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

Document number: SD-WM-DP-140

Section 2 **of** 2

Title: Final Report For Tank 241-B-106 Push Mode Cores 93 and 94 (pgs. 498-290)

Date: 8-13-96 **Revision:** R001

Originator: J. M. Conner
Co: WHC

Recipient:
Co:

References: ECN-629005

RADIOCHEMICAL ANALYSES

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LABCORE Data Entry Template for Worklist# 1951

Analyst: S.C.L. **Instrument:** AB00 14 **Book #** 132B52

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

Worklist Comment: Determine sample size using Ludlum. Use .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 0.33				@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000096	B-106	4	SAMPLE	S95T001282	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000096	B-106	4	SAMPLE	S95T001282	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000096	B-106	5	DUP	S95T001282	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000096	B-106	5	DUP	S95T001282	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
95000096	B-106	6	SAMPLE	S95T001285	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000096	B-106	6	SAMPLE	S95T001285	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000096	B-106	7	DUP	S95T001285	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000096	B-106	7	DUP	S95T001285	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error

Final page for worklist # 1951

Sue Lan 8-2-95
Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

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

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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)	4101	4202
1951	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)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		136.100	139.467
Sample #	Sample Concentration in µCi/L		2.70E-02	BOOK#
WRKLST#1951	Replicate Concentration in µCi/L		2.76E-02	132B52
Instrument Code				
WB27807	Average Concentration in µCi/L		2.7293E-02	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
08/02/95	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) =	2.73E-05	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	3.1%	1.49E-07 µCi/mL

Data Entry by:	[signature]	Date:	08/04/95
Approved by:	[signature]	Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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)	6	6
1951	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.6	0.6
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1208	2.1208
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.330	0.330
Sample #	Sample Concentration in µCi/g	<	3.08E-03	BOOK#
WRKLST#1951	Replicate Concentration in µCi/g	<	3.08E-03	
Instrument Code				
WB27807	Maximum Concentration in µCi/g	<	3.0823E-03	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
08/02/95				
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) =	< 3.08E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.				7.01E-03 µCi/g
RELATIVE COUNTING ERROR		=	80.0%	

Data Entry by:		Date:	08/04/95
Approved by:		Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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)	181	202
1951	COUNT TIME in MINUTES	(CT)	30	30
AT or LS ?	BACKGROUND in cpm	(BKG)	0.6	0.6
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1208	2.1208
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		5.433	6.133
Sample #	Sample Concentration in µCi/g		5.07E-02	BOOK#
S95T1282	Replicate Concentration in µCi/g		5.73E-02	
Instrument Code				
WB27807	Average Concentration in µCi/g		5.4018E-02	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
08/02/95				
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) =	5.40E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	17.0%	7.01E-03 µCi/g

Data Entry by:		Date:	08/04/95
Approved by:		Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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)	180	191
1951	COUNT TIME in MINUTES	(CT)	30	30
A1 or 18.7	BACKGROUND in cpm	(BKG)	0.6	0.6
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA-01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1068	2.1068
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		5.400	5.767
Sample #	Sample Concentration in µCi/g		5.08E-02	BOOK#
S95T1282	Replicate Concentration in µCi/g		5.42E-02	
Instrument Code				
WB27807	Average Concentration in µCi/g		5.2496E-02	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
08/02/95				
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) =	5.25E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	17.0%	7.06E-03 µCi/g

Data Entry by:	[signature]	Date:	08/04/95
Approved by:	[signature]	Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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)		15	26
1951	COUNT TIME in MINUTES	(CT)		30	30
AT or TB ?	BACKGROUND in cpm	(BKG)		0.6	0.6
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)		2.2472	2.2472
Matrix	EFFICIENCY FACTOR	(EFF)		0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			0.330	0.631
Sample #	Sample Concentration in µCi/g		<	2.94E-02	BOOK#
S95T1285	Replicate Concentration in µCi/g		<	5.62E-02	
Instrument Code					
WB27807	Maximum Concentration in µCi/g		<	5.6222E-02	
Analyst					
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG				
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)				
08/02/95					
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) =	< 5.62E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.				6.68E-02 µCi/g
RELATIVE COUNTING ERROR		=	500.0%	

Data Entry by: [signature] Date: 08/04/95

Approved by: [signature] Date: 8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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)		25	20
1951	COUNT TIME in MINUTES	(CT)		30	30
AT or TB ?	BACKGROUND in cpm	(BKG)		0.6	0.6
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)		2.1984	2.1984
Matrix	EFFICIENCY FACTOR	(EFF)		0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			0.594	0.406
Sample #	Sample Concentration in µCi/g		<	5.41E-02	BOOK#
S95T1285	Replicate Concentration in µCi/g		<	3.69E-02	
Instrument Code					
WB27807	Maximum Concentration in µCi/g		<	5.4057E-02	
Analyst					
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG				
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)				
08/02/95					
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) =	< 5.41E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.				6.83E-02 µCi/g
RELATIVE COUNTING ERROR		=	500.0%	

Data Entry by:	[signature]	Date:	08/04/95
Approved by:	[signature]	Date:	8/4/95

Form 508101_C Rev. 1.3

LABCORE Data Entry Template for Worklist# 1952

Analyst: S C L **Instrument:** AB00 14 **Book #** 132B52

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

Worklist Comment: Determine sample size using Ludlum. Use .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	0.31			@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000096	B-106	4	SAMPLE	S95T001299	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000096	B-106	4	SAMPLE	S95T001299	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000096	B-106	5	DUP	S95T001299	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000096	B-106	5	DUP	S95T001299	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
95000096	B-106	6	SAMPLE	S95T001303	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000096	B-106	6	SAMPLE	S95T001303	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000096	B-106	7	DUP	S95T001303	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000096	B-106	7	DUP	S95T001303	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error

Final page for worklist # 1952

Sue C Lai 8-3-95
Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

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

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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)	4177	3929
1952	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.8	0.8
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		138.433	130.167
Sample #	Sample Concentration in µCi/L		2.74E-02	BOOK#
WRKLST#1952	Replicate Concentration in µCi/L		2.58E-02	132B52
Instrument Code				
WB27807	Average Concentration in µCi/L		2.6603E-02	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
08/03/95	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) =	2.66E-05	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	3.2%	1.69E-07 µCi/mL

Data Entry by:	[signature]	Date:	08/04/95
Approved by:	[signature]	Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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
1952	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.8	0.8
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)	2.1112	2.1112
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.381	0.381
Sample #	Sample Concentration in µCi/g	<	3.61E-02	BOOK#
WRKLST#1952	Replicate Concentration in µCi/g	<	3.61E-02	
Instrument Code				
WB27807	Maximum Concentration in µCi/g	<	3.6110E-02	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
08/03/95				
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) =	< 3.61E-02	DETECTION LEVEL
LESS Than Value was Determined from Lc.				8.08E-02 µCi/g
RELATIVE COUNTING ERROR		=	81.6%	

Data Entry by:	Sylvia L Gibson	Date:	08/04/95
Approved by:	[signature]	Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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)	12	16
1952	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.8	0.8
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)	2.1112	2.1112
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.381	0.381
Sample #	Sample Concentration in µCi/g	<	3.61E-02	BOOK#
S95T1299	Replicate Concentration in µCi/g	<	3.61E-02	
Instrument Code				
WB27807	Maximum Concentration in µCi/g	<	3.6110E-02	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
08/03/95				
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) =	< 3.61E-02	DETECTION LEVEL
LESS Than Value was Determined from Lc.				8.08E-02 µCi/g
RELATIVE COUNTING ERROR		=	155.0%	

Data Entry by: Sylvia L. Chapman Date: 08/04/95

Approved by: [signature] Date: 8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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)	18	23
1952	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.8	0.8
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)	2.1392	2.1392
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.381	0.381
Sample #	Sample Concentration in µCi/g	<	3.56E-02	BOOK#
S95T1299	Replicate Concentration in µCi/g	<	3.56E-02	
Instrument Code				
WB27807	Maximum Concentration in µCi/g	<	3.5638E-02	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
08/03/95				
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) =	< 3.56E-02	DETECTION LEVEL
	LESS Than Value was Determined from Lc.			
RELATIVE COUNTING ERROR		=	500.0%	7.98E-02 µCi/g

Data Entry by:	Sylvia Z. Graham	Date:	08/04/95
Approved by:	J. S. Dippen	Date:	8/4/95

Form 508101_C Rev. 1.3

511

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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)	12	21
1952	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.8	0.8
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)	2.0052	2.0052
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.381	0.381
Sample #	Sample Concentration in µCi/g	<	3.80E-02	BOOK#
S95T1303	Replicate Concentration in µCi/g	<	3.80E-02	
Instrument Code				
WB27807	Maximum Concentration in µCi/g	<	3.8019E-02	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
08/03/95				
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) =	< 3.80E-02	DETECTION LEVEL
	LESS Than Value was Determined from Lc.			
RELATIVE COUNTING ERROR		=	438.3%	8.51E-02 µCi/g

Data Entry by:	Sylvia Z Ohram	Date:	08/04/95
Approved by:	[signature]	Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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)	18	17
1952	COUNT TIME in MINUTES	(CT)	30	30
AT or TD ?	BACKGROUND in cpm	(BKG)	0.8	0.8
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)	2.0412	2.0412
Matrix	EFFICIENCY FACTOR	(EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.381	0.381
Sample #	Sample Concentration in µCi/g	<	3.73E-02	BOOK#
S95T1303	Replicate Concentration in µCi/g	<	3.73E-02	
Instrument Code				
WB27807	Maximum Concentration in µCi/g	<	3.7349E-02	
Analyst				
SCL				
Date				
08/03/95				
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	(Maximum) =	< 3.73E-02	DETECTION LEVEL
LESS Than Value was Determined from Lc.				8.36E-02 µCi/g
RELATIVE COUNTING ERROR		=	211.7%	

Data Entry by: [signature] Date: 08/04/95

Approved by: [signature] Date: 8/4/95

Form 508101_C Rev. 1.3

LABCORE Data Entry Template for Worklist# 1957

Analyst: S.CL **Instrument:** AB00 16 **Book #** 132B52

Method: LA-508-101 Rev/Mod D-2 32.

Worklist Comment: Determine sample size using Ludlum. Use .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	.17			@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000096	B-106	4	SAMPLE	S95T001277	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000096	B-106	4	SAMPLE	S95T001277	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000096	B-106	5	DUP	S95T001277	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000096	B-106	5	DUP	S95T001277	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
95000096	B-106	6	SPK	S95T001277	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000096	B-106	7	SAMPLE	S95T001279	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000096	B-106	7	SAMPLE	S95T001279	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000096	B-106	8	DUP	S95T001279	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000096	B-106	8	DUP	S95T001279	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error

Final page for worklist # 1957

Sue [signature] 8-2-95
Analyst Signature **Date**

[signature] 8/4/95
Analyst Signature **Date**

Data Entry Comments:

spike : 112B43

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-140, REV. 1

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

LA-548-101 (A-3) SOLIDS

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STANDARD	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	4308	3931
1957	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
ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		143.000	130.433
Sample #	Sample Concentration in µCi/g		3.06E-02	BOOK#
WORKLIST#1957	Replicate Concentration in µCi/g		2.79E-02	132B52
Instrument Code				
WB27806	Average Concentration in µCi/g		2.9270E-02	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
08/02/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

				DETECTION LEVEL
ALPHA TOTAL	in µCi/g	(Average) =	2.93E-02	
RELATIVE COUNTING ERROR		=	3.1%	1.61E-04 µCi/g

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

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, 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	6
1957	COUNT TIME in MINUTES	(CT)		30	30
AT or TB ?	BACKGROUND in cpm	(BKG)		0.6	0.6
AT	SAMPLE SIZE in mL	(SS)		1.000	1.000
Test Code	DILUTION FACTOR	(DF)		101	101
ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)		2.098	2.098
Matrix	EFFICIENCY FACTOR	(EFF)		0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			0.330	0.330
Sample #	Sample Concentration in µCi/g		<	3.40E-02	BOOK#
WORKLIST#1957	Replicate Concentration in µCi/g		<	3.40E-02	132B52
Instrument Code					
WB27806	Maximum Concentration in µCi/g		<	3.4012E-02	
Analyst					
SCL					
Date					
08/02/95					
Time					
02:00 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)	=	< 3.40E-02	DETECTION LEVEL
LESS Than Value was Determined from Lc.					7.74E-02 µCi/g
RELATIVE COUNTING ERROR			=	80.0%	

Data Entry by:	[signature]	Date:	08/03/95
Approved by:	[signature]	Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, 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)		8	8
1957	COUNT TIME in MINUTES	(CT)		30	30
AT or TB ?	BACKGROUND in cpm	(BKG)		0.6	0.6
AT	SAMPLE SIZE in mL	(SS)		1.000	1.000
Test Code	DILUTION FACTOR	(DF)		101	101
ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)		2.098	2.098
Matrix	EFFICIENCY FACTOR	(EFF)		0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			0.330	0.330
Sample #	Sample Concentration in µCi/g		<	3.40E-02	BOOK#
S95T1277	Replicate Concentration in µCi/g		<	3.40E-02	132B52
Instrument Code					
WB27806	Maximum Concentration in µCi/g		<	3.4012E-02	
Analyst					
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG				
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)				
08/02/95					
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100				
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.				

v RESULTS v

ALPHA TOTAL	in µCi/g	(Maximum) =	< 3.40E-02		DETECTION LEVEL
LESS Than Value was Determined from Lc.					7.74E-02 µCi/g
RELATIVE COUNTING ERROR		=	99.9%		

Data Entry by:	R.L. Johnson	Date:	08/03/95
Approved by:	Jennifer L. Johnson	Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, 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)	7	21
1957	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.6	0.6
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.108	2.108
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.330	0.443
Sample #	Sample Concentration in µCi/g	<	3.39E-02	BOOK#
S95T1277	Replicate Concentration in µCi/g	<	4.55E-02	132B52
Instrument Code				
WB27806	Maximum Concentration in µCi/g	<	4.5491E-02	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
08/02/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Maximum) =	< 4.55E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.				7.70E-02 µCi/g
RELATIVE COUNTING ERROR		=	408.0%	

Data Entry by:	[signature]	Date:	08/03/95
Approved by:	[signature]	Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-146, REV. 1

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

LA-548-101 (A-3) LIQUID/SOLIDS

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPIKE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	60965	60498
1957	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)	1.000	1.000
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.098	2.098
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLIDS	SPIKE DILUTION FACTOR	(SDF)	1	1
Sample #	SPIKE VALUE in µCi/L	(SVal)	44.784	44.784
S95T1277	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Instrument Code	SAMPLE + SPIKE µCi/g	(S+S)	2.09E+02	2.08E+02
WB27806	AVERAGE or MAXIMUM µCi/g from FORM C		<3.4012E-2	
Analyst	BOOK#		112B43	
SCL				
Date				
08/02/95				
Time				
02:00 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 = 96.7%**

Data Entry by:	[signature]	Date:	04-Aug-95
Approved by:	[signature]	Date:	8/4/95

Form 508101_X Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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

LA-548-101 (A-3) LIQUID/SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	42	26
1957	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.6	0.6
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.1124	2.1124
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLIDS	<<<<<< RE-ENTER MATRIX (LIQUID or SOLID) <<<<<<		0.800	0.631
Sample #	Sample Concentration in µCi/g		8.19E-02	BOOK#
S95T1279	Replicate Concentration in µCi/g	<	6.46E-02	132B52
Instrument Code				
WB27806	Maximum Concentration in µCi/g	<	8.1891E-02	
Analyst				
SCL				
Date				
08/02/95				
Time				
02:00 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		< 8.19E-02	
LESS THAN Value was Determined from Rs.			7.68E-02 µCi/g
RELATIVE COUNTING ERROR	=	162.5%	

Data Entry by:	C. J. [illegible]	Date:	08/03/95
Approved by:	Jennifer L. [illegible]	Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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

LA-548-101 (A-3) LIQUID/SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
DUPLICATE	DISH SIZE 1, 2, or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	20	25
1957	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.6	0.6
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.142	2.142
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLIDS	<<<<<< RE-ENTER MATRIX (LIQUID or SOLID) <<<<<<		0.406	0.594
Sample #	Sample Concentration in µCi/g	<	4.10E-02	BOOK#
S95T1279	Replicate Concentration in µCi/g	<	6.00E-02	132B52
Instrument Code				
WB27806	Maximum Concentration in µCi/g	<	5.9963E-02	
Analyst				
SCL				
Date				
08/02/95				
Time				
02:00 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		< 6.00E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			7.58E-02 µCi/g
RELATIVE COUNTING ERROR	=	500.0%	

Data Entry by:		Date:	08/03/95
Approved by:		Date:	8/4/95

Form 508101_C Rev. 1.3

LABCORE Data Entry Template for Worklist# 1958

Analyst: S.L. **Instrument:** AB00 15 **Book #** 132852

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

Worklist Comment: Determine sample size using Ludlum. Use .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	2			@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000096	B-106	4	SAMPLE	S95T001307	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000096	B-106	4	SAMPLE	S95T001307	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000096	B-106	5	DUP	S95T001307	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000096	B-106	5	DUP	S95T001307	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
95000096	B-106	6	SAMPLE	S95T001311	0	F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000096	B-106	6	SAMPLE	S95T001311	0	F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000096	B-106	7	DUP	S95T001311	0	F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000096	B-106	7	DUP	S95T001311	0	F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error

Final page for worklist # 1958

Sul Lai 8-2-95
Analyst Signature **Date**

Carol J. Quinn 8/4/95
Analyst Signature **Date**

Data Entry Comments:

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

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, REV. 1

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

LA-548-101 (A-3) SOLIDS

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		15	15
STANDARD	DISH SIZE 1, 2, or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	3849	3869
1958	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
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		127.800	128.467
Sample #	Sample Concentration in µCi/g		2.42E-02	BOOK#
WORKLIST#1958	Replicate Concentration in µCi/g		2.43E-02	132B52
Instrument Code				
WB26872	Average Concentration in µCi/g		2.4251E-02	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
08/02/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL in µCi/g (Average)	=	2.43E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	3.2%	1.31E-04 µCi/g

Data Entry by:	[signature]	Date:	08/03/95
Approved by:	[signature]	Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, 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)	4	2
1958	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)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.0808	2.0808
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	<	2.74E-03	BOOK#
WORKLIST#1958	Replicate Concentration in µCi/g	<	2.74E-03	132B52
Instrument Code				
WB26872	Maximum Concentration in µCi/g	<	2.7401E-03	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
08/02/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Maximum) =	< 2.74E-03	DETECTION LEVEL
	LESS Than Value was Determined from Lc.			
RELATIVE COUNTING ERROR		=	77.7%	6.30E-03 µCi/g

Data Entry by:	[signature]	Date:	08/03/95
Approved by:	[signature]	Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, 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)	210	227
1958	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)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.0808	2.0808
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.500	7.067
Sample #	Sample Concentration in µCi/g		5.91E-02	BOOK#
S95T1307	Replicate Concentration in µCi/g		6.43E-02	132B52
Instrument Code				
WB26872	Average Concentration in µCi/g		6.1700E-02	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
08/02/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Average) =	6.17E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	15.1%	6.30E-03 µCi/g

Data Entry by:	[signature]	Date:	08/03/95
Approved by:	[signature]	Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, 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)	197	226
1958	COUNT TIME in MINUTES	(CT)	30	30
AT or TS ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.0208	2.0208
Matrix	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.067	7.033
Sample #	Sample Concentration in µCi/g		5.68E-02	BOOK#
S95T1307	Replicate Concentration in µCi/g		6.59E-02	132B52
Instrument Code				
WB26872	Average Concentration in µCi/g		6.1346E-02	
Analyst				
SCL				
Date				
08/02/95				
Time				
02:00 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) =	6.13E-02	
RELATIVE COUNTING ERROR		=	15.7%	6.49E-03 µCi/g

Data Entry by:		Date:	08/03/95
Approved by:		Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, 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)		18	10
1958	COUNT TIME in MINUTES	(CT)		30	30
AT or TB ?	BACKGROUND in cpm	(BKG)		0.5	0.5
AT	SAMPLE SIZE in mL	(SS)		1.000	1.000
Test Code	DILUTION FACTOR	(DF)		101	101
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)		2.2684	2.2684
Matrix	EFFICIENCY FACTOR	(EFF)		0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE			0.416	0.301
Sample #	Sample Concentration in µCi/g		<	3.51E-02	BOOK#
S95T1311	Replicate Concentration in µCi/g		<	2.54E-02	132B52
Instrument Code					
WB26872	Maximum Concentration in µCi/g		<	3.5052E-02	
Analyst					
SCL					
Date					
08/02/95					
Time					
02:00 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)	=	< 3.51E-02	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.					5.84E-02 µCi/g
RELATIVE COUNTING ERROR			=	500.0%	

Data Entry by:	C. J. Opsen	Date:	08/03/95
Approved by:	Jennifer L. Skupen	Date:	8/4/95

Form 508101_C Rev. 1.3

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-140, 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)	11	14
1958	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.5	0.5
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS/L	(Dg/L)	2.2828	2.2828
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	<	2.52E-02	BOOK#
S95T1311	Replicate Concentration in µCi/g	<	2.52E-02	132B52
Instrument Code				
WB26872	Maximum Concentration in µCi/g	<	2.5226E-02	
Analyst				
SCL	Rs (Sample Count Rate) = (TC / CT) - BKG			
Date	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
08/02/95				
Time	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			

v RESULTS v

ALPHA TOTAL	in µCi/g	(Maximum) =	< 2.52E-02	DETECTION LEVEL
	LESS Than Value was Determined from Lc.			
RELATIVE COUNTING ERROR		=	500.0%	5.80E-02 µCi/g

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

Approved by: [signature] Date: 8/4/95

Form 508101_C Rev. 1.3

LABCORE Data Entry Template for Worklist# 10386

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

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

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001647	0	F	@ALPHA01	SOLID	95000096	B-106
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T001647	0	F	@ALPHA01	SOLID		
6	SPK	S96T001647	0	F	@ALPHA01	SOLID		

Final page for worklist # 10386

Kim Thomas 6-27-96
Analyst Signature **Date**

Shawn Ludlow 7-1-96
Analyst Signature **Date**

C.J. Ojanen 7/1/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 10386

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.49E-4	116.406	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	3.97E+00	3.970	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<3.41E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	1.79E+00	1.790	BLNK/BKG
4	SAMPLE	S96T001647	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.63E-02	675.0e-005	uCi/g
4	SAMPLE	S96T001647	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.64E+01	0.0e+000	% Ct. Error
5	DUP	S96T001647	0	F	@ALPHA01	ALPHA01	SOLID	3.63E-2	3.65E-2	0.549	RPD
5	DUP	S96T001647	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.59E+01	25.900	% Ct. Erro
6	SPK	S96T001647	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	2.93E-02	81.616	% Recovery

Final page for worklist# 10386

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

7/1/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		13	13
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2458	2450
10386	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		81.803	81.537
	Standard Value in µCi/mL		1.28E-04	
96006637	Concentration in µCi/L	=	1.49E-01	
	Replicate Concentration in µCi/L	=	1.48E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4852E-01	

N/A

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

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

WL10386 ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

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

WB27810 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLH2

SLF	ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.49E-04	DETECTION LEVEL
KNT				7.24E-07 µCi/mL
07/01/96	RELATIVE COUNTING ERROR	=	4.0%	

06/27/96

10:40 PM

B-106

Analyst:		SLH2	Date: 01-Jul-96
Signature of Chemist:		SLF	Date: 7/1/96

STANDARD.WB1 Rev. 1.0 508101MN

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		13	13
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	5	9
10386	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1424	2.1424
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.201	0.170

96006637	Blank Concentration in µCi/g	<	3.41E-03
	Replicate Concentration in µCi/g		2.89E-03
0	Maximum Concentration in µCi/g	<	3.4080E-03

N/A

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

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

WL10386

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

WB27810 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLH2

SLF	ALPHA TOTAL in µCi/g (Maximum)	=	< 3.41E-03	DETECTION LEVEL
KNT	LESS THAN Value was Determined from Rmax.			6.75E-03 µCi/g
07/01/96	RELATIVE COUNTING ERROR		500.0%	

06/27/96

10:40 PM

B-106

Analyst:		KNT	Date: 01-Jul-96
Signature of Chemist:		SLF	Date: 7/1/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	66	70
10386	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1424	2.1424
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.070	2.203

96006637	Blank Concentration in µCi/g	3.51E-02
	Replicate Concentration in µCi/g	3.74E-02
0	Average Concentration in µCi/g	3.6273E-02

FUSION01

S96T001647

WB27810

SLH2

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

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

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

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

SLF	ALPHA TOTAL in µCi/g (Average)	=	3.63E-02	DETECTION LEVEL
KNT				6.75E-03 µCi/g
07/01/96	RELATIVE COUNTING ERROR		26.4%	

06/27/96

10:40 PM

B-106

Analyst:		KNT	Date: 01-Jul-96
Signature of Chemist:		SLF	Date: 7/1/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

WHC-SD-WM-DP- 140 , REV. 1

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

			DUP	REPLICATE
	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	70	68
10386	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.164	2.164
	EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.203	2.137

96006637	Blank Concentration in µCi/g 3.70E-02
	Replicate Concentration in µCi/g 3.59E-02
0	Average Concentration in µCi/g 3.6471E-02

FUSION01

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

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

S96T001647

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

WB27810 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLH2

SLF	ALPHA TOTAL in µCi/g (Average)	=	3.65E-02	DETECTION LEVEL
KNT				6.69E-03 µCi/g
07/01/96	RELATIVE COUNTING ERROR		25.9%	

06/27/96

10:40 PM

B-106

Analyst:		KNT	Date: 01-Jul-96
Signature of Chemist:		SLF	Date: 7/1/96

SAMPLE.WB1 Rev. 1.0 508101ML

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	48352	48603
10386	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.050	0.050
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1424	2.1424
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96006637	SPIKE VALUE in µCi/mL	(SVal)	3.5884E-02	3.5884E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2477	0.2477
0	SAMPLE + SPIKE µCi/g	(S+S)	2.74E+01	2.75E+01
	AVERAGE or MAXIMUM µCi/g in SAMPLE		3.6273E-02	

FUSION01

S96T001647

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

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

WB27810

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

SLH2

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

SLF

KNT

07/01/96

06/27/96	QC ACTUAL	=	3.59E-02
	QC FOUND	=	2.93E-02
10:40 PM	AVG. PERCENT SPIKE RECOVERY	=	81.8%

B-106

Analyst:		SLH2	Date: 01-Jul-96
Signature of Chemist:		SLF	Date: 7/1/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 10497

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

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

Worklist Comment: Use .05 mL sample size. Rerun #1. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001220	0	F	@ALPHA01	SOLID	96000898	B-106
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T001220	0	F	@ALPHA01	SOLID		
6	SPK	S96T001220	0	F	@ALPHA01	SOLID		

Final page for worklist # 10497

A. Lambel 07·01·96
Analyst Signature **Date**

Sharon J. Uhl 7·3·96
Analyst Signature **Date**
C.J. Opinn 7/3/96

Data Entry Comments: 123B43 #A SPIKE

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

LABCORE Completed RadChem Report for Worklist#: 10497

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

Method: _____ Rev/Mod _____

Worklist Comment: Use .05 mL sample size. Rerun #1. SLF

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.33E-4	103.906	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.64E+00	4.640	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<5.96E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	1.55E+02	155.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	2.67E+00	2.670	BLNK/BKG
4	SAMPLE	S96T001220	0	F	@ALPHA01	ALPHA01	SOLID	N/A	4.59E-02	698.0e-005	uCi/g
4	SAMPLE	S96T001220	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.58E+01	0.0e+000	% Ct. Error
5	DUP	S96T001220	0	F	@ALPHA01	ALPHA01	SOLID	4.59E-2	4.51E-2	1.758	RPD
5	DUP	S96T001220	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.54E+01	25.400	% Ct. Erro
6	SPK	S96T001220	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	3.10E-02	86.351	% Recovery

Final page for worklist# 10497

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

7/8/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	1796	1933
10497	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		59.767	64.333
	Standard Value in µCi/mL		1.28E-04	
96006757	Concentration in µCi/L	=	1.28E-01	
	Replicate Concentration in µCi/L	=	1.38E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.3284E-01	

N/A

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

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

WL10497 ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L

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

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

SLH2

SLF	ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.33E-04	DETECTION LEVEL
EAL				7.71E-07 µCi/mL
07/03/96	RELATIVE COUNTING ERROR	=	4.6%	

07/01/96

11:59 PM

B-106

Analyst:		SLH2	Date: 03-Jul-96
Signature of Chemist:		SLF	Date: 7/8/96

STANDARD.WB1 Rev. 1.0 508101MB

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		16	16
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	7	9
10497	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2084	2.2084
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.307	0.200

96006757	Blank Concentration in µCi/g	<	5.96E-03
	Replicate Concentration in µCi/g		3.88E-03
0	Maximum Concentration in µCi/g	<	5.9574E-03

N/A

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

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

WL10497

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

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

SLH2

				DETECTION LEVEL
SLF	ALPHA TOTAL in µCi/g (Maximum)	=	< 5.96E-03	
EAL	LESS THAN Value was Determined from Rmax.			
07/03/96	RELATIVE COUNTING ERROR		155.0%	6.98E-03 µCi/g

07/01/96

11:59 PM

B-106

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

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

WHC-SD-WM-DP-140, REV. 1

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	82	66
10497	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2084	2.2084
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.633	2.100

96006757	Blank Concentration in µCi/g	5.11E-02
	Replicate Concentration in µCi/g	4.07E-02
1	Average Concentration in µCi/g	4.5887E-02

FUSION01

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

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

S96T001220

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

WB27806

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

SLH2

SLF	ALPHA TOTAL in µCi/g (Average)	=	4.59E-02	DETECTION LEVEL
EAL				6.98E-03 µCi/g
07/03/96	RELATIVE COUNTING ERROR		25.8%	

07/01/96

11:59 PM

B-106

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

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	68	68
10497	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0548	2.0548
	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.167	2.167

96006757	Blank Concentration in µCi/g 4.51E-02
	Replicate Concentration in µCi/g 4.51E-02
1	Average Concentration in µCi/g 4.5150E-02

FUSION01

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

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

S96T001220

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

WB27806

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

SLH2

SLF	ALPHA TOTAL in µCi/g (Average)	=	4.51E-02	DETECTION LEVEL
EAL				7.50E-03 µCi/g
07/03/96	RELATIVE COUNTING ERROR		25.4%	

07/01/96

11:59 PM

B-106

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

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	44731	42350
10497	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.1	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.050	0.050
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2084	2.2084
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96006757	SPIKE VALUE in µCi/mL	(SVal)	3.5884E-02	3.5884E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
1	SAMPLE + SPIKE µCi/g	(S+S)	2.89E+01	2.74E+01
	AVERAGE or MAXIMUM µCi/g in SAMPLE		4.5887E-02	

FUSION01

S96T001220

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

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

WB27806

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

SLH2

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

SLF

EAL

07/03/96

07/01/96	QC ACTUAL	=	3.59E-02
	QC FOUND	=	3.10E-02
11:59 PM	AVG. PERCENT SPIKE RECOVERY	=	86.4%

B-106

Analyst:		SLH2	Date: 03-Jul-96
Signature of Chemist:		SLF	Date: 7/8/96

SPIKE.WB1 Rev. 1.0 508101ML

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

LABCORE Data Entry Template for Worklist# 10385

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

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

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T001220	0	F	@ALPHA01	SOLID	96000898	B-106
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T001220	0	F	@ALPHA01	SOLID		
6	SPK	S96T001220	0	F	@ALPHA01	SOLID		

Final page for worklist # 10385

Kim Thomas 6-27-96
Analyst Signature **Date**

Shawn L Hulda 7-1-96
Analyst Signature **Date**

C.J. Ojanen 7/1/96

DATA NOT USED IN PACKAGE

Data Entry Comments: The RPD for the SPK + SPK Rep. is out of control limits. Sample will be rerun.

