATE µCi/L	REPORT µCi/mL	COUNTING ERROR %	AVERAGE µCi/mL	RPD
STANDARD	CO60		2.03E+01	2.03E-02	2.36			0.00E+00			
Work List	CS137		2.71E+01	2.71E-02	2.42			0.00E+00			
685				0.00E+00				0.00E+00			
Test Code				0.00E+00				0.00E+00			
@GEA-02				0.00E+00				0.00E+00			
Matrix				0.00E+00				0.00E+00			
LIQUID				0.00E+00				0.00E+00			
Sample #				0.00E+00				0.00E+00			
WORKLIST#685				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
DUP's Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Instrument Code				0.00E+00				0.00E+00			
WC38931				0.00E+00				0.00E+00			
Analyst				0.00E+00				0.00E+00			
SMF				0.00E+00				0.00E+00			
Date											
03/12/96											
Time											
10:00 PM											

REPORT (µCi/mL) = SAMPLE (µCi/L) / 1000mL/L * DF

AVERAGE = (SAMPLE + DUPLICATE) / 2

RPD = |(SAMPLE - DUPLICATE)| / AVERAGE * 100

Data Entry by: [signature] Date: 03/13/95

Approved by: [signature] Date: 3/15/95

Form 548121_1 Rev. 2.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-CD-WM-DP-~~030~~, REV. 1
059 AW 9/25/95

PREPARATION OF SAMPLE MOUNTS FOR GAMMA ENERGY ANALYSIS : LA-548-121 (D-1)

3 < Choose Sample Units: 1=µCi/Sample, 2=µCi/g, 3=µCi/L

4 < Choose Report Units: 1=µCi/L, 2=pCi/L, 3=µCi/mL, 4=µCi/g

0.408 < Enter SAMPLE g/L < Enter DUPLICATE g/L

Type	ANALYTE	? <	SAMPLE µCi/L	REPORT µCi/g	COUNTING ERROR %	? <	DUPLICATE µCi/L	REPORT µCi/g	COUNTING ERROR %	AVERAGE µCi/g	RPD
BLANK	CO60	<	1.59E-02	3.90E-02				ERR			
Work List	CS137	<	2.47E-02	6.05E-02				ERR			
686	EU154	<	4.53E-02	1.11E-01				ERR			
Test Code	EU155	<	3.06E-02	7.50E-02				ERR			
@GEA-02				0.00E+00				ERR			
Matrix				0.00E+00				ERR			
SOLID				0.00E+00				ERR			
Sample #				0.00E+00				ERR			
S95T57				0.00E+00				ERR			
				0.00E+00				ERR			
Digest DF				0.00E+00				ERR			
1				0.00E+00				ERR			
				0.00E+00				ERR			
DUP's Digest DF				0.00E+00				ERR			
1				0.00E+00				ERR			
				0.00E+00				ERR			
Instrument Code				0.00E+00				ERR			
WC38831				0.00E+00				ERR			
Analyst				0.00E+00				ERR			
SMF				0.00E+00				ERR			
Date											
03/12/95											
Time											
10:00 PM											

REPORT (µCi/g) = SAMPLE (µCi/L) / (g/L) * DF

AVERAGE = (SAMPLE + DUPLICATE) / 2

RPD = |(SAMPLE - DUPLICATE)| / AVERAGE * 100

Data Entry by: [signature] Date: 03/13/95

Approved by: [signature] Date: 3/15/95

Form 548121_1 Rev. 2.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

PREPARATION OF SAMPLE MOUNTS FOR GAMMA ENERGY ANALYSIS : LA-548-121 (D-1)

3 < Choose Sample Units: 1=µCi/Sample, 2=µCi/g, 3=µCi/L

4 < Choose Report Units: 1=µCi/L, 2=pCi/L, 3=µCi/mL, 4=µCi/g

0.408 < Enter SAMPLE g/L 0.444 < Enter DUPLICATE g/L

Type	ANALYTE	? <	SAMPLE µCi/L	REPORT µCi/g	COUNTING ERROR %	? <	DUPLICATE µCi/L	REPORT µCi/g	COUNTING ERROR %	AVERAGE µCi/g	RPD
SAMPLE/DUPLICATE	CO60		1.47E-01	3.60E-01	11.28		1.50E-01	3.38E-01	12.71	3.49E-01	6.4
Work List	CS137		2.26E+01	5.54E+01	0.76		2.62E+01	5.90E+01	0.7	5.72E+01	6.3
685	EU154		4.23E-01	1.04E+00	11.83		6.31E-01	1.20E+00	8.98	1.12E+00	14.3
Test Code	EU155		3.60E-01	8.82E-01	27.98		4.98E-01	1.12E+00	28.54	1.00E+00	23.9
@GEA-02				0.00E+00				0.00E+00			
Matrix				0.00E+00				0.00E+00			
SOLID				0.00E+00				0.00E+00			
Sample #				0.00E+00				0.00E+00			
S95T57				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
DUP's Digest DF				0.00E+00				0.00E+00			
1				0.00E+00				0.00E+00			
				0.00E+00				0.00E+00			
Instrument Code				0.00E+00				0.00E+00			
WC38931				0.00E+00				0.00E+00			
Analyst				0.00E+00				0.00E+00			
SMF				0.00E+00				0.00E+00			
Date											
03/12/95											
Time											
10:00 PM											

REPORT (µCi/g) = SAMPLE (µCi/L) / (g/L) * DF

AVERAGE = (SAMPLE + DUPLICATE) / 2

RPD = |(SAMPLE - DUPLICATE)| / AVERAGE * 100

Data Entry by: [signature] Date: 03/13/95

Approved by: [signature] Date: 3/15/95

Form 548121_1 Rev. 2.3

```
*****************************************************************************
* 222-S Laboratory Counting Room   12-MAR-1995 23:49:47.05                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                WORKLIST685-STD
Sample Size:              1.00000E-03 LI
  .ution Factor:          1.00000E+01
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA4
File Number:              dka300:[spec.GEA4]4g4766.cnf
Geometry:                 41
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:05.10 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        12-MAR-1995 22:59:05.68
Decayed to:               12-MAR-1995 22:59:05.68
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  DM
Background Subtract:      DKA300:[SPEC.GEA4]4GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       18-APR-1994 11:17:09.37
 Date of last efficiency calibration:   18-APR-1994 11:18:36.88
*****************************************************************************
```

Removed by: Eric Bawelle

date: 3-13-95

Machelor 3/13/95

Post-NID Peak Search Report

T+	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	662.14*	8826	1.54	1324.18	1317	16	2.4		CS-137	27.1
0	1173.69*	4538	1.90	2347.34	2340	18	3.5		CO-60	20.0
0	1332.95	4273	1.98	2665.90	2657	19	3.2		CO-60	20.5
0	1733.09	34	7.89	3466.32	3456	24	50.8			

WHC-SD-WM-DP-180, REV. 1
099 MW 7/25/95

Sample ID : WORKLIST685-STD
Acquisition date : 12-MAR-1995 22:59:05

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/LI	Wtd Mean Decay Corr uCi/LI	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.029E+01	2.029E+01	0.048E+01	2.36	
CS-137	30.00Y	1.000	2.705E+01	2.705E+01	0.066E+01	2.42	
		Total Activity :	4.734E+01	4.734E+01			
		Grand Total Activity :	4.734E+01	4.734E+01			

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

WHC-SD-WM-DP-080, REV. 1
1999

Sample ID : WORKLIST685-STD
Acquisition date : 12-MAR-1995 22:59:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
-7	526.	477.59	2.1403E+00
NA-22	73.	1274.53	1.8488E-01
NA-24	46.	1368.55	1.5712E-01
K-40	863.	1460.75	6.6438E+00
SC-46	261.	1120.55	3.1991E-01
CR-51	574.	320.08	1.6179E+00
MN-54	268.	834.83	2.5442E-01
CO-56	269.	846.76	2.5895E-01
CO-57	601.	122.06	1.1571E-01
CO-58	283.	810.78	2.5476E-01
FE-59	268.	1099.25	5.6596E-01
ZN-65	251.	1115.55	6.1702E-01
SE-75	621.	264.66	2.5208E-01
KR-85	511.	514.00	5.3895E+01
SR-85	510.	514.01	2.4341E-01
Y-88	21.	1836.06	1.3439E-01
Y-90	25.	1760.70	4.9379E-01
Y-91	126.	1204.67	7.8281E+01
NB-94	316.	871.09	2.8947E-01
NB-95	238.	765.78	2.1951E-01
ZR-95	249.	756.73	4.0571E-01
RU-103	442.	497.08	2.3210E-01
RURH-106	314.	621.93	4.1509E+00
AG-108m	247.	722.94	2.3072E-01
CD-109	568.	88.03	3.6216E+00
AG-110M	320.	657.76	2.2851E-01
CN-113	558.	391.69	2.9252E-01
-123m	619.	159.00	1.2057E-01
SB-124	314.	602.73	2.0698E-01
SB-125	571.	427.89	6.9993E-01
TE-125m	540.	109.27	3.5526E+01
I-129	515.	39.60	0.0000E+00
I-131	544.	364.48	2.1565E-01
XE-131m	625.	163.93	5.2642E+00
BA-133	512.	356.02	2.6879E-01
CS-134	311.	604.70	2.0675E-01
CS-136	297.	818.51	2.6305E-01
CS-138	42.	1435.86	3.2975E-01
CE-139	649.	165.85	1.3222E-01
BA-140	360.	537.31	8.3317E-01
LA-140	34.	1596.21	1.6084E-01
CE-141	620.	145.44	2.0540E-01
CE-144	603.	133.51	8.7891E-01
CEPR-144	603.	133.51	1.7560E+00
EU-152	42.	1408.01	7.2998E-01
EU-154	73.	1274.51	5.3697E-01
EU-155	590.	86.54	4.1728E-01
HF-181	494.	482.18	2.6945E-01
TA-182	503.	67.75	5.3848E-01
HG-203	667.	279.20	1.9473E-01
BI-207	318.	569.70	2.0191E-01

Sample ID : WORKLIST685-STD Acquisition date : 12-MAR-1995 22:59:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
TL-208	672.	277.36	2.5105E+00
PB-210	554.	46.50	0.0000E+00
BI-212	255.	727.18	3.2248E+00
PB-212	807.	238.63	3.5733E-01
BI-214	479.	609.31	5.6100E-01
PB-214	670.	351.92	9.4225E-01
RA-224	764.	240.99	3.8588E+00
RA-226	782.	186.10	3.5537E+00
AC-228	455.	911.21	1.3638E+00
TH-228	628.	84.37	1.1639E+01
TH-229	560.	88.47	5.2145E-01
U-232	483.	57.78	2.1233E+02
PA-233	625.	312.17	4.3247E-01
PA-234M	288.	1001.03	1.5515E+01
TH-234	549.	63.29	6.5366E+00
U-235	785.	185.71	2.1642E-01
NP-237	594.	86.48	1.1086E+00
U-237	479.	59.54	1.0453E+00
NP-238	276.	984.45	1.0792E+00
NP-239	570.	106.12	4.6218E-01
PU-239	626.	129.30	1.5568E+03
AM-241	479.	59.54	1.0027E+00
AM-243	647.	74.67	3.2073E-01