7/1/96

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

LABCORE Completed RadChem Report for Worklist#: 10385

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	1.28E-04	1.41E-4	110.156	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	4.20E+00	4.200	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<4.88E-3		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@ALPHA01	ALPHA01	SOLID	1.00E+00	1.67E+00	1.670	BLNK/BKG
4	SAMPLE	S96T001220	0	F	@ALPHA01	ALPHA01	SOLID	N/A	3.95E-02	682.0e-005	uCi/g
4	SAMPLE	S96T001220	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	2.77E+01	0.0e+000	% Ct. Error
5	DUP	S96T001220	0	F	@ALPHA01	ALPHA01	SOLID	3.95E-2	4.18E-2	5.658	RPD
5	DUP	S96T001220	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	2.55E+01	25.500	% Ct. Erro
6	SPK	S96T001220	0	F	@ALPHA01	ALPHA01	SOLID	3.59E-02	2.66E-02	74.095	% Recovery

Final page for worklist# 10385

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

7/1/96

Reviewer Signature **Date**

DATA
NOT USED
IN PACKAGE

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	2194	2281
10385	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		73.003	75.903
	Standard Value in µCi/mL		1.28E-04	
96006636	Concentration in µCi/L	=	1.38E-01	
	Replicate Concentration in µCi/L	=	1.44E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.4091E-01	

N/A

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

WL10385

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

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

WB26872

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

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

SLH2

SLF

				DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.41E-04		
RELATIVE COUNTING ERROR	=	4.2%		7.53E-07 µCi/mL

KNT

07/01/96

06/27/96

10:40 PM

B-106

Analyst:		SLH2	Date: 01-Jul-96
Signature of Chemist:		SLF	Date: 7-1-96

STANDARD.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	6	7
10385	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2084	2.2084
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.243	0.285

96006636	Blank Concentration in µCi/g	<	4.17E-03
	Replicate Concentration in µCi/g	<	4.88E-03
0	Maximum Concentration in µCi/g	<	4.8836E-03

N/A

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

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

WL10385

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

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

SLH2

SLF	ALPHA TOTAL in µCi/g (Maximum)	=	< 4.88E-03	DETECTION LEVEL
KNT	LESS THAN Value was Determined from Rmax.			6.82E-03 µCi/g
07/01/96	RELATIVE COUNTING ERROR		500.0%	

06/27/96

10:40 PM

B-106

Analyst:	KNT		Date: 01-Jul-96
Signature of Chemist:		SLF	Date: 7/1/96

BLANK.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM4

WHC-SD-WM-DP-140, REV. 1

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	61	85
10385	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2084	2.2084
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.903	2.703

96006636	Blank Concentration in µCi/g	3.26E-02
	Replicate Concentration in µCi/g	4.63E-02
0	Average Concentration in µCi/g	3.9480E-02

FUSION01

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

S96T001220

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

WB26872

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

SLH2

SLF	ALPHA TOTAL in µCi/g (Average)	=	3.95E-02	DETECTION LEVEL
KNT				6.82E-03 µCi/g
07/01/96	RELATIVE COUNTING ERROR		27.7%	

06/27/96

10:40 PM

B-106

Analyst:		KNT	Date: 01-Jul-96
Signature of Chemist:		SLF	Date: 7/1/96

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	70	74
10385	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0548	2.0548
	EFFICIENCY FACTOR	(EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.203	2.337

96006636	Blank Concentration in µCi/g	4.06E-02
	Replicate Concentration in µCi/g	4.30E-02
0	Average Concentration in µCi/g	4.1817E-02

FUSION01

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

S96T001220

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

WB26872

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

SLH2

SLF	ALPHA TOTAL in µCi/g (Average)	=	4.18E-02	DETECTION LEVEL
KNT				7.33E-03 µCi/g
07/01/96	RELATIVE COUNTING ERROR		25.5%	

06/27/96

10:40 PM

B-106

Analyst:		KNT	Date: 01-Jul-96
Signature of Chemist:		SLF	Date: 7/1/96

SAMPLE.WB1 Rev. 1. 508101ML

DATA NOT USED IN PACKAGE

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	37562	46943
10385	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	0.13	0.13
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.050	0.050
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2084	2.2084
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96006636	SPIKE VALUE in µCi/mL	(SVal)	3.5884E-02	3.5884E-02
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.238	0.238
0	SAMPLE + SPIKE µCi/g	(S+S)	2.15E+01	2.68E+01
	AVERAGE or MAXIMUM µCi/g in SAMPLE		3.9480E-02	

FUSION01

S96T001220

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

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

WB26872

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

SLH2

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

SLF

KNT

07/01/96

06/27/96	QC ACTUAL	=	3.59E-02
	QC FOUND	=	2.66E-02
10:40 PM	AVG. PERCENT SPIKE RECOVERY	=	74.2%

B-106

Analyst:		SLH2	Date: 01-Jul-96
Signature of Chemist:		SLF	Date: 7/1/96

SPIKE.WB1 Rev. 1.0 50810 WML

DATA NOT USED IN PACKAGE

WHC-SD-WM-DP-____, REV. ____ JAW 6/10/96

LABCORE Data Entry Template for Worklist# 7811

Analyst: EAL **Instrument:** AB00 15 **Book#** 42B56 BSpike & 47B56 STD

Method: LA-508-101 Rev/Mod D-2 WHC-SD-WM-DP-140, REV. 1

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S95T001299	0	F	@BETA-01	SOLID	95000096	B-106
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S95T001299	0	F	@BETA-01	SOLID		
6	SPK	S95T001299	0	F	@BETA-01	SOLID		
7	SAMPLE	S95T001303	0	F	@BETA-01	SOLID	95000096	B-106
		Analytes Requested: BETA-01 , BETA-01E						
8	DUP	S95T001303	0	F	@BETA-01	SOLID		

Final page for worklist # 7811

A Lambel 04.20.96
Analyst Signature **Date**

Shan L Uable 4.24.96
Analyst Signature **Date**

MB 4/24/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 7811

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01	BETA-01	SOLID	1.81E-03	1.95E-3	107.730	% Recovery
1	STD		0		@BETA-01	BETA-01E	SOLID	1.00	8.44E-01	0.840	% Ct. Error
2	BLNK-PREP		0		@BETA-01	BETA-01	SOLID	1	8.06E-2	80.000e-003	uCi/g
2	BLNK-PREP		0		@BETA-01	BETA-01E	SOLID	1.00	1.42E+01	14.200	% Ct. Error
3	BLNK/BKG		0		@BETA-01	BETA-01	SOLID	1.00E+00	2.77E+00	2.770	uCi/g
4	SAMPLE	S95T001299	0	F	@BETA-01	BETA-01	SOLID	N/A	1.33E+02	134.0e-004	uCi/g
4	SAMPLE	S95T001299	0	F	@BETA-01	BETA-01E	SOLID	N/A	2.21E-01	0.0e+000	% Ct. Error
5	DUP	S95T001299	0	F	@BETA-01	BETA-01	SOLID	1.33E+2	1.36E+2	2.230	RPD
5	DUP	S95T001299	0	F	@BETA-01	BETA-01E	SOLID	1.00	2.18E-01	0.220	% Ct. Error
6	SPK	S95T001299	0	F	@BETA-01	BETA-01	SOLID	1.92E-01	1.97E-01	102.600	% Recovery
7	SAMPLE	S95T001303	0	F	@BETA-01	BETA-01	SOLID	N/A	2.19E+02	198.0e-004	uCi/g
7	SAMPLE	S95T001303	0	F	@BETA-01	BETA-01E	SOLID	N/A	3.06E-01	0.0e+000	% Ct. Error
8	DUP	S95T001303	0	F	@BETA-01	BETA-01	SOLID	2.19E+2	2.22E+2	1.360	RPD
8	DUP	S95T001303	0	F	@BETA-01	BETA-01E	SOLID	1.00	3.03E-01	0.300	% Ct. Error

Final page for worklist# 7811

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

Reviewer Signature 4/25/96 **Date**

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

LABCORE Completed RadChem Report for Worklist#: 7811

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01 BETA-01	SOLID	1.81E-03	1.95E-3	107.730	% Recovery
1	STD		0		@BETA-01 BETA-01E	SOLID	1.00	8.44E-01	0.840	% Ct. Error
2	BLNK-PREP		0		@BETA-01 BETA-01	SOLID	1	1.70E-1	0.170	uCi/g
2	BLNK-PREP		0		@BETA-01 BETA-01E	SOLID	1.00	1.42E+01	14.200	% Ct. Error
3	BLNK/BKG		0		@BETA-01 BETA-01	SOLID	1.00E+00	2.77E+00	2.770	uCi/g
4	SAMPLE	S95T001299	0	F	@BETA-01 BETA-01	SOLID	N/A	1.33E+02	134.0e-004	uCi/g
4	SAMPLE	S95T001299	0	F	@BETA-01 BETA-01E	SOLID	N/A	2.21E-01	0.0e+000	% Ct. Error
5	DUP	S95T001299	0	F	@BETA-01 BETA-01	SOLID	1.33E+2	1.36E+2	2.230	RPD
5	DUP	S95T001299	0	F	@BETA-01 BETA-01E	SOLID	1.00	2.18E-01	0.220	% Ct. Error
6	SPK	S95T001299	0	F	@BETA-01 BETA-01	SOLID	1.92E-01	1.97E-01	102.600	% Recovery
7	SAMPLE	S95T001303	0	F	@BETA-01 BETA-01	SOLID	N/A	2.19E+02	198.0e-004	uCi/g
7	SAMPLE	S95T001303	0	F	@BETA-01 BETA-01E	SOLID	N/A	3.06E-01	0.0e+000	% Ct. Error
8	DUP	S95T001303	0	F	@BETA-01 BETA-01	SOLID	2.19E+2	2.22E+2	1.360	RPD
8	DUP	S95T001303	0	F	@BETA-01 BETA-01E	SOLID	1.00	3.03E-01	0.300	% Ct. Error

Final page for worklist# 7811

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

4/24/96
Reviewer Signature **Date**

Corrected BLNK + yield.
4/25/96

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	55096	54748
7811	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1827.533	1815.933
Batch Number	Standard Value in µCi/mL		1.81E-03	
96003644	Concentration in µCi/L	=	1.96E+00	
Rerun	Replicate Concentration in µCi/L	=	1.94E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	1.9506E+00	

Sample Prep: N/A

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

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

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

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

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

Sample # WL7811

Instrument Code WB26872

Prepared By SLH

Chemist SLF

Analyst EAL

Date Complete 04/24/96

Analysis Date 04/20/96

Analysis Time 03:20 PM

Sample Point B-106

				DETECTION LEVEL
TOTAL BETA CONCENTRATION in µCi/mL	=	1.95E-03		
RELATIVE COUNTING ERROR	=	0.8%		2.83E-06 µCi/mL

Analyst:		SLH	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
[illegible]	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
[illegible]	GROSS COUNTS	(GC)	796	698
7811	COUNT TIME in MINUTES	(CT)	30	30
[illegible]	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
[illegible]	DILUTION FACTOR	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1112	2.1112
[illegible]	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		17.533	14.267

[illegible]		
96003644	Blank Concentration in µCi/g	8.89E-02
[illegible]	Replicate Concentration in µCi/g	7.24E-02
0	Average Concentration in µCi/g	8.0638E-02

[illegible]	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
[illegible]	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
WL7811	
[illegible]	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
[illegible]	
SLH	
[illegible]	
SLF	TOTAL BETA in µCi/g (Average) = 8.06E-02
[illegible]	
EAL	
[illegible]	
04/24/96	RELATIVE COUNTING ERROR 14.2%
[illegible]	
04/20/96	
[illegible]	
03:20 PM	
[illegible]	
B-106	

DETECTION LEVEL
1.34E-02 µCi/g

Analyst:		EAL	Date: 24-Apr-96
Signature of Chemist:	[signature]	SLF	Date: 4/25/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	784169	791828
7811	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1112	2.1112
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		26129.967	26385.267

Batch Number	
96003644	Blank Concentration in µCi/g 1.33E+02
Rerun	Replicate Concentration in µCi/g 1.34E+02
0	Average Concentration in µCi/g 1.3317E+02
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S95T001299	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 1.33E+02
Analyst	
EAL	
Date Complete	
04/24/96	RELATIVE COUNTING ERROR 0.2%
Analysis Date	
04/20/96	
Analysis Time	
03:20 PM	
Sample Point	
B-106	

DETECTION LEVEL
1.34E-02 µCi/g

Analyst:		EAL	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	808131	825993
7811	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1392	2.1392
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		26928.700	27524.100

Batch Number	
96003644	Blank Concentration in µCi/g 1.35E+02
Rerun	Replicate Concentration in µCi/g 1.38E+02
0	Average Concentration in µCi/g 1.3627E+02
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S95T001299	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 1.36E+02
Analyst	
EAL	
Date Complete	
04/24/96	RELATIVE COUNTING ERROR 0.2%
Analysis Date	
04/20/96	
Analysis Time	
03:20 PM	
Sample Point	
B-106	

DETECTION LEVEL
1.32E-02 µCi/g

Analyst:		EAL	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	456110	436637
7811	COUNT TIME in MINUTES	(CT)	10	10
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1112	2.1112
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96003644	SPIKE VALUE in µCi/mL	(SVal)	1.9214E-01	1.9214E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
0	SAMPLE + SPIKE µCi/g	(S+S)	2.31E+02	2.21E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.3317E+02	
FUSION01				
Sample #				
S95T001299	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB26872	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SLH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
EAL				
Date Complete				
04/24/96				
Analysis Date				
04/20/96	QC ACTUAL	=	1.92E-01	
Analysis Time	QC FOUND	=	1.97E-01	
03:20 PM	AVG. PERCENT SPIKE RECOVERY	=	102.4%	
Sample Point				
B-106				

Analyst:		SLH	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	411521	409288
7811	COUNT TIME in MINUTES	(CT)	10	10
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0052	2.0052
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		41143.100	40919.800
Batch Number				
96003644	Blank Concentration in µCi/g		2.20E+02	
Rerun	Replicate Concentration in µCi/g		2.18E+02	
0	Average Concentration in µCi/g		2.1910E+02	

Sample Prep: FUSION01

Sample #: S95T001303

Instrument Code: WB26872

Prepared By: SLH

Chemist: SLF

Analyst: EAL

Date Complete: 04/24/96

Analysis Date: 04/20/96

Analysis Time: 03:20 PM

Sample Point: B-106

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

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

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

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

TOTAL BETA in µCi/g (Average)	=	2.19E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	1.98E-02 µCi/g

Analyst:		EAL	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	428075	418236
7811	COUNT TIME in MINUTES	(CT)	10	10
A1 or T9 ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0412	2.0412
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		42798.500	41814.600

Batch Number	
96003644	Blank Concentration in µCi/g 2.25E+02
Rerun	Replicate Concentration in µCi/g 2.19E+02
0	Average Concentration in µCi/g 2.2192E+02
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S95T001303	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SLH	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 2.22E+02
Analyst	
EAL	
Date Complete	
04/24/96	RELATIVE COUNTING ERROR 0.3%
Analysis Date	
04/20/96	
Analysis Time	
03:20 PM	
Sample Point	
B-106	

DETECTION LEVEL
1.94E-02 µCi/g

Analyst:		EAL	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 7812

Analyst: EAL **Instrument:** AB00 13 **Book#** 42B56 (B spike) & 47B56 (STD)

Method: LA-508-101 Rev/Mod D·2

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S95T001307	0	F	@BETA-01	SOLID	95000096	B-106
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S95T001307	0	F	@BETA-01	SOLID		
6	SPK	S95T001307	0	F	@BETA-01	SOLID		
7	SAMPLE	S95T001311	0	F	@BETA-01	SOLID	95000096	B-106
		Analytes Requested: BETA-01 , BETA-01E						
8	DUP	S95T001311	0	F	@BETA-01	SOLID			

Final page for worklist # 7812

A Lambel 04·20·96
Analyst Signature Date

Sue E. Hogan 4/22/96
Analyst Signature Date

C.J. Opinion 4/24/96

Data Entry Comments:

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

worklistdata Version 0.1 04/18/96
04/25/96 16:18

LABCORE Completed Worklist Report for Worklist# 7812

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01 BETA-01	SOLID	1.81E-03	1.89E-3	104.420	% Recovery
1	STD		0		@BETA-01 BETA-01E	SOLID	1.00	8.09E-01	0.809	% Ct. Error
2	BLNK-PREP		0		@BETA-01 BETA-01	SOLID	1	1.43E-2	0.014	uCi/g
2	BLNK-PREP		0		@BETA-01 BETA-01E	SOLID	1.00	9.12E+01	91.200	% Ct. Error
3	BLNK/BKG		0		@BETA-01 BETA-01	SOLID	1.00E+00	1.32E+00	1.320	uCi/g
4	SAMPLE	S95T001307	0	F	@BETA-01 BETA-01	SOLID	N/A	2.12E+01	0.012	uCi/g
4	SAMPLE	S95T001307	0	F	@BETA-01 BETA-01E	SOLID	N/A	5.18E-01	0.000	% Ct. Error
5	DUP	S95T001307	0	F	@BETA-01 BETA-01	SOLID	2.12E+1	1.90E+1	10.945	RPD
5	DUP	S95T001307	0	F	@BETA-01 BETA-01E	SOLID	1.00	5.56E-01	0.556	% Ct. Error
6	SPK	S95T001307	0	F	@BETA-01 BETA-01	SOLID	1.92E-01	1.93E-01	100.521	% Recovery
7	SAMPLE	S95T001311	0	F	@BETA-01 BETA-01	SOLID	N/A	1.46E+02	0.016	uCi/g
7	SAMPLE	S95T001311	0	F	@BETA-01 BETA-01E	SOLID	N/A	3.29E-01	0.000	% Ct. Error
8	DUP	S95T001311	0	F	@BETA-01 BETA-01	SOLID	1.46E+2	1.51E+2	3.367	RPD
8	DUP	S95T001311	0	F	@BETA-01 BETA-01E	SOLID	1.00	3.24E-01	0.324	% Ct. Error

Final page for worklist# 7812

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

4/25/96

Reviewer Signature **Date**

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

LABCORE Completed RadChem Report for Worklist#: 7812

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01	BETA-01	SOLID	1.81E-03	1.89E-3	104.420	% Recovery
1	STD		0		@BETA-01	BETA-01E	SOLID	1.00	8.09E-01	0.810	% Ct. Error
2	BLNK-PREP		0		@BETA-01	BETA-01	SOLID	1	1.43E-2	10.000e-003	uCi/g
2	BLNK-PREP		0		@BETA-01	BETA-01E	SOLID	1.00	9.12E+01	91.200	% Ct. Error
3	BLNK/BKG		0		@BETA-01	BETA-01	SOLID	1.00E+00	1.32E+00	1.320	uCi/g
4	SAMPLE	S95T001307	0	F	@BETA-01	BETA-01	SOLID	N/A	2.12E+01	123.0e-004	uCi/g
4	SAMPLE	S95T001307	0	F	@BETA-01	BETA-01E	SOLID	N/A	5.18E-01	0.0e+000	% Ct. Error
5	DUP	S95T001307	0	F	@BETA-01	BETA-01	SOLID	2.12E+1	1.90E+1	10.950	RPD
5	DUP	S95T001307	0	F	@BETA-01	BETA-01E	SOLID	1.00	5.56E-01	0.560	% Ct. Error
6	SPK	S95T001307	0	F	@BETA-01	BETA-01	SOLID	1.92E-01	1.93E-01	100.520	% Recovery
7	SAMPLE	S95T001311	0	F	@BETA-01	BETA-01	SOLID	N/A	1.46E+02	158.0e-004	uCi/g
7	SAMPLE	S95T001311	0	F	@BETA-01	BETA-01E	SOLID	N/A	3.29E-01	0.0e+000	% Ct. Error
8	DUP	S95T001311	0	F	@BETA-01	BETA-01	SOLID	1.46E+2	1.51E+2	3.370	RPD
8	DUP	S95T001311	0	F	@BETA-01	BETA-01E	SOLID	1.00	3.24E-01	0.320	% Ct. Error

Final page for worklist# 7812

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

4/25/96

Reviewer Signature **Date**

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

LABCORE Completed RadChem Report for Worklist#: 7812

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		●BETA-01	BETA-01	SOLID	1.81E-03	1.89E-3	104.420	% Recovery
1	STD		0		●BETA-01	BETA-01E	SOLID	1.00	8.09E-01	0.810	% Ct. Error
2	BLNK-PREP		0		●BETA-01	BETA-01	SOLID	1	2.98E-2	30.000e-003	uCi/g
2	BLNK-PREP		0		●BETA-01	BETA-01E	SOLID	1.00	9.12E+01	91.200	% Ct. Error
3	BLNK/BKG		0		●BETA-01	BETA-01	SOLID	1.00E+00	1.32E+00	1.320	uCi/g
4	SAMPLE	S95T001307	0	F	●BETA-01	BETA-01	SOLID	N/A	2.12E+01	123.0e-004	uCi/g
4	SAMPLE	S95T001307	0	F	●BETA-01	BETA-01E	SOLID	N/A	5.18E-01	0.0e+000	% Ct. Error
5	DUP	S95T001307	0	F	●BETA-01	BETA-01	SOLID	2.12E+1	1.90E+1	10.950	RPD
5	DUP	S95T001307	0	F	●BETA-01	BETA-01E	SOLID	1.00	5.56E-01	0.560	% Ct. Error
6	SPK	S95T001307	0	F	●BETA-01	BETA-01	SOLID	1.92E-01	1.93E-01	100.520	% Recovery
7	SAMPLE	S95T001311	0	F	●BETA-01	BETA-01	SOLID	N/A	1.46E+02	158.0e-004	uCi/g
7	SAMPLE	S95T001311	0	F	●BETA-01	BETA-01E	SOLID	N/A	3.29E-01	0.0e+000	% Ct. Error
8	DUP	S95T001311	0	F	●BETA-01	BETA-01	SOLID	1.46E+2	1.51E+2	3.370	RPD
8	DUP	S95T001311	0	F	●BETA-01	BETA-01E	SOLID	1.00	3.24E-01	0.320	% Ct. Error

Final page for worklist# 7812

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

4/24/96

Reviewer Signature **Date**

Corrected BLNK found + yield.

4/25/96

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		13	13
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Worksheet	GROSS COUNTS	(GC)	69636	63853
7812	COUNT TIME in MINUTES	(CT)	30	30
Analyst	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
Dilution	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Type	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1977.867	2118.433
Standard Value	Standard Value in µCi/mL		1.81E-03	
96003645	Concentration in µCi/L	=	1.82E+00	
Rerun	Replicate Concentration in µCi/L	=	1.95E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	1.8859E+00	
Sample Prep				
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG			
Sample #	TOTAL BETA µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)			
WL7812	TOTAL BETA µCi/mL = TOTAL BETA µCi/L / 1000mL/L			
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
Prepared By				
SEH				
Chemist				
SLF	TOTAL BETA CONCENTRATION in µCi/mL	=	1.89E-03	DETECTION LEVEL
Analyst				
EAL				
Date Complete				2.56E-06 µCi/mL
04/22/96	RELATIVE COUNTING ERROR	=	0.8%	
Analysis Date				
04/20/96				
Analysis Time				
03:20 PM				
Sample Point				
B-106				

Analyst:		SEH	Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		13	13
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	355	439
7812	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0808	2.0808
	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.833	4.633

96003645	Blank Concentration in µCi/g	8.11E-03
	Replicate Concentration in µCi/g	2.05E-02
0	Average Concentration in µCi/g	1.4308E-02

N/A

WL7812

WB27810

SEH

SLF

EAL

04/22/96

04/20/96

03:20 PM

B-106

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

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

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

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

			DETECTION LEVEL
TOTAL BETA in µCi/g (Average)	=	1.43E-02	
RELATIVE COUNTING ERROR		91.2%	1.23E-02 µCi/g

Analyst:	EAL		Date: 22-Apr-96
Signature of Chemist:	SLF		Date:

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	144775	143892
7812	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0808	2.0808
	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4815.833	4786.400

Batch Number	
96003645	Blank Concentration in µCi/g 2.13E+01
Rerun	Replicate Concentration in µCi/g 2.12E+01
0	Average Concentration in µCi/g 2.1246E+01

Sample Prep
FUSION01

Sample #
S95T001307

Instrument code
WB27810

Prepared By
SEH

Chemist
SLF

Analyst
EAL

Date Complete
04/22/96

Analysis Date
04/20/96

Analysis Time
03:20 PM

Sample Point
B-106

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

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

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

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

			DETECTION LEVEL
TOTAL BETA in µCi/g (Average)	=	2.12E+01	1.23E-02 µCi/g
RELATIVE COUNTING ERROR		0.5%	

Analyst:	EAL		Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	125372	125910
7812	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0208	2.0208
	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4169.067	4187.000

Batch Number		
96003645	Blank Concentration in µCi/g	1.90E+01
Run	Replicate Concentration in µCi/g	1.91E+01
0	Average Concentration in µCi/g	1.9037E+01

Sample Prep
FUSION01

Sample
S95T001307

Instrument Code
WB27810

Prepared By
SEH

Chemist
SLF

Analyst
EAL

Date Complete
04/22/96

Analysis Date
04/20/96

Analysis Time
03:20 PM

Sample Point
B-106

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

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

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

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

TOTAL BETA in µCi/g (Average)	=	1.90E+01	DETECTION LEVEL
			1.27E-02 µCi/g
RELATIVE COUNTING ERROR		0.6%	

Analyst:		EAL	Date: 22-Apr-96
Signature of Chemist:	[signature]	SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Wt	TOTAL COUNTS	(TC)	772036	773315
7812	COUNT TIME in MINUTES	(CT)	30	30
Vol	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
Dil	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0808	2.0808
Vol	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96003645	SPIKE VALUE in µCi/mL	(SVal)	1.9214E-01	1.9214E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
0	SAMPLE + SPIKE µCi/g	(S+S)	1.14E+02	1.14E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.1246E+01	

FUSION01	
Sample ID	
S95T001307	Rs (Sample Count Rate) = (TC / CT) - BKG
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)
WB27810	QC ACTUAL = SVal
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100
Chemist	
SLF	
Analyst	
EAL	
Date Complete	
04/22/96	
Analysis Date	
04/20/96	
Analysis Time	
03:20 PM	
Sample Point	
B-106	

QC ACTUAL	=	1.92E-01	
QC FOUND	=	1.93E-01	
AVG. PERCENT SPIKE RECOVERY	=	100.4%	

Analyst:		SEH	Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	365128	355478
7812	COUNT TIME in MINUTES	(CT)	10	10
	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2684	2.2684
	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		36502.800	35537.800

Blank Number	
96003645	Blank Concentration in µCi/g 1.48E+02
Replicate	Replicate Concentration in µCi/g 1.44E+02
0	Average Concentration in µCi/g 1.4621E+02

Sample Prep
FUSION01

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

Sample
S95T001311

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

Instrument Body
WB27810

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

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

Prepared By
SEH

Chemist
SLF

TOTAL BETA in µCi/g (Average)	=	1.46E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.3%	1.58E-02 µCi/g

Analyst
EAL

Date Complete
04/22/96

Analysis Date
04/20/96

Analysis Time
03:20 PM

Sample Point
B-106

Analyst:		EAL	Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

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

			DUP	REPLICATE
	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	379719	367375
7812	COUNT TIME in MINUTES	(CT)	10	10
	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	1	1
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2828	2.2828
	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		37961.900	36727.500

Blank Number	
96003645	Blank Concentration in µCi/g 1.53E+02
Replicate	Replicate Concentration in µCi/g 1.48E+02
0	Average Concentration in µCi/g 1.5063E+02
Sample Type	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample ID	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S95T001311	
Instrument Number	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Preparer(s)	
SEH	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 1.51E+02
Analyst	
EAL	
Date Complete	
04/22/96	RELATIVE COUNTING ERROR 0.3%
Analysis Date	
04/20/96	
Analysis Time	
03:20 PM	
Sample Point	
B-106	

DETECTION LEVEL
1.57E-02 µCi/g

Analyst:		EAL	Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 7896

Analyst: S.C.L **Instrument:** AB00 15 **Book#** ~~42B56~~ 4-23-96 47B56

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

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S96T001647	0	F	@BETA-01	SOLID	95000096	B-106
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S96T001647	0	F	@BETA-01	SOLID		
6	SPK	S96T001647	0	F	@BETA-01	SOLID		

Final page for worklist # 7896

Sue C Lai 4-23-96
Analyst Signature **Date**

Sharon L Walker 4-24-96
Analyst Signature **Date**

M B Brown 4/24/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 7896

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01 BETA-01	SOLID	1.81E-03	1.99E-3	109.940	% Recovery
1	STD		0		@BETA-01 BETA-01E	SOLID	1.00	8.42E-01	0.840	% Ct. Error
2	BLNK-PREP		0		@BETA-01 BETA-01	SOLID	1	1.64E-1	0.160	uCi/g
2	BLNK-PREP		0		@BETA-01 BETA-01E	SOLID	1.00	4.62E+01	46.200	% Ct. Error
3	BLNK/BKG		0		@BETA-01 BETA-01	SOLID	1.00E+00	1.83E+00	1.830	uCi/g
4	SAMPLE	S96T001647	0	F	@BETA-01 BETA-01	SOLID	N/A	1.62E+02	582.0e-004	uCi/g
4	SAMPLE	S96T001647	0	F	@BETA-01 BETA-01E	SOLID	N/A	4.18E-01	0.0e+000	% Ct. Error
5	DUP	S96T001647	0	F	@BETA-01 BETA-01	SOLID	1.62E+2	1.67E+2	3.040	RPD
5	DUP	S96T001647	0	F	@BETA-01 BETA-01E	SOLID	1.00	4.11E-01	0.410	% Ct. Error
6	SPK	S96T001647	0	F	@BETA-01 BETA-01	SOLID	1.92E-01	1.77E-01	92.190	% Recovery

Final page for worklist# 7896

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

4/25/96

Reviewer Signature **Date**

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

LABCORE Completed RadChem Report for Worklist#: 7896

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01	BETA-01	SOLID	1.81E-03	1.99E-3	109.940	% Recovery
1	STD		0		@BETA-01	BETA-01E	SOLID	1.00	8.42E-01	0.840	% Ct. Error
2	BLNK-PREP		0		@BETA-01	BETA-01	SOLID	1	3.51E-1	0.350	uCi/g
2	BLNK-PREP		0		@BETA-01	BETA-01E	SOLID	1.00	4.62E+01	46.200	% Ct. Error
3	BLNK/BKG		0		@BETA-01	BETA-01	SOLID	1.00E+00	1.83E+00	1.830	uCi/g
4	SAMPLE	S96T001647	0	F	@BETA-01	BETA-01	SOLID	N/A	1.62E+02	582.0e-004	uCi/g
4	SAMPLE	S96T001647	0	F	@BETA-01	BETA-01E	SOLID	N/A	4.18E-01	0.0e+000	% Ct. Error
5	DUP	S96T001647	0	F	@BETA-01	BETA-01	SOLID	1.62E+2	1.67E+2	3.040	RPD
5	DUP	S96T001647	0	F	@BETA-01	BETA-01E	SOLID	1.00	4.11E-01	0.410	% Ct. Error
6	SPK	S96T001647	0	F	@BETA-01	BETA-01	SOLID	1.92E-01	1.77E-01	92.190	% Recovery

Final page for worklist# 7896

Analyst Signature Date

Analyst Signature Date

4/24/96

Reviewer Signature Date

Corrected BLNK found + yield.

4/25/96

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	57130	55013
7896	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1895.333	1824.767
Batch Number	Standard Value in µCi/mL		1.81E-03	
96003726	Concentration in µCi/L	=	2.03E+00	
Rerun	Replicate Concentration in µCi/L	=	1.95E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	1.9916E+00	
Sample Prep				
N/A				
Sample #				
WL7896				
Instrument Code				
WB26872				
Prepared By				
SLH				
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
04/24/96				
Analysis Date				
04/23/96				
Analysis Time				
03:30 PM				
Sample Point				
B-106				

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

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

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

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

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

TOTAL BETA CONCENTRATION in µCi/mL	=	1.99E-03	DETECTION LEVEL	
RELATIVE COUNTING ERROR	=	0.8%	2.83E-06 µCi/mL	

Analyst:		SLH	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	378	609
7896	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1424	2.1424
	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.600	11.300

96003726	Blank Concentration in µCi/g	7.92E-02
	Replicate Concentration in µCi/g	2.48E-01
0	Average Concentration in µCi/g	1.6383E-01

N/A

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

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

WL7896

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

WB26572

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

SLH

SLF

			DETECTION LEVEL
TOTAL BETA in µCi/g (Average)	=	1.64E-01	
			5.82E-02 µCi/g
RELATIVE COUNTING ERROR		46.2%	

SCL

04/24/96

04/23/96

03:30 PM

B-106

Analyst:		SCL	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	220552	223183
7896	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1424	2.1424
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7342.733	7430.433

Blank Concentration in µCi/g	1.61E+02
Replicate Concentration in µCi/g	1.63E+02
Average Concentration in µCi/g	1.6243E+02

Batch Number: 96003726
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T001647
Instrument Code: WB26872
Prepared By: SLH
Chemist: SLF
Analyst: SCL
Date Complete: 04/24/96
Analysis Date: 04/23/96
Analysis Time: 03:30 PM
Sample Point: B-106

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

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

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

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

TOTAL BETA in µCi/g (Average)	=	1.62E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.4%	5.82E-02 µCi/g

Analyst:		SCL	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	234215	227785
7896	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.164	2.164
Matrix	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		7798.167	7583.833
Batch Number				
96003726	Blank Concentration in µCi/g		1.70E+02	
Rerun	Replicate Concentration in µCi/g		1.65E+02	
0	Average Concentration in µCi/g		1.6744E+02	

Sample Prep: FUSION01

Sample #: S96T001647

Instrument Code: WB26872

Prepared By: SLH

Chemist: SLF

Analyst: SCL

Date Complete: 04/24/96

Analysis Date: 04/23/96

Analysis Time: 03:30 PM

Sample Point: B-106

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

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

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

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

TOTAL BETA in µCi/g (Average)	=	1.67E+02		DETECTION LEVEL
RELATIVE COUNTING ERROR		0.4%		5.76E-02 µCi/g

Analyst:		SCL	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

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WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	717774	717649
7896	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.250	0.250
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1424	2.1424
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96003726	SPIKE VALUE in µCi/mL	(SVal)	1.9211E-01	1.9211E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
0	SAMPLE + SPIKE µCi/g	(S+S)	5.26E+02	5.26E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.6243E+02	
FUSION01				
Sample #				
S96T001647	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB26872	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SLH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
04/24/96				
Analysis Date				
04/23/96	QC ACTUAL	=	1.92E-01	
Analysis Time	QC FOUND	=	1.77E-01	
03:30 PM	AVG. PERCENT SPIKE RECOVERY	=	92.1%	
Sample Point				
B-106				

Analyst:		SLH	Date: 24-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 8188

Analyst: S.C.L **Instrument:** AB00 13 **Book#** 47856

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

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S96T001220	0	F	@BETA-01	SOLID	95000096	B-106
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S96T001220	0	F	@BETA-01	SOLID		
6	SPK	S96T001220	0	F	@BETA-01	SOLID		

Final page for worklist # 8188

Sue C Li 5-1-96
Analyst Signature **Date**

Sylvia Z Cochran 5/2/96
Analyst Signature **Date**

Sue E. Hogan 5/3/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8188

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01	BETA-01	SOLID	1.81E-03	1.94E-3	107.182	% Recovery
1	STD		0		@BETA-01	BETA-01E	SOLID	1.00	7.84E-01	0.784	% Ct. Error
2	BLNK-PREP		0		@BETA-01	BETA-01	SOLID	1	<4.68E-2		uCi/g
2	BLNK-PREP		0		@BETA-01	BETA-01E	SOLID	1.00	1.49E+02	149.000	% Ct. Error
3	BLNK/BKG		0		@BETA-01	BETA-01	SOLID	1.00E+00	1.15E+00	1.150	uCi/g
4	SAMPLE	S96T001220	0	F	@BETA-01	BETA-01	SOLID	N/A	1.78E+02	523.0e-004	uCi/g
4	SAMPLE	S96T001220	0	F	@BETA-01	BETA-01E	SOLID	N/A	3.65E-01	0.0e+000	% Ct. Error
5	DUP	S96T001220	0	F	@BETA-01	BETA-01	SOLID	1.78E+2	1.85E+2	3.857	RPD
5	DUP	S96T001220	0	F	@BETA-01	BETA-01E	SOLID	1.00	3.71E-01	0.371	% Ct. Error
6	SPK	S96T001220	0	F	@BETA-01	BETA-01	SOLID	1.92E-01	1.79E-01	93.229	% Recovery

Final page for worklist# 8188

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

5/7/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		13	13
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	63703	63471
8188	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	10.5	10.5
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2112.933	2105.200
Batch Number	Standard Value in µCi/mL		1.81E-03	
96004047	Concentration in µCi/L	=	1.95E+00	
Rerun	Replicate Concentration in µCi/L	=	1.94E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	1.9420E+00	
Sample Prep				
N/A				
Sample #				
WL8188				
Instrument Code				
WB27810				
Prepared By				
SZC				
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
05/02/96				
Analysis Date				
05/01/96				
Analysis Time				
02:00 PM				
Sample Point				
B-106				

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

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

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

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

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

TOTAL BETA CONCENTRATION in µCi/mL	=	1.94E-03		DETECTION LEVEL
RELATIVE COUNTING ERROR	=	0.8%		2.63E-06 µCi/mL

Analyst:	SZC	Date: 02-May-96
Signature of Chemist:	SLF	Date: 5/1/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		13	13
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	349	374
8188	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	10.5	10.5
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2084	2.2084
Matrix	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.551	1.967

Batch Number			
96004047	Blank Concentration in µCi/g	<	4.68E-02
Rerun	Replicate Concentration in µCi/g		3.61E-02
0	Maximum Concentration in µCi/g	<	4.6792E-02

Sample Prep: N/A

Sample #: WL8188

Instrument Code: WB27810

Prepared By: SZC

Chemist: SLF

Analyst: SCL

Date Complete: 05/02/96

Analysis Date: 05/01/96

Analysis Time: 02:00 PM

Sample Point: B-106

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

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

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

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

TOTAL BETA in µCi/g (Maximum) = < 4.68E-02		DETECTION LEVEL
LESS THAN Value was Determined from Rmax.		
RELATIVE COUNTING ERROR	148.5%	5.23E-02 µCi/g

Analyst:	SCL	Date: 02-May-96
Signature of Chemist:	SLF	Date: 5/1/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	289394	293128
8188	COUNT TIME in MINUTES	(CT)	30	30
A1 or TB ?	BACKGROUND in cpm	(BKG)	10.5	10.5
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2084	2.2084
Matrix	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9635.967	9760.433

Batch Number	
96004047	Blank Concentration in µCi/g 1.77E+02
Rerun	Replicate Concentration in µCi/g 1.79E+02
0	Average Concentration in µCi/g 1.7792E+02
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T001220	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SZC	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 1.78E+02
Analyst	
SCL	
Date Complete	
05/02/96	RELATIVE COUNTING ERROR 0.4%
Analysis Date	
05/01/96	
Analysis Time	
02:00 PM	
Sample Point	
B-106	

DETECTION LEVEL
5.23E-02 µCi/g

Analyst:	SCL	Date: 02-May-96
Signature of Chemist:	SLF	Date: 5/1/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	282822	279722
8188	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	10.5	10.5
TB	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0548	2.0548
Matrix	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		9416.900	9313.567

Batch Number	
96004047	Blank Concentration in µCi/g 1.86E+02
Rerun	Replicate Concentration in µCi/g 1.84E+02
0	Average Concentration in µCi/g 1.8466E+02
Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T001220	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SZC	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 1.85E+02
Analyst	
SCL	
Date Complete	
05/02/96	RELATIVE COUNTING ERROR 0.4%
Analysis Date	
05/01/96	
Analysis Time	
02:00 PM	
Sample Point	
B-106	

DETECTION LEVEL
5.62E-02 µCi/g

Analyst:	SCL	Date: 02-May-96	
Signature of Chemist:	SLF	Date: 5/1/96	

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	880436	866136
8188	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	10.5	10.5
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.250	0.250
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2084	2.2084
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96004047	SPIKE VALUE in µCi/mL	(SVal)	1.9201E-01	1.9201E-01
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
0	SAMPLE + SPIKE µCi/g	(S+S)	5.38E+02	5.29E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.7792E+02	
FUSION01				
Sample #				
S96T001220	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27810	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SZC	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
05/02/96				
Analysis Date				
05/01/96	QC ACTUAL	=	1.92E-01	
Analysis Time	QC FOUND	=	1.79E-01	
02:00 PM	AVG. PERCENT SPIKE RECOVERY	=	93.0%	
Sample Point				
B-106				

Analyst:	SZC	Date: 02-May-96
Signature of Chemist:	SLF	Date: 5/1/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 10461

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

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

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S95T001277	0	F	@BETA-01	SOLID	96000898	B-106
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S95T001277	0	F	@BETA-01	SOLID		
6	SAMPLE	S95T001279	0	F	@BETA-01	SOLID	96000898	B-106
		Analytes Requested: BETA-01 , BETA-01E						
7	DUP	S95T001279	0	F	@BETA-01	SOLID		
8	SPK	S95T001279	0	F	@BETA-01	SOLID		

Final page for worklist # 10461

Sandra Rhood Boatright
Analyst Signature **Date** 6-29-96

Sharon L Uhlde 7-2-96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 10461

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01 BETA-01	SOLID	1.80E-03	1.81E-3	100.556	% Recovery
1	STD		0		@BETA-01 BETA-01E	SOLID	1.00	8.81E-01	0.881	% Ct. Erro
2	BLNK-PREP		0		@BETA-01 BETA-01	SOLID	1	<8.44E-2		uCi/g
2	BLNK-PREP		0		@BETA-01 BETA-01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG		0		@BETA-01 BETA-01	SOLID	1.00E+00	1.10E+00	1.100	BLNK/BKG
4	SAMPLE	S95T001277	0	F	@BETA-01 BETA-01	SOLID	N/A	2.47E+02	137.0e-003	uCi/g
4	SAMPLE	S95T001277	0	F	@BETA-01 BETA-01E	SOLID	N/A	5.20E-01	0.0e+000	% Ct. Error
5	DUP	S95T001277	0	F	@BETA-01 BETA-01	SOLID	2.47E+2	2.46E+2	0.406	RPD
5	DUP	S95T001277	0	F	@BETA-01 BETA-01E	SOLID	1.00	5.19E-01	0.519	% Ct. Erro
6	SAMPLE	S95T001279	0	F	@BETA-01 BETA-01	SOLID	N/A	2.62E+02	136.0e-003	uCi/g
6	SAMPLE	S95T001279	0	F	@BETA-01 BETA-01E	SOLID	N/A	5.05E-01	0.0e+000	% Ct. Error
7	DUP	S95T001279	0	F	@BETA-01 BETA-01	SOLID	2.62E+2	2.63E+2	0.381	RPD
7	DUP	S95T001279	0	F	@BETA-01 BETA-01E	SOLID	1.00	5.02E-01	0.502	% Ct. Erro
8	SPK	S95T001279	0	F	@BETA-01 BETA-01	SOLID	1.53E-01	1.42E-01	92.810	% Recovery

Final page for worklist# 10461

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

7/2/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	51342	50265
10461	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.4195	0.4195
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1702.400	1666.500
	Standard Value in µCi/mL		1.80E-03	
96006713	Concentration in µCi/L	=	1.83E+00	
	Replicate Concentration in µCi/L	=	1.79E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	1.8087E+00	

N/A

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

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

WL10461 TOTAL BETA µCi/mL = TOTAL BETA µCi/L / 1000mL/L

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

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

SLH2

SLF	TOTAL BETA CONCENTRATION in µCi/mL	=	1.81E-03	DETECTION LEVEL
SLH				2.84E-06 µCi/mL
07/02/96	RELATIVE COUNTING ERROR	=	0.9%	

06/29/96

11:30 PM

B-106

Analyst:		SLH2	Date: 02-Jul-96
Signature of Chemist:		SLF	Date: 7/2/96

STANDARD.WB1 Rev. 1.0 508101ML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		16	16
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	319	276
10461	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.098	2.098
	EFFICIENCY FACTOR	(EFF)	0.4195	0.4195
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.633	1.485

96006713	Blank Concentration in µCi/g		8.44E-02
	Replicate Concentration in µCi/g	<	7.68E-02
0	Maximum Concentration in µCi/g	<	8.4432E-02

N/A

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

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

WL10461

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

WB27806

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

SLH2

SLF	TOTAL BETA in µCi/g (Maximum)	=	< 8.44E-02	DETECTION LEVEL
SLH	LESS THAN Value was Determined from Rs.			1.37E-01 µCi/g
07/02/96	RELATIVE COUNTING ERROR		500.0%	

06/29/96

11:30 PM

B-106

Analyst:		SLH	Date: 02-Jul-96
Signature of Chemist:		SLF	Date: 7/2/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	143899	142944
10461	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.098	2.098
	EFFICIENCY FACTOR	(EFF)	0.4195	0.4195
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4787.633	4755.800

96006713	Blank Concentration in µCi/g	2.47E+02
	Replicate Concentration in µCi/g	2.46E+02
1	Average Concentration in µCi/g	2.4666E+02

FUSION01

S95T001277

WB27806

SLH2

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

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

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

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

SLF	TOTAL BETA in µCi/g (Average)	=	2.47E+02	DETECTION LEVEL
SLH				1.37E-01 µCi/g
07/02/96	RELATIVE COUNTING ERROR		0.5%	

06/29/96

11:30 PM

B-106

Analyst:		SLH	Date: 02-Jul-96
Signature of Chemist:		SLF	Date: 7/2/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	143195	144216
10461	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.108	2.108
	EFFICIENCY FACTOR	(EFF)	0.4195	0.4195
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4764.167	4798.200

96006713	Blank Concentration in µCi/g	2.45E+02
	Replicate Concentration in µCi/g	2.47E+02
1	Average Concentration in µCi/g	2.4598E+02

FUSION01

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

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

S95T001277

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

WB27806

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

SLH2

SLF	TOTAL BETA in µCi/g (Average)	=	2.46E+02	DETECTION LEVEL
SLH				1.36E-01 µCi/g
07/02/96	RELATIVE COUNTING ERROR		0.5%	

06/29/96

11:30 PM

B-106

Analyst:	SLH		Date: 02-Jul-96
Signature of Chemist:		SLF	Date: 7/2/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM6

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	154924	151510
10461	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1124	2.1124
	EFFICIENCY FACTOR	(EFF)	0.4195	0.4195
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		5155.133	5041.333

96006713	Blank Concentration in µCi/g	2.65E+02
	Replicate Concentration in µCi/g	2.59E+02
1	Average Concentration in µCi/g	2.6175E+02

FUSION01

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

S95T001279

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

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

WB27806

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

SLH2

SLF	TOTAL BETA in µCi/g (Average)	=	2.62E+02	DETECTION LEVEL
SLH				1.36E-01 µCi/g
07/02/96	RELATIVE COUNTING ERROR		0.5%	

06/29/96

11:30 PM

B-106

Analyst:		SLH	Date: 02-Jul-96
Signature of Chemist:		SLF	Date: 7/2/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP7

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

			DUP	REPLICATE
	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	153378	159295
10461	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.142	2.142
	EFFICIENCY FACTOR	(EFF)	0.4195	0.4195
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		5103.600	5300.833

96006713	Blank Concentration in µCi/g	2.58E+02
	Replicate Concentration in µCi/g	2.68E+02
1	Average Concentration in µCi/g	2.6339E+02

FUSION01

S95T001279

WB27806

SLH2

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

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

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

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

SLF	TOTAL BETA in µCi/g (Average)	=	2.63E+02	DETECTION LEVEL
SLH				1.34E-01 µCi/g
07/02/96	RELATIVE COUNTING ERROR		0.5%	

06/29/96

11:30 PM

B-106

Analyst:		SLH	Date: 02-Jul-96
Signature of Chemist:		SLF	Date: 7/2/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK8

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	553211	545377
10461	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	9	9
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1124	2.1124
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	58B56	58B56
96006713	SPIKE VALUE in µCi/mL	(SVal)	1.5278E-01	1.5278E-01
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4195	0.4195
1	SAMPLE + SPIKE µCi/g	(S+S)	9.46E+02	9.33E+02
	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.6175E+02	

FUSION01

S95T001279

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

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

WB27806

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

SLH2

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

SLF

SLH

07/02/96

06/29/96	QC ACTUAL	=	1.53E-01
	QC FOUND	=	1.42E-01
11:30 PM	AVG. PERCENT SPIKE RECOVERY	=	92.8%

B-106

Analyst:		SLH2	Date: 02-Jul-96
Signature of Chemist:		SLF	Date: 7/2/96

SPIKE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 10462

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

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

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S95T001282	0	F	@BETA-01	SOLID	96000898	B-106
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S95T001282	0	F	@BETA-01	SOLID		
6	SAMPLE	S95T001285	0	F	@BETA-01	SOLID	96000898	B-106
		Analytes Requested: BETA-01 , BETA-01E						
7	DUP	S95T001285	0	F	@BETA-01	SOLID		
8	SPK	S95T001285	0	F	@BETA-01	SOLID		

Final page for worklist # 10462

Sandra J Hood Boatright
Analyst Signature **Date** 6-29-96

Sharon L Malch 7-2-96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 10462

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01	BETA-01	SOLID	1.80E-03	1.86E-3	103.333	% Recovery
1	STD		0		@BETA-01	BETA-01E	SOLID	1.00	8.64E-01	0.864	% Ct. Erro
2	BLNK-PREP		0		@BETA-01	BETA-01	SOLID	1	2.48E-1	0.248	uCi/g
2	BLNK-PREP		0		@BETA-01	BETA-01E	SOLID	1.00	4.26E+01	42.600	uCi/g
3	BLNK/BKG		0		@BETA-01	BETA-01	SOLID	1.00E+00	1.61E+00	1.610	BLNK/BKG
4	SAMPLE	S95T001282	0	F	@BETA-01	BETA-01	SOLID	N/A	2.77E+01	128.0e-003	uCi/g
4	SAMPLE	S95T001282	0	F	@BETA-01	BETA-01E	SOLID	N/A	1.56E+00	0.0e+000	% Ct. Error
5	DUP	S95T001282	0	F	@BETA-01	BETA-01	SOLID	2.77E+1	2.47E+1	11.450	RPD
5	DUP	S95T001282	0	F	@BETA-01	BETA-01E	SOLID	1.00	1.66E+00	1.660	% Ct. Erro
6	SAMPLE	S95T001285	0	F	@BETA-01	BETA-01	SOLID	N/A	1.73E+02	120.0e-003	uCi/g
6	SAMPLE	S95T001285	0	F	@BETA-01	BETA-01E	SOLID	N/A	6.09E-01	0.0e+000	% Ct. Error
7	DUP	S95T001285	0	F	@BETA-01	BETA-01	SOLID	1.73E+2	1.78E+2	2.849	RPD
7	DUP	S95T001285	0	F	@BETA-01	BETA-01E	SOLID	1.00	6.04E-01	0.604	% Ct. Erro
8	SPK	S95T001285	0	F	@BETA-01	BETA-01	SOLID	1.53E-01	1.42E-01	92.810	% Recovery

Final page for worklist# 10462

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

7/2/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		15	15
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	52150	52535
10462	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1730.333	1743.167
	Standard Value in µCi/mL		1.80E-03	
96006714	Concentration in µCi/L	=	1.85E+00	
	Replicate Concentration in µCi/L	=	1.87E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	1.8596E+00	

N/A

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

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

WL10462

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

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

WB26872

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

SLH2

SLF	TOTAL BETA CONCENTRATION in µCi/mL	=	1.86E-03	DETECTION LEVEL
SLH				2.68E-06 µCi/mL
07/02/96	RELATIVE COUNTING ERROR	=	0.9%	

06/29/96

11:30 PM

B-106

Analyst:		SLH2	Date: 02-Jul-96
Signature of Chemist:		SLF	Date: 7/2/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		15	15
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	420	352
10462	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1208	2.1208
	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.000	3.733

96006714	Blank Concentration in µCi/g	3.06E-01
	Replicate Concentration in µCi/g	1.90E-01
0	Average Concentration in µCi/g	2.4816E-01

N/A

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

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

WL10462

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

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

SLH2

				DETECTION LEVEL
SLF	TOTAL BETA in µCi/g (Average)	=	2.48E-01	
SLH				
07/02/96	RELATIVE COUNTING ERROR		42.6%	1.28E-01 µCi/g

06/29/96

11:30 PM

B-106

Analyst:		SLH	Date: 02-Jul-96
Signature of Chemist:		SLF	Date: 7/2/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	16625	16497
10462	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1208	2.1208
	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		546.167	541.900

96006714	Blank Concentration in µCi/g	2.78E+01
	Replicate Concentration in µCi/g	2.76E+01
1	Average Concentration in µCi/g	2.7741E+01

FUSION01

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

S95T001282

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

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

WB26872

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

SLH2

SLF	TOTAL BETA in µCi/g (Average)	=	2.77E+01	DETECTION LEVEL
SLH				1.28E-01 µCi/g
07/02/96	RELATIVE COUNTING ERROR		1.6%	

06/29/96

11:30 PM

B-106

Analyst:		SLH	Date: 02-Jul-96
Signature of Chemist:		SLF	Date: 7/2/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	14589	14738
10462	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1068	2.1068
	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		478.300	483.267

96006714	Blank Concentration in µCi/g	2.46E+01
	Replicate Concentration in µCi/g	2.48E+01
1	Average Concentration in µCi/g	2.4679E+01

FUSION01

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

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

S95T001282

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

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

SLH2

SLF	TOTAL BETA in µCi/g (Average)	=	2.47E+01	DETECTION LEVEL
SLH				1.28E-01 µCi/g
07/02/96	RELATIVE COUNTING ERROR		1.7%	

06/29/96

11:30 PM

B-106

Analyst:		SLH	Date: 02-Jul-96
Signature of Chemist:		SLF	Date: 7/2/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM6

WHC-SD-WM-DP-140, REV. 1

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	104262	112066
10462	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2472	2.2472
	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3467.400	3727.533

96006714	Blank Concentration in µCi/g	1.67E+02
	Replicate Concentration in µCi/g	1.79E+02
1	Average Concentration in µCi/g	1.7312E+02

FUSION01

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

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

S95T001285

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

WB26872

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

SLH2

SLF	TOTAL BETA in µCi/g (Average)	=	1.73E+02	DETECTION LEVEL
SLH				1.20E-01 µCi/g
07/02/96	RELATIVE COUNTING ERROR		0.6%	

06/29/96

11:30 PM

B-106

Analyst:	SLH	Date: 02-Jul-96	
Signature of Chemist:	SLF	Date: 7/2/96	

SAMPLE.WB1 Rev. 1.0 508101ML

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

			DUP	REPLICATE
	DETECTOR NUMBER		15	15
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	106183	111782
10462	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1984	2.1984
	EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3531.433	3718.067

96006714	Blank Concentration in µCi/g	1.74E+02
	Replicate Concentration in µCi/g	1.83E+02
1	Average Concentration in µCi/g	1.7831E+02

FUSION01

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

S95T001285

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

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

WB26872

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

SLH2

SLF	TOTAL BETA in µCi/g (Average)	=	1.78E+02	DETECTION LEVEL
SLH				1.23E-01 µCi/g
07/02/96	RELATIVE COUNTING ERROR		0.6%	

06/29/96

11:30 PM

B-106

Analyst:		SLH	Date: 02-Jul-96
Signature of Chemist:		SLF	Date: 7/2/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK8

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		15	15
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	505114	505905
10462	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	8	8
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2472	2.2472
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	58B56	58B56
96006714	SPIKE VALUE in µCi/mL	(SVal)	1.5278E-01	1.5278E-01
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4207	0.4207
1	SAMPLE + SPIKE µCi/g	(S+S)	8.10E+02	8.11E+02
	AVERAGE or MAXIMUM µCi/g in SAMPLE		1.7312E+02	

FUSION01

S95T001285

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

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

WB26872

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

SLH2

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

SLF

SLH

07/02/96

06/29/96

QC ACTUAL	=	1.53E-01
QC FOUND	=	1.42E-01
AVG. PERCENT SPIKE RECOVERY	=	92.8%

11:30 PM

B-106

Analyst:		SLH2	Date: 02-Jul-96
Signature of Chemist:		SLF	Date: 7/2/96

SPIKE.WB1 Rev. 1.0 508101ML

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

LABCORE Data Entry Template for Worklist# 7793

Analyst: S.C.L **Instrument:** AB00 #13 **Book#** 47B56

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

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S95T001277	0	F	@BETA-01	SOLID	95000096	B-106
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S95T001277	0	F	@BETA-01	SOLID		
6	SAMPLE	S95T001279	0	F	@BETA-01	SOLID	95000096	B-106
		Analytes Requested: BETA-01 , BETA-01E						
7	DUP	S95T001279	0	F	@BETA-01	SOLID		
8	SPK	S95T001279	0	F	@BETA-01	SOLID		

Final page for worklist # 7793

Sue C Lai 4-19-96
Analyst Signature **Date**

C.J. Ojanen 4/23/96
Analyst Signature **Date**

M.B. 4/24/96

DATA NOT USED IN PACKAGE

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 7793

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01	BETA-01	SOLID	1.81E-03	1.95E-3	107.730	% Recovery
1	STD		0		@BETA-01	BETA-01E	SOLID	1.00	7.83E-01	0.780	% Ct. Error
2	BLNK-PREP		0		@BETA-01	BETA-01	SOLID	1	9.83E-1	0.980	uCi/g
2	BLNK-PREP		0		@BETA-01	BETA-01E	SOLID	1.00	1.16E+02	116.000	% Ct. Error
3	BLNK/BKG		0		@BETA-01	BETA-01	SOLID	1.00E+00	1.22E+00	1.220	uCi/g
4	SAMPLE	S95T001277	0	F	@BETA-01	BETA-01	SOLID	N/A	2.16E+03	123.0e-002	uCi/g
4	SAMPLE	S95T001277	0	F	@BETA-01	BETA-01E	SOLID	N/A	5.14E-01	0.0e+000	% Ct. Error
5	DUP	S95T001277	0	F	@BETA-01	BETA-01	SOLID	2.16E+3	2.27E+3	4.970	RPD
5	DUP	S95T001277	0	F	@BETA-01	BETA-01E	SOLID	1.00	5.01E-01	0.500	% Ct. Error
6	SAMPLE	S95T001279	0	F	@BETA-01	BETA-01	SOLID	N/A	2.45E+03	123.0e-002	uCi/g
6	SAMPLE	S95T001279	0	F	@BETA-01	BETA-01E	SOLID	N/A	4.83E-01	0.0e+000	% Ct. Error
7	DUP	S95T001279	0	F	@BETA-01	BETA-01	SOLID	2.45E+3	2.50E+3	2.020	RPD
7	DUP	S95T001279	0	F	@BETA-01	BETA-01E	SOLID	1.00	4.74E-01	0.470	% Ct. Error
8	SPK	S95T001279	0	F	@BETA-01	BETA-01	SOLID	1.92E-01	1.79E-01	93.230	% Recovery

Final page for worklist# 7793

Analyst Signature **Date**

Analyst Signature **Date**

Reviewer Signature **Date** 4/25/96

DATA
NOT USED
IN PACKAGE

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

LABCORE Completed RadChem Report for Worklist#: 7793

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01	BETA-01	SOLID	1.81E-03	1.95E-3	107.730	% Recovery
1	STD		0		@BETA-01	BETA-01E	SOLID	1.00	7.83E-01	0.780	% Ct. Error
2	BLNK-PREP		0		@BETA-01	BETA-01	SOLID	1	2.06E+0	2.060	uCi/g
2	BLNK-PREP		0		@BETA-01	BETA-01E	SOLID	1.00	1.16E+02	116.000	% Ct. Error
3	BLNK/BKG		0		@BETA-01	BETA-01	SOLID	1.00E+00	1.22E+00	1.220	uCi/g
4	SAMPLE	S95T001277	0	F	@BETA-01	BETA-01	SOLID	N/A	2.16E+03	123.0e-002	uCi/g
4	SAMPLE	S95T001277	0	F	@BETA-01	BETA-01E	SOLID	N/A	5.14E-01	0.0e+000	% Ct. Error
5	DUP	S95T001277	0	F	@BETA-01	BETA-01	SOLID	2.16E+3	2.27E+3	4.970	RPD
5	DUP	S95T001277	0	F	@BETA-01	BETA-01E	SOLID	1.00	5.01E-01	0.500	% Ct. Error
6	SAMPLE	S95T001279	0	F	@BETA-01	BETA-01	SOLID	N/A	2.45E+03	123.0e-002	uCi/g
6	SAMPLE	S95T001279	0	F	@BETA-01	BETA-01E	SOLID	N/A	4.83E-01	0.0e+000	% Ct. Error
7	DUP	S95T001279	0	F	@BETA-01	BETA-01	SOLID	2.45E+3	2.50E+3	2.020	RPD
7	DUP	S95T001279	0	F	@BETA-01	BETA-01E	SOLID	1.00	4.74E-01	0.470	% Ct. Error
8	SPK	S95T001279	0	F	@BETA-01	BETA-01	SOLID	1.92E-01	1.79E-01	93.230	% Recovery

Final page for worklist# 7793

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date 4/24/96

Corrected BLNK found + yield.
4/25/96

DATA NOT USED IN PACKAGE

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		13	13
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	64155	63526
7793	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2128.500	2107.533
	Standard Value in µCi/mL		1.81E-03	
96003626	Concentration in µCi/L	=	1.96E+00	
	Replicate Concentration in µCi/L	=	1.94E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	1.9502E+00	

N/A

WL7793

WB27810

CJO

SLF

SCL

04/23/96

04/19/96

12:00 PM

B-106

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

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

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

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

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

TOTAL BETA CONCENTRATION in µCi/mL	=	1.95E-03	DETECTION LEVEL	
RELATIVE COUNTING ERROR	=	0.8%	2.56E-06 µCi/mL	

Analyst:		CJO	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

STANDARD.WB1 Rev. 1.0 508101M

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
	DETECTOR NUMBER		13	13
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	390	343
7793	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.098	2.098
	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.000	1.433

96003626	Blank Concentration in µCi/g	1.33E+00
	Replicate Concentration in µCi/g	6.35E-01
0	Average Concentration in µCi/g	9.8260E-01

Sample Prep: N/A

Sample #: WL7793

Instrument Code: WB27810

Computed by: CJO

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

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

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

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

Chemist: SLF

TOTAL BETA in µCi/g (Average)	=	9.83E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR		115.6%	1.23E+00 µCi/g

Analyst: SCL

Date Completed: 04/23/96

Analysis Date: 04/19/96

Analysis Time: 12:00 PM

Sample Point: B-106

Analyst:		SCL	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/25/96

BLANK.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
TYPE	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	146878	146300
7793	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.098	2.098
	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		4885.933	4866.667

96003626	Blank Concentration in µCi/g	2.17E+03
	Replicate Concentration in µCi/g	2.16E+03
0	Average Concentration in µCi/g	2.1616E+03

FUSION01

S95T001277

WB27810

CJO

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

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

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

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

SLF

SCL

04/23/96

04/19/96

12:00 PM

B-106

TOTAL BETA in µCi/g (Average)	=	2.16E+03	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.5%	1.23E+00 µCi/g

Analyst:	SCL		Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	153996	154693
7793	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.108	2.108
	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		5123.200	5146.433

96003626	Blank Concentration in µCi/g 2.26E+03
	Replicate Concentration in µCi/g 2.27E+03
0	Average Concentration in µCi/g 2.2654E+03

FUSION01

S95T001277

WB27810

CJO

SLF

SCL

04/23/96

04/19/96

12:00 PM

B-106

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

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

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

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

			DETECTION LEVEL
TOTAL BETA in µCi/g (Average)	=	2.27E+03	
RELATIVE COUNTING ERROR		0.5%	1.23E+00 µCi/g

Analyst:		SCL	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM6

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		13	13
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	165585	168811
7793	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1124	2.1124
	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		5509.500	5617.033

96003626	Blank Concentration in µCi/g	2.43E+03
	Replicate Concentration in µCi/g	2.47E+03
0	Average Concentration in µCi/g	2.4493E+03

FUSION01

S95T001279

WB27810

C:IO

SLF

SCL

04/23/96

04/19/96

12:00 PM

B-106

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

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

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

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

TOTAL BETA in µCi/g (Average)	=	2.45E+03	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.5%	1.23E+00 µCi/g

Analyst:	SCL		Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP7

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

			DUP	REPLICATE
	DETECTOR NUMBER		13	13
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	172147	174236
7793	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.142	2.142
	EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		5728.233	5797.867

96003626	Blank Concentration in µCi/g	2.49E+03
	Replicate Concentration in µCi/g	2.52E+03
0	Average Concentration in µCi/g	2.5022E+03

FUSION01

S95T001279

WB27810

C-10

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

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

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

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

SLF	TOTAL BETA in µCi/g (Average)	=	2.50E+03	DETECTION LEVEL
SCL				1.21E+00 µCi/g
04/23/96	RELATIVE COUNTING ERROR		0.5%	

04/19/96

12:00 PM

B-106

Analyst:		SCL	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: SPK8

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

			SPIKE	REPLICATE
	DETECTOR NUMBER		13	13
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
	TOTAL COUNTS	(TC)	752842	748461
7793	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	10	10
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1124	2.1124
	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96003626	SPIKE VALUE in µCi/mL	(SVal)	1.9216E-01	1.9216E-01
	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4892	0.4892
0	SAMPLE + SPIKE µCi/g	(S+S)	1.10E+04	1.10E+04
	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.4493E+03	

FUSION01

S95T001279

WB27810

CJO

SLF

SCL

04/23/96

04/19/96

12:00 PM

B-106

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

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

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

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

QC ACTUAL	=	1.92E-01
QC FOUND	=	1.79E-01
AVG. PERCENT SPIKE RECOVERY	=	93.2%

Analyst:		CJO	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SPIKE.WB1 Rev. 1.0 508101MV

615

DATA NOT USED IN PACKAGE

LABCORE Data Entry Template for Worklist# 7794

Analyst: S.C.L **Instrument:** AB00 14 **Book#** 47B56

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

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@BETA-01	SOLID		
2	BLNK-PREP				@BETA-01	SOLID		
3	BLNK/BKG				@BETA-01	SOLID		
4	SAMPLE	S95T001282	0	F	@BETA-01	SOLID	95000096	B-106
		Analytes Requested: BETA-01 , BETA-01E						
5	DUP	S95T001282	0	F	@BETA-01	SOLID		
6	SPK	S95T001282	0	F	@BETA-01	SOLID		
7	SAMPLE	S95T001285	0	F	@BETA-01	SOLID	95000096	B-106
		Analytes Requested: BETA-01 , BETA-01E						
8	DUP	S95T001285	0	F	@BETA-01	SOLID		

Final page for worklist # 7794

Sue C Lai 4-19-96
Analyst Signature **Date**

C. J. Quinn 4/23/96
Analyst Signature **Date**

M S Brown 4/24/96

Data Entry Comments:

DATA NOT USED IN PACKAGE

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

LABCORE Completed RadChem Report for Worklist#: 7794

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01	BETA-01	SOLID	1.81E-03	2.02E-3	111.600	% Recovery
1	STD		0		@BETA-01	BETA-01E	SOLID	1.00	8.06E-01	0.810	% Ct. Error
2	BLNK-PREP		0		@BETA-01	BETA-01	SOLID	1	3.86E+0	3.860	uCi/g
2	BLNK-PREP		0		@BETA-01	BETA-01E	SOLID	1.00	5.56E+01	55.600	% Ct. Error
3	BLNK/BKG		0		@BETA-01	BETA-01	SOLID	1.00E+00	1.34E+00	1.340	uCi/g
4	SAMPLE	S95T001282	0	F	@BETA-01	BETA-01	SOLID	N/A	2.78E+02	140.0e-002	uCi/g
4	SAMPLE	S95T001282	0	F	@BETA-01	BETA-01E	SOLID	N/A	1.53E+00	0.0e+000	% Ct. Error
5	DUP	S95T001282	0	F	@BETA-01	BETA-01	SOLID	2.78E+2	2.45E+2	12.620	RPD
5	DUP	S95T001282	0	F	@BETA-01	BETA-01E	SOLID	1.00	1.63E+00	1.630	% Ct. Error
6	SPK	S95T001282	0	F	@BETA-01	BETA-01	SOLID	1.92E-01	1.93E-01	100.520	% Recovery
7	SAMPLE	S95T001285	0	F	@BETA-01	BETA-01	SOLID	N/A	1.73E+03	133.0e-002	uCi/g
7	SAMPLE	S95T001285	0	F	@BETA-01	BETA-01E	SOLID	N/A	5.82E-01	0.0e+000	% Ct. Error
8	DUP	S95T001285	0	F	@BETA-01	BETA-01	SOLID	1.73E+3	1.84E+3	6.160	RPD
8	DUP	S95T001285	0	F	@BETA-01	BETA-01E	SOLID	1.00	5.70E-01	0.570	% Ct. Error

Final page for worklist# 7794

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

4/24/96
Reviewer Signature **Date**

Corrected BLNK found + yield.
4/25/96

DATA NOT USED PACKAGE

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

LABCORE Completed RadChem Report for Worklist#: 7794

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

Method: _____ Rev/Mod _____

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

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@BETA-01	BETA-01	SOLID	1.81E-03	2.02E-3	111.600	% Recovery
1	STD		0		@BETA-01	BETA-01E	SOLID	1.00	8.06E-01	0.810	% Ct. Error
2	BLNK-PREP		0		@BETA-01	BETA-01	SOLID	1	1.82E+0	1.820	uCi/g
2	BLNK-PREP		0		@BETA-01	BETA-01E	SOLID	1.00	5.56E+01	55.600	% Ct. Error
3	BLNK/BKG		0		@BETA-01	BETA-01	SOLID	1.00E+00	1.34E+00	1.340	uCi/g
4	SAMPLE	S95T001282	0	F	@BETA-01	BETA-01	SOLID	N/A	2.78E+02	140.0e-002	uCi/g
4	SAMPLE	S95T001282	0	F	@BETA-01	BETA-01E	SOLID	N/A	1.53E+00	0.0e+000	% Ct. Error
5	DUP	S95T001282	0	F	@BETA-01	BETA-01	SOLID	2.78E+2	2.45E+2	12.620	RPD
5	DUP	S95T001282	0	F	@BETA-01	BETA-01E	SOLID	1.00	1.63E+00	1.630	% Ct. Error
6	SPK	S95T001282	0	F	@BETA-01	BETA-01	SOLID	1.92E-01	1.93E-01	100.520	% Recovery
7	SAMPLE	S95T001285	0	F	@BETA-01	BETA-01	SOLID	N/A	1.73E+03	133.0e-002	uCi/g
7	SAMPLE	S95T001285	0	F	@BETA-01	BETA-01E	SOLID	N/A	5.82E-01	0.0e+000	% Ct. Error
8	DUP	S95T001285	0	F	@BETA-01	BETA-01	SOLID	1.73E+3	1.84E+3	6.160	RPD
8	DUP	S95T001285	0	F	@BETA-01	BETA-01E	SOLID	1.00	5.70E-01	0.570	% Ct. Error

Final page for worklist# 7794

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

4/25/96

Reviewer Signature **Date**

DATA NOT USED IN PACKAGE

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

WORKBOOK PAGE: STD1

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

			STANDARD	REPLICATE
	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	60175	60262
7794	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	1.000	1.000
	DILUTION FACTOR	(DF)	1	1
@BETA-01	STANDARD BOOK NUMBER	(Std BN)	47B56	47B56
	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1994.833	1997.733
	Standard Value in µCi/mL		1.81E-03	
96003627	Concentration in µCi/L	=	2.02E+00	
	Replicate Concentration in µCi/L	=	2.02E+00	
0	AVERAGE CONCENTRATION in µCi/L	=	2.0185E+00	

N/A

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

WL7794

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

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

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

WB27807

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

CJO

SLF

				DETECTION LEVEL
TOTAL BETA CONCENTRATION in µCi/mL	=	2.02E-03		
RELATIVE COUNTING ERROR	=	0.8%		2.95E-06 µCi/mL

SCL

04/23/96

04/19/96

03:30 PM

B-106

Analyst:	CJO		Date: 23-Apr-96
Signature of Chemist:	SLF		Date: 4/24/96

STANDARD.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: BLANK2

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

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		14	14
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	427	460
7794	COUNT TIME in MINUTES	(CT)	30	30
Instrument	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
Dilution Code	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1208	2.1208
Matrix	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.233	4.333

Batch Number		
96003627	Blank Concentration in µCi/g	1.56E+00
Reading	Replicate Concentration in µCi/g	2.09E+00
0	Average Concentration in µCi/g	1.8218E+00

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	TOTAL BETA µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
WL7794	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
CJO	
Chemist	
SLF	TOTAL BETA in µCi/g (Average) = 1.82E+00
Analyst	
SCL	
Data Complete	
04/23/96	RELATIVE COUNTING ERROR 55.6%
Analysis Date	
04/19/96	
Analysis Time	
03:30 PM	
Sample Point	
B-106	

DETECTION LEVEL
1.40E+00 µCi/g

Analyst:		SCL	Date: 23-Apr-96
Signature of Chemist:	[signature]	SLF	Date: 4/25/96

BLANK.WB1 Rev. 1.0 508101M

DATA NOT USED IN PACKAGE

620

WORKBOOK PAGE: SAM4

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	17826	17444
7794	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1208	2.1208
	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		583.200	570.467

96003627	Blank Concentration in µCi/g 2.81E+02
	Replicate Concentration in µCi/g 2.75E+02
0	Average Concentration in µCi/g 2.7776E+02

FUSION01

S95T001282

WB27807

CJO

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

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

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

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

SLF	TOTAL BETA in µCi/g (Average)	=	2.78E+02	DETECTION LEVEL
SCL				1.40E+00 µCi/g
04/23/96	RELATIVE COUNTING ERROR		1.5%	

04/19/96

03:30 PM

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Analyst:		SCL	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	15386	15628
7794	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1068	2.1068
	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		501.867	509.933

96003627	Blank Concentration in µCi/g	2.43E+02
	Replicate Concentration in µCi/g	2.47E+02
0	Average Concentration in µCi/g	2.4522E+02

FUSION01

S95T001282

WB27807

CJO

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

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

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

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

SLF

SCL

04/23/96

04/19/96

03:30 PM

B-108

TOTAL BETA in µCi/g (Average)	=	2.45E+02	DETECTION LEVEL
RELATIVE COUNTING ERROR		1.6%	1.41E+00 µCi/g

Analyst:	SCL		Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

622

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SPK6

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

			SPIKE	REPLICATE
Vial	DETECTOR NUMBER		14	14
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
[illegible]	TOTAL COUNTS	(TC)	583426	599277
7794	COUNT TIME in MINUTES	(CT)	30	30
[illegible]	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.100	0.100
[illegible]	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1208	2.1208
[illegible]	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	42B56	42B56
96003627	SPIKE VALUE in µCi/mL	(SVal)	1.9216E-01	1.9216E-01
[illegible]	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
0	SAMPLE + SPIKE µCi/g	(S+S)	9.36E+03	9.61E+03
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE .		2.7776E+02	

FUSION01

[illegible]

S95T001282

Instrument Code

WB27807

Prepared By

CJO

[illegible]

SLF

Analyst

SCL

[illegible]

04/23/96

Analysis Date

04/19/96

Analysis Time

03:30 PM

Sample Point

B-106

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

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

QC ACTUAL = SVal

QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))

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

QC ACTUAL	=	1.92E-01
QC FOUND	=	1.93E-01
AVG. PERCENT SPIKE RECOVERY	=	100.6%

Analyst:		CJO	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SPIKE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: SAM7