WHC-SD-WM-DP-~~080~~ 094, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   13-MAR-1995 11:21:26.28                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                S95T57-BLANK
Sample Size:              1.00000E-03 LI
  lution Factor:          1.00000E+00
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA4
File Number:              NI3BA:~~1.cnf~~ 494767.cnf
Geometry:                 41
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:02.28 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        13-MAR-1995 00:08:43.59
Decayed to:               13-MAR-1995 00:08:43.59
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  MB
Background Subtract:      DKA300:[SPEC.GEA4]4GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       18-APR-1994 11:17:09.37
 Date of last efficiency calibration:   18-APR-1994 11:18:36.88
*****************************************************************************
```

Removed by: MB Brown

date: 3-13-95

B Bachelor 3/13/95

Post-NID Peak Search Report

Tt	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	511.62*	99	2.49	1023.15	1015	19	95.5			
0	1409.17	22	0.76	2818.37	2811	12	109.5			

WHC-SD-WM-DP-~~080~~ REV. 1
Copy

Sample ID : S95T57-BLANK Acquisition date : 13-MAR-1995 00:08:43

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

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

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

WHC-SD-WM-DP-[illegible] REV. 1

Sample ID : S95T57-BLANK Acquisition date : 13-MAR-1995 00:08:43

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
7	147.	477.59	1.1300E-01
NA-22	51.	1274.53	1.5539E-02
NA-24	29.	1368.55	1.2482E-02
K-40	802.	1460.75	6.4070E-01
SC-46	123.	1120.55	2.1980E-02
CR-51	261.	320.08	1.0908E-01
MN-54	86.	834.83	1.4446E-02
CO-56	62.	846.76	1.2442E-02
CO-57	309.	122.06	8.3005E-03
CO-58	78.	810.78	1.3401E-02
FE-59	46.	1099.25	2.3357E-02
CO-60	51.	1332.50	1.5933E-02
ZN-65	75.	1115.55	3.3643E-02
SE-75	331.	264.66	1.8384E-02
KR-85	293.	514.00	4.0817E+00
SR-85	292.	514.01	1.8420E-02
Y-88	19.	1836.06	1.2804E-02
Y-90	21.	1760.70	4.5880E-02
Y-91	52.	1204.67	5.0146E+00
NB-94	70.	871.09	1.3598E-02
NB-95	98.	765.78	1.4050E-02
ZR-95	91.	756.73	2.4523E-02
RU-103	160.	497.08	1.3956E-02
RURH-106	101.	621.93	2.3605E-01
AG-108m	93.	722.94	1.4201E-02
CD-109	299.	88.03	2.6279E-01
[illegible]-110M	106.	657.76	1.3162E-02
113	202.	391.69	1.7591E-02
TE-123m	337.	159.00	8.8989E-03
SB-124	115.	602.73	1.2517E-02
SB-125	198.	427.89	4.1234E-02
TE-125m	276.	109.27	2.5396E+00
I-129	242.	39.60	0.0000E+00
I-131	231.	364.48	1.4053E-02
XE-131m	360.	163.93	3.9937E-01
BA-133	252.	356.02	1.8866E-02
CS-134	121.	604.70	1.2869E-02
CS-136	87.	818.51	1.4228E-02
CS-137	301.	661.66	2.4718E-02
CS-138	32.	1435.86	2.8992E-02
CE-139	333.	165.85	9.4773E-03
BA-140	124.	537.31	4.8794E-02
LA-140	32.	1596.21	1.5550E-02
CE-141	365.	145.44	1.5764E-02
CE-144	327.	133.51	6.4679E-02
CEPR-144	327.	133.51	1.2925E-01
EU-152	50.	1408.01	7.9443E-02
EU-154	52.	1274.51	4.5251E-02
EU-155	318.	86.54	3.0647E-02
HF-181	160.	482.18	1.5342E-02
TA-182	255.	67.75	3.8303E-02

Sample ID : S95T57-BLANK Acquisition date : 13-MAR-1995 00:08:43

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
HG-203	306.	279.20	1.3186E-02
BI-207	128.	569.70	1.2814E-02
TL-208	312.	277.36	1.7100E-01
PB-210	223.	46.50	0.0000E+00
BI-212	113.	727.18	2.1505E-01
PB-212	468.	238.63	2.7199E-02
BI-214	267.	609.31	4.1919E-02
PB-214	338.	351.92	6.6861E-02
RA-224	419.	240.99	2.8582E-01
RA-226	424.	186.10	2.6165E-01
AC-228	183.	911.21	8.6562E-02
TH-228	344.	84.37	8.6203E-01
TH-229	308.	88.47	3.8672E-02
U-232	226.	57.78	1.4529E+01
PA-233	242.	312.17	2.6886E-02
PA-234M	87.	1001.03	8.5150E-01
TH-234	256.	63.29	4.4650E-01
U-235	427.	185.71	1.5959E-02
NP-237	315.	86.48	8.0771E-02
U-237	243.	59.54	7.4421E-02
NP-238	70.	984.45	5.4297E-02
NP-239	258.	106.12	3.1081E-02
PU-239	290.	129.30	1.0600E+02
AM-241	243.	59.54	7.1383E-02
AM-243	324.	74.67	2.2684E-02

WHC-SD-WM-DP-[illegible], REV. 1

****
* 222-S Laboratory Counting Room 13-MAR-1995 02:07:11.36 *
****

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

Sample ID: S95T57-SAMPLE
Sample Size: 1.00000E-03 LI
Dilution Factor: 1.00000E+00
Conversion LI to LI: 1.00000E+00

Removed by: Em Bueller
date: 3-13-95
Bachelor 3/13/95

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

Detector ID: GEA4
File Number: dka300:[spec.GEA4]4g4768.cnf
Geometry: 41
Description:
Count Time: 0 00:50:00.00 sec
Real Time: 0 00:50:14.19 sec

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

Sample Count Time: 13-MAR-1995 01:16:20.17
Decayed to: 13-MAR-1995 01:16:20.17
Standard Deviations: 2
Analysis Library: ENVGEA
Analyst: EMB
Background Subtract: DKA300:[SPEC.GEA4]4GBACK

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

Date of last energy calibration: 18-APR-1994 11:17:09.37
Date of last efficiency calibration: 18-APR-1994 11:18:36.88

****

Post-NID Peak Search Report

TL	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	60.26	717	1.07	120.52	117	8	33.6		AM-241	0.707
0	86.88	1401	1.14	173.75	168	11	24.2		~~NP-237~~	1.37
									EU-155	0.518
									~~CD-109~~	4.58
0	105.98	823	0.91	211.93	208	7	28.0		EU-155	0.360
0	123.74	1771	1.08	247.45	243	10	16.9		EU-154	0.381
0	248.66	225	1.22	497.26	494	7	75.4		EU-154	0.400
0	429.06	333	2.19	858.04	855	8	51.3			
0	601.02	118	1.29	1201.95	1198	8	69.2			
0	662.28*	73811	1.48	1324.46	1316	16	0.8		CS-137	22.6
0	703.31	178	1.86	1406.53	1400	14	39.2			
0	724.53	382	1.53	1448.96	1440	26	31.1			
0	757.74	73	1.32	1515.39	1510	9	56.3		ZR-95	4.049E-02
0	873.22	211	2.11	1746.35	1740	14	31.4		EU-154	0.611
0	996.94	138	1.30	1993.81	1987	12	35.0		EU-154	0.520
0	1005.29	204	1.34	2010.51	2005	10	23.5		EU-154	0.447
0	1173.80*	345	1.91	2347.56	2341	16	18.6		CO-60	0.152
0	1275.08	311	1.58	2550.13	2543	16	19.2		EU-154	0.421
									~~NA-22~~	0.145
0	1333.06	302	2.08	2666.11	2661	11	14.2		CO-60	0.145
0	1764.72*	25	2.42	3529.59	3522	17	113.6			

WHC-SD-WM-DP-~~080~~ 099, REV. 1
3/20/95

Summary of Nuclide Activity
Sample ID : S95T57-SAMPLE

Acquisition date : 13-MAR-1995 01:16:20

Total number of lines in spectrum 18
Number of unidentified lines 0
Number of lines tentatively identified by NID 18 100.00%

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
~~NA-22~~	~~2.60Y~~	~~1.000~~	~~1.449E-01~~	~~1.449E-01~~	~~0.278E-01~~	~~19.21~~	^{154}Eu 3/13/95
CO-60	5.27Y	1.000	1.474E-01	1.474E-01	0.166E-01	11.28	
~~ZR-95~~	~~64.02D~~	~~1.000~~	~~4.048E-02~~	~~4.049E-02~~	~~2.278E-02~~	~~56.25~~	B 3/13/95
~~CD-109~~	~~462.90D~~	~~1.000~~	~~4.577E+00~~	~~4.577E+00~~	~~1.109E+00~~	~~24.23~~	^{155}Eu 3/13/95
CS-137	30.00Y	1.000	2.262E+01	2.262E+01	0.017E+01	0.76	
EU-154	8.59Y	1.000	4.227E-01	4.227E-01	0.500E-01	11.83	
EU-155	4.68Y	1.000	3.603E-01	3.604E-01	1.008E-01	27.98	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~1.371E+00~~	~~1.371E+00~~	~~0.332E+00~~	~~24.23~~	^{155}Eu 3/13/95
AM-241	432.20Y	1.000	7.066E-01	7.066E-01	2.375E-01	33.61	
		Total Activity :	3.040E+01	3.040E+01			

Grand Total Activity : 3.040E+01 3.040E+01

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

WHC-SD-WM-DP-070 REV. 1

Sample ID : S95T57-SAMPLE
Acquisition date : 13-MAR-1995 01:16:20

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
-7	2404.	477.59	4.5761E-01
NA-24	37.	1368.55	1.4148E-02
K-40	843.	1460.75	6.5668E-01
SC-46	161.	1120.55	2.5145E-02
CR-51	2128.	320.08	3.1156E-01
MN-54	136.	834.83	1.8135E-02
CO-56	161.	846.76	2.0006E-02
CO-57	4217.	122.06	3.0660E-02
CO-58	122.	810.78	1.6692E-02
FE-59	106.	1099.25	3.5652E-02
ZN-65	94.	1115.55	3.7703E-02
SE-75	2419.	264.66	4.9731E-02
KR-85	1529.	514.00	9.3208E+00
SR-85	1527.	514.01	4.2126E-02
Y-88	16.	1836.06	1.1772E-02
Y-90	30.	1760.70	5.4947E-02
Y-91	58.	1204.67	5.2966E+00
NB-94	243.	871.09	2.5386E-02
NB-95	142.	765.78	1.6964E-02
RU-103	1519.	497.08	4.3036E-02
RURH-106	530.	621.93	5.3922E-01
AG-108m	465.	722.94	3.1676E-02
AG-110M	692.	657.76	3.3613E-02
SN-113	2184.	391.69	5.7893E-02
TE-123m	3067.	159.00	2.6839E-02
SB-124	660.	602.73	3.0006E-02
SB-125	2659.	427.89	1.5104E-01
-125m	3629.	109.27	9.2086E+00
I-129	2720.	39.60	0.0000E+00
I-131	2098.	364.48	4.2349E-02
XE-131m	3045.	163.93	1.1622E+00
BA-133	2078.	356.02	5.4135E-02
CS-134	579.	604.70	2.8189E-02
CS-136	131.	818.51	1.7505E-02
CS-138	33.	1435.86	2.9169E-02
CE-139	3042.	165.85	2.8629E-02
BA-140	960.	537.31	1.3605E-01
LA-140	38.	1596.21	1.6983E-02
CE-141	3321.	145.44	4.7539E-02
CE-144	3468.	133.51	2.1072E-01
CEPR-144	3468.	133.51	4.2109E-01
EU-152	52.	1408.01	8.0562E-02
HF-181	2019.	482.18	5.4447E-02
TA-182	3430.	67.75	1.4057E-01
HG-203	2336.	279.20	3.6441E-02
BI-207	645.	569.70	2.8782E-02
TL-208	2403.	277.36	4.7484E-01
PB-210	2662.	46.50	0.0000E+00
BI-212	209.	727.18	2.9229E-01
PB-212	2745.	238.63	6.5892E-02
BI-214	743.	609.31	6.9890E-02

Sample ID : S95T57-SAMPLE Acquisition date : 13-MAR-1995 01:16:20

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
PB-214	2271.	351.92	1.7376E-01
RA-224	2759.	240.99	7.3344E-01
RA-226	3374.	186.10	7.3841E-01
AC-228	211.	911.21	9.2750E-02
TH-228	3941.	84.37	2.9166E+00
TH-229	4586.	88.47	1.4922E-01
U-232	3056.	57.78	5.3400E+01
PA-233	2104.	312.17	7.9352E-02
PA-234M	113.	1001.03	9.7483E-01
TH-234	3270.	63.29	1.5951E+00
U-235	3368.	185.71	4.4837E-02
U-237	3725.	59.54	2.9148E-01
NP-238	98.	984.45	6.4417E-02
NP-239	4562.	106.12	1.3072E-01
PU-239	3491.	129.30	3.6760E+02
AM-243	3831.	74.67	7.8061E-02

WHC-SD-WM-DP [illegible], REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   13-MAR-1995 03:03:59.57                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Sample ID:                S95T57-DUP
Sample Size:              1.00000E-03 LI
  ution Factor:           1.00000E+00
Conversion LI to LI:      1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:              GEA4
File Number:              dka300:[spec.GEA4]4g4769.cnf
Geometry:                 41
Description:
Count Time:               0 00:50:00.00 sec
Real Time:                0 00:50:16.15 sec

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:        13-MAR-1995 02:13:05.07
Decayed to:               13-MAR-1995 02:13:05.07
Standard Deviations:      2
Analysis Library:         ENVGEA
Analyst:                  EMB
Background Subtract:      DKA300:[SPEC.GEA4]4GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       18-APR-1994 11:17:09.37
 Date of last efficiency calibration:   18-APR-1994 11:18:36.88
*****************************************************************************
```