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

			SAMPLE	REPLICATE
	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	114228	114420
7794	COUNT TIME In MINUTES	(CT)	30	30
	BACKGROUND In cpm	(BKG)	11	11
TB	SAMPLE SIZE In mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2472	2.2472
	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3796.600	3803.000

96003627	Blank Concentration In µCi/g 1.73E+03
	Replicate Concentration In µCi/g 1.73E+03
0	Average Concentration In µCi/g 1.7268E+03

FUSION01

S95T001285

WB27807

CJO

SLF

SCL

04/23/96

04/19/96

03:30 PM

B-106

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

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

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

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

TOTAL BETA in µCi/g (Average)	=	1.73E+03	DETECTION LEVEL
RELATIVE COUNTING ERROR		0.6%	1.33E+00 µCi/g

Analyst:		SCL	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

WORKBOOK PAGE: DUP8

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

			DUP	REPLICATE
	DETECTOR NUMBER		14	14
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
	GROSS COUNTS	(GC)	119578	119172
7794	COUNT TIME in MINUTES	(CT)	30	30
	BACKGROUND in cpm	(BKG)	11	11
TB	SAMPLE SIZE in mL	(SS)	0.100	0.100
	DILUTION FACTOR	(DF)	101	101
@BETA-01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.1984	2.1984
	EFFICIENCY FACTOR	(EFF)	0.4455	0.4455
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3974.933	3961.400

96003627	Blank Concentration in µCi/g	1.85E+03
	Replicate Concentration in µCi/g	1.84E+03
0	Average Concentration in µCi/g	1.8433E+03

FUSION01

S95T001285

WB27807

CJO

SLF

SCL

04/23/96

04/19/96

03:30 PM

B-106

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

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

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

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

				DETECTION LEVEL
TOTAL BETA in µCi/g (Average)	=	1.84E+03		
RELATIVE COUNTING ERROR		0.6%		1.35E+00 µCi/g

Analyst:		SCL	Date: 23-Apr-96
Signature of Chemist:		SLF	Date: 4/24/96

SAMPLE.WB1 Rev. 1.0 508101ML

DATA NOT USED IN PACKAGE

LABCORE Data Entry Template for Worklist# 7819

Analyst: WGB **Instrument:** GEA00 3 **Book#** 12856

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

Worklist Comment: B-106. Sample size is on traveler. new (.250) RUSH

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-03	SOLID		
2	BLNK-PREP				@GEA-03	SOLID		
3	SAMPLE	S95T001277	0	F	@GEA-03	SOLID	95000096	B-106
	Analytes Requested:	CE14402 , CE14402E, CO60-02 , CO60-02E, CS13402 , CS13402E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E, NB94-02 , NB94-02E, RA22602 , RA22602E, RU10602 , RU10602E						
4	DUP	S95T001277	0	F	@GEA-03	SOLID		
5	SAMPLE	S95T001279	0	F	@GEA-03	SOLID	95000096	B-106
	Analytes Requested:	CE14402 , CE14402E, CO60-02 , CO60-02E, CS13402 , CS13402E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E, NB94-02 , NB94-02E, RA22602 , RA22602E, RU10602 , RU10602E						
6	DUP	S95T001279	0	F	@GEA-03	SOLID		

Final page for worklist # 7819

Wm. G. Burbank 4-20-96
Analyst Signature **Date**

Sue E. Hogan 4/25/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7819

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

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

Worklist Comment: B-106. Sample size is on traveler. new

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-03	CO60-02	SOLID	0.0256		2.54e-02	99.219	% Recovery
1	STD		0		@GEA-03	CO60-02E	SOLID	1		1.21	1.210	% Ct. Error
1	STD		0		@GEA-03	CS13702	SOLID	0.0271		2.79e-02	102.952	% Recovery
1	STD		0		@GEA-03	CS13702E	SOLID	1		1.44	1.440	% Ct. Error
2	BLNK-PREP		0		@GEA-03	CO60-02	SOLID	1		<5.25e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	NB94-02	SOLID	1		<3.45e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	RU10602	SOLID	1		<7.56e-1		uCi/g
2	BLNK-PREP		0		@GEA-03	CS13402	SOLID	1		<3.49e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	CS13702	SOLID	1		<6.43e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	CE14402	SOLID	1		<4.11e-1		uCi/g
2	BLNK-PREP		0		@GEA-03	EU15402	SOLID	1		<1.64e-1		uCi/g
2	BLNK-PREP		0		@GEA-03	EU15502	SOLID	1		<1.23e-1		uCi/g
2	BLNK-PREP		0		@GEA-03	RA22602	SOLID	1		<8.20e-1		uCi/g
3	SAMPLE	S95T001277	0	F	@GEA-03	CO60-02	SOLID	N/A	<	5.296e-02	0.053	uCi/g
3	SAMPLE	S95T001277	0	F	@GEA-03	CO60-02E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001277	0	F	@GEA-03	NB94-02	SOLID	N/A	<	4.482e-02	0.045	uCi/g
3	SAMPLE	S95T001277	0	F	@GEA-03	NB94-02E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001277	0	F	@GEA-03	RU10602	SOLID	N/A	<	1.131e+00	1.131	uCi/g
3	SAMPLE	S95T001277	0	F	@GEA-03	RU10602E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001277	0	F	@GEA-03	CS13402	SOLID	N/A	<	6.456e-02	0.065	uCi/g
3	SAMPLE	S95T001277	0	F	@GEA-03	CS13402E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001277	0	F	@GEA-03	CS13702	SOLID	N/A		1.006e+01	0.000	uCi/g
3	SAMPLE	S95T001277	0	F	@GEA-03	CS13702E	SOLID	N/A		3.07	0.000	% Ct. Error
3	SAMPLE	S95T001277	0	F	@GEA-03	CE14402	SOLID	N/A	<	8.760e-01	0.876	uCi/g
3	SAMPLE	S95T001277	0	F	@GEA-03	CE14402E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001277	0	F	@GEA-03	EU15402	SOLID	N/A	<	1.618e-01	0.162	uCi/g
3	SAMPLE	S95T001277	0	F	@GEA-03	EU15402E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001277	0	F	@GEA-03	EU15502	SOLID	N/A	<	2.469e-01	0.247	uCi/g
3	SAMPLE	S95T001277	0	F	@GEA-03	EU15502E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001277	0	F	@GEA-03	RA22602	SOLID	N/A	<	1.585e+00	1.585	uCi/g
3	SAMPLE	S95T001277	0	F	@GEA-03	RA22602E	SOLID	N/A		n/a	0.000	% Ct. Error
4	DUP	S95T001277	0	F	@GEA-03	CO60-02	SOLID	<5.30e-2		<4.45e-2		RPD
4	DUP	S95T001277	0	F	@GEA-03	CO60-02E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001277	0	F	@GEA-03	NB94-02	SOLID	<4.48e-2		<4.11e-2		RPD
4	DUP	S95T001277	0	F	@GEA-03	NB94-02E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001277	0	F	@GEA-03	RU10602	SOLID	<1.13e0		<1.28e0		RPD
4	DUP	S95T001277	0	F	@GEA-03	RU10602E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001277	0	F	@GEA-03	CS13402	SOLID	<6.46e-2		<5.89e-2		RPD
4	DUP	S95T001277	0	F	@GEA-03	CS13402E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001277	0	F	@GEA-03	CS13702	SOLID	1.01e+01		1.04e+01	2.927	RPD
4	DUP	S95T001277	0	F	@GEA-03	CS13702E	SOLID	1		3.00	3.000	% Ct. Error

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

LABCORE Completed Worklist Report for Worklist# 7819

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
4	DUP	S95T001277	0	F	@GEA-03	CE14402	SOLID	<8.76e-1	<8.90e-1		RPD
4	DUP	S95T001277	0	F	@GEA-03	CE14402E	SOLID	1	n/a		% Ct. Error
4	DUP	S95T001277	0	F	@GEA-03	EU15402	SOLID	<1.62e-1	<1.55e-1		RPD
4	DUP	S95T001277	0	F	@GEA-03	EU15402E	SOLID	1	n/a		% Ct. Error
4	DUP	S95T001277	0	F	@GEA-03	EU15502	SOLID	<2.47e-1	<2.63e-1		RPD
4	DUP	S95T001277	0	F	@GEA-03	EU15502E	SOLID	1	n/a		% Ct. Error
4	DUP	S95T001277	0	F	@GEA-03	RA22602	SOLID	<1.58e0	<1.52e0		RPD
4	DUP	S95T001277	0	F	@GEA-03	RA22602E	SOLID	1	n/a		% Ct. Error
5	SAMPLE	S95T001279	0	F	@GEA-03	CO60-02	SOLID	N/A <	5.948e-02	0.059	uCi/g
5	SAMPLE	S95T001279	0	F	@GEA-03	CO60-02E	SOLID	N/A	n/a	0.000	% Ct. Error
5	SAMPLE	S95T001279	0	F	@GEA-03	NB94-02	SOLID	N/A <	4.344e-02	0.043	uCi/g
5	SAMPLE	S95T001279	0	F	@GEA-03	NB94-02E	SOLID	N/A	n/a	0.000	% Ct. Error
5	SAMPLE	S95T001279	0	F	@GEA-03	RU10602	SOLID	N/A <	2.042e+00	2.042	uCi/g
5	SAMPLE	S95T001279	0	F	@GEA-03	RU10602E	SOLID	N/A	n/a	0.000	% Ct. Error
5	SAMPLE	S95T001279	0	F	@GEA-03	CS13402	SOLID	N/A <	1.046e-01	0.105	uCi/g
5	SAMPLE	S95T001279	0	F	@GEA-03	CS13402E	SOLID	N/A	n/a	0.000	% Ct. Error
5	SAMPLE	S95T001279	0	F	@GEA-03	CS13702	SOLID	N/A	5.160e+01	0.000	uCi/g
5	SAMPLE	S95T001279	0	F	@GEA-03	CS13702E	SOLID	N/A	1.32	0.000	% Ct. Error
5	SAMPLE	S95T001279	0	F	@GEA-03	CE14402	SOLID	N/A <	1.406e+00	1.406	uCi/g
5	SAMPLE	S95T001279	0	F	@GEA-03	CE14402E	SOLID	N/A	n/a	0.000	% Ct. Error
5	SAMPLE	S95T001279	0	F	@GEA-03	EU15402	SOLID	N/A <	1.562e-01	0.156	uCi/g
5	SAMPLE	S95T001279	0	F	@GEA-03	EU15402E	SOLID	N/A	n/a	0.000	% Ct. Error
5	SAMPLE	S95T001279	0	F	@GEA-03	EU15502	SOLID	N/A <	3.982e-01	0.398	uCi/g
5	SAMPLE	S95T001279	0	F	@GEA-03	EU15502E	SOLID	N/A	n/a	0.000	% Ct. Error
5	SAMPLE	S95T001279	0	F	@GEA-03	RA22602	SOLID	N/A <	2.712e+00	2.712	uCi/g
5	SAMPLE	S95T001279	0	F	@GEA-03	RA22602E	SOLID	N/A	n/a	0.000	% Ct. Error
6	DUP	S95T001279	0	F	@GEA-03	CO60-02	SOLID	<5.95e-2	<5.61e-2		RPD
6	DUP	S95T001279	0	F	@GEA-03	CO60-02E	SOLID	1	n/a		% Ct. Error
6	DUP	S95T001279	0	F	@GEA-03	NB94-02	SOLID	<4.34e-2	<4.12e-2		RPD
6	DUP	S95T001279	0	F	@GEA-03	NB94-02E	SOLID	1	n/a		% Ct. Error
6	DUP	S95T001279	0	F	@GEA-03	RU10602	SOLID	<2.04e0	<1.86e0		RPD
6	DUP	S95T001279	0	F	@GEA-03	RU10602E	SOLID	1	n/a		% Ct. Error
6	DUP	S95T001279	0	F	@GEA-03	CS13402	SOLID	<1.05e-1	<9.75e-2		RPD
6	DUP	S95T001279	0	F	@GEA-03	CS13402E	SOLID	1	n/a		% Ct. Error
6	DUP	S95T001279	0	F	@GEA-03	CS13702	SOLID	5.16e+01	5.18e+01	0.387	RPD
6	DUP	S95T001279	0	F	@GEA-03	CS13702E	SOLID	1	1.30	1.300	% Ct. Error
6	DUP	S95T001279	0	F	@GEA-03	CE14402	SOLID	<1.41e0	<1.38e0		RPD
6	DUP	S95T001279	0	F	@GEA-03	CE14402E	SOLID	1	n/a		% Ct. Error
6	DUP	S95T001279	0	F	@GEA-03	EU15402	SOLID	<1.56e-1	<1.62e-1		RPD
6	DUP	S95T001279	0	F	@GEA-03	EU15402E	SOLID	1	n/a		% Ct. Error
6	DUP	S95T001279	0	F	@GEA-03	EU15502	SOLID	<3.98e-1	<3.85e-1		RPD
6	DUP	S95T001279	0	F	@GEA-03	EU15502E	SOLID	1	n/a		% Ct. Error
6	DUP	S95T001279	0	F	@GEA-03	RA22602	SOLID	<2.71e0	<2.76e0		RPD
6	DUP	S95T001279	0	F	@GEA-03	RA22602E	SOLID	1	n/a		% Ct. Error

Comments Section:

Comments for sample# S95T001277 and test @GEA-03 .

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

LABCORE Completed Worklist Report for Worklist# 7819

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

DL=0 => n/a.

Comments for sample# S95T001279 **and test** @GEA-03 .
DL=0 => n/a.

Final page for worklist# 7819

Analyst Signature **Date**

Analyst Signature **Date**

Reviewer Signature **Date**

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

```
*****************************************************************************
* 222-S Laboratory Counting Room   20-APR-1996 19:06:47.64                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7819
Sample ID:               WL7819-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3143.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:09.74 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       20-APR-1996 18:15:54.55
Decayed to:              20-APR-1996 18:15:54.55
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-140, REV. 1

Removed by:

4-20-96

Verified by:

RAJones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.47*	24694	1.59	1323.11	1315	17	1.4		CS-137	27.9
0	1142.96	78	1.28	2286.17	2282	8	75.2			
0	1173.02	16042	1.95	2346.30	2337	18	1.7		CO-60	25.3
0	1332.26	14567	1.95	2664.90	2655	21	1.7		CO-60	25.5
0	1915.33	10	0.95	3831.73	3826	8	108.9			

Sample ID : WL7819-STD
Acquisition date : 20-APR-1996 18:15:54

WHC-SD-WM-DP-140, REV. 1

Total number of lines in spectrum	5	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	3	60.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.540E+01	2.540E+01	0.031E+01	1.21	
CS-137	30.00Y	1.000	2.791E+01	2.791E+01	0.040E+01	1.44	
		Total Activity :	5.331E+01	5.331E+01			
		Grand Total Activity :	5.331E+01	5.331E+01			

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

Sample ID : WL7819-STD
Acquisition date : 20-APR-1996 18:15:54

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1264.	477.59	1.1712E+00
NA-22	76.	1274.53	6.8565E-02
NA-24	30.	1368.55	4.6248E-02
K-40	163.	1460.75	1.0440E+00
CR-51	1236.	320.08	8.7170E-01
MN-54	744.	834.83	1.4914E-01
CO-56	778.	846.76	1.5449E-01
CO-57	1369.	122.06	6.4034E-02
CO-58	694.	810.78	1.4126E-01
FE-59	759.	1099.25	3.3774E-01
SE-75	1468.	264.66	1.4231E-01
SR-85	861.	514.01	1.1054E-01
Y-88	10.	1836.06	3.3141E-02
NB-94	830.	871.09	1.6346E-01
ZRNB-95	638.	724.18	2.7982E-01
RU-103	950.	497.08	1.1925E-01
RURH-106	680.	621.93	2.2338E+00
AG-108m	621.	722.94	1.3259E-01
CD-109	1114.	88.03	1.9123E+00
AG-110M	1336.	657.76	1.7218E-01
SN-113	1236.	391.69	1.5981E-01
TE-123m	1413.	159.00	6.6938E-02
SB-124	604.	602.73	1.0402E-01
SB-125	1269.	427.89	3.7803E-01
TE-125m	1251.	109.27	1.9930E+01
I-131	1174.	364.48	1.1648E-01
CS-134	647.	604.70	1.0816E-01
BA-140	770.	537.31	4.2704E-01
LA-140	24.	1596.21	4.8474E-02
CEPR-144	1329.	133.51	9.5414E-01
EU-152	32.	1408.01	2.3007E-01
EU-154	76.	1274.51	1.9904E-01
EU-155	1268.	105.31	2.6795E-01
HG-203	1359.	279.20	1.0209E-01
TL-208	1408.	277.36	1.3352E+00
BI-212	605.	727.18	1.7965E+00
PB-212	1640.	238.63	1.8704E-01
BI-214	686.	609.31	2.4413E-01
PB-214	1273.	351.92	4.7759E-01
RA-224	1642.	240.99	2.0783E+00
RA-226	1658.	186.10	1.9066E+00
AC-228	992.	911.21	6.9755E-01
TH-228	1153.	84.37	5.9931E+00
TH-229	1113.	88.47	2.7712E-01
PA-233	1326.	312.17	2.3124E-01
UTH-233	1582.	245.34	7.6457E+01
PA-234M	782.	1001.03	3.0295E-01
TH-234	1057.	63.29	3.8649E+00
U-235	1658.	185.71	1.1588E-01
NP-237	1146.	86.48	5.8257E-01
NP-239	1258.	106.12	2.5363E-01

Sample ID : WL7819-STD Acquisition date : 20-APR-1996 18:15:54

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1289.	129.30	8.1789E+02
AM-241	1070.	59.54	6.8618E-01
AM-243	1159.	74.67	1.6782E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   20-APR-1996 20:00:26.56                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7819
Sample ID:               WL7819-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         4.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3144.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.43 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       20-APR-1996 19:09:47.65
Decayed to:              20-APR-1996 19:09:47.65
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-140 REV. 1

Removed by: 4-20-96

Verified by: R K Jones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.24*	30	1.47	1322.66	1316	15	115.6		CS-137	0.135
0	1460.58*	13	1.49	2921.65	2914	15	189.8		K-40	0.894

Summary of Nuclide Activity
Sample ID : WL7819-BLK

Acquisition date : 20-APR-1996 19:09:47

WHC-SD-WM-DP-140, REV. 1

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~8.940E-01~~	~~8.940E-01~~	~~16.97E-01~~	~~189.82~~	~~M~~
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~1.352E-01~~	~~1.352E-01~~	~~1.562E-01~~	~~115.56~~	~~M~~
			---	---			
Total Activity :			1.029E+00	1.029E+00			

> 50% Blg

Grand Total Activity : 1.029E+00 1.029E+00

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

Sample ID : WL7819-BLK Acquisition date : 20-APR-1996 19:09:47

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	44.	477.59	8.7389E-01
NA-22	14.	1274.53	1.1826E-01
NA-24	6.	1368.55	8.1753E-02
CR-51	68.	320.08	8.1663E-01
MN-54	14.	834.83	8.3099E-02
CO-56	13.	846.76	7.8940E-02
CO-57	81.	122.06	6.2307E-02
CO-58	17.	810.78	8.8684E-02
FE-59	16.	1099.25	1.9691E-01
CO-60	11.	1332.50	1.1012E-01
SE-75	73.	264.66	1.2718E-01
SR-85	47.	514.01	1.0288E-01
Y-88	2.	1836.06	5.9351E-02
NB-94	10.	871.09	7.2355E-02
ZRNB-95	16.	724.18	1.7522E-01
RU-103	29.	497.08	8.3970E-02
RURH-106	21.	621.93	1.5863E+00
AG-108m	19.	722.94	9.1694E-02
CD-109	77.	88.03	2.0053E+00
AG-110M	23.	657.76	9.1313E-02
SN-113	44.	391.69	1.2001E-01
TE-123m	82.	159.00	6.4557E-02
SB-124	23.	602.73	8.0978E-02
SB-125	34.	427.89	2.4813E-01
TE-125m	82.	109.27	2.0421E+01
I-131	41.	364.48	8.7338E-02
CS-134	19.	604.70	7.3214E-02
BA-140	27.	537.31	3.1969E-01
LA-140	4.	1596.21	7.8942E-02
CEPR-144	68.	133.51	8.6185E-01
EU-152	8.	1408.01	4.5521E-01
EU-154	14.	1274.51	3.4407E-01
EU-155	74.	105.31	2.5867E-01
HG-203	52.	279.20	7.9777E-02
TL-208	69.	277.36	1.1814E+00
BI-212	21.	727.18	1.3358E+00
PB-212	94.	238.63	1.7929E-01
BI-214	56.	609.31	2.7844E-01
PB-214	65.	351.92	4.3232E-01
RA-224	65.	240.99	1.6536E+00
RA-226	84.	186.10	1.7210E+00
AC-228	20.	911.21	3.9917E-01
TH-228	69.	84.37	5.8453E+00
TH-229	71.	88.47	2.7903E-01
PA-233	47.	312.17	1.7477E-01
UTH-233	75.	245.34	6.6533E+01
PA-234M	10.	1001.03	1.3377E-01
TH-234	60.	63.29	3.6897E+00
U-235	89.	185.71	1.0711E-01
NP-237	81.	86.48	6.1933E-01
NP-239	70.	106.12	2.3921E-01

WHC-SD-WM-DP-110, REV. 1

Sample ID : WL7819-BLK Acquisition date : 20-APR-1996 19:09:47

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	70.	129.30	7.6437E+02
AM-241	48.	59.54	5.8406E-01
AM-243	87.	74.67	1.8446E-01

WHC-SD-WM-DP-140, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   20-APR-1996 21:15:49.14                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7819
Sample ID:               S95T001277-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         4.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3145.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:01.14 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       20-APR-1996 20:25:11.16
Decayed to:              20-APR-1996 20:25:11.16
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-OP-240, REV. 1

Removed by: ALJ 4-20-96

Verified by: RAJones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.49*	4673	1.60	1323.15	1316	16	3.1		CS-137	21.1

Sample ID : S95T001277-SAM
Acquisition date : 20-APR-1996 20:25:11

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

WHC-SD-WM-DP-140, REV. 1

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.113E+01	2.113E+01	0.065E+01	3.07	
		Total Activity :	2.113E+01	2.113E+01			
		Grand Total Activity :	2.113E+01	2.113E+01			

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

Minimum Detectable Activity Report
Sample ID : S95T001277-SAM

Acquisition date : 20-APR-1996 20:25:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	162.	477.59	1.6794E+00
NA-22	14.	1274.53	1.1664E-01
NA-24	8.	1368.55	9.3596E-02
K-40	121.	1460.75	3.5994E+00
CR-51	189.	320.08	1.3650E+00
MN-54	24.	834.83	1.0723E-01
CO-56	13.	846.76	7.8940E-02
CO-57	373.	122.06	1.3376E-01
CO-58	12.	810.78	7.5329E-02
FE-59	21.	1099.25	2.2351E-01
CO-60	12.	1332.50	1.1111E-01
SE-75	217.	264.66	2.1905E-01
SR-85	113.	514.01	1.5994E-01
Y-88	1.	1836.06	4.1968E-02
NB-94	17.	871.09	9.4031E-02
ZRNB-95	18.	724.18	1.8558E-01
RU-103	122.	497.08	1.7079E-01
RURH-106	48.	621.93	2.3733E+00
AG-108m	18.	722.94	9.1479E-02
CD-109	301.	88.03	3.9771E+00
AG-110M	168.	657.76	2.4395E-01
SN-113	183.	391.69	2.4622E-01
TE-123m	273.	159.00	1.1760E-01
SB-124	53.	602.73	1.2286E-01
SB-125	184.	427.89	5.7528E-01
TE-125m	308.	109.27	3.9568E+01
I-131	141.	364.48	1.6163E-01
CS-134	63.	604.70	1.3545E-01
BA-140	62.	537.31	4.8550E-01
LA-140	1.	1596.21	3.9471E-02
CEPR-144	308.	133.51	1.8379E+00
EU-152	6.	1408.01	3.9850E-01
EU-154	14.	1274.51	3.3936E-01
EU-155	296.	105.31	5.1796E-01
HG-203	204.	279.20	1.5833E-01
TL-208	213.	277.36	2.0770E+00
BI-212	22.	727.18	1.3736E+00
PB-212	255.	238.63	2.9500E-01
BI-214	63.	609.31	2.9585E-01
PB-214	177.	351.92	7.1214E-01
RA-224	251.	240.99	3.2497E+00
RA-226	315.	186.10	3.3254E+00
AC-228	31.	911.21	4.9141E-01
TH-228	303.	84.37	1.2286E+01
TH-229	297.	88.47	5.7246E-01
PA-233	162.	312.17	3.2338E-01
UTH-233	202.	245.34	1.0922E+02
PA-234M	17.	1001.03	1.7923E-01
TH-234	270.	63.29	7.8071E+00
U-235	316.	185.71	2.0245E-01
NP-237	333.	86.48	1.2558E+00

Sample ID : S95T001277-SAM Acquisition date : 20-APR-1996 20:25:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	301.	106.12	4.9636E-01
PU-239	318.	129.30	1.6252E+03
AM-241	214.	59.54	1.2282E+00
AM-243	285.	74.67	3.3314E-01

****
* 222-S Laboratory Counting Room 21-APR-1996 00:48:46.21 *
****

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

WHC-SD-WM-DP-140, REV. 1

Removed by: 4-20-96

Verified by: 4/22/96

Worklist #:	7819
Sample ID:	S95T0001277-DUP
Sample Size:	1.00000E-03 L
Dilution Factor:	4.00000E+00

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

Detector ID:	
File Number:	NI3AC:1.cnf (GEA3) 3g 3146 cnf
Geometry:	42
Count Time:	0 00:50:00.00 sec
Real Time:	0 00:50:01.17 sec
Dead Time:	0.0%

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

Sample Count Time:	20-APR-1996 22:05:13.23
Decayed to:	20-APR-1996 22:05:13.23
Standard Deviations:	2
Analysis Library:	ENVGEA
Analyst:	ALJ
Background Subtract:	DKA300:[SPEC.GEA3]3GBACK

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

Date of last energy calibration: 11-MAR-1994 11:47:01.11
Date of last efficiency calibration: 15-MAR-1994 10:28:40.20

****

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.52*	4852	1.58	1323.21	1315	16	3.0		CS-137	21.9
0	912.53*	33	3.47	1825.24	1815	23	58.2			
0	967.29	27	1.35	1934.78	1927	14	70.0			
0	1121.67	33	4.18	2243.58	2235	20	34.8			
0	1460.61*	12	1.69	2921.71	2913	16	207.1		K-40	0.874

Sample ID : S95T0001277-DUP
Acquisition date : 20-APR-1996 22:05:13

WHC-SD-WM-DP-140, REV. 1

Total number of lines in spectrum	5	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	4	80.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~8.742E-01~~	~~8.742E-01~~	~~18.10E-01~~	~~207.06~~	
CS-137	30.00Y	1.000	2.194E+01	2.194E+01	0.066E+01	3.00	
Total Activity :			2.281E+01	2.281E+01			
Grand Total Activity :			2.281E+01	2.281E+01			

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

Sample ID : S95T0001277-DUP Acquisition date : 20-APR-1996 22:05:13

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	189.	477.59	1.8125E+00
NA-22	13.	1274.53	1.1233E-01
NA-24	3.	1368.55	5.8667E-02
CR-51	163.	320.08	1.2675E+00
MN-54	16.	834.83	8.8609E-02
CO-56	19.	846.76	9.7340E-02
CO-57	322.	122.06	1.2422E-01
CO-58	17.	810.78	8.9181E-02
FE-59	14.	1099.25	1.8370E-01
CO-60	8.	1332.50	9.3788E-02
SE-75	194.	264.66	2.0667E-01
SR-85	120.	514.01	1.6534E-01
Y-88	4.	1836.06	8.3936E-02
NB-94	15.	871.09	8.6588E-02
ZRNB-95	22.	724.18	2.0774E-01
RU-103	122.	497.08	1.7113E-01
RURH-106	62.	621.93	2.7049E+00
AG-108m	19.	722.94	9.3664E-02
CD-109	321.	88.03	4.1041E+00
AG-110M	138.	657.76	2.2132E-01
SN-113	169.	391.69	2.3627E-01
TE-123m	287.	159.00	1.2059E-01
SB-124	50.	602.73	1.2006E-01
SB-125	184.	427.89	5.7559E-01
TE-125m	294.	109.27	3.8658E+01
I-131	165.	364.48	1.7454E-01
CS-134	53.	604.70	1.2423E-01
BA-140	93.	537.31	5.9349E-01
LA-140	5.	1596.21	8.9399E-02
CEPR-144	321.	133.51	1.8764E+00
EU-152	3.	1408.01	2.8178E-01
EU-154	13.	1274.51	3.2687E-01
EU-155	338.	105.31	5.5366E-01
HG-203	217.	279.20	1.6311E-01
TL-208	206.	277.36	2.0444E+00
BI-212	28.	727.18	1.5517E+00
PB-212	250.	238.63	2.9219E-01
BI-214	73.	609.31	3.1805E-01
PB-214	196.	351.92	7.4799E-01
RA-224	233.	240.99	3.1329E+00
RA-226	294.	186.10	3.2100E+00
AC-228	33.	911.21	5.0631E-01
TH-228	321.	84.37	1.2644E+01
TH-229	325.	88.47	5.9935E-01
PA-233	174.	312.17	3.3523E-01
UTH-233	219.	245.34	1.1367E+02
PA-234M	18.	1001.03	1.8225E-01
TH-234	268.	63.29	7.7852E+00
U-235	290.	185.71	1.9392E-01
NP-237	330.	86.48	1.2515E+00
NP-239	333.	106.12	5.2213E-01

WHC-SD-WM-DP-149 REV. 1

Sample ID : S95T0001277-DUP Acquisition date : 20-APR-1996 22:05:13

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	319.	129.30	1.6285E+03
AM-241	249.	59.54	1.3249E+00
AM-243	314.	74.67	3.4945E-01

WHC-SD-WM-DP-140, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   20-APR-1996 23:51:38.71                  *
*****************************************************************************
     >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7819
Sample ID:               S95T001279-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         4.00000E+00

     >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g2147.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:03.45 sec
Dead Time:               0.1%

     >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       20-APR-1996 23:00:57.47
Decayed to:              20-APR-1996 23:00:57.47
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-140, REV. 1

Removed by: 4-20-96

Verified by: R A Jones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.49*	24020	1.55	1323.15	1315	16	1.3		CS-137	109.
0	911.18*	20	3.27	1822.53	1814	22	106.9			

Sample ID : S95T001279-SAM
Acquisition date : 20-APR-1996 23:00:57

Total number of lines in spectrum	2	WHC-SD-WM-DP-140, REV. 1
Number of unidentified lines	0	
Number of lines tentatively identified by NID	2	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.086E+02	1.086E+02	0.014E+02	1.32	
		Total Activity :	1.086E+02	1.086E+02			
		Grand Total Activity :	1.086E+02	1.086E+02			

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

Sample ID : S95T001279-SAM Acquisition date : 20-APR-1996 23:00:57

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	754.	477.59	3.6187E+00
NA-22	13.	1274.53	1.1395E-01
NA-24	6.	1368.55	8.1754E-02
K-40	143.	1460.75	3.9116E+00
CR-51	636.	320.08	2.5007E+00
MN-54	14.	834.83	8.3035E-02
CO-56	11.	846.76	7.3463E-02
CO-57	795.	122.06	1.9520E-01
CO-58	18.	810.78	9.0984E-02
FE-59	11.	1099.25	1.6026E-01
CO-60	15.	1332.50	1.2564E-01
SE-75	684.	264.66	3.8842E-01
SR-85	420.	514.01	3.0866E-01
Y-88	3.	1836.06	7.2691E-02
NB-94	16.	871.09	9.1771E-02
ZRNB-95	18.	724.18	1.9023E-01
RU-103	472.	497.08	3.3603E-01
RURH-106	158.	621.93	4.3130E+00
AG-108m	24.	722.94	1.0368E-01
CD-109	747.	88.03	6.2664E+00
AG-110M	708.	657.76	5.0139E-01
SN-113	671.	391.69	4.7107E-01
TE-123m	777.	159.00	1.9849E-01
SB-124	162.	602.73	2.1540E-01
SB-125	772.	427.89	1.1797E+00
TE-125m	762.	109.27	6.2195E+01
I-131	668.	364.48	3.5139E-01
CS-134	169.	604.70	2.2105E-01
BA-140	271.	537.31	1.0140E+00
LA-140	6.	1596.21	9.6684E-02
CEPR-144	805.	133.51	2.9708E+00
EU-152	11.	1408.01	5.3957E-01
EU-154	13.	1274.51	3.3004E-01
EU-155	781.	105.31	8.4120E-01
HG-203	663.	279.20	2.8536E-01
TL-208	654.	277.36	3.6385E+00
BI-212	16.	727.18	1.1797E+00
PB-212	813.	238.63	5.2694E-01
BI-214	163.	609.31	4.7632E-01
PB-214	648.	351.92	1.3613E+00
RA-224	802.	240.99	5.8094E+00
RA-226	935.	186.10	5.7280E+00
AC-228	31.	911.21	4.9141E-01
TH-228	688.	84.37	1.8519E+01
TH-229	757.	88.47	9.1398E-01
PA-233	604.	312.17	6.2460E-01
UTH-233	773.	245.34	2.1380E+02
PA-234M	17.	1001.03	1.7861E-01
TH-234	630.	63.29	1.1937E+01
U-235	929.	185.71	3.4700E-01
NP-237	747.	86.48	1.8815E+00

Sample ID : S95T001279-SAM Acquisition date : 20-APR-1996 23:00:57

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	763.	106.12	7.8984E-01
PU-239	751.	129.30	2.4968E+03
AM-241	637.	59.54	2.1171E+00
AM-243	694.	74.67	5.1970E-01

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*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 00:42:39.85                  *
*****************************************************************************
     >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7819
Sample ID:               S95T001279-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         4.00000E+00

     >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3148.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:03.51 sec
Dead Time:               0.1%

     >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       20-APR-1996 23:51:59.76
Decayed to:              20-APR-1996 23:51:59.76
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-140, REV. 1

Removed by: 4-21-96

Verified by: R A Jones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.50*	24578	1.57	1323.19	1317	15	1.3		CS-137	111.

Sample ID : S95T001279-DUP
Acquisition date : 20-APR-1996 23:51:59

Total number of lines in spectrum 1 WHC-SD-WM-DP-140, REV. 1
Number of unidentified lines 0
Number of lines tentatively identified by NID 1 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.111E+02	1.111E+02	0.014E+02	1.30	
		Total Activity :	1.111E+02	1.111E+02			
		Grand Total Activity :	1.111E+02	1.111E+02			

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

Sample ID : S95T001279-DUP Acquisition date : 20-APR-1996 23:51:59

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	737.	477.59	3.5786E+00
NA-22	15.	1274.53	1.1991E-01
NA-24	3.	1368.55	5.8667E-02
K-40	128.	1460.75	3.7096E+00
CR-51	644.	320.08	2.5166E+00
MN-54	29.	834.83	1.1793E-01
CO-56	22.	846.76	1.0353E-01
CO-57	831.	122.06	1.9961E-01
CO-58	15.	810.78	8.2145E-02
FE-59	17.	1099.25	2.0346E-01
CO-60	14.	1332.50	1.2027E-01
SE-75	661.	264.66	3.8183E-01
SR-85	436.	514.01	3.1466E-01
Y-88	3.	1836.06	7.2691E-02
NB-94	15.	871.09	8.8182E-02
ZRNB-95	19.	724.18	1.9080E-01
RU-103	502.	497.08	3.4653E-01
RURH-106	135.	621.93	3.9835E+00
AG-108m	20.	722.94	9.4331E-02
CD-109	782.	88.03	6.4103E+00
AG-110M	740.	657.76	5.1245E-01
SN-113	672.	391.69	4.7137E-01
TE-123m	796.	159.00	2.0097E-01
SB-124	166.	602.73	2.1800E-01
SB-125	798.	427.89	1.1993E+00
TE-125m	732.	109.27	6.0978E+01
I-131	636.	364.48	3.4277E-01
CS-134	151.	604.70	2.0878E-01
BA-140	280.	537.31	1.0309E+00
LA-140	3.	1596.21	6.8366E-02
CEPR-144	800.	133.51	2.9612E+00
EU-152	1.	1408.01	1.6269E-01
EU-154	15.	1274.51	3.4789E-01
EU-155	751.	105.31	8.2470E-01
HG-203	684.	279.20	2.8978E-01
TL-208	669.	277.36	3.6802E+00
BI-212	28.	727.18	1.5336E+00
PB-212	804.	238.63	5.2386E-01
BI-214	194.	609.31	5.1879E-01
PB-214	616.	351.92	1.3275E+00
RA-224	847.	240.99	5.9697E+00
RA-226	997.	186.10	5.9138E+00
AC-228	36.	911.21	5.3256E-01
TH-228	703.	84.37	1.8720E+01
TH-229	749.	88.47	9.0918E-01
PA-233	641.	312.17	6.4312E-01
UTH-233	806.	245.34	2.1830E+02
PA-234M	14.	1001.03	1.5993E-01
TH-234	688.	63.29	1.2472E+01
U-235	982.	185.71	3.5672E-01
NP-237	737.	86.48	1.8685E+00

WHC-SD-WM-DP-140, REV. 1

Sample ID : S95T001279-DUP Acquisition date : 20-APR-1996 23:51:59

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	752.	106.12	7.8412E-01
PU-239	779.	129.30	2.5426E+03
AM-241	609.	59.54	2.0701E+00
AM-243	722.	74.67	5.3006E-01

WHC-SD-WM-DP-140, REV.

LABCORE Data Entry Template for Worklist# 7820

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

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

Worklist Comment: B-106. Sample size is on traveler. new

RUSH

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-03	SOLID		
2	BLNK-PREP				@GEA-03	SOLID		
3	SAMPLE	S95T001282	0	F	@GEA-03	SOLID	95000096	B-106
	Analytes Requested: CE14402 , CE14402E, CO60-02 , CO60-02E, CS13402 , CS13402E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E, NB94-02 , NB94-02E, RA22602 , RA22602E, RU10602 , RU10602E							
4	DUP	S95T001282	0	F	@GEA-03	SOLID		
5	SAMPLE	S95T001285	0	F	@GEA-03	SOLID	95000096	B-106
	Analytes Requested: CE14402 , CE14402E, CO60-02 , CO60-02E, CS13402 , CS13402E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E, NB94-02 , NB94-02E, RA22602 , RA22602E, RU10602 , RU10602E							
6	DUP	S95T001285	0	F	@GEA-03	SOLID		

Final page for worklist # 7820

[signature] 4-20-96
Analyst Signature **Date**

[signature]
Analyst Signature **Date**

Data Entry Comments:

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

WHC-SD-WM-DP-140 REV. 1

LABCORE Completed Worklist Report for Worklist# 7820

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

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

Worklist Comment: B-106. Sample size is on traveler. new

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-03	CO60-02	SOLID	0.0256		2.52e-02	98.438	% Recovery
1	STD		0		@GEA-03	CO60-02E	SOLID	1		1.22	1.220	% Ct. Error
1	STD		0		@GEA-03	CS13702	SOLID	0.0271		2.70e-02	99.631	% Recovery
1	STD		0		@GEA-03	CS13702E	SOLID	1		1.45	1.450	% Ct. Error
2	BLNK-PREP		0		@GEA-03	CO60-02	SOLID	1		<9.63e-3		uCi/g
2	BLNK-PREP		0		@GEA-03	NB94-02	SOLID	1		<7.19e-3		uCi/g
2	BLNK-PREP		0		@GEA-03	RU10602	SOLID	1		<2.23e-1		uCi/g
2	BLNK-PREP		0		@GEA-03	CS13402	SOLID	1		<1.09e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	CS13702	SOLID	1		<3.17e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	CE14402	SOLID	1		<1.02e-1		uCi/g
2	BLNK-PREP		0		@GEA-03	EU15402	SOLID	1		<2.81e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	EU15502	SOLID	1		<3.17e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	RA22602	SOLID	1		<2.04e-1		uCi/g
3	SAMPLE	S95T001282	0	F	@GEA-03	CO60-02	SOLID	N/A	<	1.129e-02	0.011	uCi/g
3	SAMPLE	S95T001282	0	F	@GEA-03	CO60-02E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001282	0	F	@GEA-03	NB94-02	SOLID	N/A	<	1.145e-02	0.011	uCi/g
3	SAMPLE	S95T001282	0	F	@GEA-03	NB94-02E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001282	0	F	@GEA-03	RU10602	SOLID	N/A	<	5.514e-01	0.551	uCi/g
3	SAMPLE	S95T001282	0	F	@GEA-03	RU10602E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001282	0	F	@GEA-03	CS13402	SOLID	N/A	<	2.446e-02	0.024	uCi/g
3	SAMPLE	S95T001282	0	F	@GEA-03	CS13402E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001282	0	F	@GEA-03	CS13702	SOLID	N/A		1.334e+01	0.000	uCi/g
3	SAMPLE	S95T001282	0	F	@GEA-03	CS13702E	SOLID	N/A		1.29	0.000	% Ct. Error
3	SAMPLE	S95T001282	0	F	@GEA-03	CE14402	SOLID	N/A	<	3.369e-01	0.337	uCi/g
3	SAMPLE	S95T001282	0	F	@GEA-03	CE14402E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001282	0	F	@GEA-03	EU15402	SOLID	N/A	<	4.392e-02	0.044	uCi/g
3	SAMPLE	S95T001282	0	F	@GEA-03	EU15402E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001282	0	F	@GEA-03	EU15502	SOLID	N/A	<	9.031e-02	0.090	uCi/g
3	SAMPLE	S95T001282	0	F	@GEA-03	EU15502E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001282	0	F	@GEA-03	RA22602	SOLID	N/A	<	6.697e-01	0.670	uCi/g
3	SAMPLE	S95T001282	0	F	@GEA-03	RA22602E	SOLID	N/A		n/a	0.000	% Ct. Error
4	DUP	S95T001282	0	F	@GEA-03	CO60-02	SOLID	<1.13e-2		<1.39e-2		RPD
4	DUP	S95T001282	0	F	@GEA-03	CO60-02E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001282	0	F	@GEA-03	NB94-02	SOLID	<1.15e-2		<1.11e-2		RPD
4	DUP	S95T001282	0	F	@GEA-03	NB94-02E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001282	0	F	@GEA-03	RU10602	SOLID	<5.51e-1		<4.82e-1		RPD
4	DUP	S95T001282	0	F	@GEA-03	RU10602E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001282	0	F	@GEA-03	CS13402	SOLID	<2.45e-2		<2.42e-2		RPD
4	DUP	S95T001282	0	F	@GEA-03	CS13402E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001282	0	F	@GEA-03	CS13702	SOLID	1.33e+01		1.22e+01	8.627	RPD
4	DUP	S95T001282	0	F	@GEA-03	CS13702E	SOLID	1		1.35	1.350	% Ct. Error

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

LABCORE Completed Worklist Report for Worklist# 7820

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
4	DUP	S95T001282	0	F	@GEA-03	CE14402	SOLID	<3.37e-1	<3.19e-1	RPD
4	DUP	S95T001282	0	F	@GEA-03	CE14402E	SOLID	1	n/a	% Ct. Error
4	DUP	S95T001282	0	F	@GEA-03	EU15402	SOLID	<4.39e-2	<4.66e-2	RPD
4	DUP	S95T001282	0	F	@GEA-03	EU15402E	SOLID	1	n/a	% Ct. Error
4	DUP	S95T001282	0	F	@GEA-03	EU15502	SOLID	<9.03e-2	<8.87e-2	RPD
4	DUP	S95T001282	0	F	@GEA-03	EU15502E	SOLID	1	n/a	% Ct. Error
4	DUP	S95T001282	0	F	@GEA-03	RA22602	SOLID	<6.70e-1	<6.56e-1	RPD
4	DUP	S95T001282	0	F	@GEA-03	RA22602E	SOLID	1	n/a	% Ct. Error
5	SAMPLE	S95T001285	0	F	@GEA-03	CO60-02	SOLID	N/A <	4.581e-02	0.046 uCi/g
5	SAMPLE	S95T001285	0	F	@GEA-03	CO60-02E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S95T001285	0	F	@GEA-03	NB94-02	SOLID	N/A <	4.168e-02	0.042 uCi/g
5	SAMPLE	S95T001285	0	F	@GEA-03	NB94-02E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S95T001285	0	F	@GEA-03	RU10602	SOLID	N/A <	1.312e+00	1.312 uCi/g
5	SAMPLE	S95T001285	0	F	@GEA-03	RU10602E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S95T001285	0	F	@GEA-03	CS13402	SOLID	N/A <	6.301e-02	0.063 uCi/g
5	SAMPLE	S95T001285	0	F	@GEA-03	CS13402E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S95T001285	0	F	@GEA-03	CS13702	SOLID	N/A	1.580e+01	0.000 uCi/g
5	SAMPLE	S95T001285	0	F	@GEA-03	CS13702E	SOLID	N/A	2.35	0.000 % Ct. Error
5	SAMPLE	S95T001285	0	F	@GEA-03	CE14402	SOLID	N/A <	8.906e-01	0.891 uCi/g
5	SAMPLE	S95T001285	0	F	@GEA-03	CE14402E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S95T001285	0	F	@GEA-03	EU15402	SOLID	N/A <	1.224e-01	0.122 uCi/g
5	SAMPLE	S95T001285	0	F	@GEA-03	EU15402E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S95T001285	0	F	@GEA-03	EU15502	SOLID	N/A <	2.452e-01	0.245 uCi/g
5	SAMPLE	S95T001285	0	F	@GEA-03	EU15502E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S95T001285	0	F	@GEA-03	RA22602	SOLID	N/A <	1.654e+00	1.654 uCi/g
5	SAMPLE	S95T001285	0	F	@GEA-03	RA22602E	SOLID	N/A	n/a	0.000 % Ct. Error
6	DUP	S95T001285	0	F	@GEA-03	CO60-02	SOLID	<4.58e-2	<3.63e-2	RPD
6	DUP	S95T001285	0	F	@GEA-03	CO60-02E	SOLID	1	n/a	% Ct. Error
6	DUP	S95T001285	0	F	@GEA-03	NB94-02	SOLID	<4.17e-2	<3.89e-2	RPD
6	DUP	S95T001285	0	F	@GEA-03	NB94-02E	SOLID	1	n/a	% Ct. Error
6	DUP	S95T001285	0	F	@GEA-03	RU10602	SOLID	<1.31e0	<1.19e0	RPD
6	DUP	S95T001285	0	F	@GEA-03	RU10602E	SOLID	1	n/a	% Ct. Error
6	DUP	S95T001285	0	F	@GEA-03	CS13402	SOLID	<6.30e-2	<5.71e-2	RPD
6	DUP	S95T001285	0	F	@GEA-03	CS13402E	SOLID	1	n/a	% Ct. Error
6	DUP	S95T001285	0	F	@GEA-03	CS13702	SOLID	1.58e+01	1.68e+01	6.135 RPD
6	DUP	S95T001285	0	F	@GEA-03	CS13702E	SOLID	1	2.31	2.310 % Ct. Error
6	DUP	S95T001285	0	F	@GEA-03	CE14402	SOLID	<8.91e-1	<9.24e-1	RPD
6	DUP	S95T001285	0	F	@GEA-03	CE14402E	SOLID	1	n/a	% Ct. Error
6	DUP	S95T001285	0	F	@GEA-03	EU15402	SOLID	<1.22e-1	<1.66e-1	RPD
6	DUP	S95T001285	0	F	@GEA-03	EU15402E	SOLID	1	n/a	% Ct. Error
6	DUP	S95T001285	0	F	@GEA-03	EU15502	SOLID	<2.45e-1	<2.52e-1	RPD
6	DUP	S95T001285	0	F	@GEA-03	EU15502E	SOLID	1	n/a	% Ct. Error
6	DUP	S95T001285	0	F	@GEA-03	RA22602	SOLID	<1.65e0	<1.68e0	RPD
6	DUP	S95T001285	0	F	@GEA-03	RA22602E	SOLID	1	n/a	% Ct. Error

Comments Section:

Comments for sample# S95T001282 **and test** @GEA-03 .

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

LABCORE Completed Worklist Report for Worklist# 7820

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

DL=0 => n/a.

Comments for sample# S95T001285 **and test** @GEA-03 .
DL=0 => n/a.

Final page for worklist# 7820

Analyst Signature **Date**

Analyst Signature **Date**

B Bachelor 4/25/96
Reviewer Signature **Date**

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

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 01:46:59.54                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7820
Sample ID:               WL7820-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3149.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:09.57 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 00:56:10.33
Decayed to:              21-APR-1996 00:56:10.33
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-140, REV. 1

Removed by: ALJ 4-21-96

Verified by: RKJones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.47*	23870	1.59	1323.12	1315	17	1.5		CS-137	27.0
0	1173.03	15749	1.92	2346.33	2337	20	1.8		CO-60	24.8
0	1332.28	14547	2.00	2664.93	2655	18	1.7		CO-60	25.5

Sample ID : WL7820-STD Acquisition date : 21-APR-1996 00:56:10

WHC-SD-WM-DP-148, REV. 1

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.516E+01	2.516E+01	0.031E+01	1.22	
CS-137	30.00Y	1.000	2.698E+01	2.698E+01	0.039E+01	1.45	
		Total Activity :	5.213E+01	5.213E+01			
		Grand Total Activity :	5.213E+01	5.213E+01			

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

Sample ID : WL7820-STD Acquisition date : 21-APR-1996 00:56:10

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1142.	477.59	1.1134E+00
NA-22	89.	1274.53	7.4172E-02
NA-24	32.	1368.55	4.7994E-02
K-40	150.	1460.75	1.0014E+00
CR-51	1223.	320.08	8.6710E-01
MN-54	766.	834.83	1.5134E-01
CO-56	729.	846.76	1.4950E-01
CO-57	1304.	122.06	6.2505E-02
CO-58	695.	810.78	1.4131E-01
FE-59	757.	1099.25	3.3737E-01
SE-75	1410.	264.66	1.3949E-01
SR-85	890.	514.01	1.1235E-01
Y-88	22.	1836.06	4.8941E-02
NB-94	829.	871.09	1.6336E-01
ZRNB-95	579.	724.18	2.6655E-01
RU-103	943.	497.08	1.1879E-01
RURH-106	677.	621.93	2.2296E+00
AG-108m	580.	722.94	1.2813E-01
CD-109	1137.	88.03	1.9327E+00
AG-110M	1248.	657.76	1.6642E-01
SN-113	1107.	391.69	1.5125E-01
TE-123m	1340.	159.00	6.5178E-02
SB-124	672.	602.73	1.0976E-01
SB-125	1235.	427.89	3.7303E-01
TE-125m	1273.	109.27	2.0101E+01
I-131	1167.	364.48	1.1615E-01
CS-134	668.	604.70	1.0989E-01
BA-140	744.	537.31	4.1994E-01
LA-140	25.	1596.21	4.9463E-02
CEPR-144	1388.	133.51	9.7504E-01
EU-152	28.	1408.01	2.1554E-01
EU-154	89.	1274.51	2.1544E-01
EU-155	1209.	105.31	2.6164E-01
HG-203	1337.	279.20	1.0128E-01
TL-208	1414.	277.36	1.3377E+00
BI-212	627.	727.18	1.8283E+00
PB-212	1647.	238.63	1.8744E-01
BI-214	734.	609.31	2.5256E-01
PB-214	1149.	351.92	4.5376E-01
RA-224	1534.	240.99	2.0084E+00
RA-226	1574.	186.10	1.8578E+00
AC-228	963.	911.21	6.8753E-01
TH-228	1118.	84.37	5.9013E+00
TH-229	1151.	88.47	2.8174E-01
PA-233	1321.	312.17	2.3080E-01
UTH-233	1519.	245.34	7.4938E+01
PA-234M	741.	1001.03	2.9488E-01
TH-234	1076.	63.29	3.8988E+00
U-235	1589.	185.71	1.1345E-01
NP-237	1074.	86.48	5.6396E-01
NP-239	1203.	106.12	2.4797E-01

WHC-SD-WM-DP-140, REV. 1

Sample ID : WL7820-STD Acquisition date : 21-APR-1996 00:56:10

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1300.	129.30	8.2142E+02
AM-241	1078.	59.54	6.8881E-01
AM-243	1127.	74.67	1.6552E-01

WHC-SD-WM-DP-140, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 02:45:39.72                  *
*****************************************************************************
     >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7820
Sample ID:               WL7820-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

     >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3150.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.43 sec
Dead Time:               0.0%

     >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 01:55:01.06
Decayed to:              21-APR-1996 01:55:01.06
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Post-NID Peak Search Report
***** No peaks found *****
```

WHC-SD-WM-DP-140, REV. 1

Removed by: ALJ 4-21-96

Verified by: KAJones 4/22/96

Sample ID : WL7820-BLK
Acquisition date : 21-APR-1996 01:55:01

**** There are no nuclides meeting summary criteria **** WHC-SD-WM-DP-140, REV.1

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

Sample ID : WL7820-BLK Acquisition date : 21-APR-1996 01:55:01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	36.	477.59	1.9794E-01
NA-22	7.	1274.53	2.0470E-02
NA-24	5.	1368.55	1.8586E-02
K-40	134.	1460.75	9.4729E-01
CR-51	55.	320.08	1.8379E-01
MN-54	16.	834.83	2.1690E-02
CO-56	18.	846.76	2.3342E-02
CO-57	75.	122.06	1.4981E-02
CO-58	7.	810.78	1.3896E-02
FE-59	13.	1099.25	4.4257E-02
CO-60	6.	1332.50	2.0428E-02
SE-75	69.	264.66	3.0865E-02
SR-85	32.	514.01	2.1338E-02
Y-88	0.	1836.06	0.0000E+00
NB-94	7.	871.09	1.5258E-02
ZRNB-95	22.	724.18	5.1448E-02
RU-103	27.	497.08	2.0171E-02
RURH-106	31.	621.93	4.7330E-01
AG-108m	21.	722.94	2.4289E-02
CD-109	62.	88.03	4.5194E-01
AG-110M	17.	657.76	1.9697E-02
SN-113	51.	391.69	3.2606E-02
TE-123m	76.	159.00	1.5569E-02
SB-124	28.	602.73	2.2260E-02
SB-125	39.	427.89	6.6260E-02
TE-125m	61.	109.27	4.4169E+00
I-131	41.	364.48	2.1812E-02
CS-134	30.	604.70	2.3174E-02
CS-137	164.	661.66	6.7331E-02
BA-140	21.	537.31	7.0221E-02
LA-140	5.	1596.21	2.1083E-02
CEPR-144	68.	133.51	2.1603E-01
EU-152	6.	1408.01	9.8237E-02
EU-154	7.	1274.51	5.9646E-02
EU-155	80.	105.31	6.7127E-02
HG-203	63.	279.20	2.1915E-02
TL-208	47.	277.36	2.4279E-01
BI-212	24.	727.18	3.5409E-01
PB-212	69.	238.63	3.8416E-02
BI-214	50.	609.31	6.5891E-02
PB-214	75.	351.92	1.1567E-01
RA-224	68.	240.99	4.2285E-01
RA-226	85.	186.10	4.3203E-01
AC-228	31.	911.21	1.2285E-01
TH-228	74.	84.37	1.5141E+00
TH-229	61.	88.47	6.5085E-02
PA-233	54.	312.17	4.6711E-02
UTH-233	69.	245.34	1.5972E+01
PA-234M	18.	1001.03	4.6187E-02
TH-234	55.	63.29	8.8033E-01
U-235	85.	185.71	2.6235E-02

WHC-SD-WM-DP-140, REV. 1

Sample ID : WL7820-BLK Acquisition date : 21-APR-1996 01:55:01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	67.	86.48	1.4116E-01
NP-239	76.	106.12	6.2172E-02
PU-239	85.	129.30	2.0974E+02
AM-241	58.	59.54	1.5976E-01
AM-243	74.	74.67	4.2416E-02

WHC-SD-WM-DP-140, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 03:40:31.70                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                7820
Sample ID:                 S95T001282-SAM
Sample Size:               1.00000E-03 L
Dilution Factor:           1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:               dka300:[spec.GEA3]3g3151.cnf
Geometry:                  42
Count Time:                0 00:50:00.00 sec
Real Time:                 0 00:50:03.50 sec
Dead Time:                 0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:         21-APR-1996 02:49:52.76
Decayed to:                21-APR-1996 02:49:52.76
Standard Deviations:       2
Analysis Library:          ENVGEA
Analyst:                   ALJ
Background Subtract:       DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-140, REV. 1

Removed by: ALJ 4-21-96

Verified by: RAJones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.51*	25032	1.58	1323.19	1315	16	1.3		CS-137	28.3
0	1460.62*	21	1.59	2921.73	2914	14	119.6		K-40	0.364

Sample ID : S95T001282-SAM
Acquisition date : 21-APR-1996 02:49:52

WHC-SD-WM-DP-140, REV. 1

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~3.643E-01~~	~~3.643E-01~~	~~4.358E-01~~	~~119.62~~	~~A~~
CS-137	30.00Y	1.000	2.829E+01	2.829E+01	0.037E+01	1.29	
		Total Activity :	2.866E+01	2.866E+01			
		Grand Total Activity :	2.866E+01	2.866E+01			

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

Sample ID : S95T001282-SAM Acquisition date : 21-APR-1996 02:49:52

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	766.	477.59	9.1157E-01
NA-22	17.	1274.53	3.1982E-02
NA-24	8.	1368.55	2.3677E-02
CR-51	695.	320.08	6.5381E-01
MN-54	24.	834.83	2.6639E-02
CO-56	14.	846.76	2.0719E-02
CO-57	744.	122.06	4.7197E-02
CO-58	19.	810.78	2.3314E-02
FE-59	3.	1099.25	2.1238E-02
CO-60	9.	1332.50	2.3936E-02
SE-75	772.	264.66	1.0316E-01
SR-85	410.	514.01	7.6228E-02
Y-88	2.	1836.06	1.4093E-02
NB-94	18.	871.09	2.4290E-02
ZRNB-95	24.	724.18	5.4075E-02
RU-103	523.	497.08	8.8449E-02
RURH-106	186.	621.93	1.1694E+00
AG-108m	19.	722.94	2.2980E-02
CD-109	670.	88.03	1.4828E+00
AG-110M	660.	657.76	1.2106E-01
SN-113	709.	391.69	1.2104E-01
TE-123m	760.	159.00	4.9086E-02
SB-124	161.	602.73	5.3660E-02
SB-125	844.	427.89	3.0833E-01
TE-125m	684.	109.27	1.4733E+01
I-131	662.	364.48	8.7466E-02
CS-134	149.	604.70	5.1872E-02
BA-140	268.	537.31	2.5216E-01
LA-140	5.	1596.21	2.2350E-02
CEPR-144	745.	133.51	7.1448E-01
EU-152	9.	1408.01	1.2201E-01
EU-154	17.	1274.51	9.3142E-02
EU-155	648.	105.31	1.9153E-01
HG-203	722.	279.20	7.4432E-02
TL-208	730.	277.36	9.6158E-01
BI-212	33.	727.18	4.2090E-01
PB-212	817.	238.63	1.3206E-01
BI-214	172.	609.31	1.2230E-01
PB-214	676.	351.92	3.4763E-01
RA-224	780.	240.99	1.4321E+00
RA-226	920.	186.10	1.4204E+00
AC-228	31.	911.21	1.2358E-01
TH-228	643.	84.37	4.4747E+00
TH-229	681.	88.47	2.1669E-01
PA-233	645.	312.17	1.6134E-01
UTH-233	743.	245.34	5.2404E+01
PA-234M	15.	1001.03	4.1290E-02
TH-234	578.	63.29	2.8582E+00
U-235	917.	185.71	8.6170E-02
NP-237	682.	86.48	4.4960E-01
NP-239	660.	106.12	1.8370E-01

WHC-SD-WM-DP-, REV.

Sample ID : S95T001282-SAM Acquisition date : 21-APR-1996 02:49:52

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	722.	129.30	6.1219E+02
AM-241	601.	59.54	5.1423E-01
AM-243	661.	74.67	1.2678E-01

WHC-SD-WM-DP-, REV.

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 04:48:07.98                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7820
Sample ID:               S95T001282-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3152.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:03.19 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 03:57:23.80
Decayed to:              21-APR-1996 03:57:23.80
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-140 REV. 1

Removed by: ALJ 4-21-96

Verified by: RAJones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.49*	22832	1.57	1323.15	1315	16	1.4		CS-137	25.8
0	1460.50*	17	1.90	2921.49	2913	15	146.3		K-40	0.294

Summary of Nuclide Activity
Sample ID : S95T001282-DUP

Acquisition date : 21-APR-1996 03:57:23

WHC-SD-WM-DP-140, REV. 1

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~2.939E-01~~	~~2.939E-01~~	~~4.301E-01~~	~~146.33~~	Bkg
CS-137	30.00Y	1.000	2.581E+01	2.581E+01	0.035E+01	1.35	
		Total Activity :	2.610E+01	2.610E+01			
		Grand Total Activity :	2.610E+01	2.610E+01			

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

Sample ID : S95T001282-DUP
Acquisition date : 21-APR-1996 03:57:23
WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	698.	477.59	8.7064E-01
NA-22	18.	1274.53	3.3673E-02
NA-24	6.	1368.55	2.0438E-02
CR-51	633.	320.08	6.2390E-01
MN-54	16.	834.83	2.1896E-02
CO-56	12.	846.76	1.8942E-02
CO-57	681.	122.06	4.5167E-02
CO-58	18.	810.78	2.2746E-02
FE-59	13.	1099.25	4.4910E-02
CO-60	13.	1332.50	2.9288E-02
SE-75	710.	264.66	9.8981E-02
SR-85	380.	514.01	7.3414E-02
Y-88	4.	1836.06	2.0924E-02
NB-94	17.	871.09	2.3350E-02
ZRNB-95	21.	724.18	5.0740E-02
RU-103	416.	497.08	7.8945E-02
RURH-106	141.	621.93	1.0158E+00
AG-108m	16.	722.94	2.1047E-02
CD-109	551.	88.03	1.3450E+00
AG-110M	668.	657.76	1.2176E-01
SN-113	624.	391.69	1.1360E-01
TE-123m	687.	159.00	4.6677E-02
SB-124	143.	602.73	5.0528E-02
SB-125	658.	427.89	2.7222E-01
TE-125m	604.	109.27	1.3853E+01
I-131	576.	364.48	8.1610E-02
CS-134	144.	604.70	5.1048E-02
BA-140	263.	537.31	2.4948E-01
LA-140	4.	1596.21	1.8891E-02
CEPR-144	658.	133.51	6.7159E-01
EU-152	3.	1408.01	7.0445E-02
EU-154	19.	1274.51	9.8147E-02
EU-155	617.	105.31	1.8691E-01
HG-203	610.	279.20	6.8394E-02
TL-208	610.	277.36	8.7855E-01
BI-212	24.	727.18	3.6114E-01
PB-212	711.	238.63	1.2313E-01
BI-214	158.	609.31	1.1730E-01
PB-214	656.	351.92	3.4241E-01
RA-224	706.	240.99	1.3629E+00
RA-226	872.	186.10	1.3829E+00
AC-228	28.	911.21	1.1622E-01
TH-228	626.	84.37	4.4174E+00
TH-229	547.	88.47	1.9431E-01
PA-233	594.	312.17	1.5474E-01
UTH-233	684.	245.34	5.0278E+01
PA-234M	13.	1001.03	3.8488E-02
TH-234	546.	63.29	2.7769E+00
U-235	860.	185.71	8.3456E-02
NP-237	588.	86.48	4.1741E-01
NP-239	623.	106.12	1.7852E-01

Sample ID : S95T001282-DUP Acquisition date : 21-APR-1996 03:57:23

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	679.	129.30	5.9371E+02
AM-241	535.	59.54	4.8502E-01
AM-243	569.	74.67	1.1758E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 09:24:32.58                  *
*****************************************************************************
     >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7820
Sample ID:               S95T1285-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         4.00000E+00

     >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3155.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:01.50 sec
Dead Time:               0.0%

     >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 08:33:52.68
Decayed to:              21-APR-1996 08:33:52.68
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-140, REV. 1

Removed by: Em Bueta

Verified by: R N Jones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.49*	7848	1.59	1323.16	1315	16	2.4		CS-137	35.5
0	1460.46*	15	1.77	2921.41	2914	16	165.1		K-40	1.03
0	1764.01*	3	0.87	3528.86	3524	11	237.3			

Sample ID : S95T1285-SAM
Acquisition date : 21-APR-1996 08:33:52
WHC-SD-WM-DP-140, REV. 1

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~1.035E+00~~	~~1.035E+00~~	~~1.709E+00~~	~~165.12~~	ok
CS-137	30.00Y	1.000	3.548E+01	3.548E+01	0.084E+01	2.35	
		Total Activity :	3.652E+01	3.652E+01			
		Grand Total Activity :	3.652E+01	3.652E+01			

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

Sample ID : S95T1285-SAM Acquisition date : 21-APR-1996 08:33:52

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	263.	477.59	2.1378E+00
NA-22	9.	1274.53	9.5085E-02
NA-24	11.	1368.55	1.1295E-01
CR-51	246.	320.08	1.5561E+00
MN-54	10.	834.83	6.9423E-02
CO-56	21.	846.76	1.0207E-01
CO-57	362.	122.06	1.3175E-01
CO-58	15.	810.78	8.2806E-02
FE-59	13.	1099.25	1.7425E-01
CO-60	10.	1332.50	1.0294E-01
SE-75	272.	264.66	2.4514E-01
SR-85	171.	514.01	1.9728E-01
Y-88	2.	1836.06	5.9351E-02
NB-94	17.	871.09	9.3654E-02
ZRNB-95	22.	724.18	2.0819E-01
RU-103	178.	497.08	2.0624E-01
RURH-106	74.	621.93	2.9487E+00
AG-108m	23.	722.94	1.0312E-01
CD-109	354.	88.03	4.3109E+00
AG-110M	254.	657.76	3.0050E-01
SN-113	250.	391.69	2.8765E-01
TE-123m	339.	159.00	1.3114E-01
SB-124	72.	602.73	1.4377E-01
SB-125	284.	427.89	7.1488E-01
TE-125m	374.	109.27	4.3563E+01
I-131	227.	364.48	2.0478E-01
CS-134	69.	604.70	1.4159E-01
BA-140	95.	537.31	5.9941E-01
LA-140	5.	1596.21	8.8260E-02
CEPR-144	365.	133.51	2.0014E+00
EU-152	7.	1408.01	4.1994E-01
EU-154	9.	1274.51	2.7504E-01
EU-155	335.	105.31	5.5103E-01
HG-203	247.	279.20	1.7420E-01
TL-208	251.	277.36	2.2556E+00
BI-212	28.	727.18	1.5488E+00
PB-212	334.	238.63	3.3757E-01
BI-214	113.	609.31	3.9628E-01
PB-214	275.	351.92	8.8655E-01
RA-224	321.	240.99	3.6730E+00
RA-226	394.	186.10	3.7166E+00
AC-228	29.	911.21	4.8096E-01
TH-228	365.	84.37	1.3482E+01
TH-229	345.	88.47	6.1674E-01
PA-233	237.	312.17	3.9134E-01
UTH-233	347.	245.34	1.4331E+02
PA-234M	9.	1001.03	1.2812E-01
TH-234	271.	63.29	7.8233E+00
U-235	404.	185.71	2.2869E-01
NP-237	371.	86.48	1.3263E+00
NP-239	349.	106.12	5.3389E-01

Sample ID : S95T1285-SAM Acquisition date : 21-APR-1996 08:33:52

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	382.	129.30	1.7809E+03
AM-241	282.	59.54	1.4100E+00
AM-243	334.	74.67	3.6024E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 11:00:13.06                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7820
Sample ID:               S95T1285-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         4.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3156.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:01.49 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 10:09:34.76
Decayed to:              21-APR-1996 10:09:34.76
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 EMB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-140, REV. 1

Removed by: EM Bulla

Verified by: RK Jones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.49*	8152	1.55	1323.16	1316	16	2.3		CS-137	36.9
0	899.74	11	0.72	1799.66	1798	8	97.4			

Total number of lines in spectrum	2	WHC-SD-WM-DP-140, REV. 1
Number of unidentified lines	1	
Number of lines tentatively identified by NID	1	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	3.686E+01	3.686E+01	0.085E+01	2.31	
		Total Activity :	3.686E+01	3.686E+01			
		Grand Total Activity :	3.686E+01	3.686E+01			

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

Sample ID : S95T1285-DUP Acquisition date : 21-APR-1996 10:09:34

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	242.	477.59	2.0507E+00
NA-22	16.	1274.53	1.2559E-01
NA-24	4.	1368.55	6.6250E-02
K-40	154.	1460.75	4.0602E+00
CR-51	242.	320.08	1.5413E+00
MN-54	21.	834.83	1.0031E-01
CO-56	18.	846.76	9.3982E-02
CO-57	352.	122.06	1.2984E-01
CO-58	19.	810.78	9.3605E-02
FE-59	16.	1099.25	1.9800E-01
CO-60	6.	1332.50	7.9740E-02
SE-75	288.	264.66	2.5196E-01
SR-85	158.	514.01	1.8908E-01
Y-88	1.	1836.06	4.1968E-02
NB-94	14.	871.09	8.5417E-02
ZRNB-95	26.	724.18	2.2543E-01
RU-103	173.	497.08	2.0324E-01
RURH-106	58.	621.93	2.6093E+00
AG-108m	30.	722.94	1.1696E-01
CD-109	381.	88.03	4.4738E+00
AG-110M	245.	657.76	2.9508E-01
SN-113	269.	391.69	2.9818E-01
TE-123m	332.	159.00	1.2976E-01
SB-124	67.	602.73	1.3870E-01
SB-125	280.	427.89	7.1043E-01
TE-125m	319.	109.27	4.0279E+01
I-131	235.	364.48	2.0840E-01
CS-134	54.	604.70	1.2550E-01
BA-140	92.	537.31	5.9081E-01
LA-140	4.	1596.21	7.8942E-02
CEPR-144	377.	133.51	2.0316E+00
EU-152	12.	1408.01	5.6155E-01
EU-154	16.	1274.51	3.6486E-01
EU-155	366.	105.31	5.7597E-01
HG-203	257.	279.20	1.7758E-01
TL-208	276.	277.36	2.3662E+00
BI-212	16.	727.18	1.1797E+00
PB-212	339.	238.63	3.4031E-01
BI-214	100.	609.31	3.7282E-01
PB-214	277.	351.92	8.9004E-01
RA-224	337.	240.99	3.7675E+00
RA-226	388.	186.10	3.6885E+00
AC-228	27.	911.21	4.6435E-01
TH-228	363.	84.37	1.3445E+01
TH-229	374.	88.47	6.4250E-01
PA-233	242.	312.17	3.9495E-01
UTH-233	294.	245.34	1.3187E+02
PA-234M	12.	1001.03	1.4892E-01
TH-234	292.	63.29	8.1303E+00
U-235	400.	185.71	2.2769E-01
NP-237	371.	86.48	1.3262E+00

Sample ID : S95T1285-DUP Acquisition date : 21-APR-1996 10:09:34

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	356.	106.12	5.3977E-01
PU-239	364.	129.30	1.7383E+03
AM-241	277.	59.54	1.3968E+00
AM-243	333.	74.67	3.5967E-01