Removed by: Em Baeler

date: 3-13-95

Bachelor 3/13/95

Post-NID Peak Search Report

T+	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	27.43	318	1.25	54.86	53	6	60.5			
0	60.01	772	1.05	120.02	117	8	33.9		AM-241	0.761
0	87.11	1327	1.13	174.20	170	8	21.6		~~NP-237~~	1.30
									EU-155	0.490
									~~CD-109~~	4.34
0	106.04	1137	1.19	212.05	208	9	26.5		EU-155	0.498
0	123.71	2359	1.17	247.40	243	9	12.5		EU-154	0.508
0	248.99	315	1.40	497.92	495	7	58.0		EU-154	0.560
0	428.84	273	1.08	857.61	854	9	75.0			
0	601.31	218	2.20	1202.53	1198	10	46.1			
0	636.82	132	2.80	1273.55	1267	12	83.6			
0	662.29*	85521	1.47	1324.49	1317	15	0.7		CS-137	26.2
0	703.22	120	1.18	1406.33	1400	12	54.6			
0	723.76	392	1.43	1447.42	1442	12	17.2		EU-154	0.562
0	873.46	340	3.03	1746.82	1739	19	23.5			
0	996.84	135	1.47	1993.60	1987	14	40.1		EU-154	0.510
0	1005.31	264	1.64	2010.54	2002	14	23.6		EU-154	0.580
0	1173.75*	329	1.90	2347.46	2340	14	17.8		CO-60	0.145
0	1275.14	410	1.74	2550.25	2543	14	13.8		EU-154	0.555
									~~NA-22~~	0.191
0	1333.15	325	1.99	2666.30	2657	20	18.1		CO-60	0.156

WHC-SD-WM-DP-080, REV. 1

Sample ID : S95T57-DUP Acquisition date : 13-MAR-1995 02:13:05

Total number of lines in spectrum	18	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	17	94.44%

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~~	~~1.909E-01~~	~~1.909E-01~~	~~0.264E-01~~	~~13.84~~	154Eu 3/13/95
CO-60	5.27Y	1.000	1.501E-01	1.501E-01	0.191E-01	12.71	
~~CD-109~~	~~462.90D~~	~~1.000~~	~~4.335E+00~~	~~4.336E+00~~	~~0.935E+00~~	~~21.57~~	155Eu 3/13/95
CS-137	30.00Y	1.000	2.621E+01	2.621E+01	0.018E+01	0.70	
EU-154	8.59Y	1.000	5.309E-01	5.309E-01	0.477E-01	8.98	
EU-155	4.68Y	1.000	4.977E-01	4.977E-01	1.321E-01	26.54	
~~NP-237~~	~~2.14E+06Y~~	~~1.000~~	~~1.298E+00~~	~~1.298E+00~~	~~0.280E+00~~	~~21.57~~	155Eu 3/13/95
AM-241	432.20Y	1.000	7.605E-01	7.605E-01	2.580E-01	33.92	
		Total Activity :	3.398E+01	3.398E+01			

Grand Total Activity : 3.398E+01 3.398E+01

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

WHC-CD-WM-DP-080, REV 1

Minimum Detectable Activity Report
Sample ID : S95T57-DUP

Acquisition date : 13-MAR-1995 02:13:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
-7	2813.	477.59	4.9507E-01
NA-24	37.	1368.55	1.4141E-02
K-40	824.	1460.75	6.4910E-01
SC-46	138.	1120.55	2.3287E-02
CR-51	2437.	320.08	3.3338E-01
MN-54	134.	834.83	1.7979E-02
CO-56	117.	846.76	1.7108E-02
CO-57	5079.	122.06	3.3651E-02
CO-58	159.	810.78	1.9113E-02
FE-59	99.	1099.25	3.4422E-02
ZN-65	91.	1115.55	3.7181E-02
SE-75	2670.	264.66	5.2251E-02
KR-85	1630.	514.00	9.6259E+00
SR-85	1630.	514.01	4.3517E-02
Y-88	15.	1836.06	1.1541E-02
Y-90	25.	1760.70	5.0125E-02
Y-91	78.	1204.67	6.1507E+00
NB-94	301.	871.09	2.8284E-02
NB-95	162.	765.78	1.8116E-02
ZR-95	233.	756.73	3.9226E-02
RU-103	1764.	497.08	4.6377E-02
RURH-106	610.	621.93	5.7846E-01
AG-108m	524.	722.94	3.3648E-02
AG-110M	857.	657.76	3.7398E-02
SN-113	2507.	391.69	6.2017E-02
TE-123m	3545.	159.00	2.8852E-02
SB-124	742.	602.73	3.1814E-02
-125	3004.	427.89	1.6054E-01
TE-125m	4383.	109.27	1.0121E+01
I-129	3202.	39.60	0.0000E+00
I-131	2390.	364.48	4.5204E-02
XE-131m	3486.	163.93	1.2433E+00
BA-133	2441.	356.02	5.8673E-02
CS-134	613.	604.70	2.9009E-02
CS-136	148.	818.51	1.8604E-02
CS-138	39.	1435.86	3.1836E-02
CE-139	3355.	165.85	3.0065E-02
BA-140	1072.	537.31	1.4376E-01
LA-140	44.	1596.21	1.8227E-02
CE-141	3719.	145.44	5.0304E-02
CE-144	3821.	133.51	2.2119E-01
CEPR-144	3821.	133.51	4.4202E-01
EU-152	69.	1408.01	9.3372E-02
HF-181	2291.	482.18	5.8005E-02
TA-182	3957.	67.75	1.5097E-01
HG-203	2568.	279.20	3.8208E-02
BI-207	734.	569.70	3.0692E-02
TL-208	2639.	277.36	4.9756E-01
PB-210	3040.	46.50	0.0000E+00
BI-212	206.	727.18	2.8993E-01
PB-212	3174.	238.63	7.0857E-02

Sample ID : S95T57-DUP Acquisition date : 13-MAR-1995 02:13:05

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BI-214	841.	609.31	7.4354E-02
PB-214	2527.	351.92	1.8338E-01
RA-224	3040.	240.99	7.6995E-01
RA-226	3785.	186.10	7.8202E-01
AC-228	233.	911.21	9.7638E-02
TH-228	4567.	84.37	3.1397E+00
TH-229	5429.	88.47	1.6236E-01
U-232	3603.	57.78	5.7987E+01
PA-233	2453.	312.17	8.5667E-02
PA-234M	133.	1001.03	1.0579E+00
TH-234	3787.	63.29	1.7166E+00
U-235	3785.	185.71	4.7529E-02
U-237	4430.	59.54	3.1787E-01
NP-238	112.	984.45	6.8651E-02
NP-239	5459.	106.12	1.4301E-01
PU-239	4021.	129.30	3.9454E+02
AM-243	4283.	74.67	8.2533E-02