LABCORE Data Entry Template for Worklist# 7821

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

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

Worklist Comment: B-106. Sample size is on traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-03	SOLID		
2	BLNK-PREP				@GEA-03	SOLID		
3	SAMPLE	S95T001299	0	F	@GEA-03	SOLID	95000096	B-106
	Analytes Requested:	CE14402 , CE14402E, CO60-02 , CO60-02E, CS13402 , CS13402E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E, NB94-02 , NB94-02E, RA22602 , RA22602E, RU10602 , RU10602E						
4	DUP	S95T001299	0	F	@GEA-03	SOLID		
5	SAMPLE	S95T001303	0	F	@GEA-03	SOLID	95000096	B-106
	Analytes Requested:	CE14402 , CE14402E, CO60-02 , CO60-02E, CS13402 , CS13402E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E, NB94-02 , NB94-02E, RA22602 , RA22602E, RU10602 , RU10602E						
6	DUP	S95T001303	0	F	@GEA-03	SOLID		

Final page for worklist # 7821

Wayne R Buchardt 4-20-96
Analyst Signature **Date**

Sharon L Clark 4-24-96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7821

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

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

Worklist Comment: B-106. Sample size is on traveler. new

Seq	Type	Sample#	R	A		Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-03	CO60-02	SOLID	0.0256		2.51e-02	98.047	% Recovery
1	STD		0		@GEA-03	CO60-02E	SOLID	1		1.22	1.220	% Ct. Error
1	STD		0		@GEA-03	CS13702	SOLID	0.0271		2.64e-02	97.417	% Recovery
1	STD		0		@GEA-03	CS13702E	SOLID	1		1.45	1.450	% Ct. Error
2	BLNK-PREP		0		@GEA-03	CO60-02	SOLID	1		<1.97e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	NB94-02	SOLID	1		<2.14e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	RU10602	SOLID	1		<4.40e-1		uCi/g
2	BLNK-PREP		0		@GEA-03	CS13402	SOLID	1		<2.42e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	CS13702	SOLID	1		<6.74e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	CE14402	SOLID	1		<2.28e-1		uCi/g
2	BLNK-PREP		0		@GEA-03	EU15402	SOLID	1		<8.37e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	EU15502	SOLID	1		<6.31e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	RA22602	SOLID	1		<3.97e-1		uCi/g
3	SAMPLE	S95T001299	0	F	@GEA-03	CO60-02	SOLID	N/A	<	2.545e-02	0.025	uCi/g
3	SAMPLE	S95T001299	0	F	@GEA-03	CO60-02E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001299	0	F	@GEA-03	NB94-02	SOLID	N/A	<	2.410e-02	0.024	uCi/g
3	SAMPLE	S95T001299	0	F	@GEA-03	NB94-02E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001299	0	F	@GEA-03	RU10602	SOLID	N/A	<	7.128e-01	0.713	uCi/g
3	SAMPLE	S95T001299	0	F	@GEA-03	RU10602E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001299	0	F	@GEA-03	CS13402	SOLID	N/A	<	2.921e-02	0.029	uCi/g
3	SAMPLE	S95T001299	0	F	@GEA-03	CS13402E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001299	0	F	@GEA-03	CS13702	SOLID	N/A		5.968e+00	0.000	uCi/g
3	SAMPLE	S95T001299	0	F	@GEA-03	CS13702E	SOLID	N/A		2.78	0.000	% Ct. Error
3	SAMPLE	S95T001299	0	F	@GEA-03	CE14402	SOLID	N/A	<	4.767e-01	0.477	uCi/g
3	SAMPLE	S95T001299	0	F	@GEA-03	CE14402E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001299	0	F	@GEA-03	EU15402	SOLID	N/A	<	7.165e-02	0.072	uCi/g
3	SAMPLE	S95T001299	0	F	@GEA-03	EU15402E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001299	0	F	@GEA-03	EU15502	SOLID	N/A	<	1.377e-01	0.138	uCi/g
3	SAMPLE	S95T001299	0	F	@GEA-03	EU15502E	SOLID	N/A		n/a	0.000	% Ct. Error
3	SAMPLE	S95T001299	0	F	@GEA-03	RA22602	SOLID	N/A	<	7.995e-01	0.800	uCi/g
3	SAMPLE	S95T001299	0	F	@GEA-03	RA22602E	SOLID	N/A		n/a	0.000	% Ct. Error
4	DUP	S95T001299	0	F	@GEA-03	CO60-02	SOLID	<2.55e-2		<2.41e-2		RPD
4	DUP	S95T001299	0	F	@GEA-03	CO60-02E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001299	0	F	@GEA-03	NB94-02	SOLID	<2.41e-2		<2.36e-2		RPD
4	DUP	S95T001299	0	F	@GEA-03	NB94-02E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001299	0	F	@GEA-03	RU10602	SOLID	<7.13e-1		<6.25e-1		RPD
4	DUP	S95T001299	0	F	@GEA-03	RU10602E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001299	0	F	@GEA-03	CS13402	SOLID	<2.92e-2		<2.88e-2		RPD
4	DUP	S95T001299	0	F	@GEA-03	CS13402E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001299	0	F	@GEA-03	CS13702	SOLID	5.97e+00		6.03e+00	1.000	RPD
4	DUP	S95T001299	0	F	@GEA-03	CS13702E	SOLID	1		2.73	2.730	% Ct. Error

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

LABCORE Completed Worklist Report for Worklist# 7821

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
4	DUP	S95T001299	0	F	@GEA-03	CE14402	SOLID	<4.77e-1	<4.66e-1	RPD
4	DUP	S95T001299	0	F	@GEA-03	CE14402E	SOLID	1	n/a	% Ct. Error
4	DUP	S95T001299	0	F	@GEA-03	EU15402	SOLID	<7.17e-2	<7.19e-2	RPD
4	DUP	S95T001299	0	F	@GEA-03	EU15402E	SOLID	1	n/a	% Ct. Error
4	DUP	S95T001299	0	F	@GEA-03	EU15502	SOLID	<1.38e-1	<1.35e-1	RPD
4	DUP	S95T001299	0	F	@GEA-03	EU15502E	SOLID	1	n/a	% Ct. Error
4	DUP	S95T001299	0	F	@GEA-03	RA22602	SOLID	<7.99e-1	<8.00e-1	RPD
4	DUP	S95T001299	0	F	@GEA-03	RA22602E	SOLID	1	n/a	% Ct. Error
5	SAMPLE	S95T001303	0	F	@GEA-03	CO60-02	SOLID	N/A <	6.192e-02	0.062 uCi/g
5	SAMPLE	S95T001303	0	F	@GEA-03	CO60-02E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S95T001303	0	F	@GEA-03	NB94-02	SOLID	N/A <	4.522e-02	0.045 uCi/g
5	SAMPLE	S95T001303	0	F	@GEA-03	NB94-02E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S95T001303	0	F	@GEA-03	RU10602	SOLID	N/A <	1.299e+00	1.299 uCi/g
5	SAMPLE	S95T001303	0	F	@GEA-03	RU10602E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S95T001303	0	F	@GEA-03	CS13402	SOLID	N/A <	5.117e-02	0.051 uCi/g
5	SAMPLE	S95T001303	0	F	@GEA-03	CS13402E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S95T001303	0	F	@GEA-03	CS13702	SOLID	N/A	1.037e+01	0.000 uCi/g
5	SAMPLE	S95T001303	0	F	@GEA-03	CS13702E	SOLID	N/A	3.06	0.000 % Ct. Error
5	SAMPLE	S95T001303	0	F	@GEA-03	CE14402	SOLID	N/A <	8.658e-01	0.866 uCi/g
5	SAMPLE	S95T001303	0	F	@GEA-03	CE14402E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S95T001303	0	F	@GEA-03	EU15402	SOLID	N/A <	1.544e-01	0.154 uCi/g
5	SAMPLE	S95T001303	0	F	@GEA-03	EU15402E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S95T001303	0	F	@GEA-03	EU15502	SOLID	N/A <	2.573e-01	0.257 uCi/g
5	SAMPLE	S95T001303	0	F	@GEA-03	EU15502E	SOLID	N/A	n/a	0.000 % Ct. Error
5	SAMPLE	S95T001303	0	F	@GEA-03	RA22602	SOLID	N/A <	1.586e+00	1.586 uCi/g
5	SAMPLE	S95T001303	0	F	@GEA-03	RA22602E	SOLID	N/A	n/a	0.000 % Ct. Error
6	DUP	S95T001303	0	F	@GEA-03	CO60-02	SOLID	<6.19e-2	<6.29e-2	RPD
6	DUP	S95T001303	0	F	@GEA-03	CO60-02E	SOLID	1	n/a	% Ct. Error
6	DUP	S95T001303	0	F	@GEA-03	NB94-02	SOLID	<4.52e-2	<4.47e-2	RPD
6	DUP	S95T001303	0	F	@GEA-03	NB94-02E	SOLID	1	n/a	% Ct. Error
6	DUP	S95T001303	0	F	@GEA-03	RU10602	SOLID	<1.30e0	<1.23e0	RPD
6	DUP	S95T001303	0	F	@GEA-03	RU10602E	SOLID	1	n/a	% Ct. Error
6	DUP	S95T001303	0	F	@GEA-03	CS13402	SOLID	<5.12e-2	<6.19e-2	RPD
6	DUP	S95T001303	0	F	@GEA-03	CS13402E	SOLID	1	n/a	% Ct. Error
6	DUP	S95T001303	0	F	@GEA-03	CS13702	SOLID	1.04e+01	1.01e+01	2.927 RPD
6	DUP	S95T001303	0	F	@GEA-03	CS13702E	SOLID	1	3.13	3.130 % Ct. Error
6	DUP	S95T001303	0	F	@GEA-03	CE14402	SOLID	<8.66e-1	<8.60e-1	RPD
6	DUP	S95T001303	0	F	@GEA-03	CE14402E	SOLID	1	n/a	% Ct. Error
6	DUP	S95T001303	0	F	@GEA-03	EU15402	SOLID	<1.54e-1	<1.64e-1	RPD
6	DUP	S95T001303	0	F	@GEA-03	EU15402E	SOLID	1	n/a	% Ct. Error
6	DUP	S95T001303	0	F	@GEA-03	EU15502	SOLID	<2.57e-1	<2.61e-1	RPD
6	DUP	S95T001303	0	F	@GEA-03	EU15502E	SOLID	1	n/a	% Ct. Error
6	DUP	S95T001303	0	F	@GEA-03	RA22602	SOLID	<1.59e0	<1.59e0	RPD
6	DUP	S95T001303	0	F	@GEA-03	RA22602E	SOLID	1	n/a	% Ct. Error

Comments Section:

Comments for sample# S95T001299 and test @GEA-03 .

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

LABCORE Completed Worklist Report for Worklist# 7821

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

DL=0 => n/a.

Comments for sample# S95T001303 **and test** @GEA-03 .
DL=0 => n/a.

Final page for worklist# 7821

Analyst Signature **Date**

Analyst Signature **Date**

B Machelor 4/24/96
Reviewer Signature **Date**

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

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 20:40:21.81                  *
*****************************************************************************
     >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
```

WHC-SD-WM-DP-140, REV. 1

```
Worklist #:              7821
Sample ID:               WL7821-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00
```

Removed by: ALJ 4-21-96

```
     >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3166.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:09.41 sec
Dead Time:               0.3%
```

Verified by: RAJones 4/22/96

```
     >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 19:49:35.41
Decayed to:              21-APR-1996 19:49:35.41
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.46*	23350	1.59	1323.10	1315	16	1.4		CS-137	26.4
0	1173.02	15835	1.94	2346.30	2337	17	1.7		CO-60	25.0
0	1332.27	14383	1.97	2664.91	2655	20	1.7		CO-60	25.2

Sample ID : WL7821-STD
Acquisition date : 21-APR-1996 19:49:35

WHC-SD-WM-DP-140, REV. 1

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.507E+01	2.507E+01	0.031E+01	1.22	
CS-137	30.00Y	1.000	2.639E+01	2.639E+01	0.038E+01	1.45	
		Total Activity :	5.146E+01	5.146E+01			
		Grand Total Activity :	5.146E+01	5.146E+01			

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

Sample ID : WL7821-STD
Acquisition date : 21-APR-1996 19:49:35

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1162.	477.59	1.1230E+00
NA-22	87.	1274.53	7.3235E-02
NA-24	27.	1368.55	4.3952E-02
K-40	137.	1460.75	9.5854E-01
CR-51	1181.	320.08	8.5216E-01
MN-54	704.	834.83	1.4508E-01
CO-56	758.	846.76	1.5246E-01
CO-57	1321.	122.06	6.2892E-02
CO-58	709.	810.78	1.4276E-01
FE-59	784.	1099.25	3.4334E-01
SE-75	1302.	264.66	1.3403E-01
SR-85	866.	514.01	1.1084E-01
Y-88	16.	1836.06	4.1481E-02
NB-94	802.	871.09	1.6070E-01
ZRNB-95	626.	724.18	2.7720E-01
RU-103	926.	497.08	1.1774E-01
RURH-106	645.	621.93	2.1759E+00
AG-108m	621.	722.94	1.3259E-01
CD-109	1090.	88.03	1.8916E+00
AG-110M	1273.	657.76	1.6810E-01
SN-113	1152.	391.69	1.5430E-01
TE-123m	1302.	159.00	6.4237E-02
SB-124	671.	602.73	1.0967E-01
SB-125	1214.	427.89	3.6979E-01
TE-125m	1173.	109.27	1.9294E+01
I-131	1161.	364.48	1.1581E-01
CS-134	633.	604.70	1.0700E-01
BA-140	733.	537.31	4.1688E-01
LA-140	20.	1596.21	4.4378E-02
CEPR-144	1283.	133.51	9.3752E-01
EU-152	24.	1408.01	1.9784E-01
EU-154	87.	1274.51	2.1257E-01
EU-155	1235.	105.31	2.6444E-01
HG-203	1308.	279.20	1.0016E-01
TL-208	1331.	277.36	1.2979E+00
BI-212	582.	727.18	1.7610E+00
PB-212	1576.	238.63	1.8336E-01
BI-214	672.	609.31	2.4164E-01
PB-214	1258.	351.92	4.7475E-01
RA-224	1516.	240.99	1.9968E+00
RA-226	1566.	186.10	1.8531E+00
AC-228	906.	911.21	6.6682E-01
TH-228	1137.	84.37	5.9501E+00
TH-229	1108.	88.47	2.7644E-01
PA-233	1180.	312.17	2.1815E-01
UTH-233	1501.	245.34	7.4487E+01
PA-234M	799.	1001.03	3.0608E-01
TH-234	1027.	63.29	3.8096E+00
U-235	1532.	185.71	1.1138E-01
NP-237	1118.	86.48	5.7548E-01
NP-239	1260.	106.12	2.5381E-01

Sample ID : WL7821-STD Acquisition date : 21-APR-1996 19:49:35

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1261.	129.30	8.0906E+02
AM-241	1064.	59.54	6.8434E-01
AM-243	1069.	74.67	1.6118E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 21:33:21.79                  *
*****************************************************************************
     >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7821
Sample ID:               WL7821-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

     >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3167.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.43 sec
Dead Time:               0.0%

     >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 20:42:41.28
Decayed to:              21-APR-1996 20:42:41.28
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-140, REV. 1

Removed by: 4-21-96

Verified by:

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	609.23*	22	1.18	1218.65	1213	12	100.5			
0	661.58*	63	1.20	1323.34	1316	13	56.1		CS-137	0.142

Summary of Nuclide Activity
Sample ID : WL7821-BLK

Acquisition date : 21-APR-1996 20:42:41

WHC-CD-WM-DP-140, REV. 1

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~CS-137~~	~~30.00Y~~	~~1.000~~	~~1.423E-01~~	~~1.423E-01~~	~~0.798E-01~~	~~56.10~~	>50%
		Total Activity :	1.423E-01	1.423E-01			
		Grand Total Activity :	1.423E-01	1.423E-01			

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

Sample ID : WL7821-BLK Acquisition date : 21-APR-1996 20:42:41

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	39.	477.59	4.0939E-01
NA-22	15.	1274.53	6.0799E-02
NA-24	3.	1368.55	2.9333E-02
K-40	121.	1460.75	1.7995E+00
CR-51	58.	320.08	3.7820E-01
MN-54	17.	834.83	4.5087E-02
CO-56	16.	846.76	4.3869E-02
CO-57	62.	122.06	2.7162E-02
CO-58	16.	810.78	4.3026E-02
FE-59	10.	1099.25	7.6284E-02
CO-60	7.	1332.50	4.1646E-02
SE-75	60.	264.66	5.7383E-02
SR-85	39.	514.01	4.7020E-02
Y-88	2.	1836.06	2.9676E-02
NB-94	16.	871.09	4.5104E-02
ZRNB-95	25.	724.18	1.1151E-01
RU-103	30.	497.08	4.2087E-02
RURH-106	29.	621.93	9.2814E-01
AG-108m	22.	722.94	5.0431E-02
CD-109	86.	88.03	1.0632E+00
AG-110M	28.	657.76	4.9564E-02
SN-113	46.	391.69	6.1963E-02
TE-123m	86.	159.00	3.3095E-02
SB-124	32.	602.73	4.7695E-02
SB-125	38.	427.89	1.3114E-01
TE-125m	74.	109.27	9.7235E+00
I-131	39.	364.48	4.2504E-02
CS-134	36.	604.70	5.1061E-02
BA-140	19.	537.31	1.3352E-01
LA-140	7.	1596.21	5.1445E-02
CEPR-144	85.	133.51	4.8182E-01
EU-152	8.	1408.01	2.3007E-01
EU-154	15.	1274.51	1.7664E-01
EU-155	78.	105.31	1.3311E-01
HG-203	75.	279.20	4.7913E-02
TL-208	86.	277.36	6.5808E-01
BI-212	24.	727.18	7.2013E-01
PB-212	81.	238.63	8.3009E-02
BI-214	59.	609.31	1.4286E-01
PB-214	77.	351.92	2.3490E-01
RA-224	83.	240.99	9.3725E-01
RA-226	80.	186.10	8.3757E-01
AC-228	31.	911.21	2.4766E-01
TH-228	72.	84.37	3.0005E+00
TH-229	83.	88.47	1.5171E-01
PA-233	47.	312.17	8.7463E-02
UTH-233	72.	245.34	3.2541E+01
PA-234M	19.	1001.03	9.4589E-02
TH-234	64.	63.29	1.9006E+00
U-235	85.	185.71	5.2379E-02
NP-237	85.	86.48	3.1748E-01

Sample ID : WL7821-BLK Acquisition date : 21-APR-1996 20:42:41

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	74.	106.12	1.2298E-01
PU-239	70.	129.30	3.8141E+02
AM-241	48.	59.54	2.9083E-01
AM-243	75.	74.67	8.5198E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 22:54:26.30                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<   WHC-SD-WM-DP-140, REV. 1
Worklist #:              7821
Sample ID:               S95T001299-SAM                 Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00                    [signature] 4-21-96

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:                                            Verified by:
File Number:             dka300:[spec.GEA3]3g3168.cnf
Geometry:                42                             [signature] 4/22/96
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:01.28 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 22:03:44.83
Decayed to:              21-APR-1996 22:03:44.83
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.51*	5559	1.65	1323.20	1316	16	2.8		CS-137	12.6
0	911.10*	22	1.06	1822.37	1819	9	63.6			

Sample ID : S95T001299-SAM
Acquisition date : 21-APR-1996 22:03:44

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

WHC-SD-WM-DP-140, REV.

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.257E+01	1.257E+01	0.035E+01	2.78	
		Total Activity :	1.257E+01	1.257E+01			
		Grand Total Activity :	1.257E+01	1.257E+01			

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

Sample ID : S95T001299-SAM Acquisition date : 21-APR-1996 22:03:44

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	191.	477.59	9.0964E-01
NA-22	11.	1274.53	5.2065E-02
NA-24	3.	1368.55	2.9333E-02
K-40	136.	1460.75	1.9081E+00
CR-51	197.	320.08	6.9617E-01
MN-54	20.	834.83	4.8950E-02
CO-56	18.	846.76	4.7291E-02
CO-57	384.	122.06	6.7850E-02
CO-58	11.	810.78	3.5954E-02
FE-59	13.	1099.25	8.8727E-02
CO-60	11.	1332.50	5.3729E-02
SE-75	253.	264.66	1.1826E-01
SR-85	124.	514.01	8.3914E-02
Y-88	2.	1836.06	2.9507E-02
NB-94	20.	871.09	5.0873E-02
ZRNB-95	30.	724.18	1.2058E-01
RU-103	123.	497.08	8.5804E-02
RURH-106	77.	621.93	1.5049E+00
AG-108m	28.	722.94	5.6431E-02
CD-109	361.	88.03	2.1764E+00
AG-110M	175.	657.76	1.2478E-01
SN-113	193.	391.69	1.2627E-01
TE-123m	300.	159.00	6.1645E-02
SB-124	50.	602.73	5.9704E-02
SB-125	222.	427.89	3.1648E-01
TE-125m	337.	109.27	2.0694E+01
I-131	178.	364.48	9.0779E-02
CS-134	53.	604.70	6.1675E-02
BA-140	86.	537.31	2.8575E-01
LA-140	5.	1596.21	4.2166E-02
CEPR-144	370.	133.51	1.0064E+00
EU-152	7.	1408.01	2.1257E-01
EU-154	11.	1274.51	1.5126E-01
EU-155	373.	105.31	2.9061E-01
HG-203	199.	279.20	7.8119E-02
TL-208	192.	277.36	9.8497E-01
BI-212	29.	727.18	7.9073E-01
PB-212	311.	238.63	1.6287E-01
BI-214	94.	609.31	1.8084E-01
PB-214	201.	351.92	3.7918E-01
RA-224	271.	240.99	1.6899E+00
RA-226	325.	186.10	1.6880E+00
AC-228	39.	911.21	2.7668E-01
TH-228	349.	84.37	6.5938E+00
TH-229	358.	88.47	3.1415E-01
PA-233	191.	312.17	1.7573E-01
UTH-233	279.	245.34	6.4279E+01
PA-234M	13.	1001.03	7.8449E-02
TH-234	300.	63.29	4.1210E+00
U-235	332.	185.71	1.0369E-01
NP-237	371.	86.48	6.6316E-01

WHC-SD-WM-DP-140, REV. 1

Sample ID : S95T001299-SAM Acquisition date : 21-APR-1996 22:03:44

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	365.	106.12	2.7303E-01
PU-239	352.	129.30	8.5465E+02
AM-241	254.	59.54	6.6835E-01
AM-243	346.	74.67	1.8338E-01

WHC-SD-WM-DP-140, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 23:47:54.62                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7821
Sample ID:               S95T001299-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3169.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:01.29 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 22:57:17.44
Decayed to:              21-APR-1996 22:57:17.44
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-140, REV. 1

Removed by: 4-21-96

Verified by: 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.50*	5730	1.59	1323.17	1315	16	2.7		CS-137	13.0

Sample ID : S95T001299-DUP
Acquisition date : 21-APR-1996 22:57:17

Total number of lines in spectrum	1	WHC-SD-WM-DP-140, REV. 1
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.295E+01	1.295E+01	0.035E+01	2.73	
		Total Activity :	1.295E+01	1.295E+01			
		Grand Total Activity :	1.295E+01	1.295E+01			

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

Minimum Detectable Activity Report
Sample ID : S95T001299-DUP

Acquisition date : 21-APR-1996 22:57:17

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	229.	477.59	9.9687E-01
NA-22	11.	1274.53	5.2974E-02
NA-24	8.	1368.55	4.6798E-02
K-40	128.	1460.75	1.8543E+00
CR-51	225.	320.08	7.4457E-01
MN-54	11.	834.83	3.5769E-02
CO-56	24.	846.76	5.4170E-02
CO-57	373.	122.06	6.6854E-02
CO-58	20.	810.78	4.7613E-02
FE-59	15.	1099.25	9.3572E-02
CO-60	10.	1332.50	5.1472E-02
SE-75	258.	264.66	1.1933E-01
SR-85	129.	514.01	8.5419E-02
Y-88	4.	1836.06	4.1849E-02
NB-94	20.	871.09	5.0508E-02
ZRNB-95	22.	724.18	1.0458E-01
RU-103	136.	497.08	9.0224E-02
RURH-106	61.	621.93	1.3360E+00
AG-108m	24.	722.94	5.1845E-02
CD-109	376.	88.03	2.2222E+00
AG-110M	211.	657.76	1.3675E-01
SN-113	191.	391.69	1.2554E-01
TE-123m	336.	159.00	6.5278E-02
SB-124	67.	602.73	6.9268E-02
SB-125	245.	427.89	3.3217E-01
TE-125m	352.	109.27	2.1139E+01
I-131	207.	364.48	9.7866E-02
CS-134	52.	604.70	6.1580E-02
BA-140	89.	537.31	2.9017E-01
LA-140	8.	1596.21	5.5820E-02
CEPR-144	363.	133.51	9.9702E-01
EU-152	10.	1408.01	2.5723E-01
EU-154	11.	1274.51	1.5390E-01
EU-155	369.	105.31	2.8908E-01
HG-203	202.	279.20	7.8699E-02
TL-208	209.	277.36	1.0286E+00
BI-212	25.	727.18	7.3190E-01
PB-212	292.	238.63	1.5788E-01
BI-214	59.	609.31	1.4315E-01
PB-214	203.	351.92	3.8110E-01
RA-224	295.	240.99	1.7627E+00
RA-226	334.	186.10	1.7104E+00
AC-228	22.	911.21	2.0948E-01
TH-228	353.	84.37	6.6350E+00
TH-229	368.	88.47	3.1870E-01
PA-233	200.	312.17	1.7948E-01
UTH-233	270.	245.34	6.3171E+01
PA-234M	16.	1001.03	8.7339E-02
TH-234	293.	63.29	4.0688E+00
U-235	325.	185.71	1.0268E-01
NP-237	374.	86.48	6.6566E-01

Sample ID : S95T001299-DUP Acquisition date : 21-APR-1996 22:57:17

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	361.	106.12	2.7163E-01
PU-239	365.	129.30	8.7016E+02
AM-241	308.	59.54	7.3653E-01
AM-243	342.	74.67	1.8224E-01

WHC-SD-WM-DP-140, REV. 1

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*****************************************************************************
* 222-S Laboratory Counting Room   22-APR-1996 00:40:56.39                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7821
Sample ID:               S95T001303-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         4.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3170.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:01.12 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 23:50:15.55
Decayed to:              21-APR-1996 23:50:15.55
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-140, REV. 1

Removed by: ALJ 4-22-96

Verified by: RKJones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.50*	4595	1.69	1323.17	1315	17	3.1		CS-137	20.8

Sample ID : S95T001303-SAM Acquisition date : 21-APR-1996 23:50:15

WHC-SD-WM-DP-140, REV. 1

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.077E+01	2.077E+01	0.064E+01	3.06	
		Total Activity :	2.077E+01	2.077E+01			
		Grand Total Activity :	2.077E+01	2.077E+01			

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

Sample ID : S95T001303-SAM Acquisition date : 21-APR-1996 23:50:15

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	185.	477.59	1.7932E+00
NA-22	11.	1274.53	1.0602E-01
NA-24	5.	1368.55	7.4406E-02
K-40	127.	1460.75	3.6863E+00
CR-51	178.	320.08	1.3233E+00
MN-54	18.	834.83	9.2887E-02
CO-56	24.	846.76	1.0783E-01
CO-57	305.	122.06	1.2086E-01
CO-58	19.	810.78	9.3255E-02
FE-59	10.	1099.25	1.5510E-01
CO-60	15.	1332.50	1.2416E-01
SE-75	196.	264.66	2.0777E-01
SR-85	126.	514.01	1.6931E-01
Y-88	1.	1836.06	4.1489E-02
NB-94	16.	871.09	9.0667E-02
ZRNB-95	15.	724.18	1.7206E-01
RU-103	103.	497.08	1.5666E-01
RURH-106	58.	621.93	2.6038E+00
AG-108m	20.	722.94	9.4122E-02
CD-109	304.	88.03	3.9992E+00
AG-110M	156.	657.76	2.3546E-01
SN-113	166.	391.69	2.3410E-01
TE-123m	299.	159.00	1.2316E-01
SB-124	41.	602.73	1.0786E-01
SB-125	199.	427.89	5.9894E-01
TE-125m	271.	109.27	3.7101E+01
I-131	143.	364.48	1.6240E-01
CS-134	36.	604.70	1.0261E-01
BA-140	75.	537.31	5.3333E-01
LA-140	3.	1596.21	6.4436E-02
CEPR-144	275.	133.51	1.7362E+00
EU-152	5.	1408.01	3.5769E-01
EU-154	12.	1274.51	3.0965E-01
EU-155	294.	105.31	5.1590E-01
HG-203	183.	279.20	1.4987E-01
TL-208	181.	277.36	1.9150E+00
BI-212	18.	727.18	1.2255E+00
PB-212	248.	238.63	2.9126E-01
BI-214	62.	609.31	2.9441E-01
PB-214	182.	351.92	7.2106E-01
RA-224	261.	240.99	3.3118E+00
RA-226	288.	186.10	3.1811E+00
AC-228	27.	911.21	4.6095E-01
TH-228	309.	84.37	1.2401E+01
TH-229	308.	88.47	5.8345E-01
PA-233	173.	312.17	3.3404E-01
UTH-233	213.	245.34	1.1223E+02
PA-234M	14.	1001.03	1.5993E-01
TH-234	243.	63.29	7.4080E+00
U-235	292.	185.71	1.9438E-01
NP-237	308.	86.48	1.2073E+00

WHC-SD-WM-DP-140, REV. 1

Sample ID : S95T001303-SAM Acquisition date : 21-APR-1996 23:50:15

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	307.	106.12	5.0074E-01
PU-239	278.	129.30	1.5180E+03
AM-241	194.	59.54	1.1698E+00
AM-243	282.	74.67	3.3106E-01

WHC-SD-WM-DP-140, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   22-APR-1996 01:35:57.33                  *
*****************************************************************************
     >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7821
Sample ID:               S95T001303-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         4.00000E+00

     >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA3]3g3171.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:01.11 sec
Dead Time:               0.0%

     >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       22-APR-1996 00:45:20.94
Decayed to:              22-APR-1996 00:45:20.94
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-140, REV. 1

Removed by:

ALJ 4-22-96

Verified by:

RAJones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.52*	4552	1.51	1323.21	1315	17	3.1		CS-137	20.6

Sample ID : S95T001303-DUP Acquisition date : 22-APR-1996 00:45:20

WHC-SD-WM-DP-140, REV. 1

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.058E+01	2.058E+01	0.064E+01	3.13	
		Total Activity :	2.058E+01	2.058E+01			
		Grand Total Activity :	2.058E+01	2.058E+01			

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

Sample ID : S95T001303-DUP Acquisition date : 22-APR-1996 00:45:20

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	171.	477.59	1.7219E+00
NA-22	13.	1274.53	1.1488E-01
NA-24	7.	1368.55	8.8441E-02
K-40	112.	1460.75	3.4628E+00
CR-51	188.	320.08	1.3614E+00
MN-54	19.	834.83	9.4711E-02
CO-56	11.	846.76	7.3463E-02
CO-57	299.	122.06	1.1975E-01
CO-58	13.	810.78	7.7890E-02
FE-59	9.	1099.25	1.4883E-01
CO-60	16.	1332.50	1.2836E-01
SE-75	214.	264.66	2.1752E-01
SR-85	113.	514.01	1.5993E-01
Y-88	1.	1836.06	4.1968E-02
NB-94	16.	871.09	9.1250E-02
ZRNB-95	26.	724.18	2.2602E-01
RU-103	130.	497.08	1.7676E-01
RURH-106	54.	621.93	2.5096E+00
AG-108m	29.	722.94	1.1391E-01
CD-109	283.	88.03	3.8562E+00
AG-110M	143.	657.76	2.2569E-01
SN-113	168.	391.69	2.3562E-01
TE-123m	279.	159.00	1.1899E-01
SB-124	62.	602.73	1.3322E-01
SB-125	195.	427.89	5.9229E-01
TE-125m	320.	109.27	4.0311E+01
I-131	144.	364.48	1.6316E-01
CS-134	55.	604.70	1.2645E-01
BA-140	80.	537.31	5.5103E-01
LA-140	5.	1596.21	8.7328E-02
CEPR-144	281.	133.51	1.7562E+00
EU-152	8.	1408.01	4.6015E-01
EU-154	13.	1274.51	3.3375E-01
EU-155	313.	105.31	5.3225E-01
HG-203	197.	279.20	1.5557E-01
TL-208	191.	277.36	1.9677E+00
BI-212	17.	727.18	1.1994E+00
PB-212	249.	238.63	2.9152E-01
BI-214	87.	609.31	3.4697E-01
PB-214	201.	351.92	7.5796E-01
RA-224	242.	240.99	3.1941E+00
RA-226	300.	186.10	3.2439E+00
AC-228	20.	911.21	3.9917E-01
TH-228	338.	84.37	1.2981E+01
TH-229	275.	88.47	5.5067E-01
PA-233	180.	312.17	3.4103E-01
UTH-233	230.	245.34	1.1651E+02
PA-234M	9.	1001.03	1.3182E-01
TH-234	243.	63.29	7.4079E+00
U-235	301.	185.71	1.9738E-01
NP-237	314.	86.48	1.2209E+00

Sample ID : S95T001303-DUP Acquisition date : 22-APR-1996 00:45:20

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	315.	106.12	5.0762E-01
PU-239	311.	129.30	1.6079E+03
AM-241	222.	59.54	1.2507E+00
AM-243	266.	74.67	3.2183E-01

WHC-CD-WM-DP-165, REV. 1

LABCORE Data Entry Template for Worklist# 7822

Analyst: WGB **Instrument:** GEA00 4 **Book#** 12856

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

Worklist Comment: B-106. Sample size is on traveler. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-03	SOLID		
2	BLNK-PREP				@GEA-03	SOLID		
3	SAMPLE	S95T001307	0	F	@GEA-03	SOLID	95000096	B-106
	Analytes Requested:	CE14402 , CE14402E, CO60-02 , CO60-02E, CS13402 , CS13402E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E, NB94-02 , NB94-02E, RA22602 , RA22602E, RU10602 , RU10602E						
4	DUP	S95T001307	0	F	@GEA-03	SOLID		
5	SAMPLE	S95T001311	0	F	@GEA-03	SOLID	95000096	B-106
	Analytes Requested:	CE14402 , CE14402E, CO60-02 , CO60-02E, CS13402 , CS13402E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E, NB94-02 , NB94-02E, RA22602 , RA22602E, RU10602 , RU10602E						
6	DUP	S95T001311	0	F	@GEA-03	SOLID		