WHC-SD-WM-DP-080 REV 1
099 9/12/95

LABCORE Data Entry Template for Worklist# 670

Analyst: AKL **Instrument:** AB00 12 **Book #** 51B52

Method: LA-220-101 Rev/Mod 0-1 WHC-SD-WM-DP-099, REV. 1

Worklist Comment: Run under RWP 268. Use .100-10-.100 mL sample mount. 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
94000012	C-103	4	SAMPLE	S95T000055	0	F	@SR90-01	SR90-01	SOLID	N/A			uCi/g
94000012	C-103	4	SAMPLE	S95T000055	0	F	@SR90-01	SR90-01C	SOLID	N/A			% Recovery
94000012	C-103	4	SAMPLE	S95T000055	0	F	@SR90-01	SR90-01E	SOLID	N/A			% Ct. Error
94000012	C-103	5	DUP	S95T000055	0	F	@SR90-01	SR90-01	SOLID			N/A	uCi/g
94000012	C-103	5	DUP	S95T000055	0	F	@SR90-01	SR90-01C	SOLID			N/A	% Recovery
94000012	C-103	5	DUP	S95T000055	0	F	@SR90-01	SR90-01E	SOLID			N/A	% Ct. Error
94000012	C-103	6	SAMPLE	S95T000056	0	F	@SR90-01	SR90-01	SOLID	N/A			uCi/g
94000012	C-103	6	SAMPLE	S95T000056	0	F	@SR90-01	SR90-01C	SOLID	N/A			% Recovery
94000012	C-103	6	SAMPLE	S95T000056	0	F	@SR90-01	SR90-01E	SOLID	N/A			% Ct. Error
94000012	C-103	7	DUP	S95T000056	0	F	@SR90-01	SR90-01	SOLID			N/A	uCi/g
94000012	C-103	7	DUP	S95T000056	0	F	@SR90-01	SR90-01C	SOLID			N/A	% Recovery

Data Entry Comments: The RPD for sample 55 out of control limits. The sample will be rerun [illegible] 3-14-95

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# 670

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
94000012	C-103	7 DUP	S95T000056	0	F	@SR90-01 SR90-01E	SOLID	_____	_____	N/A	% Ct. Error

Final page for worklist # 670

Alita Lewis
Analyst Signature **Date**

M G Bruce 3-10-95
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.

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
RADCHEM ANALYTICAL BATCH AND SUMMARY SHEET
STRONTIUM-SOLIDS ERR

TEST CODE:	@SR90-01	SAMPLE POINT:	0
INSTRUMENT:	WB27811	SAMPLE PREP:	0
ANALYST:	AK LEWIS	BATCH ID:	0
		ANALYSIS DATE:	March 10, 1995

		UNITS:	µCi/g						
SAMPLE TYPE	SAMPLE NO.	ANALYTE	RESULT #1	DUPLICATE	AVERAGE	RPD%	% REC	DET LIM	%CT ER
STANDARD *	51B52	Sr-90	1.00E-03				90.8%	2.84E-06	2.1%
BLANK	S95T55	Sr-90	< 1.43E+00					2.04E+00	369.8%
SAMPLE 1	S95T55	Sr-90	5.67E+03	8.72E+03	7.19E+03	42.5%		1.82E+00	0.7%
DUPLICATE 1	S95T55	Sr-90						2.65E+00	0.7%
SAMPLE 2	S95T56	Sr-90	6.99E+03	6.52E+03	6.76E+03	7.0%		2.39E+00	0.7%
DUPLICATE 2	S95T56	Sr-90						2.56E+00	0.8%
STANDARD END									
	STD ID:	STD VOL.:							
STANDARD	0	1.000							

NARRATIVE: Analyst Comments:

Chemist Comments:

DETECTION LIMITS ARE ADJUSTED FOR DIFFERENT SAMPLE SIZES.
* RESULTS FOR STANDARDS ARE IN µCi/mL

Form Completed By:	MC BIERMAN	Signature:	[signature]	Date:	03/10/95
Chemist Approval:	SL FITZGERALD	Signature:	[signature]	Date:	3/10/95

Revision 2.1

WHC-SD-WM-DP-099, REV. 1

LAB LEADER INFO:

Method:	LA220-101(D-1)
Test Code	@SR90-01
Matrix:	SOLID
Work List #	670
Batch #	
Prepared By:	MC BIERMAN
Date Complete:	03/10/95
Time Complete:	09:00
Chemist:	SL FITZGERALD
Analyst:	AK LEWIS
Analysis Date:	03/09/95
Detector Number:	12
Instrument Code:	WB27811
Rerun:	
Sample Prep:	
Sample Point:	
Book Number:	

Sample Type	Sample #
STANDARD	51B52
BLANK	S95T55
SAMPLE 1	S95T55
DUPLICATE 1	S95T55
SAMPLE 2	S95T56
DUPLICATE 2	S95T56
ST-END	

PRINT

TECH INFO:

Liquids Standard Run

INPUT	
TOTAL COUNTS	9090
COUNT TIME in MINUTES	10
BACKGROUND in cpm	4
SAMPLE VOLUME in mL	1
DILUTION FACTOR	1
DIGEST DILUTION FACTOR	1
SEPARATION TIME	13:05
SEPARATION DATE	03/09/95
TIME OF COUNT	15:20
DATE OF COUNT	03/09/95
CARRIER ADDED in mL	1
GROSS WEIGHT	8.0349
TARE WEIGHT	7.9404
STANDARD VALUE	1.107

RESULT	
SAMPLE COUNT RATE	9.05E+02
CRITICAL LEVEL	1.23E+00
NET WEIGHT	0.0945
DELTA TIME (hours)	2.25
SR-90 EFFICIENCY FACTOR	0.42
Y-90 EFFICIENCY FACTOR	0.47
Rmax	N/A
DETECTION LIMIT	2.56
Sr-89/90 CONC in µCi/mL	1.00E-03
Relative Counting Error	2.1%
Percent Carrier Recovery	94.5%

Solid-Blank Run:

INPUT	
TOTAL COUNTS	47
COUNT TIME in MINUTES	10
BACKGROUND in cpm	4
SAMPLE VOLUME in mL	0.3
DILUTION FACTOR	101
DIGEST FACTOR (g/L)	0.468
SEPARATION TIME	13:05
SEPARATION DATE	03/09/95
TIME OF COUNT	15:30
DATE OF COUNT	03/09/95
CARRIER ADDED in mL	1
GROSS WEIGHT	8.1107
TARE WEIGHT	8.0163

RESULT	
SAMPLE COUNT RATE	5.00E-01
CRITICAL LEVEL	1.23E+00
NET WEIGHT	0.0944
DELTA TIME (hours)	2.42
SR-90 EFFICIENCY FACTOR	0.42
Y-90 EFFICIENCY FACTOR	0.47
Rmax	1.79
DETECTION LIMIT	2.56
Sr-89/90 CONC in µCi/g	< 1.43E+00
Relative Counting Error	369.8%
Percent Carrier Recovery	94.4%

Solid-Sample Run 2:

INPUT	
TOTAL COUNTS	74970
COUNT TIME in MINUTES	10
BACKGROUND in cpm	4
SAMPLE VOLUME in mL	0.3
DILUTION FACTOR	101
DIGEST FACTOR (g/L)	0.404
SEPARATION TIME	13:10
SEPARATION DATE	03/09/95
TIME OF COUNT	16:11
DATE OF COUNT	03/09/95
CARRIER ADDED in mL	1
GROSS WEIGHT	7.7197
TARE WEIGHT	7.6268

RESULT	
SAMPLE COUNT RATE	7.49E+03
CRITICAL LEVEL	1.23E+00
NET WEIGHT	0.0929
DELTA TIME (hours)	3.02
SR-90 EFFICIENCY FACTOR	0.42
Y-90 EFFICIENCY FACTOR	0.47
Rmax	N/A
DETECTION LIMIT	2.56
Sr-89/90 CONC in µCi/g	6.99E+03
Relative Counting Error	0.7%
Percent Carrier Recovery	92.9%

Solid-Duplicate Run 2:

INPUT	
TOTAL COUNTS	65302
COUNT TIME in MINUTES	10
BACKGROUND in cpm	4
SAMPLE VOLUME in mL	0.3
DILUTION FACTOR	101
DIGEST FACTOR (g/L)	0.376
SEPARATION TIME	13:10
SEPARATION DATE	03/09/95
TIME OF COUNT	16:23
DATE OF COUNT	03/09/95
CARRIER ADDED in mL	1
GROSS WEIGHT	8.0256
TARE WEIGHT	7.9326

RESULT	
SAMPLE COUNT RATE	6.53E+03
CRITICAL LEVEL	1.23E+00
NET WEIGHT	0.0930
DELTA TIME (hours)	3.22
SR-90 EFFICIENCY FACTOR	0.42
Y-90 EFFICIENCY FACTOR	0.47
Rmax	N/A
DETECTION LIMIT	2.56
Sr-89/90 CONC in µCi/g	6.52E+03
Relative Counting Error	0.8%
Percent Carrier Recovery	93.0%

Solid-Sample Run:

INPUT	
TOTAL COUNTS	79880
COUNT TIME in MINUTES	10
BACKGROUND in cpm	4
SAMPLE VOLUME in mL	0.3
DILUTION FACTOR	101
DIGEST FACTOR (g/L)	0.468
SEPARATION TIME	13:05
SEPARATION DATE	03/09/95
TIME OF COUNT	15:45
DATE OF COUNT	03/09/95
CARRIER ADDED in mL	1
GROSS WEIGHT	7.8253
TARE WEIGHT	7.7194

RESULT	
SAMPLE COUNT RATE	7.98E+03
CRITICAL LEVEL	1.23E+00
NET WEIGHT	0.1059
DELTA TIME (hours)	2.67
SR-90 EFFICIENCY FACTOR	0.42
Y-90 EFFICIENCY FACTOR	0.47
Rmax	N/A
DETECTION LIMIT	2.56
Sr-89/90 CONC in µCi/g	5.67E+03
Relative Counting Error	0.7%
Percent Carrier Recovery	105.9%

Solid-Duplicate Run:

INPUT	
TOTAL COUNTS	84423
COUNT TIME in MINUTES	10
BACKGROUND in cpm	4
SAMPLE VOLUME in mL	0.3
DILUTION FACTOR	101
DIGEST FACTOR (g/L)	0.364
SEPARATION TIME	13:05
SEPARATION DATE	03/09/95
TIME OF COUNT	16:00
DATE OF COUNT	03/09/95
CARRIER ADDED in mL	1
GROSS WEIGHT	7.7695
TARE WEIGHT	7.6763

RESULT	
SAMPLE COUNT RATE	8.44E+03
CRITICAL LEVEL	1.23E+00
NET WEIGHT	0.0932
DELTA TIME (hours)	2.92
SR-90 EFFICIENCY FACTOR	0.42
Y-90 EFFICIENCY FACTOR	0.47
Rmax	N/A
DETECTION LIMIT	2.56
Sr-89/90 CONC in µCi/g	8.72E+03
Relative Counting Error	0.7%
Percent Carrier Recovery	93.2%

Liquids Standard End

INPUT	
TOTAL COUNTS	
COUNT TIME in MINUTES	
BACKGROUND in cpm	
SAMPLE VOLUME in mL	
DILUTION FACTOR	
DIGEST DILUTION FACTOR	
SEPARATION TIME	
SEPARATION DATE	
TIME OF COUNT	
DATE OF COUNT	
CARRIER ADDED in mL	
GROSS WEIGHT	
TARE WEIGHT	
STANDARD VALUE	

RESULT	
SAMPLE COUNT RATE	
CRITICAL LEVEL	
NET WEIGHT	
DELTA TIME (hours)	
SR-90 EFFICIENCY FACTOR	
Y-90 EFFICIENCY FACTOR	
Rmax	
DETECTION LIMIT	
Sr-89/90 CONC in µCi/mL	
Relative Counting Error	
Percent Carrier Recovery	

752

WHC-SD-WM-DP-099, REV. 1

Form Completed By:	MC BIERMAN	Signature:	Date:	10-Mar-95
Chemist Approval:	SL FITZGERALD	Signature:	Date:	3/10/95

Revision 2.1

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

Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA		STANDARD 1.000
STANDARD	TOTAL COUNTS	(TC)	9090	GROSS WEIGHT	(W2)		8.0349
Work Unit	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.9404
670	BACKGROUND in cpm	(BKG)	4.2	NET WEIGHT	(W3)		0.0945
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		2.25
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	904.80	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Sample #	CRITICAL LEVEL	(Lc)	1.23	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
51852	SEPARATION TIME	(ST)	13:05	Rmax			N/A
Instrument Code	SEPARATION DATE	(SD)	03/09/95	DETECTION LIMIT	(Ld)		2.56
WB27811	TIME OF COUNT	(TOC)	15:20	Sr-89/90 CONC. in µCi/L =			1.0049E+00
Analyst	DATE OF COUNT	(DOC)	03/09/95				
AK LEWIS							
Date							
03/10/95							
Time							
09:00							

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

v RESULTS v

Sr-89/90 CONCENTRATION =	1.00E-03	µCi/mL
RELATIVE COUNTING ERROR =	2.1%	
PERCENT CARRIER RECOVERY =	94.5%	

DETECTION LEVEL
2.84E-06 µCi/L

Data Entry by:	MC BIERMAN		Date:	10-Mar-95
Approved by:	SL FITZGERALD		Date:	3/10/95

Form WB Rev. 2.1 220-10n_WB

WHC-SD-WM-DP-099, REV. 1

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

							BLANK
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA		1.000
BLANK	TOTAL COUNTS	(TC)	47	GROSS WEIGHT	(W2)		8.1107
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		8.0163
870	BACKGROUND in cpm	(BKG)	4.2	NET WEIGHT	(W3)		0.0944
Test Code	SAMPLE VOLUME in mL	(SS)	0.300	DELTA TIME (HOURS)	(DT)		2.42
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	DDF	0.468				
SOLID	SAMPLE COUNT RATE	(Rs)	0.50	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Sample #	CRITICAL LEVEL	(Lc)	1.23	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
S95T55	SEPARATION TIME	(ST)	13:05	Rmax			1.79
Instrument Code	SEPARATION DATE	(SD)	03/09/95	DETECTION LIMIT	(Ld)		2.56
WB27811	TIME OF COUNT	(TOC)	15:30	Sr-89/90 CONC in µCi/g		<	1.4279E+00
Analyst	DATE OF COUNT	(DOC)	03/09/95				
AK LEWIS							
Date							
03/10/95							
Time							
09:00							

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 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

v RESULTS v

Sr-89/90 CONCENTRATION =	< 1.43E+00	µCi/g

LESS THAN Value was Determined from Rmax.

RELATIVE COUNTING ERROR =	369.8%
PERCENT CARRIER RECOVERY =	94.4%

DETECTION LEVEL

2.04E+00 µCi/g

Data Entry by:	MC BIERMAN		Date:	10-Mar-95
Approved by:	SL FITZGERALD		Date:	5/10/95

Form WB Rev. 2.1 220-10n_WB

WHC-SD-WM-DP-099, REV. 1

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)	SAMPLE 1.000
SAMPLE	TOTAL COUNTS	(TC)	79880	GROSS WEIGHT	(W2)	7.8253
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.7194
670	BACKGROUND in cpm	(BKG)	4.2	NET WEIGHT	(W3)	0.1059
Test Code	SAMPLE VOLUME in mL	(SS)	0.300	DELTA TIME (HOURS)	(DT)	2.67
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST FACTOR (g/L)	DDF	0.468			
SOLID	SAMPLE COUNT RATE	(Rs)	7983.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Sample #	CRITICAL LEVEL	(Lc)	1.23	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
S95T55	SEPARATION TIME	(ST)	13:05	Rmax		N/A
Instrument Code	SEPARATION DATE	(SD)	03/09/95	DETECTION LIMIT	(Ld)	2.56
WB27811	TIME OF COUNT	(TOC)	15:45	Sr-89/90 CONC in µCi/g		5.6651E+03
Analyst	DATE OF COUNT	(DOC)	03/09/95			
AK LEWIS						
Date						
03/10/95						
Time						
09:00						

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

v RESULTS v

Sr-89/90 CONCENTRATION =	5.67E+03	µCi/g
RELATIVE COUNTING ERROR =	0.7%	
PERCENT CARRIER RECOVERY =	105.9%	

DETECTION LEVEL

1.82E-00 µCi/g

Data Entry by:	MC BIERMAN	Date:	10-Mar-95
Approved by:	SL FITZGERALD	Date:	3/10/95

Form WB Rev. 2.1 220-10n_WB Page 1 of 1

WHC-SD-WM-DP-099, REV. 1

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

							DUPLICATE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA		1.000
DUPLICATE	TOTAL COUNTS	(TC)	84423	GROSS WEIGHT	(W2)		7.7695
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.6763
670	BACKGROUND in cpm	(BKG)	4.2	NET WEIGHT	(W3)		0.0932
Test Code	SAMPLE VOLUME in mL	(SS)	0.300	DELTA TIME (HOURS)	(DT)		2.92
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	DDF	0.364				
SOLID	SAMPLE COUNT RATE	(Rs)	8438.10	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Sample #	CRITICAL LEVEL	(Lc)	1.23	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
S95T55	SEPARATION TIME	(ST)	13:05	Rmax			N/A
Instrument Code	SEPARATION DATE	(SD)	03/09/95	DETECTION LIMIT	(Ld)		2.56
WB27811	TIME OF COUNT	(TOC)	16:00	Sr-89/90 CONC in µCi/g			8.7225E+03
Analyst	DATE OF COUNT	(DOC)	03/09/95				
AK LEWIS							
Date							
03/10/95							
Time							
09:00							

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

v RESULTS v

Sr-89/90 CONCENTRATION	=	8.72E+03	µCi/g
RELATIVE COUNTING ERROR	=	0.7%	
PERCENT CARRIER RECOVERY	=	93.2%	

DETECTION LEVEL

2.65E+00 µCi/g

Data Entry by:	MC BIERMAN	Date:	10-Mar-95
Approved by:	SL FITZGERALD	Date:	3/10/95

Form WB Rev. 2.1 220-10n_WB Page 1 of 1

WHC-SD-WM-DP-099, REV. 1

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)	SAMPLE 1.000
SAMPLE	TOTAL COUNTS	(TC)	74970	GROSS WEIGHT	(W2)	7.7197
Work Unit	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.6268
670	BACKGROUND in cpm	(BKG)	4.2	NET WEIGHT	(W3)	0.0929
Test Code	SAMPLE VOLUME in mL	(SS)	0.300	DELTA TIME (HOURS)	(DT)	3.02
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	DDF	0.404			
SOLID	SAMPLE COUNT RATE	(Rs)	7492.80	SR-90 EFFICIENCY FACTO	(C1)	0.4180
Sample #	CRITICAL LEVEL	(Lc)	1.23	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
S95T56	SEPARATION TIME	(ST)	13:10	Rmax		N/A
Instrument Code	SEPARATION DATE	(SD)	03/09/95	DETECTION LIMIT	(Ld)	2.56
WB27811	TIME OF COUNT	(TOC)	16:11	Sr-89/90 CONC in µCi/g		6.9932E+03
Analyst	DATE OF COUNT	(DOC)	03/09/95			
AK LEWIS						
Date						
03/10/95						
Time						
09:00						

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

v RESULTS v

Sr-89/90 CONCENTRATION	=	6.99E+03	µCi/g
RELATIVE COUNTING ERROR	=	0.7%	
PERCENT CARRIER RECOVERY	=	92.9%	

DETECTION LEVEL

2.39E+00 µCi/g

Data Entry by:	MC BIERMAN		Date:	10-Mar-95
Approved by:	SL FITZGERALD		Date:	3/10/95

Form WB Rev. 2.1 220-10n_WB Page 1 of 1

WHC-SD-WM-DP-099, REV. 1

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

							DUPLICATE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA		1.000
DUPLICATE	TOTAL COUNTS	(TC)	65302	GROSS WEIGHT	(W2)		8.0256
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.9326
670	BACKGROUND in cpm	(BKG)	4.2	NET WEIGHT	(W3)		0.0930
Test Code	SAMPLE VOLUME in mL	(SS)	0.300	DELTA TIME (HOURS)	(DT)		3.22
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(Dg/L)	0.376				
SOLID	SAMPLE COUNT RATE	(Rs)	6526.00	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Sample #	CRITICAL LEVEL	(Lc)	1.23	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
S95T56	SEPARATION TIME	(ST)	13:10	Rmax			N/A
Instrument Code	SEPARATION DATE	(SD)	03/09/95	DETECTION LIMIT	(Ld)		2.56
WB27811	TIME OF COUNT	(TOC)	16:23	Sr-89/90 CONC in µCi/g			6.5227E+03
Analyst	DATE OF COUNT	(DOC)	03/09/95				
AK LEWIS							
Date							
03/10/95							
Time							
09:00							

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

v RESULTS v

Sr-89/90 CONCENTRATION	=	6.52E+03	µCi/g
RELATIVE COUNTING ERROR	=	0.8%	
PERCENT CARRIER RECOVERY	=	93.0%	

DETECTION LEVEL

2.56E+00 µCi/g

Data Entry by:	MC BIERMAN	MC Bierman	Date:	10-Mar-95
Approved by:	SL FITZGERALD	SL Fitzgerald	Date:	3/10/95

Form WB Rev. 2.1 220-10n_WB Page 1 of 1

WHC-SD-WM-DP-099, REV. 1

LABCORE Data Entry Template for Worklist# 671

Analyst: AKL **Instrument:** AB00 12 **Book #** 5B52

Method: LA-220-101 Rev/Mod D-1 WHC-SD-WM-DP-079, REV 1

Worklist Comment: Run under RWP 268. Use .100-10-1.0 mL sample mount. 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
94000012	C-103	4	SAMPLE	S95T000057	0	F	@SR90-01 SR90-01	SOLID	N/A			uCi/g
94000012	C-103	4	SAMPLE	S95T000057	0	F	@SR90-01 SR90-01C	SOLID	N/A			% Recovery
94000012	C-103	4	SAMPLE	S95T000057	0	F	@SR90-01 SR90-01E	SOLID	N/A			% Ct. Error
94000012	C-103	5	DUP	S95T000057	0	F	@SR90-01 SR90-01	SOLID			N/A	uCi/g
94000012	C-103	5	DUP	S95T000057	0	F	@SR90-01 SR90-01C	SOLID			N/A	% Recovery
94000012	C-103	5	DUP	S95T000057	0	F	@SR90-01 SR90-01E	SOLID			N/A	% Ct. Error

Final page for worklist # 671

G Fenis 3-8-95
Analyst Signature **Date**

M B Brown 3-9-95
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.