Final page for worklist # 7822

Warren G. Burchett 4-20-96
Analyst Signature **Date**

Sue E. Hogan 4/24/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7822

Analyst: wgb **Instrument:** GEA04 **Book#** 12856

Method: LA-~~508~~-540-121 Rev/Mod E-D WHC-SD-WM-DP-140, REV. 1

Worklist Comment: B-106. Sample size is on traveler. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-03	CO60-02	SOLID	0.0256	2.55e-02	99.609	% Recovery
1	STD		0		@GEA-03	CO60-02E	SOLID	1	0.640	0.640	% Ct. Error
1	STD		0		@GEA-03	CS13702	SOLID	0.0271	2.67e-02	98.524	% Recovery
1	STD		0		@GEA-03	CS13702E	SOLID	1	0.750	0.750	% Ct. Error
2	BLNK-PREP		0		@GEA-03	CO60-02	SOLID	1	<6.70e-3		uCi/g
2	BLNK-PREP		0		@GEA-03	NB94-02	SOLID	1	<7.68e-3		uCi/g
2	BLNK-PREP		0		@GEA-03	RU10602	SOLID	1	<1.19e-1		uCi/g
2	BLNK-PREP		0		@GEA-03	CS13402	SOLID	1	<6.09e-3		uCi/g
2	BLNK-PREP		0		@GEA-03	CS13702	SOLID	1	<1.19e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	CE14402	SOLID	1	<5.99e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	EU15402	SOLID	1	<2.33e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	EU15502	SOLID	1	<1.63e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	RA22602	SOLID	1	<1.21e-1		uCi/g
3	SAMPLE	S95T001307	0	F	@GEA-03	CO60-02	SOLID	N/A <	7.263e-03	0.007	uCi/g
3	SAMPLE	S95T001307	0	F	@GEA-03	CO60-02E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S95T001307	0	F	@GEA-03	NB94-02	SOLID	N/A <	6.266e-03	0.006	uCi/g
3	SAMPLE	S95T001307	0	F	@GEA-03	NB94-02E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S95T001307	0	F	@GEA-03	RU10602	SOLID	N/A <	2.607e-01	0.261	uCi/g
3	SAMPLE	S95T001307	0	F	@GEA-03	RU10602E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S95T001307	0	F	@GEA-03	CS13402	SOLID	N/A <	1.343e-02	0.013	uCi/g
3	SAMPLE	S95T001307	0	F	@GEA-03	CS13402E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S95T001307	0	F	@GEA-03	CS13702	SOLID	N/A	1.197e+01	0.000	uCi/g
3	SAMPLE	S95T001307	0	F	@GEA-03	CS13702E	SOLID	N/A	0.720	0.000	% Ct. Error
3	SAMPLE	S95T001307	0	F	@GEA-03	CE14402	SOLID	N/A <	1.568e-01	0.157	uCi/g
3	SAMPLE	S95T001307	0	F	@GEA-03	CE14402E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S95T001307	0	F	@GEA-03	EU15402	SOLID	N/A <	2.377e-02	0.024	uCi/g
3	SAMPLE	S95T001307	0	F	@GEA-03	EU15402E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S95T001307	0	F	@GEA-03	EU15502	SOLID	N/A <	4.132e-02	0.041	uCi/g
3	SAMPLE	S95T001307	0	F	@GEA-03	EU15502E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S95T001307	0	F	@GEA-03	RA22602	SOLID	N/A <	3.198e-01	0.320	uCi/g
3	SAMPLE	S95T001307	0	F	@GEA-03	RA22602E	SOLID	N/A	n/a	0.000	% Ct. Error
4	DUP	S95T001307	0	F	@GEA-03	CO60-02	SOLID	<7.26e-3	<8.83e-3		RPD
4	DUP	S95T001307	0	F	@GEA-03	CO60-02E	SOLID	1	n/a		% Ct. Error
4	DUP	S95T001307	0	F	@GEA-03	NB94-02	SOLID	<6.27e-3	<7.34e-3		RPD
4	DUP	S95T001307	0	F	@GEA-03	NB94-02E	SOLID	1	n/a		% Ct. Error
4	DUP	S95T001307	0	F	@GEA-03	RU10602	SOLID	<2.61e-1	<2.56e-1		RPD
4	DUP	S95T001307	0	F	@GEA-03	RU10602E	SOLID	1	n/a		% Ct. Error
4	DUP	S95T001307	0	F	@GEA-03	CS13402	SOLID	<1.34e-2	<1.30e-2		RPD
4	DUP	S95T001307	0	F	@GEA-03	CS13402E	SOLID	1	n/a		% Ct. Error
4	DUP	S95T001307	0	F	@GEA-03	CS13702	SOLID	1.20e+01	1.10e+01	8.696	RPD
4	DUP	S95T001307	0	F	@GEA-03	CS13702E	SOLID	1	0.760	0.760	% Ct. Error

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

LABCORE Completed Worklist Report for Worklist# 7822

Seq	Type	Sample#	R	A	Test		Matrix	Actual		Found	DL or Yield	Unit
4	DUP	S95T001307	0	F	@GEA-03	CE14402	SOLID	<1.57e-1		<1.54e-1		RPD
4	DUP	S95T001307	0	F	@GEA-03	CE14402E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001307	0	F	@GEA-03	EU15402	SOLID	<2.38e-2		<2.55e-2		RPD
4	DUP	S95T001307	0	F	@GEA-03	EU15402E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001307	0	F	@GEA-03	EU15502	SOLID	<4.13e-2		<4.13e-2		RPD
4	DUP	S95T001307	0	F	@GEA-03	EU15502E	SOLID	1		n/a		% Ct. Error
4	DUP	S95T001307	0	F	@GEA-03	RA22602	SOLID	<3.20e-1		<3.17e-1		RPD
4	DUP	S95T001307	0	F	@GEA-03	RA22602E	SOLID	1		n/a		% Ct. Error
5	SAMPLE	S95T001311	0	F	@GEA-03	CO60-02	SOLID	N/A	<	1.334e-02	0.013	uCi/g
5	SAMPLE	S95T001311	0	F	@GEA-03	CO60-02E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S95T001311	0	F	@GEA-03	NB94-02	SOLID	N/A	<	1.519e-02	0.015	uCi/g
5	SAMPLE	S95T001311	0	F	@GEA-03	NB94-02E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S95T001311	0	F	@GEA-03	RU10602	SOLID	N/A	<	6.094e-01	0.609	uCi/g
5	SAMPLE	S95T001311	0	F	@GEA-03	RU10602E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S95T001311	0	F	@GEA-03	CS13402	SOLID	N/A	<	3.017e-02	0.030	uCi/g
5	SAMPLE	S95T001311	0	F	@GEA-03	CS13402E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S95T001311	0	F	@GEA-03	CS13702	SOLID	N/A		3.901e+01	0.000	uCi/g
5	SAMPLE	S95T001311	0	F	@GEA-03	CS13702E	SOLID	N/A		0.540	0.000	% Ct. Error
5	SAMPLE	S95T001311	0	F	@GEA-03	CE14402	SOLID	N/A	<	3.738e-01	0.374	uCi/g
5	SAMPLE	S95T001311	0	F	@GEA-03	CE14402E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S95T001311	0	F	@GEA-03	EU15402	SOLID	N/A	<	4.442e-02	0.044	uCi/g
5	SAMPLE	S95T001311	0	F	@GEA-03	EU15402E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S95T001311	0	F	@GEA-03	EU15502	SOLID	N/A	<	1.033e-01	0.103	uCi/g
5	SAMPLE	S95T001311	0	F	@GEA-03	EU15502E	SOLID	N/A		n/a	0.000	% Ct. Error
5	SAMPLE	S95T001311	0	F	@GEA-03	RA22602	SOLID	N/A	<	7.686e-01	0.769	uCi/g
5	SAMPLE	S95T001311	0	F	@GEA-03	RA22602E	SOLID	N/A		n/a	0.000	% Ct. Error
6	DUP	S95T001311	0	F	@GEA-03	CO60-02	SOLID	<1.33e-2		<1.35e-2		RPD
6	DUP	S95T001311	0	F	@GEA-03	CO60-02E	SOLID	1		n/a		% Ct. Error
6	DUP	S95T001311	0	F	@GEA-03	NB94-02	SOLID	<1.52e-2		<1.39e-2		RPD
6	DUP	S95T001311	0	F	@GEA-03	NB94-02E	SOLID	1		n/a		% Ct. Error
6	DUP	S95T001311	0	F	@GEA-03	RU10602	SOLID	<6.09e-1		<5.92e-1		RPD
6	DUP	S95T001311	0	F	@GEA-03	RU10602E	SOLID	1		n/a		% Ct. Error
6	DUP	S95T001311	0	F	@GEA-03	CS13402	SOLID	<3.02e-2		<3.05e-2		RPD
6	DUP	S95T001311	0	F	@GEA-03	CS13402E	SOLID	1		n/a		% Ct. Error
6	DUP	S95T001311	0	F	@GEA-03	CS13702	SOLID	3.90e+01		3.87e+01	0.772	RPD
6	DUP	S95T001311	0	F	@GEA-03	CS13702E	SOLID	1		0.540	0.540	% Ct. Error
6	DUP	S95T001311	0	F	@GEA-03	CE14402	SOLID	<3.74e-1		<3.74e-1		RPD
6	DUP	S95T001311	0	F	@GEA-03	CE14402E	SOLID	1		n/a		% Ct. Error
6	DUP	S95T001311	0	F	@GEA-03	EU15402	SOLID	<4.44e-2		<4.22e-2		RPD
6	DUP	S95T001311	0	F	@GEA-03	EU15402E	SOLID	1		n/a		% Ct. Error
6	DUP	S95T001311	0	F	@GEA-03	EU15502	SOLID	<1.03e-1		<1.04e-1		RPD
6	DUP	S95T001311	0	F	@GEA-03	EU15502E	SOLID	1		n/a		% Ct. Error
6	DUP	S95T001311	0	F	@GEA-03	RA22602	SOLID	<7.69e-1		<7.67e-1		RPD
6	DUP	S95T001311	0	F	@GEA-03	RA22602E	SOLID	1		n/a		% Ct. Error

Comments Section:

Comments for sample# S95T001307 **and test** @GEA-03 .

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

LABCORE Completed Worklist Report for Worklist# 7822

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

DL=0 => n/a.

Comments for sample# S95T001311 **and test** @GEA-03 .
DL=0 => n/a.

Final page for worklist# 7822

Analyst Signature **Date**

Analyst Signature **Date**

B Bachelor 4/24/96
Reviewer Signature **Date**

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

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 01:49:30.18                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7822
Sample ID:               WL7822-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4685.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:33.97 sec
Dead Time:               1.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 00:58:18.47
Decayed to:              21-APR-1996 00:58:18.47
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
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
*****************************************************************************
```

WHC-SD-WM-DP-140, REV. 1

Removed by: ALJ 4-21-96

Verified by: RAJones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
10	26.18	1176	0.88	52.36	49	23	10.9	3.13E+01		
10	27.58	2639	2.13	55.15	49	23	10.8			
10	29.80	1413	1.77	59.60	49	23	18.5			
10	31.65	1201	2.16	63.30	49	23	24.7			
0	661.79*	87199	1.47	1323.48	1316	15	0.7		CS-137	26.7
0	1173.42*	57784	1.77	2346.80	2337	20	0.9		CO-60	25.5
0	1332.73	53223	1.92	2665.44	2656	19	0.9		CO-60	25.6
0	1765.15*	46	2.33	3530.45	3522	20	81.0			

Sample ID : WL7822-STD Acquisition date : 21-APR-1996 00:58:18

Total number of lines in spectrum	8	WHC-SD-WM-DP-140, REV. 1
Number of unidentified lines	4	
Number of lines tentatively identified by NID	4	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.553E+01	2.553E+01	0.016E+01	0.64	
CS-137	30.00Y	1.000	2.673E+01	2.673E+01	0.020E+01	0.75	
		Total Activity :	5.226E+01	5.226E+01			
		Grand Total Activity :	5.226E+01	5.226E+01			

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

Sample ID : WL7822-STD Acquisition date : 21-APR-1996 00:58:18

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4283.	477.59	6.1083E-01
NA-22	335.	1274.53	3.9688E-02
NA-24	100.	1368.55	2.3268E-02
K-40	913.	1460.75	6.8352E-01
CR-51	3865.	320.08	4.1985E-01
MN-54	2513.	834.83	7.7890E-02
CO-56	2523.	846.76	7.9319E-02
CO-57	3755.	122.06	2.8932E-02
CO-58	2388.	810.78	7.3993E-02
FE-59	2535.	1099.25	1.7403E-01
SE-75	4252.	264.66	6.5936E-02
SR-85	3082.	514.01	5.9844E-02
Y-88	43.	1836.06	1.9403E-02
NB-94	2784.	871.09	8.5971E-02
ZRNB-95	1975.	724.18	1.3598E-01
RU-103	3152.	497.08	6.1983E-02
RURH-106	2251.	621.93	1.1117E+00
AG-108m	1936.	722.94	6.4655E-02
CD-109	3360.	88.03	8.8053E-01
AG-110M	2798.	657.76	6.7568E-02
SN-113	3953.	391.69	7.7882E-02
TE-123m	3858.	159.00	3.0100E-02
SB-124	2198.	602.73	5.4747E-02
SB-125	4204.	427.89	1.8993E-01
TE-125m	3502.	109.27	9.0461E+00
I-131	3768.	364.48	5.6763E-02
CS-134	2203.	604.70	5.5002E-02
BA-140	2532.	537.31	2.2093E-01
LA-140	91.	1596.21	2.6264E-02
CEPR-144	3751.	133.51	4.3795E-01
EU-152	100.	1408.01	1.1233E-01
EU-154	335.	1274.51	1.1526E-01
EU-155	3387.	105.31	1.1849E-01
HG-203	4089.	279.20	4.8214E-02
TL-208	4114.	277.36	6.2128E-01
BI-212	2054.	727.18	9.1535E-01
PB-212	4733.	238.63	8.6519E-02
BI-214	2425.	609.31	1.2624E-01
PB-214	3911.	351.92	2.2880E-01
RA-224	4788.	240.99	9.6627E-01
RA-226	4633.	186.10	8.6528E-01
AC-228	3231.	911.21	3.6331E-01
TH-228	3313.	84.37	2.6741E+00
TH-229	3365.	88.47	1.2781E-01
PA-233	3892.	312.17	1.0792E-01
UTH-233	4551.	245.34	3.5313E+01
PA-234M	2737.	1001.03	1.6134E-01
TH-234	3197.	63.29	1.5772E+00
U-235	4586.	185.71	5.2321E-02
NP-237	3307.	86.48	2.6166E-01
NP-239	3510.	106.12	1.1467E-01

WHC-SD-WM-DP-140, REV. 1

Sample ID : WL7822-STD Acquisition date : 21-APR-1996 00:58:18

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	3737.	129.30	3.8034E+02
AM-241	3070.	59.54	2.5380E-01
AM-243	3347.	74.67	7.2956E-02

WHC-SD-WM-DP-140, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 02:44:22.68                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7822
Sample ID:               WL7822-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4686.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:02.13 sec
Dead Time:               0.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 01:53:39.79
Decayed to:              21-APR-1996 01:53:39.79
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
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
*****************************************************************************
```

WHC-SD-WM-DP-140, REV. 1

Removed by: 4-21-96

Verified by: 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	74.92*	89	1.16	149.84	145	10	98.6		AM-243	2.412E-02
0	1592.84	15	1.01	3185.76	3183	7	92.1			
0	1729.94	27	0.76	3460.02	3457	9	48.4			
0	1765.06*	17	1.69	3530.28	3524	15	143.2			

Sample ID : WL7822-BLK
Acquisition date : 21-APR-1996 01:53:39

WHC-SD-WM-DP-140, REV. 1

Total number of lines in spectrum	4	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	2	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~AM-243~~	~~7380.00Y~~	~~1.000~~	~~2.412E-02~~	~~2.412E-02~~	~~2.378E-02~~	~~98.59~~	BKg
	Total Activity :		2.412E-02	2.412E-02			
	Grand Total Activity :		2.412E-02	2.412E-02			

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

Sample ID : WL7822-BLK Acquisition date : 21-APR-1996 01:53:39

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	166.	477.59	1.2042E-01
NA-22	59.	1274.53	1.6608E-02
NA-24	33.	1368.55	1.3371E-02
K-40	855.	1460.75	6.6148E-01
CR-51	263.	320.08	1.0960E-01
MN-54	93.	834.83	1.4949E-02
CO-56	102.	846.76	1.5929E-02
CO-57	310.	122.06	8.3161E-03
CO-58	70.	810.78	1.2659E-02
FE-59	65.	1099.25	2.7913E-02
CO-60	39.	1332.50	1.3936E-02
SE-75	327.	264.66	1.8277E-02
SR-85	241.	514.01	1.6723E-02
Y-88	10.	1836.06	9.4613E-03
NB-94	96.	871.09	1.5985E-02
ZRNB-95	84.	724.18	2.8109E-02
RU-103	147.	497.08	1.3406E-02
RURH-106	112.	621.93	2.4776E-01
AG-108m	94.	722.94	1.4224E-02
CD-109	312.	88.03	2.6816E-01
AG-110M	102.	657.76	1.2907E-02
SN-113	192.	391.69	1.7147E-02
TE-123m	335.	159.00	8.8742E-03
SB-124	126.	602.73	1.3126E-02
SB-125	184.	427.89	3.9759E-02
TE-125m	334.	109.27	2.7920E+00
I-131	220.	364.48	1.3706E-02
CS-134	117.	604.70	1.2675E-02
CS-137	302.	661.66	2.4768E-02
BA-140	129.	537.31	4.9853E-02
LA-140	24.	1596.21	1.3419E-02
CEPR-144	304.	133.51	1.2458E-01
EU-152	40.	1408.01	7.0790E-02
EU-154	59.	1274.51	4.8382E-02
EU-155	277.	105.31	3.3872E-02
HG-203	267.	279.20	1.2324E-02
TL-208	290.	277.36	1.6500E-01
BI-212	110.	727.18	2.1179E-01
PB-212	438.	238.63	2.6330E-02
BI-214	290.	609.31	4.3632E-02
PB-214	341.	351.92	6.7186E-02
RA-224	384.	240.99	2.7352E-01
RA-226	392.	186.10	2.5175E-01
AC-228	162.	911.21	8.1344E-02
TH-228	346.	84.37	8.6452E-01
TH-229	305.	88.47	3.8497E-02
PA-233	273.	312.17	2.8568E-02
UTH-233	329.	245.34	9.4956E+00
PA-234M	80.	1001.03	2.7619E-02
TH-234	254.	63.29	4.4458E-01
U-235	391.	185.71	1.5272E-02

Sample ID : WL7822-BLK Acquisition date : 21-APR-1996 01:53:39

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	332.	86.48	8.2872E-02
NP-239	285.	106.12	3.2650E-02
PU-239	284.	129.30	1.0486E+02
AM-241	257.	59.54	7.3424E-02

WHC-SD-WM-DP-140, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 03:42:04.34                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7822
Sample ID:               S95T001307-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4687.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:11.65 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 02:51:11.75
Decayed to:              21-APR-1996 02:51:11.75
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
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
*****************************************************************************
```

WHC-SD-WM-DP-140, REV. 1

Removed by: 4-21-96

Verified by: 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.78*	81339	1.48	1323.47	1316	15	0.7		CS-137	24.9
0	860.93	47	1.01	1721.77	1716	11	78.0			
0	1553.53	14	1.51	3107.14	3103	13	103.9			

Sample ID : S95T001307-SAM
Acquisition date : 21-APR-1996 02:51:11

Total number of lines in spectrum	3	WHC-SD-WM-DP-140, REV. 1
Number of unidentified lines	1	
Number of lines tentatively identified by NID	2	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.493E+01	2.493E+01	0.018E+01	0.72	
		Total Activity :	2.493E+01	2.493E+01			
		Grand Total Activity :	2.493E+01	2.493E+01			

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

Sample ID : S95T001307-SAM Acquisition date : 21-APR-1996 02:51:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2436.	477.59	4.6065E-01
NA-22	62.	1274.53	1.7033E-02
NA-24	40.	1368.55	1.4760E-02
K-40	841.	1460.75	6.5609E-01
CR-51	1996.	320.08	3.0168E-01
MN-54	76.	834.83	1.3536E-02
CO-56	91.	846.76	1.5052E-02
CO-57	2019.	122.06	2.1215E-02
CO-58	80.	810.78	1.3558E-02
FE-59	60.	1099.25	2.6747E-02
CO-60	46.	1332.50	1.5112E-02
SE-75	2122.	264.66	4.6584E-02
SR-85	1314.	514.01	3.9079E-02
Y-88	16.	1836.06	1.1711E-02
NB-94	64.	871.09	1.3039E-02
ZRNB-95	105.	724.18	3.1388E-02
RU-103	1529.	497.08	4.3177E-02
RURH-106	536.	621.93	5.4244E-01
AG-108m	108.	722.94	1.5302E-02
CD-109	1809.	88.03	6.4606E-01
AG-110M	912.	657.76	3.8588E-02
SN-113	2213.	391.69	5.8267E-02
TE-123m	2113.	159.00	2.2276E-02
SB-124	542.	602.73	2.7194E-02
SB-125	2399.	427.89	1.4347E-01
TE-125m	1886.	109.27	6.6395E+00
I-131	2123.	364.48	4.2601E-02
CS-134	568.	604.70	2.7937E-02
BA-140	942.	537.31	1.3473E-01
LA-140	25.	1596.21	1.3801E-02
CEPR-144	2083.	133.51	3.2637E-01
EU-152	39.	1408.01	7.0270E-02
EU-154	62.	1274.51	4.9470E-02
EU-155	1783.	105.31	8.5971E-02
HG-203	2154.	279.20	3.4996E-02
TL-208	2087.	277.36	4.4245E-01
BI-212	122.	727.18	2.2289E-01
PB-212	2552.	238.63	6.3533E-02
BI-214	678.	609.31	6.6740E-02
PB-214	2242.	351.92	1.7258E-01
RA-224	2420.	240.99	6.8698E-01
RA-226	2740.	186.10	6.6537E-01
AC-228	203.	911.21	9.1031E-02
TH-228	1792.	84.37	1.9664E+00
TH-229	1812.	88.47	9.3783E-02
PA-233	1923.	312.17	7.5850E-02
UTH-233	2219.	245.34	2.4659E+01
PA-234M	63.	1001.03	2.4393E-02
TH-234	1770.	63.29	1.1734E+00
U-235	2694.	185.71	4.0103E-02
NP-237	1786.	86.48	1.9228E-01

WHC-SD-WM-DP-140, REV. 1

Sample ID : S95T001307-SAM Acquisition date : 21-APR-1996 02:51:11

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	1827.	106.12	8.2721E-02
PU-239	2009.	129.30	2.7887E+02
AM-241	1656.	59.54	1.8640E-01
AM-243	1848.	74.67	5.4213E-02

WHC-SD-WM-DP-140, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 04:49:32.29                  *
*****************************************************************************
     >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7822
Sample ID:               S95T001307-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

     >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4688.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:10.64 sec
Dead Time:               0.4%

     >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 03:58:25.12
Decayed to:              21-APR-1996 03:58:25.12
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
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
*****************************************************************************
```

WHC-SD-WM-DP-140, REV. 1

Removed by: ALJ 4-21-96

Verified by: RAJones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	609.86*	95	2.03	1219.63	1214	11	105.0			
0	661.80*	72539	1.44	1323.49	1316	15	0.8		CS-137	22.2
0	727.57*	42	2.07	1455.05	1450	9	84.3			
0	1593.02	19	0.64	3186.11	3181	9	92.6			

Sample ID : S95T001307-DUP
Acquisition date : 21-APR-1996 03:58:25

WHC-SD-WM-DP-140, REV. 1

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	2.223E+01	2.223E+01	0.017E+01	0.76	
		Total Activity :	2.223E+01	2.223E+01			
		Grand Total Activity :	2.223E+01	2.223E+01			

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

Sample ID : S95T001307-DUP Acquisition date : 21-APR-1996 03:58:25

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2164.	477.59	4.3424E-01
NA-22	67.	1274.53	1.7699E-02
NA-24	41.	1368.55	1.4956E-02
K-40	856.	1460.75	6.6164E-01
CR-51	1831.	320.08	2.8898E-01
MN-54	85.	834.83	1.4355E-02
CO-56	76.	846.76	1.3780E-02
CO-57	1766.	122.06	1.9844E-02
CO-58	75.	810.78	1.3110E-02
FE-59	66.	1099.25	2.8101E-02
CO-60	64.	1332.50	1.7838E-02
SE-75	1909.	264.66	4.4181E-02
SR-85	1133.	514.01	3.6284E-02
Y-88	17.	1836.06	1.2136E-02
NB-94	83.	871.09	1.4829E-02
ZRNB-95	93.	724.18	2.9544E-02
RU-103	1386.	497.08	4.1109E-02
RURH-106	486.	621.93	5.1646E-01
AG-108m	92.	722.94	1.4062E-02
CD-109	1651.	88.03	6.1721E-01
AG-110M	836.	657.76	3.6942E-02
SN-113	1963.	391.69	5.4886E-02
TE-123m	1867.	159.00	2.0938E-02
SB-124	500.	602.73	2.6101E-02
SB-125	2178.	427.89	1.3671E-01
TE-125m	1645.	109.27	6.2004E+00
I-131	1891.	364.48	4.0214E-02
CS-134	500.	604.70	2.6203E-02
BA-140	841.	537.31	1.2732E-01
LA-140	27.	1596.21	1.4287E-02
CEPR-144	1895.	133.51	3.1126E-01
EU-152	40.	1408.01	7.0539E-02
EU-154	67.	1274.51	5.1437E-02
EU-155	1684.	105.31	8.3554E-02
HG-203	1861.	279.20	3.2523E-02
TL-208	1867.	277.36	4.1851E-01
BI-212	122.	727.18	2.2320E-01
PB-212	2117.	238.63	5.7867E-02
BI-214	713.	609.31	6.8443E-02
PB-214	2019.	351.92	1.6375E-01
RA-224	2107.	240.99	6.4091E-01
RA-226	2532.	186.10	6.3968E-01
AC-228	188.	911.21	8.7539E-02
TH-228	1685.	84.37	1.9071E+00
TH-229	1643.	88.47	8.9303E-02
PA-233	1795.	312.17	7.3298E-02
UTH-233	2068.	245.34	2.3805E+01
PA-234M	82.	1001.03	2.7933E-02
TH-234	1567.	63.29	1.1042E+00
U-235	2511.	185.71	3.8717E-02
NP-237	1683.	86.48	1.8663E-01

Sample ID : S95T001307-DUP Acquisition date : 21-APR-1996 03:58:25

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	1688.	106.12	7.9523E-02
PU-239	1819.	129.30	2.6535E+02
AM-241	1548.	59.54	1.8026E-01
AM-243	1610.	74.67	5.0604E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 09:26:07.84                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7822
Sample ID:               S95T1311-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4691.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:19.49 sec
Dead Time:               0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 08:35:08.82
Decayed to:              21-APR-1996 08:35:08.82
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
*****************************************************************************
```

WHC-SD-WM-DP-140, REV. 1

Removed by: Em Barela

Verified by: RA Jones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.77*	144310	1.46	1323.44	1315	16	0.5		CS-137	88.5
0	1733.49	32	7.35	3467.13	3451	27	86.8			

Sample ID : S95T1311-SAM
Acquisition date : 21-APR-1996 08:35:08

Total number of lines in spectrum	2	WHC-SD-WM-DP-140, REV.1
Number of unidentified lines	1	
Number of lines tentatively identified by NID	1	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	8.847E+01	8.847E+01	0.048E+01	0.54	
		Total Activity :	8.847E+01	8.847E+01			
		Grand Total Activity :	8.847E+01	8.847E+01			

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

Sample ID : S95T1311-SAM
Acquisition date : 21-APR-1996 08:35:08

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4144.	477.59	1.2017E+00
NA-22	64.	1274.53	3.4723E-02
NA-24	46.	1368.55	3.1439E-02
K-40	834.	1460.75	1.3067E+00
CR-51	3398.	320.08	7.8736E-01
MN-54	88.	834.83	2.9173E-02
CO-56	99.	846.76	3.1447E-02
CO-57	3503.	122.06	5.5891E-02
CO-58	86.	810.78	2.8089E-02
FE-59	54.	1099.25	5.0872E-02
CO-60	46.	1332.50	3.0261E-02
SE-75	3593.	264.66	1.2123E-01
SR-85	2185.	514.01	1.0079E-01
Y-88	12.	1836.06	2.0841E-02
NB-94	112.	871.09	3.4466E-02
ZRNB-95	106.	724.18	6.3103E-02
RU-103	2517.	497.08	1.1078E-01
RURH-106	870.	621.93	1.3823E+00
AG-108m	100.	722.94	2.9438E-02
CD-109	3297.	88.03	1.7444E+00
AG-110M	1687.	657.76	1.0493E-01
SN-113	3750.	391.69	1.5171E-01
TE-123m	3503.	159.00	5.7361E-02
SB-124	825.	602.73	6.7055E-02
SB-125	4240.	427.89	3.8151E-01
TE-125m	3350.	109.27	1.7695E+01
I-131	3445.	364.48	1.0854E-01
CS-134	853.	604.70	6.8445E-02
BA-140	1488.	537.31	3.3868E-01
LA-140	29.	1596.21	2.9325E-02
CEPR-144	3516.	133.51	8.4802E-01
EU-152	52.	1408.01	1.6119E-01
EU-154	64.	1274.51	1.0076E-01
EU-155	3313.	105.31	2.3438E-01
HG-203	3528.	279.20	8.9572E-02
TL-208	3490.	277.36	1.1444E+00
BI-212	139.	727.18	4.7635E-01
PB-212	4067.	238.63	1.6041E-01
BI-214	1022.	609.31	1.6389E-01
PB-214	3496.	351.92	4.3162E-01
RA-224	4014.	240.99	1.7694E+00
RA-226	4703.	186.10	1.7435E+00
AC-228	191.	911.21	1.7667E-01
TH-228	3483.	84.37	5.4836E+00
TH-229	3296.	88.47	2.5299E-01
PA-233	3424.	312.17	2.0244E-01
UTH-233	3878.	245.34	6.5193E+01
PA-234M	79.	1001.03	5.4893E-02
TH-234	3038.	63.29	3.0750E+00
U-235	4614.	185.71	1.0497E-01
NP-237	3349.	86.48	5.2656E-01

Sample ID : S95T1311-SAM Acquisition date : 21-APR-1996 08:35:08

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	3312.	106.12	2.2278E-01
PU-239	3602.	129.30	7.4678E+02
AM-241	2967.	59.54	4.9906E-01
AM-243	3402.	74.67	1.4712E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room   21-APR-1996 11:01:32.66                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7822
Sample ID:               S95T1311-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4692.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:19.41 sec
Dead Time:               0.6%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       21-APR-1996 10:10:33.93
Decayed to:              21-APR-1996 10:10:33.93
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
*****************************************************************************
```

WHC-SD-WM-DP-140, REV. 1

Removed by: Em Barela

Verified by: KA Jones 4/22/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.76*	144049	1.48	1323.43	1315	16	0.5		CS-137	88.3
0	1120.51*	34	1.50	2240.95	2236	12	110.2			
0	1592.19	22	1.82	3184.47	3182	8	69.7			

Sample ID : S95T1311-DUP
Acquisition date : 21-APR-1996 10:10:33

WHC-SD-WM-DP-140, REV. 1

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	8.831E+01	8.831E+01	0.047E+01	0.54	
		Total Activity :	8.831E+01	8.831E+01			
		Grand Total Activity :	8.831E+01	8.831E+01			

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

Sample ID : S95T1311-DUP Acquisition date : 21-APR-1996 10:10:33

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4280.	477.59	1.2213E+00
NA-22	59.	1274.53	3.3259E-02
NA-24	37.	1368.55	2.8348E-02
K-40	828.	1460.75	1.3013E+00
CR-51	3335.	320.08	7.7997E-01
MN-54	94.	834.83	3.0072E-02
CO-56	97.	846.76	3.1098E-02
CO-57	3505.	122.06	5.5909E-02
CO-58	101.	810.78	3.0455E-02
FE-59	87.	1099.25	6.4588E-02
CO-60	48.	1332.50	3.0927E-02
SE-75	3573.	264.66	1.2088E-01
SR-85	2158.	514.01	1.0015E-01
Y-88	14.	1836.06	2.2234E-02
NB-94	95.	871.09	3.1739E-02
ZRNB-95	128.	724.18	6.9194E-02
RU-103	2493.	497.08	1.1025E-01
RURH-106	832.	621.93	1.3513E+00
AG-108m	121.	722.94	3.2361E-02
CD-109	3354.	88.03	1.7596E+00
AG-110M	1631.	657.76	1.0318E-01
SN-113	3632.	391.69	1.4931E-01
TE-123m	3587.	159.00	5.8049E-02
SB-124	891.	602.73	6.9701E-02
SB-125	4201.	427.89	3.7972E-01
TE-125m	3349.	109.27	1.7692E+01
I-131	3479.	364.48	1.0907E-01
CS-134	881.	604.70	6.9570E-02
BA-140	1510.	537.31	3.4122E-01
LA-140	22.	1596.21	2.5801E-02
CEPR-144	3557.	133.51	8.5287E-01
EU-152	50.	1408.01	1.5919E-01
EU-154	59.	1274.51	9.6330E-02
EU-155	3371.	105.31	2.3641E-01
HG-203	3433.	279.20	8.8353E-02
TL-208	3469.	277.36	1.1410E+00
BI-212	112.	727.18	4.2732E-01
PB-212	4005.	238.63	1.5917E-01
BI-214	1001.	609.31	1.6224E-01
PB-214	3563.	351.92	4.3571E-01
RA-224	3828.	240.99	1.7278E+00
RA-226	4741.	186.10	1.7505E+00
AC-228	191.	911.21	1.7647E-01
TH-228	3456.	84.37	5.4626E+00
TH-229	3300.	88.47	2.5314E-01
PA-233	3348.	312.17	2.0019E-01
UTH-233	3831.	245.34	6.4796E+01
PA-234M	65.	1001.03	4.9544E-02
TH-234	2984.	63.29	3.0474E+00
U-235	4664.	185.71	1.0552E-01
NP-237	3432.	86.48	5.3306E-01

Sample ID : S95T1311-DUP Acquisition date : 21-APR-1996 10:10:33

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	3392.	106.12	2.2544E-01
PU-239	3493.	129.30	7.3545E+02
AM-241	2954.	59.54	4.9794E-01
AM-243	3361.	74.67	1.4623E-01

HC-SD-WM-DP-140, REV. 1

LABCORE Data Entry Template for Worklist# 7921

Analyst: RDM **Instrument:** GEA00 #4 **Book#** 12856

Method: LA-548-121 Rev/Mod E0

Worklist Comment: B-106, Sample size = .500ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-03	SOLID		
2	BLNK-PREP				@GEA-03	SOLID		
3	SAMPLE	S96T001647	0	F	@GEA-03	SOLID	95000096	B-106
		Analytes Requested:			CE14402 , CE14402E, CO60-02 , CO60-02E, CS13402 , CS13402E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E, NB94-02 , NB94-02E, RA22602 , RA22602E, RU10602 , RU10602E			
4	DUP	S96T001647	0	F	@GEA-03	SOLID		

Final page for worklist # 7921

RDM 4/23/96
Analyst Signature **Date**

Sue E. Hogan 4/23/96
Analyst Signature **Date**

Data Entry Comments:

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

WHC-SD-WM-DP-140, REV. 1

LABCORE Completed Worklist Report for Worklist# 7921

Analyst: rdm **Instrument:** GEA04 **Book#** 12B56

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

Worklist Comment: B-106, Sample size = .500ml. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@GEA-03	CO60-02	SOLID	0.0256	2.58e-02	100.781	% Recovery
1	STD		0		@GEA-03	CO60-02E	SOLID	1	0.630	0.630	% Ct. Error
1	STD		0		@GEA-03	CS13702	SOLID	0.0271	2.74e-02	101.107	% Recovery
1	STD		0		@GEA-03	CS13702E	SOLID	1	0.730	0.730	% Ct. Error
2	BLNK-PREP		0		@GEA-03	CO60-02	SOLID	1	<1.52e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	NB94-02	SOLID	1	<1.48e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	RU10602	SOLID	1	<2.46e-1		uCi/g
2	BLNK-PREP		0		@GEA-03	CS13402	SOLID	1	<1.26e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	CS13702	SOLID	1	<2.56e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	CE14402	SOLID	1	<1.21e-1		uCi/g
2	BLNK-PREP		0		@GEA-03	EU15402	SOLID	1	<4.09e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	EU15502	SOLID	1	<3.35e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	RA22602	SOLID	1	<2.30e-1		uCi/g
3	SAMPLE	S96T001647	0	F	@GEA-03	CO60-02	SOLID	N/A <	1.427e-02	0.014	uCi/g
3	SAMPLE	S96T001647	0	F	@GEA-03	CO60-02E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S96T001647	0	F	@GEA-03	NB94-02	SOLID	N/A <	1.413e-02	0.014	uCi/g
3	SAMPLE	S96T001647	0	F	@GEA-03	NB94-02E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S96T001647	0	F	@GEA-03	RU10602	SOLID	N/A <	4.935e-01	0.494	uCi/g
3	SAMPLE	S96T001647	0	F	@GEA-03	RU10602E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S96T001647	0	F	@GEA-03	CS13402	SOLID	N/A <	2.533e-02	0.025	uCi/g
3	SAMPLE	S96T001647	0	F	@GEA-03	CS13402E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S96T001647	0	F	@GEA-03	CS13702	SOLID	N/A	2.240e+01	0.000	uCi/g
3	SAMPLE	S96T001647	0	F	@GEA-03	CS13702E	SOLID	N/A	0.730	0.000	% Ct. Error
3	SAMPLE	S96T001647	0	F	@GEA-03	CE14402	SOLID	N/A <	3.287e-01	0.329	uCi/g
3	SAMPLE	S96T001647	0	F	@GEA-03	CE14402E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S96T001647	0	F	@GEA-03	EU15402	SOLID	N/A <	4.210e-02	0.042	uCi/g
3	SAMPLE	S96T001647	0	F	@GEA-03	EU15402E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S96T001647	0	F	@GEA-03	EU15502	SOLID	N/A <	9.334e-02	0.093	uCi/g
3	SAMPLE	S96T001647	0	F	@GEA-03	EU15502E	SOLID	N/A	n/a	0.000	% Ct. Error
3	SAMPLE	S96T001647	0	F	@GEA-03	RA22602	SOLID	N/A <	6.433e-01	0.643	uCi/g
3	SAMPLE	S96T001647	0	F	@GEA-03	RA22602E	SOLID	N/A	n/a	0.000	% Ct. Error
4	DUP	S96T001647	0	F	@GEA-03	CO60-02	SOLID	<1.43e-2	<1.51e-2		RPD
4	DUP	S96T001647	0	F	@GEA-03	CO60-02E	SOLID	1	n/a		% Ct. Error
4	DUP	S96T001647	0	F	@GEA-03	NB94-02	SOLID	<1.41e-2	<1.50e-2		RPD
4	DUP	S96T001647	0	F	@GEA-03	NB94-02E	SOLID	1	n/a		% Ct. Error
4	DUP	S96T001647	0	F	@GEA-03	RU10602	SOLID	<4.93e-1	<4.98e-1		RPD
4	DUP	S96T001647	0	F	@GEA-03	RU10602E	SOLID	1	n/a		% Ct. Error
4	DUP	S96T001647	0	F	@GEA-03	CS13402	SOLID	<2.53e-2	<2.57e-2		RPD
4	DUP	S96T001647	0	F	@GEA-03	CS13402E	SOLID	1	n/a		% Ct. Error
4	DUP	S96T001647	0	F	@GEA-03	CS13702	SOLID	2.24e+01	2.27e+01	1.330	RPD
4	DUP	S96T001647	0	F	@GEA-03	CS13702E	SOLID	1	0.720	0.720	% Ct. Error

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

LABCORE Completed Worklist Report for Worklist# 7921

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
4	DUP	S96T001647	0	F	@GEA-03	CE14402	SOLID	<3.29e-1	<3.33e-1	RPD
4	DUP	S96T001647	0	F	@GEA-03	CE14402E	SOLID	1	n/a	% Ct. Error
4	DUP	S96T001647	0	F	@GEA-03	EU15402	SOLID	<4.21e-2	<4.70e-2	RPD
4	DUP	S96T001647	0	F	@GEA-03	EU15402E	SOLID	1	n/a	% Ct. Error
4	DUP	S96T001647	0	F	@GEA-03	EU15502	SOLID	<9.33e-2	<9.29e-2	RPD
4	DUP	S96T001647	0	F	@GEA-03	EU15502E	SOLID	1	n/a	% Ct. Error
4	DUP	S96T001647	0	F	@GEA-03	RA22602	SOLID	<6.43e-1	<6.42e-1	RPD
4	DUP	S96T001647	0	F	@GEA-03	RA22602E	SOLID	1	n/a	% Ct. Error

Comments Section:

Comments for sample# S96T001647 **and test** @GEA-03 .
DL=0 => n/a.