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
RADCHEM ANALYTICAL BATCH AND SUMMARY SHEET
STRONTIUM-SOLIDS ERR

TEST CODE:	@SR90-01	SAMPLE POINT:	0
INSTRUMENT:	WB27811	SAMPLE PREP:	0
ANALYST:	AK LEWIS	BATCH ID:	0
		ANALYSIS DATE:	March 9, 1995

		UNITS:	µCi/g						
SAMPLE TYPE	SAMPLE NO.	ANALYTE	RESULT #1	DUPLICATE	AVERAGE	RPD%	% REC	DET LIM	%CT ER
STANDARD *	51B52	Sr-90	9.95E-04				89.9%	2.61E-06	2.1%
BLANK	S95T57	Sr-90	6.35E-01					6.56E-01	83.1%
SAMPLE 1	S95T57	Sr-90	5.73E+02	6.18E+02	5.95E+02	7.7%		6.39E-01	1.3%
DUPLICATE 1	S95T57	Sr-90						5.87E-01	1.2%
SAMPLE 2					N/A	N/A			
STANDARD END									
	STD ID:	STD VOL.:							
STANDARD		1.000							

NARRATIVE: Analyst Comments:

Chemist Comments:

DETECTION LIMITS ARE ADJUSTED FOR DIFFERENT SAMPLE SIZES.
* RESULTS FOR STANDARDS ARE IN µCi/mL

Form Completed By:	MC BIERMAN	Signature:		Date:	03/09/95
Chemist Approval:	SL FITZGERALD	Signature:		Date:	3/10/95

Revision 2.1

WHC-SD-WM-DP-009, REV. 1

LAB LE	INFO:
Method:	LA 220-101(D-1)
Test Code	@SR90-01
Matrix:	SOLID
Work List #	671
Batch #	
Prepared By:	MC BIERMAN
Date Complete:	03/09/95
Time Complete:	11:00
Chemist:	SL FITZGERALD
Analyst:	AK LEWIS
Analysis Date:	03/08/95
Detector Number:	12
Instrument Code:	WB27811
Rerun:	
Sample Prep:	
Sample Point:	
Book Number:	

Sample Type	Sample #
STANDARD	51B52
BLANK	895T57
SAMPLE 1	895T57
DUPLICATE 1	895T57
SAMPLE 2	
DUPLICATE 2	
ST-END	

PRINT

TECH INFO:

Liquids Standard Run

INPUT	
TOTAL COUNTS	9083
COUNT TIME in MINUTES	10
BACKGROUND in cpm	4
SAMPLE VOLUME in mL	1
DILUTION FACTOR	1
DIGEST DILUTION FACTOR	1
SEPARATION TIME	15:00
SEPARATION DATE	03/08/95
TIME OF COUNT	17:50
DATE OF COUNT	03/08/95
CARRIER ADDED in mL	1
GROSS WEIGHT	7.9885
TARE WEIGHT	7.8937
STANDARD VALUE	1.107

RESULT	
SAMPLE COUNT RATE	9.05E+02
CRITICAL LEVEL	1.14E+00
NET WEIGHT	0.0948
DELTA TIME (hours)	2.83
SR-90 EFFICIENCY FACTOR	0.42
Y-90 EFFICIENCY FACTOR	0.47
Rmax	N/A
DETECTION LIMIT	2.38
Sr-89/90 CONC in µCi/mL	9.95E-04
Relative Counting Error	2.1%
Percent Carrier Recovery	94.8%

Solid-Blank Run:

INPUT	
TOTAL COUNTS	59
COUNT TIME in MINUTES	10
BACKGROUND in cpm	4
SAMPLE VOLUME in mL	1
DILUTION FACTOR	101
DIGEST FACTOR (g/L)	0.408
SEPARATION TIME	15:00
SEPARATION DATE	03/08/95
TIME OF COUNT	18:10
DATE OF COUNT	03/08/95
CARRIER ADDED in mL	1
GROSS WEIGHT	8.0347
TARE WEIGHT	7.9415

RESULT	
SAMPLE COUNT RATE	2.30E+00
CRITICAL LEVEL	1.14E+00
NET WEIGHT	0.0932
DELTA TIME (hours)	3.17
SR-90 EFFICIENCY FACTOR	0.42
Y-90 EFFICIENCY FACTOR	0.47
Rmax	N/A
DETECTION LIMIT	2.38
Sr-89/90 CONC in µCi/g	6.35E-01
Relative Counting Error	83.1%
Percent Carrier Recovery	93.2%

Solid-Sample Run 2:

INPUT	
TOTAL COUNTS	
COUNT TIME in MINUTES	
BACKGROUND in cpm	
SAMPLE VOLUME in mL	
DILUTION FACTOR	
DIGEST FACTOR (g/L)	
SEPARATION TIME	
SEPARATION DATE	
TIME OF COUNT	
DATE OF COUNT	
CARRIER ADDED in mL	
GROSS WEIGHT	
TARE WEIGHT	

RESULT	
SAMPLE COUNT RATE	
CRITICAL LEVEL	
NET WEIGHT	
DELTA TIME (hours)	
SR-90 EFFICIENCY FACTOR	
Y-90 EFFICIENCY FACTOR	
Rmax	
DETECTION LIMIT	
Sr-89/90 CONC in µCi/g	
Relative Counting Error	
Percent Carrier Recovery	

Solid-Duplicate Run 2.

INPUT	
TOTAL COUNTS	
COUNT TIME in MINUTES	
BACKGROUND in cpm	
SAMPLE VOLUME in mL	
DILUTION FACTOR	
DIGEST FACTOR (g/L)	
SEPARATION TIME	
SEPARATION DATE	
TIME OF COUNT	
DATE OF COUNT	
CARRIER ADDED in mL	
GROSS WEIGHT	
TARE WEIGHT	

RESULT	
SAMPLE COUNT RATE	
CRITICAL LEVEL	
NET WEIGHT	
DELTA TIME (hours)	
SR-90 EFFICIENCY FACTOR	
Y-90 EFFICIENCY FACTOR	
Rmax	
DETECTION LIMIT	
Sr-89/90 CONC in µCi/g	
Relative Counting Error	
Percent Carrier Recovery	

Solid-Sample Run:

INPUT	
TOTAL COUNTS	21331
COUNT TIME in MINUTES	10
BACKGROUND in cpm	4
SAMPLE VOLUME in mL	1
DILUTION FACTOR	101
DIGEST FACTOR (g/L)	0.408
SEPARATION TIME	15:00
SEPARATION DATE	03/08/95
TIME OF COUNT	18:40
DATE OF COUNT	03/08/95
CARRIER ADDED in mL	1
GROSS WEIGHT	7.7448
TARE WEIGHT	7.6497

RESULT	
SAMPLE COUNT RATE	2.13E+03
CRITICAL LEVEL	1.14E+00
NET WEIGHT	0.0951
DELTA TIME (hours)	3.67
SR-90 EFFICIENCY FACTOR	0.42
Y-90 EFFICIENCY FACTOR	0.47
Rmax	N/A
DETECTION LIMIT	2.38
Sr-89/90 CONC in µCi/g	5.73E+02
Relative Counting Error	1.3%
Percent Carrier Recovery	95.1%

Solid-Duplicate Run:

INPUT	
TOTAL COUNTS	25060
COUNT TIME in MINUTES	10
BACKGROUND in cpm	4
SAMPLE VOLUME in mL	1
DILUTION FACTOR	101
DIGEST FACTOR (g/L)	0.444
SEPARATION TIME	15:00
SEPARATION DATE	03/08/95
TIME OF COUNT	19:20
DATE OF COUNT	03/08/95
CARRIER ADDED in mL	1
GROSS WEIGHT	7.8386
TARE WEIGHT	7.7442

RESULT	
SAMPLE COUNT RATE	2.50E+03
CRITICAL LEVEL	1.14E+00
NET WEIGHT	0.0944
DELTA TIME (hours)	4.33
SR-90 EFFICIENCY FACTOR	0.42
Y-90 EFFICIENCY FACTOR	0.47
Rmax	N/A
DETECTION LIMIT	2.38
Sr-89/90 CONC in µCi/g	6.18E+02
Relative Counting Error	1.2%
Percent Carrier Recovery	94.4%

Liquids Standard End

INPUT	
TOTAL COUNTS	
COUNT TIME in MINUTES	
BACKGROUND in cpm	
SAMPLE VOLUME in mL	
DILUTION FACTOR	
DIGEST DILUTION FACTOR	
SEPARATION TIME	
SEPARATION DATE	
TIME OF COUNT	
DATE OF COUNT	
CARRIER ADDED in mL	
GROSS WEIGHT	
TARE WEIGHT	
STANDARD VALUE	

RESULT	
SAMPLE COUNT RATE	
CRITICAL LEVEL	
NET WEIGHT	
DELTA TIME (hours)	
SR-90 EFFICIENCY FACTOR	
Y-90 EFFICIENCY FACTOR	
Rmax	
DETECTION LIMIT	
Sr-89/90 CONC in µCi/mL	
Relative Counting Error	
Percent Carrier Recovery	

Form Completed By:	MC BIERMAN	Signature:	Date:	09-Mar-95
Chemist Approval:	SL FITZGERALD	Signature:	Date:	3/7/95

Revision 2.1

WHC-SD-WM-DP-099, REV 1

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
STANDARD	TOTAL COUNTS	(TC)	9083	GROSS WEIGHT	(W2)		7.9685
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.8937
671	BACKGROUND in cpm	(BKG)	3.6	NET WEIGHT	(W3)		0.0948
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		2.83
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	904.70	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Sample #	CRITICAL LEVEL	(Lc)	1.14	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
51852	SEPARATION TIME	(ST)	15:00	Rmax			N/A
Instrument Code	SEPARATION DATE	(SD)	03/08/95	DETECTION LIMIT	(Ld)		2.38
WB27811	TIME OF COUNT	(TOC)	17:50	Sr-89/90 CONC. in µCi/L =			9.9499E-01
Analyst	DATE OF COUNT	(DOC)	03/08/95				
AK LEWIS							
Date							
03/09/95							
Time							
11:00							

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

v RESULTS v

Sr-89/90 CONCENTRATION =	9.95E-04	µCi/mL
RELATIVE COUNTING ERROR =	2.1%	
PERCENT CARRIER RECOVERY =	94.8%	

DETECTION LEVEL
2.61E-06 µCi/L

Data Entry by:	MC BIERMAN		Date:	09-Mar-95
Approved by:	SL FITZGERALD		Date:	3/[illegible]

Form WB Rev. 2.1 220-10n_WB

WHC-SD-WM-DP-099, REV 1

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

							BLANK
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
BLANK	TOTAL COUNTS	(TC)	59	GROSS WEIGHT	(W2)		8.0347
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.9415
671	BACKGROUND in cpm	(BKG)	3.6	NET WEIGHT	(W3)		0.0932
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		3.17
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	DDF	0.408				
SOLID	SAMPLE COUNT RATE	(Rs)	2.30	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Sample #	CRITICAL LEVEL	(Lc)	1.14	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
S95T57	SEPARATION TIME	(ST)	15:00	Rmax			N/A
Instrument Code	SEPARATION DATE	(SD)	03/08/95	DETECTION LIMIT	(Ld)		2.38
WB27811	TIME OF COUNT	(TOC)	18:10	Sr-89/90 CONC in µCi/g			6.3455E-01
Analyst	DATE OF COUNT	(DOC)	03/08/95				
AK LEWIS							
Date							
03/09/95							
Time							
11:00							

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 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

v RESULTS v

Sr-89/90 CONCENTRATION =	6.35E-01	µCi/g
RELATIVE COUNTING ERROR =	83.1%	
PERCENT CARRIER RECOVERY =	93.2%	

DETECTION LEVEL

6.56E-01 µCi/g

Data Entry by:	MC BIERMAN	Date:	09-Mar-95
Approved by:	SL FITZGERALD	Date:	3/9/95

Form WB Rev. 2.1 220-10n_WB Page 1 of 1

WHC-SD-WM-DP-099, REV. 1

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)	21331	GROSS WEIGHT	(W2)		7.7448
Work Unit	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.6497
671	BACKGROUND in cpm	(BKG)	3.6	NET WEIGHT	(W3)		0.0951
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		3.67
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	DDF	0.408				
SOLID	SAMPLE COUNT RATE	(Rs)	2129.50	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Sample #	CRITICAL LEVEL	(Lc)	1.14	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
S95157	SEPARATION TIME	(ST)	15:00	Rmax			N/A
Instrument Code	SEPARATION DATE	(SD)	03/08/95	DETECTION LIMIT	(Ld)		2.38
WB27811	TIME OF COUNT	(TOC)	18:40	Sr-89/90 CONC in µCi/g			5.7257E+02
Analyst	DATE OF COUNT	(DOC)	03/08/95				
AK LEWIS							
Date							
03/09/95							
Time							
11:00							

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

v RESULTS v

Sr-89/90 CONCENTRATION =	5.73E+02	µCi/g
RELATIVE COUNTING ERROR =	1.3%	
PERCENT CARRIER RECOVERY =	95.1%	

DETECTION LEVEL

6.39E-01 µCi/g

Data Entry by:	MC BIERMAN		Date:	09-Mar-95
Approved by:	SL FITZGERALD		Date:	3/9/95

Form WB Rev. 2.1 220-10n_WB Page 1 of 1

WHC-SD-WM-DP-099, REV. 1

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

							DUPLICATE
Type	DETECTOR NUMBER		1.2	CARRIER ADDED in mL	(CVA		1.000
DUPLICATE	TOTAL COUNTS	(TC)	25060	GROSS WEIGHT	(W2)		7.8386
Work Det	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.7442
671	BACKGROUND in cpm	(BKG)	3.6	NET WEIGHT	(W3)		0.0944
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		4.33
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	DDF	0.444				
SOLID	SAMPLE COUNT RATE	(Rs)	2502.40	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Sample #	CRITICAL LEVEL	(Lc)	1.14	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
S95T57	SEPARATION TIME	(ST)	15:00	Rmax			N/A
Instrument Code	SEPARATION DATE	(SD)	03/08/95	DETECTION LIMIT	(Ld)		2.38
WB27811	TIME OF COUNT	(TOC)	19:20	Sr-89/90 CONC in µCi/g			6.1831E+02
Analyst	DATE OF COUNT	(DOC)	03/08/95				
AK LEWIS							
Date							
03/09/95							
Time							
11:00							

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

v RESULTS v

Sr-89/90 CONCENTRATION	=	6.18E+02	µCi/g
RELATIVE COUNTING ERROR	=	1.2%	
PERCENT CARRIER RECOVERY	=	94.4%	

DETECTION LEVEL

5.87E-01 µCi/g

Data Entry by:	MC BIERMAN	Date:	09-Mar-95
Approved by:	SL FITZGERALD	Date:	3/9/95

Form WB Rev. 2.1 220-10n_WB Page 1 of 1

WHC-SD-WM-DP-099, REV. 1

LABCORE Data Entry Template for Worklist# 712

Analyst: S. L. **Instrument:** AB00 12 **Book #** 5185 2

Method: LA-220-101 Rev/Mod 5-1

Worklist Comment: Run under RWP 268. .100-10-.300 mL sample. Rerun 1. 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
94000012	C-103	4	SAMPLE	S95T000055	0	F	@SR90-01 SR90-01	SOLID	N/A			uCi/g
94000012	C-103	4	SAMPLE	S95T000055	0	F	@SR90-01 SR90-01C	SOLID	N/A			% Recovery
94000012	C-103	4	SAMPLE	S95T000055	0	F	@SR90-01 SR90-01E	SOLID	N/A			% Ct. Error
94000012	C-103	5	DUP	S95T000055	0	F	@SR90-01 SR90-01	SOLID			N/A	uCi/g
94000012	C-103	5	DUP	S95T000055	0	F	@SR90-01 SR90-01C	SOLID			N/A	% Recovery
94000012	C-103	5	DUP	S95T000055	0	F	@SR90-01 SR90-01E	SOLID			N/A	% Ct. Error

Final page for worklist # 712

Sue C Lam 3-16-95
Analyst Signature **Date**

Sue C Lam 3-16-95
Analyst Signature **Date**

M G Sullivan 3-17-95

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.

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
RADCHEM ANALYTICAL BATCH AND SUMMARY SHEET
STRONTIUM-SOLIDS ERR

TEST CODE:	@SR90-01	SAMPLE POINT:	0
INSTRUMENT:	WB27811	SAMPLE PREP:	0
ANALYST:	S. LAI	BATCH ID:	0
		ANALYSIS DATE:	March 17, 1995

	UNITS:	µCi/g							
SAMPLE TYPE	SAMPLE NO.	ANALYTE	RESULT #1	DUPLICATE	AVERAGE	RPD%	% REC	DET LIM	%CT ER
STANDARD *	51B52	Sr-90	1.06E-03				95.6%	2.62E-06	2.0%
BLANK	S95T55	Sr-90	< 1.44E+00					1.90E+00	295.8%
SAMPLE 1	S95T55	Sr-90	6.61E+03	8.80E+03	7.70E+03	28.4%		1.84E+00	0.7%
DUPLICATE 1	S95T55	Sr-90						2.40E+00	0.7%
SAMPLE 2					N/A	N/A			
STANDARD END									
	STD ID:	STD VOL.:							
STANDARD	0	1.000							

NARRATIVE: Analyst Comments:

Chemist Comments:

DETECTION LIMITS ARE ADJUSTED FOR DIFFERENT SAMPLE SIZES.
* RESULTS FOR STANDARDS ARE IN µCi/mL

Form Completed By:	MC BIERMAN	Signature:	[signature]	Date:	03/17/96
Chemist Approval:	SL FITZGERALD	Signature:	[signature]	Date:	17 Mar 95

Revision 2.1

WHC-SD-WM-DP-~~080~~ 099, REV. 1
[signature] 9/25/95

LAB LEADER INFO:	
Method:	LA 220-101(D-1)
Test Code	@SR90-01
Matrix:	SOLID
Work List #	712
Batch #	
Prepared By:	MC BIERMAN
Date Complete:	03/17/95
Time Complete:	09:00
Chemist:	SL FITZGERALD
Analyst:	S. LAI
Analysis Date:	03/16/95
Detector Number:	12
Instrument Code:	WB27811
Rerun:	
Sample Prep:	
Sample Point:	
Book Number:	

Sample Type	Sample #
STANDARD	51B52
BLANK	S95T55
SAMPLE 1	S95T55
DUPLICATE 1	S95T55
SAMPLE 2	
DUPLICATE 2	
ST-END	

PRINT

TECH INFO:

Liquids Standard Run

INPUT	
TOTAL COUNTS	9900
COUNT TIME in MINUTES	10
BACKGROUND in cpm	4
SAMPLE VOLUME in mL	1
DILUTION FACTOR	1
DIGEST DILUTION FACTOR	1
SEPARATION TIME	11:20
SEPARATION DATE	03/16/95
TIME OF COUNT	16:40
DATE OF COUNT	03/16/95
CARRIER ADDED in mL	1
GROSS WEIGHT	8.1923
TARE WEIGHT	8.0977
STANDARD VALUE	1.1064

RESULT	
SAMPLE COUNT RATE	9.86E+02
CRITICAL LEVEL	1.17E+00
NET WEIGHT	0.0946
DELTA TIME (hours)	5.33
SR-90 EFFICIENCY FACTOR	0.42
Y-90 EFFICIENCY FACTOR	0.47
Rmax	N/A
DETECTION LIMIT	2.44
Sr-89/90 CONC in µCi/mL	1.06E-03
Relative Counting Error	2.0%
Percent Carrier Recovery	94.6%

Solid-Blank Run:

INPUT	
TOTAL COUNTS	44
COUNT TIME in MINUTES	10
BACKGROUND in cpm	4
SAMPLE VOLUME in mL	0.3
DILUTION FACTOR	101
DIGEST FACTOR (g/L)	0.468
SEPARATION TIME	11:20
SEPARATION DATE	03/16/95
TIME OF COUNT	16:50
DATE OF COUNT	03/16/95
CARRIER ADDED in mL	1
GROSS WEIGHT	7.7043
TARE WEIGHT	7.6108

RESULT	
SAMPLE COUNT RATE	6.00E-01
CRITICAL LEVEL	1.17E+00
NET WEIGHT	0.0935
DELTA TIME (hours)	5.50
SR-90 EFFICIENCY FACTOR	0.42
Y-90 EFFICIENCY FACTOR	0.47
Rmax	1.84
DETECTION LIMIT	2.44
Sr-89/90 CONC in µCi/g	< 1.44E+00
Relative Counting Error	295.8%
Percent Carrier Recovery	93.5%

Solid-Sample Run 2:

INPUT	
TOTAL COUNTS	
COUNT TIME in MINUTES	
BACKGROUND in cpm	
SAMPLE VOLUME in mL	
DILUTION FACTOR	
DIGEST FACTOR (g/L)	
SEPARATION TIME	
SEPARATION DATE	
TIME OF COUNT	
DATE OF COUNT	
CARRIER ADDED in mL	
GROSS WEIGHT	
TARE WEIGHT	

RESULT	
SAMPLE COUNT RATE	
CRITICAL LEVEL	
NET WEIGHT	
DELTA TIME (hours)	
SR-90 EFFICIENCY FACTOR	
Y-90 EFFICIENCY FACTOR	
Rmax	
DETECTION LIMIT	
Sr-89/90 CONC in µCi/g	
Relative Counting Error	
Percent Carrier Recovery	

Solid-Duplicate Run 2:

INPUT	
TOTAL COUNTS	
COUNT TIME in MINUTES	
BACKGROUND in cpm	
SAMPLE VOLUME in mL	
DILUTION FACTOR	
DIGEST FACTOR (g/L)	
SEPARATION TIME	
SEPARATION DATE	
TIME OF COUNT	
DATE OF COUNT	
CARRIER ADDED in mL	
GROSS WEIGHT	
TARE WEIGHT	

RESULT	
SAMPLE COUNT RATE	
CRITICAL LEVEL	
NET WEIGHT	
DELTA TIME (hours)	
SR-90 EFFICIENCY FACTOR	
Y-90 EFFICIENCY FACTOR	
Rmax	
DETECTION LIMIT	
Sr-89/90 CONC in µCi/g	
Relative Counting Error	
Percent Carrier Recovery	

Solid-Sample Run:

INPUT	
TOTAL COUNTS	87595
COUNT TIME in MINUTES	10
BACKGROUND in cpm	4
SAMPLE VOLUME in mL	0.3
DILUTION FACTOR	101
DIGEST FACTOR (g/L)	0.488
SEPARATION TIME	11:20
SEPARATION DATE	03/16/95
TIME OF COUNT	18:15
DATE OF COUNT	03/16/95
CARRIER ADDED in mL	1
GROSS WEIGHT	8.181
TARE WEIGHT	8.0859

RESULT	
SAMPLE COUNT RATE	8.76E+03
CRITICAL LEVEL	1.17E+00
NET WEIGHT	0.0951
DELTA TIME (hours)	6.92
SR-90 EFFICIENCY FACTOR	0.42
Y-90 EFFICIENCY FACTOR	0.47
Rmax	N/A
DETECTION LIMIT	2.44
Sr-89/90 CONC in µCi/g	6.61E+03
Relative Counting Error	0.7%
Percent Carrier Recovery	95.1%

Solid-Duplicate Run:

INPUT	
TOTAL COUNTS	89391
COUNT TIME in MINUTES	10
BACKGROUND in cpm	4
SAMPLE VOLUME in mL	0.3
DILUTION FACTOR	101
DIGEST FACTOR (g/L)	0.364
SEPARATION TIME	11:20
SEPARATION DATE	03/16/95
TIME OF COUNT	18:40
DATE OF COUNT	03/16/95
CARRIER ADDED in mL	1
GROSS WEIGHT	7.695
TARE WEIGHT	7.6017

RESULT	
SAMPLE COUNT RATE	8.94E+03
CRITICAL LEVEL	1.17E+00
NET WEIGHT	0.0933
DELTA TIME (hours)	7.33
SR-90 EFFICIENCY FACTOR	0.42
Y-90 EFFICIENCY FACTOR	0.47
Rmax	N/A
DETECTION LIMIT	2.44
Sr-89/90 CONC in µCi/g	8.80E+03
Relative Counting Error	0.7%
Percent Carrier Recovery	93.3%

Liquids Standard End

INPUT	
TOTAL COUNTS	
COUNT TIME in MINUTES	
BACKGROUND in cpm	
SAMPLE VOLUME in mL	
DILUTION FACTOR	
DIGEST DILUTION FACTOR	
SEPARATION TIME	
SEPARATION DATE	
TIME OF COUNT	
DATE OF COUNT	
CARRIER ADDED in mL	
GROSS WEIGHT	
TARE WEIGHT	
STANDARD VALUE	

RESULT	
SAMPLE COUNT RATE	
CRITICAL LEVEL	
NET WEIGHT	
DELTA TIME (hours)	
SR-90 EFFICIENCY FACTOR	
Y-90 EFFICIENCY FACTOR	
Rmax	
DETECTION LIMIT	
Sr-89/90 CONC in µCi/mL	
Relative Counting Error	
Percent Carrier Recovery	

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

Form Completed By:	MC BIERMAN	Signature:		Date:	17-Mar-95
Chemist Approval:	SL FITZGERALD	Signature:		Date:	17 Mar 95

Revision 2.1

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
STANDARD	TOTAL COUNTS	(TC)	9900	GROSS WEIGHT	(W2)		8.1923
Work Set	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		8.0977
712	BACKGROUND in cpm	(BKG)	3.8	NET WEIGHT	(W3)		0.0946
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		5.33
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	986.20	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Sample #	CRITICAL LEVEL	(Lc)	1.17	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
51852	SEPARATION TIME	(ST)	11:20	Rmax			N/A
Instrument Code	SEPARATION DATE	(SD)	03/16/95	DETECTION LIMIT	(Ld)		2.44
WB27811	TIME OF COUNT	(TOC)	16:40	Sr-89/90 CONC. in µCi/L =			1.0575E+00
Analyst	DATE OF COUNT	(DOC)	03/16/95				
S. LAI							
Date							
03/17/95							
Time							
09:00							

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

v RESULTS v

Sr-89/90 CONCENTRATION =	1.06E-03	µCi/mL	
RELATIVE COUNTING ERROR =	2.0%		
PERCENT CARRIER RECOVERY =	94.6%		

DETECTION LEVEL
2.62E-06 µCi/L

ata Entry by:	MC BIERMAN		Date:	17-Mar-95
Approved by:	SL FITZGERALD		Date:	17 Mar 95

Form WB Rev. 2.1 220-10n_WB

WHC-SD-WM-DP-080, REV. 1

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

							BLANK
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA		1.000
BLANK	TOTAL COUNTS	(TC)	44	GROSS WEIGHT	(W2)		7.7043
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.6108
712	BACKGROUND in cpm	(BKG)	3.8	NET WEIGHT	(W3)		0.0935
Test Code	SAMPLE VOLUME in mL	(SS)	0.300	DELTA TIME (HOURS)	(DT)		5.50
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	DDF	0.468				
SOLID	SAMPLE COUNT RATE	(Rs)	0.60	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Sample #	CRITICAL LEVEL	(Lc)	1.17	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
S95T56	SEPARATION TIME	(ST)	11:20	Rmax			1.84
Instrument Code	SEPARATION DATE	(SD)	03/16/95	DETECTION LIMIT	(Ld)		2.44
WB27911	TIME OF COUNT	(TOC)	16:50	Sr-89/90 CONC in µCi/g		<	1.4351E+00
Analyst	DATE OF COUNT	(DOC)	03/16/95				
S. LAI							
Date							
03/17/95							
Time							
09:00							

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 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

v RESULTS v

Sr-89/90 CONCENTRATION =	< 1.44E+00	µCi/g

LESS THAN Value was Determined from Rmax.

RELATIVE COUNTING ERROR =	295.8%
PERCENT CARRIER RECOVERY =	93.5%

DETECTION LEVEL

1.90E+00 µCi/g

Data Entry by:	MC BIERMAN		Date:	17-Mar-95
Approved by:	SL FITZGERALD		Date:	17 Mar 95

Form WB Rev. 2.1 220-10n_WB Page 1 of 1

WHC-SD-WM-DP-~~080~~ 099, REV. 1

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)	87595	GROSS WEIGHT	(W2)		8.1810
Work Line	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		8.0859
712	BACKGROUND in cpm	(BKG)	3.8	NET WEIGHT	(W3)		0.0951
Test Code	SAMPLE VOLUME in mL	(SS)	0.300	DELTA TIME (HOURS)	(DT)		6.92
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	DDF	0.468				
SOLID	SAMPLE COUNT RATE	(Rs)	8755.70	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Sample #	CRITICAL LEVEL	(Lc)	1.17	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
S95T55	SEPARATION TIME	(ST)	11:20	Rmax			N/A
Instrument Code	SEPARATION DATE	(SD)	03/16/95	DETECTION LIMIT	(Ld)		2.44
WB27811	TIME OF COUNT	(TOC)	18:15	Sr-89/90 CONC in µCi/g			6.6073E+03
Analyst	DATE OF COUNT	(DOC)	03/16/95				
S. LAI							
Date							
03/17/95							
Time							
09:00							

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

v RESULTS v

Sr-89/90 CONCENTRATION =	6.61E+03	µCi/g
RELATIVE COUNTING ERROR =	0.7%	
PERCENT CARRIER RECOVERY =	95.1%	

DETECTION LEVEL

1.84E+00 µCi/g

Data Entry by:	MC BIERMAN	Date:	17-Mar-95
Approved by:	SL FITZGERALD	Date:	17 Mar 95

Form WB Rev. 2.1 220-10n_WB Page 1 of 1

WHC-SD-WM-DP-099, REV. 1
9/25/95

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

							DUPLICATE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA		1.000
DUPLICATE	TOTAL COUNTS	(TC)	86391	GROSS WEIGHT	(W2)		7.6950
Work Det.	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.6017
712	BACKGROUND in cpm	(BKG)	3.8	NET WEIGHT	(W3)		0.0933
Test Code	SAMPLE VOLUME in mL	(SS)	0.300	DELTA TIME (HOURS)	(DT)		7.33
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	DDF	0.364				
SOLID	SAMPLE COUNT RATE	(Rs)	8935.30	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Sample #	CRITICAL LEVEL	(Lc)	1.17	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
S95T55	SEPARATION TIME	(ST)	11:20	Rmax			N/A
Instrument Code	SEPARATION DATE	(SD)	03/16/95	DETECTION LIMIT	(Ld)		2.44
WB27811	TIME OF COUNT	(TOC)	18:40	Sr-89/90 CONC in µCi/g			8.7988E+03
Analyst	DATE OF COUNT	(DOC)	03/16/95				
S. LAI							
Date							
03/17/95							
Time							
09:00							

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

v RESULTS v

Sr-89/90 CONCENTRATION	=	8.80E+03	µCi/g
RELATIVE COUNTING ERROR	=	0.7%	
PERCENT CARRIER RECOVERY	=	93.3%	

DETECTION LEVEL

2.40E+00 µCi/g

Data Entry by:	MC BIERMAN		Date:	17-Mar-95
Approved by:	SL FITZGERALD		Date:	17 Mar 95

Form WB Rev. 2.1 220-10n_WB Page 1 of 1

WHC-SD-WM-DP-099, REV. 1
09/05/95