Final page for worklist# 7921

Analyst Signature **Date**

Analyst Signature **Date**

B Bachelor 4/29/96
Reviewer Signature **Date**

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

```
*****************************************************************************
* 222-S Laboratory Counting Room   23-APR-1996 04:53:49.43                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7921
Sample ID:               WL7921-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4706.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:34.69 sec
Dead Time:               1.1%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       23-APR-1996 04:02:36.18
Decayed to:              23-APR-1996 04:02:36.18
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
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
*****************************************************************************
```

WHC-SD-WM-DP-140, REV. 1

Removed by: Em Barela

Verified by: B Bachelor 4/23/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
10	27.30	2962	2.11	54.59	49	17	8.4	1.02E+02		
10	29.83	608	1.00	59.65	49	17	27.7			
0	661.77*	89438	1.46	1323.44	1316	15	0.7		CS-137	27.4
0	1173.32*	58137	1.78	2346.60	2338	16	0.9		CO-60	25.7
0	1332.59	53898	1.86	2665.18	2657	18	0.9		CO-60	25.9
0	1460.90*	80	2.00	2921.84	2914	19	99.9		K-40	0.390

Sample ID : WL7921-STD Acquisition date : 23-APR-1996 04:02:36

WHC-SD-WM-DP-140, REV. 1

Total number of lines in spectrum	6	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	4	66.67%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~3.899E-01~~	~~3.899E-01~~	~~3.897E-01~~	~~99.94~~	~~A~~
CO-60	5.27Y	1.000	2.577E+01	2.577E+01	0.016E+01	0.63	
CS-137	30.00Y	1.000	2.741E+01	2.741E+01	0.020E+01	0.73	
		Total Activity :	5.358E+01	5.358E+01			
		Grand Total Activity :	5.358E+01	5.358E+01			

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

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	4275.	477.59	6.1030E-01
NA-22	330.	1274.53	3.9377E-02
NA-24	112.	1368.55	2.4661E-02
CR-51	3952.	320.08	4.2453E-01
MN-54	2574.	834.83	7.8829E-02
CO-56	2637.	846.76	8.1099E-02
CO-57	3718.	122.06	2.8789E-02
CO-58	2391.	810.78	7.4030E-02
FE-59	2565.	1099.25	1.7506E-01
SE-75	4512.	264.66	6.7928E-02
SR-85	3104.	514.01	6.0058E-02
Y-88	64.	1836.06	2.3666E-02
NB-94	2764.	871.09	8.5669E-02
ZRNB-95	2103.	724.18	1.4030E-01
RU-103	3273.	497.08	6.3165E-02
RURH-106	2290.	621.93	1.1213E+00
AG-108m	2098.	722.94	6.7309E-02
CD-109	3275.	88.03	8.6932E-01
AG-110M	2900.	657.76	6.8799E-02
SN-113	3952.	391.69	7.7867E-02
TE-123m	3933.	159.00	3.0391E-02
SB-124	2330.	602.73	5.6361E-02
SB-125	4354.	427.89	1.9329E-01
TE-125m	3499.	109.27	9.0421E+00
I-131	3909.	364.48	5.7811E-02
CS-134	2277.	604.70	5.5917E-02
BA-140	2576.	537.31	2.2282E-01
LA-140	71.	1596.21	2.3174E-02
CEPR-144	3872.	133.51	4.4491E-01
EU-152	110.	1408.01	1.1767E-01
EU-154	330.	1274.51	1.1430E-01
EU-155	3518.	105.31	1.2075E-01
HG-203	4199.	279.20	4.8862E-02
TL-208	4347.	277.36	6.3860E-01
BI-212	2136.	727.18	9.3344E-01
PB-212	4947.	238.63	8.8454E-02
BI-214	2522.	609.31	1.2874E-01
PB-214	4043.	351.92	2.3266E-01
RA-224	4816.	240.99	9.6912E-01
RA-226	4663.	186.10	8.6804E-01
AC-228	3449.	911.21	3.7535E-01
TH-228	3508.	84.37	2.7517E+00
TH-229	3268.	88.47	1.2596E-01
PA-233	4020.	312.17	1.0967E-01
UTH-233	4777.	245.34	3.6178E+01
PA-234M	2671.	1001.03	1.5936E-01
TH-234	3150.	63.29	1.5656E+00
U-235	4632.	185.71	5.2582E-02
NP-237	3389.	86.48	2.6487E-01
NP-239	3443.	106.12	1.1358E-01
PU-239	3844.	129.30	3.8575E+02

WMC-SD-WM-DP-140, REV. 1

Sample ID : WL7921-STD Acquisition date : 23-APR-1996 04:02:36

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
AM-241	3268.	59.54	2.6188E-01
AM-243	3446.	74.67	7.4027E-02

WHC-SD-WM-DP-140, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   23-APR-1996 05:51:25.35                  *
*****************************************************************************
     >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7921
Sample ID:               WL7921-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

     >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4707.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:02.17 sec
Dead Time:               0.1%

     >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       23-APR-1996 05:00:44.90
Decayed to:              23-APR-1996 05:00:44.90
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
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
*****************************************************************************
```

WHC-SD-WM-DP-140, REV. 1

Removed by: Em Bueler

Verified by: Bachelor 4/23/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.91*	89	1.45	1323.73	1320	11	60.4		CS-137	5.480E-02

Sample ID : WL7921-BLK Acquisition date : 23-APR-1996 05:00:44

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

WHC-SD-WM-DP-140, REV. 1

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	5.480E-02	5.480E-02	3.308E-02	60.37	
	Total Activity :		5.480E-02	5.480E-02			
	Grand Total Activity :		5.480E-02	5.480E-02			

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

Minimum Detectable Activity Report
Sample ID : WL7921-BLK

Acquisition date : 23-APR-1996 05:00:44

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	155.	477.59	2.3265E-01
NA-22	48.	1274.53	3.0164E-02
NA-24	38.	1368.55	2.8667E-02
K-40	825.	1460.75	1.2996E+00
CR-51	279.	320.08	2.2548E-01
MN-54	95.	834.83	3.0263E-02
CO-56	78.	846.76	2.7908E-02
CO-57	340.	122.06	1.7406E-02
CO-58	87.	810.78	2.8240E-02
FE-59	69.	1099.25	5.7587E-02
CO-60	53.	1332.50	3.2502E-02
SE-75	291.	264.66	3.4500E-02
SR-85	260.	514.01	3.4793E-02
Y-88	13.	1836.06	2.1590E-02
NB-94	94.	871.09	3.1647E-02
ZRNB-95	103.	724.18	6.2250E-02
RU-103	132.	497.08	2.5378E-02
RURH-106	126.	621.93	5.2618E-01
AG-108m	102.	722.94	2.9725E-02
CD-109	302.	88.03	5.2795E-01
AG-110M	105.	657.76	2.6138E-02
SN-113	209.	391.69	3.5824E-02
TE-123m	354.	159.00	1.8238E-02
SB-124	134.	602.73	2.7031E-02
SB-125	201.	427.89	8.2976E-02
TE-125m	324.	109.27	5.5056E+00
I-131	226.	364.48	2.7828E-02
CS-134	133.	604.70	2.7031E-02
BA-140	145.	537.31	1.0580E-01
LA-140	30.	1596.21	3.0241E-02
CEPR-144	328.	133.51	2.5880E-01
EU-152	43.	1408.01	1.4752E-01
EU-154	48.	1274.51	8.7528E-02
EU-155	311.	105.31	7.1816E-02
HG-203	313.	279.20	2.6698E-02
TL-208	319.	277.36	3.4624E-01
BI-212	126.	727.18	4.5264E-01
PB-212	450.	238.63	5.3328E-02
BI-214	336.	609.31	9.3929E-02
PB-214	432.	351.92	1.5122E-01
RA-224	380.	240.99	5.4471E-01
RA-226	374.	186.10	4.9181E-01
AC-228	166.	911.21	1.6462E-01
TH-228	389.	84.37	1.8323E+00
TH-229	299.	88.47	7.6264E-02
PA-233	278.	312.17	5.7708E-02
UTH-233	344.	245.34	1.9424E+01
PA-234M	89.	1001.03	5.8067E-02
TH-234	251.	63.29	8.8465E-01
U-235	365.	185.71	2.9533E-02
NP-237	358.	86.48	1.7223E-01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	301.	106.12	6.7141E-02
PU-239	295.	129.30	2.1388E+02
AM-241	229.	59.54	1.3875E-01
AM-243	389.	74.67	4.9741E-02

WHC-SD-WM-DP-149 REV. 1

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*****************************************************************************
* 222-S Laboratory Counting Room   23-APR-1996 07:44:42.76                  *
*****************************************************************************
     >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7921
Sample ID:               S96T1647-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

     >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4708.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:12.05 sec
Dead Time:               0.4%

     >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       23-APR-1996 06:53:54.24
Decayed to:              23-APR-1996 06:53:54.24
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
*****************************************************************************
```

WHC-SD-WM-DP-140, REV. 1

Removed by: Em Barela

Verified by: B J Michelotti 4/23/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.75*	78349	1.48	1323.41	1315	16	0.7		CS-137	48.0
0	1331.89	15	1.05	2663.77	2660		8119.3			
0	1592.93	20	1.54	3185.95	3181	10	74.2			

Sample ID : S96T1647-SAM
Acquisition date : 23-APR-1996 06:53:54

WHC-SD-WM-DP-140, REV. 1

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	4.803E+01	4.803E+01	0.035E+01	0.73	
		Total Activity :	4.803E+01	4.803E+01			
		Grand Total Activity :	4.803E+01	4.803E+01			

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

Sample ID : S96T1647-SAM Acquisition date : 23-APR-1996 06:53:54

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2447.	477.59	9.2338E-01
NA-22	51.	1274.53	3.1085E-02
NA-24	24.	1368.55	2.2898E-02
K-40	841.	1460.75	1.3119E+00
CR-51	1988.	320.08	6.0225E-01
MN-54	86.	834.83	2.8787E-02
CO-56	70.	846.76	2.6367E-02
CO-57	2492.	122.06	4.7142E-02
CO-58	95.	810.78	2.9488E-02
FE-59	65.	1099.25	5.5599E-02
CO-60	47.	1332.50	3.0576E-02
SE-75	2159.	264.66	9.3966E-02
SR-85	1283.	514.01	7.7232E-02
Y-88	18.	1836.06	2.5234E-02
NB-94	86.	871.09	3.0270E-02
ZRNB-95	123.	724.18	6.7740E-02
RU-103	1470.	497.08	8.4663E-02
RURH-106	509.	621.93	1.0573E+00
AG-108m	131.	722.94	3.3589E-02
CD-109	2390.	88.03	1.4852E+00
AG-110M	983.	657.76	8.0089E-02
SN-113	2123.	391.69	1.1415E-01
TE-123m	2396.	159.00	4.7441E-02
SB-124	547.	602.73	5.4603E-02
SB-125	2405.	427.89	2.8732E-01
TE-125m	2387.	109.27	1.4936E+01
I-131	2039.	364.48	8.3501E-02
CS-134	536.	604.70	5.4275E-02
BA-140	887.	537.31	2.6146E-01
LA-140	24.	1596.21	2.7082E-02
CEPR-144	2424.	133.51	7.0413E-01
EU-152	37.	1408.01	1.3705E-01
EU-154	51.	1274.51	9.0204E-02
EU-155	2412.	105.31	1.9997E-01
HG-203	2145.	279.20	6.9846E-02
TL-208	2104.	277.36	8.8863E-01
BI-212	140.	727.18	4.7826E-01
PB-212	2443.	238.63	1.2432E-01
BI-214	706.	609.31	1.3622E-01
PB-214	2218.	351.92	3.4336E-01
RA-224	2340.	240.99	1.3510E+00
RA-226	2938.	186.10	1.3781E+00
AC-228	177.	911.21	1.7016E-01
TH-228	2478.	84.37	4.6255E+00
TH-229	2376.	88.47	2.1481E-01
PA-233	2062.	312.17	1.5710E-01
UTH-233	2293.	245.34	5.0133E+01
PA-234M	77.	1001.03	5.4016E-02
TH-234	2160.	63.29	2.5926E+00
U-235	2903.	185.71	8.3254E-02
NP-237	2470.	86.48	4.5221E-01

Sample ID : S96T1647-SAM Acquisition date : 23-APR-1996 06:53:54

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	2391.	106.12	1.8927E-01
PU-239	2445.	129.30	6.1534E+02
AM-241	2075.	59.54	4.1735E-01
AM-243	2437.	74.67	1.2452E-01

WHC-SD-WM-DP-146, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room   23-APR-1996 11:58:31.81                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              7921
Sample ID:               S96T1647-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         2.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA4]4g4709.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:12.37 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       23-APR-1996 11:07:40.15
Decayed to:              23-APR-1996 11:07:40.15
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
*****************************************************************************
```

WHC-SD-WM-DP-140, REV. 1

Removed by: Em Baeda

Verified by: [signature] 4/23/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.76*	80283	1.47	1323.42	1315	16	0.7		CS-137	49.2
0	1460.85*	51	1.92	2921.74	2914	18	135.6		K-40	0.499

Summary of Nuclide Activity
Sample ID : S96T1647-DUP

Page : 2
Acquisition date : 23-APR-1996 11:07:40

WHC-SD-WM-DP-140, REV. 1

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

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
~~K-40~~	~~1.28E+09Y~~	~~1.000~~	~~4.986E-01~~	~~4.986E-01~~	~~6.759E-01~~	~~135.56~~	BKG RAJ 7/28/96
CS-137	30.00Y	1.000	4.922E+01	4.922E+01	0.036E+01	0.72	
			---	---			
	Total Activity :		4.972E+01	4.972E+01			
	Grand Total Activity :		4.972E+01	4.972E+01			

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

Sample ID : S96T1647-DUP Acquisition date : 23-APR-1996 11:07:40

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	2524.	477.59	9.3780E-01
NA-22	65.	1274.53	3.5005E-02
NA-24	36.	1368.55	2.8035E-02
CR-51	2102.	320.08	6.1924E-01
MN-54	99.	834.83	3.0921E-02
CO-56	86.	846.76	2.9275E-02
CO-57	2514.	122.06	4.7344E-02
CO-58	100.	810.78	3.0304E-02
FE-59	70.	1099.25	5.7862E-02
CO-60	54.	1332.50	3.2779E-02
SE-75	2242.	264.66	9.5750E-02
SR-85	1336.	514.01	7.8802E-02
Y-88	8.	1836.06	1.6891E-02
NB-94	99.	871.09	3.2473E-02
ZRNB-95	128.	724.18	6.9124E-02
RU-103	1529.	497.08	8.6352E-02
RURH-106	529.	621.93	1.0782E+00
AG-108m	127.	722.94	3.3134E-02
CD-109	2485.	88.03	1.5146E+00
AG-110M	995.	657.76	8.0577E-02
SN-113	2181.	391.69	1.1569E-01
TE-123m	2379.	159.00	4.7271E-02
SB-124	568.	602.73	5.5665E-02
SB-125	2485.	427.89	2.9206E-01
TE-125m	2399.	109.27	1.4973E+01
I-131	2059.	364.48	8.3916E-02
CS-134	562.	604.70	5.5552E-02
BA-140	944.	537.31	2.6979E-01
LA-140	24.	1596.21	2.6733E-02
CEPR-144	2546.	133.51	7.2164E-01
EU-152	50.	1408.01	1.5828E-01
EU-154	65.	1274.51	1.0170E-01
EU-155	2440.	105.31	2.0112E-01
HG-203	2214.	279.20	7.0960E-02
TL-208	2199.	277.36	9.0834E-01
BI-212	133.	727.18	4.6627E-01
PB-212	2592.	238.63	1.2807E-01
BI-214	770.	609.31	1.4224E-01
PB-214	2175.	351.92	3.4000E-01
RA-224	2525.	240.99	1.4034E+00
RA-226	2987.	186.10	1.3894E+00
AC-228	185.	911.21	1.7381E-01
TH-228	2493.	84.37	4.6389E+00
TH-229	2459.	88.47	2.1853E-01
PA-233	2010.	312.17	1.5510E-01
UTH-233	2370.	245.34	5.0963E+01
PA-234M	82.	1001.03	5.5687E-02
TH-234	2251.	63.29	2.6470E+00
U-235	2964.	185.71	8.4120E-02
NP-237	2478.	86.48	4.5294E-01
NP-239	2442.	106.12	1.9129E-01

WHC-SD-WM-DP-140, REV. 1

Sample ID : S96T1647-DUP Acquisition date : 23-APR-1996 11:07:40

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	2432.	129.30	6.1363E+02
AM-241	2085.	59.54	4.1839E-01
AM-243	2604.	74.67	1.2870E-01

WHC-SD-WM-DP-140, REV. 1

LABCORE Data Entry Template for Worklist# 8171

Analyst: CRJ **Instrument:** GEA00 1 **Book#** 12B56

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

Worklist Comment: B-106 Sample size on traveler.tdm

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-03	SOLID		
2	BLNK-PREP				@GEA-03	SOLID		
3	SAMPLE	S96T001220	0	F	@GEA-03	SOLID	95000096	B-106
	Analytes Requested:				CE14402 , CE14402E, CO60-02 , CO60-02E, CS13402 , CS13402E, CS13702 , CS13702E, EU15402 , EU15402E, EU15502 , EU15502E, NB94-02 , NB94-02E, RA22602 , RA22602E, RU10602 , RU10602E			
4	DUP	S96T001220	0	F	@GEA-03	SOLID		

Final page for worklist # 8171

5/3/96
Analyst Signature **Date**

5/8/96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8171

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

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

Worklist Comment: B-106 Sample size on traveler.tdm

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@GEA-03	CO60-02	SOLID	2.551e-02	2.60e-02	101.921	% Recovery
1	STD		0		@GEA-03	CO60-02E	SOLID	1	1.30	1.300	% Ct Error
1	STD		0		@GEA-03	CS13702	SOLID	2.707e-02	2.79e-02	103.066	% Recovery
1	STD		0		@GEA-03	CS13702E	SOLID	1	1.49	1.490	% Ct Error
2	BLNK-PREP		0		@GEA-03	CO60-02	SOLID	1	<8.54e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	NB94-02	SOLID	1	<7.35e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	RU10602	SOLID	1	<1.55e0		uCi/g
2	BLNK-PREP		0		@GEA-03	CS13402	SOLID	1	<6.83e-2		uCi/g
2	BLNK-PREP		0		@GEA-03	CS13702	SOLID	1	<1.14e-1		uCi/g
2	BLNK-PREP		0		@GEA-03	CE14402	SOLID	1	<1.01e0		uCi/g
2	BLNK-PREP		0		@GEA-03	EU15402	SOLID	1	<2.89e-1		uCi/g
2	BLNK-PREP		0		@GEA-03	EU15502	SOLID	1	<2.23e-1		uCi/g
2	BLNK-PREP		0		@GEA-03	RA22602	SOLID	1	<1.85e0		uCi/g
3	SAMPLE	S96T001220	0	F	@GEA-03	CO60-02	SOLID	N/A <	8.896e-02	889.6e-004	uCi/g
3	SAMPLE	S96T001220	0	F	@GEA-03	CO60-02E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001220	0	F	@GEA-03	NB94-02	SOLID	N/A <	7.250e-02	725.0e-004	uCi/g
3	SAMPLE	S96T001220	0	F	@GEA-03	NB94-02E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001220	0	F	@GEA-03	RU10602	SOLID	N/A <	1.920e+00	192.0e-002	uCi/g
3	SAMPLE	S96T001220	0	F	@GEA-03	RU10602E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001220	0	F	@GEA-03	CS13402	SOLID	N/A <	9.719e-02	971.9e-004	uCi/g
3	SAMPLE	S96T001220	0	F	@GEA-03	CS13402E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001220	0	F	@GEA-03	CS13702	SOLID	N/A	2.260e+01	0.0e+000	uCi/g
3	SAMPLE	S96T001220	0	F	@GEA-03	CS13702E	SOLID	N/A	2.10	0.0e+000	% Ct. Error
3	SAMPLE	S96T001220	0	F	@GEA-03	CE14402	SOLID	N/A <	1.255e+00	125.5e-002	uCi/g
3	SAMPLE	S96T001220	0	F	@GEA-03	CE14402E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001220	0	F	@GEA-03	EU15402	SOLID	N/A <	2.743e-01	274.0e-003	uCi/g
3	SAMPLE	S96T001220	0	F	@GEA-03	EU15402E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001220	0	F	@GEA-03	EU15502	SOLID	N/A <	2.883e-01	288.0e-003	uCi/g
3	SAMPLE	S96T001220	0	F	@GEA-03	EU15502E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
3	SAMPLE	S96T001220	0	F	@GEA-03	RA22602	SOLID	N/A <	2.541e+00	254.1e-002	uCi/g
3	SAMPLE	S96T001220	0	F	@GEA-03	RA22602E	SOLID	N/A	n/a	0.0e+000	% Ct. Error
4	DUP	S96T001220	0	F	@GEA-03	CO60-02	SOLID	<8.90e-2	<9.22e-2		RPD
4	DUP	S96T001220	0	F	@GEA-03	CO60-02E	SOLID	1	n/a		% Ct Error
4	DUP	S96T001220	0	F	@GEA-03	NB94-02	SOLID	<7.25e-2	<1.01e-1		RPD
4	DUP	S96T001220	0	F	@GEA-03	NB94-02E	SOLID	1	n/a		% Ct Error
4	DUP	S96T001220	0	F	@GEA-03	RU10602	SOLID	<1.92e0	<1.97e0		RPD
4	DUP	S96T001220	0	F	@GEA-03	RU10602E	SOLID	1	n/a		% Ct Error
4	DUP	S96T001220	0	F	@GEA-03	CS13402	SOLID	<9.72e-2	<1.00e-1		RPD
4	DUP	S96T001220	0	F	@GEA-03	CS13402E	SOLID	1	n/a		% Ct Error
4	DUP	S96T001220	0	F	@GEA-03	CS13702	SOLID	2.26e+01	2.30e+01	1.754	RPD
4	DUP	S96T001220	0	F	@GEA-03	CS13702E	SOLID	1	2.16	2.160	% Ct Error

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

WHC-SD-WM-DP-140, REV. 1

LABCORE Completed RadChem Report for Worklist#: 8171

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
4	DUP	S96T001220	0	F	@GEA-03	CE14402	SOLID	<1.25e0	<1.31e0		RPD
4	DUP	S96T001220	0	F	@GEA-03	CE14402E	SOLID	1	n/a		% Ct Error
4	DUP	S96T001220	0	F	@GEA-03	EU15402	SOLID	<2.74e-1	<2.95e-1		RPD
4	DUP	S96T001220	0	F	@GEA-03	EU15402E	SOLID	1	n/a		% Ct Error
4	DUP	S96T001220	0	F	@GEA-03	EU15502	SOLID	<2.88e-1	<3.11e-1		RPD
4	DUP	S96T001220	0	F	@GEA-03	EU15502E	SOLID	1	n/a		% Ct Error
4	DUP	S96T001220	0	F	@GEA-03	RA22602	SOLID	<2.54e0	<2.69e0		RPD
4	DUP	S96T001220	0	F	@GEA-03	RA22602E	SOLID	1	n/a		% Ct Error

Comments Section:

Comments for sample# S96T001220 **and test** @GEA-03 .
DL=0 => n/a.

Final page for worklist# 8171

Analyst Signature **Date**

Analyst Signature **Date**

B Machelor 5/9/96
Reviewer Signature **Date**

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

```
*****************************************************************************
* 222-S Laboratory Counting Room     4-MAY-1996 05:48:15.45                 *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:                8171
Sample ID:                 WL8171-STD
Sample Size:               1.00000E-03 L
Dilution Factor:           1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:               dka300:[spec.GEA1]1g1857.cnf
Geometry:                  41
Count Time:                0 00:50:00.00 sec
Real Time:                 0 00:50:27.50 sec
Dead Time:                 0.9%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:         4-MAY-1996 04:57:02.59
Decayed to:                4-MAY-1996 04:57:02.59
Standard Deviations:       2
Analysis Library:          ENVGEA
Analyst:                   EMB
Background Subtract:       DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-140, REV. 1

Removed by: D. H. Milburn

Verified by: [illegible] 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	21.74	211	1.00	44.14	40	8	68.9			
0	31.61	3937	0.90	63.87	59	10	6.1			
0	36.16	1000	1.04	72.96	69	9	17.8			
0	661.43*	23064	1.45	1323.50	1315	16	1.5		CS-137	27.9
0	1172.94	15003	1.76	2346.77	2338	19	1.9		CO-60	25.8
0	1332.16	13683	1.94	2665.35	2655	19	1.8		CO-60	26.1

Sample ID : WL8171-STD
Acquisition date : 4-MAY-1996 04:57:02

Total number of lines in spectrum	6	WHC-SD-WM-DP-140, REV. 1
Number of unidentified lines	3	
Number of lines tentatively identified by NID	3	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-60	5.27Y	1.000	2.596E+01	2.596E+01	0.034E+01	1.30	
CS-137	30.00Y	1.000	2.792E+01	2.792E+01	0.042E+01	1.49	
		Total Activity :	5.389E+01	5.389E+01			
		Grand Total Activity :	5.389E+01	5.389E+01			

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

Sample ID : WL8171-STD
Acquisition date : 4-MAY-1996 04:57:02

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1309.	477.59	1.2388E+00
NA-22	100.	1274.53	8.5680E-02
NA-24	39.	1368.55	5.7507E-02
K-40	580.	1460.75	2.1490E+00
CR-51	1326.	320.08	8.9514E-01
MN-54	766.	834.83	1.6450E-01
CO-56	854.	846.76	1.7595E-01
CO-57	1489.	122.06	5.8178E-02
CO-58	782.	810.78	1.6273E-01
FE-59	790.	1099.25	3.7674E-01
SE-75	1463.	264.66	1.3831E-01
SR-85	987.	514.01	1.2413E-01
Y-88	24.	1836.06	5.5351E-02
NB-94	917.	871.09	1.8712E-01
ZRNB-95	669.	724.18	3.0875E-01
RU-103	1046.	497.08	1.3070E-01
RURH-106	711.	621.93	2.4353E+00
AG-108m	651.	722.94	1.4637E-01
CD-109	1295.	88.03	1.1662E+00
AG-110M	1376.	657.76	1.8707E-01
SN-113	1273.	391.69	1.6488E-01
TE-123m	1539.	159.00	6.9133E-02
SB-124	721.	602.73	1.2078E-01
SB-125	1389.	427.89	4.0608E-01
TE-125m	1431.	109.27	1.6646E+01
I-131	1231.	364.48	1.2002E-01
CS-134	711.	604.70	1.2055E-01
BA-140	826.	537.31	4.6604E-01
LA-140	30.	1596.21	5.9210E-02
CEPR-144	1510.	133.51	9.4449E-01
EU-152	48.	1408.01	3.0804E-01
EU-154	100.	1274.51	2.4892E-01
EU-155	1400.	105.31	2.1035E-01
HG-203	1358.	279.20	9.9920E-02
TL-208	1391.	277.36	1.2984E+00
BI-212	736.	727.18	2.1366E+00
PB-212	1635.	238.63	1.8087E-01
BI-214	874.	609.31	2.9321E-01
PB-214	1415.	351.92	5.0586E-01
RA-224	1504.	240.99	1.9256E+00
RA-226	1765.	186.10	1.9597E+00
AC-228	1068.	911.21	7.8965E-01
TH-228	1422.	84.37	3.4592E+00
TH-229	1302.	88.47	1.7108E-01
PA-233	1289.	312.17	2.2556E-01
UTH-233	1512.	245.34	7.2384E+01
PA-234M	759.	1001.03	3.2595E-01
TH-234	1194.	63.29	8.8202E-01
U-235	1738.	185.71	1.1818E-01
NP-237	1320.	86.48	3.4160E-01
NP-239	1453.	106.12	2.0551E-01

Sample ID : WL8171-STD Acquisition date : 4-MAY-1996 04:57:02

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
PU-239	1480.	129.30	7.9748E+02
AM-241	1161.	59.54	1.0984E-01
AM-243	1451.	74.67	7.2763E-02

```
*****************************************************************************
* 222-S Laboratory Counting Room    4-MAY-1996 07:26:59.98                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8171
Sample ID:               WL8171-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         4.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1858.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:11.38 sec
Dead Time:               0.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       4-MAY-1996 06:36:08.60
Decayed to:              4-MAY-1996 06:36:08.60
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-140, REV 1

Removed by: D. H. Milicia

Verified by: [signature] 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	609.08*	53	1.59	1218.78	1213	11	82.8			

Sample ID : WL8171-BLK Acquisition date : 4-MAY-1996 06:36:08

Total number of lines in spectrum	1	WHC-SD-WM-DP-140, REV. 1
Number of unidentified lines	0	
Number of lines tentatively identified by NID	1	100.00%

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

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

Sample ID : WL8171-BLK Acquisition date : 4-MAY-1996 06:36:08

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	126.	477.59	1.5380E+00
NA-22	41.	1274.53	2.1882E-01
NA-24	24.	1368.55	1.8003E-01
K-40	539.	1460.75	8.2871E+00
CR-51	190.	320.08	1.3568E+00
MN-54	45.	834.83	1.5862E-01
CO-56	64.	846.76	1.9226E-01
CO-57	508.	122.06	1.3590E-01
CO-58	56.	810.78	1.7427E-01
FE-59	53.	1099.25	3.8992E-01
CO-60	28.	1332.50	1.8866E-01
SE-75	268.	264.66	2.3672E-01
SR-85	119.	514.01	1.7275E-01
Y-88	6.	1836.06	1.1075E-01
NB-94	43.	871.09	1.6230E-01
ZRNB-95	77.	724.18	4.1838E-01
RU-103	89.	497.08	1.5257E-01
RURH-106	88.	621.93	3.4283E+00
AG-108m	74.	722.94	1.9773E-01
CD-109	444.	88.03	2.7298E+00
AG-110M	84.	657.76	1.8510E-01
SN-113	163.	391.69	2.3628E-01
TE-123m	484.	159.00	1.5508E-01
SB-124	76.	602.73	1.5712E-01
SB-125	125.	427.89	4.8704E-01
TE-125m	471.	109.27	3.8192E+01
I-131	172.	364.48	1.7939E-01
CS-134	70.	604.70	1.5080E-01
CS-137	124.	661.66	2.5075E-01
BA-140	88.	537.31	6.0968E-01
LA-140	12.	1596.21	1.4606E-01
CEPR-144	523.	133.51	2.2227E+00
EU-152	24.	1408.01	8.6766E-01
EU-154	41.	1274.51	6.3747E-01
EU-155	477.	105.31	4.9128E-01
HG-203	263.	279.20	1.7599E-01
TL-208	291.	277.36	2.3749E+00
BI-212	81.	727.18	2.8394E+00
PB-212	429.	238.63	3.7075E-01
BI-214	244.	609.31	6.1920E-01
PB-214	307.	351.92	9.3933E-01
RA-224	366.	240.99	3.7995E+00
RA-226	478.	186.10	4.0790E+00
AC-228	124.	911.21	1.0773E+00
TH-228	496.	84.37	8.1677E+00
TH-229	436.	88.47	3.9596E-01
PA-233	210.	312.17	3.6454E-01
UTH-233	281.	245.34	1.2473E+02
PA-234M	46.	1001.03	3.2113E-01
TH-234	395.	63.29	2.0295E+00
U-235	475.	185.71	2.4707E-01

Sample ID : WL8171-BLK Acquisition date : 4-MAY-1996 06:36:08

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-237	437.	86.48	7.8585E-01
NP-239	481.	106.12	4.7313E-01
PU-239	497.	129.30	1.8486E+03
AM-241	375.	59.54	2.4976E-01
AM-243	531.	74.67	1.7603E-01

```
*****************************************************************************
* 222-S Laboratory Counting Room    4-MAY-1996 08:21:19.05                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8171
Sample ID:               S96T1220-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         4.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1859.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:14.73 sec
Dead Time:               0.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       4-MAY-1996 07:30:21.57
Decayed to:              4-MAY-1996 07:30:21.57
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:      20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:  20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-140, REV. 1

Removed by: D. H. Milicia

Verified by: B. J. Machelor 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	15.63	125	1.06	31.91	29	7	74.7			
0	31.62	1757	0.91	63.90	60	9	9.8			
0	36.09	563	1.05	72.83	69	9	26.0			
0	661.47*	10298	1.41	1323.57	1316	15	2.1		CS-137	49.9
0	911.68*	43	0.96	1824.10	1817	15	82.3			
0	1366.03	17	1.31	2733.12	2728	10	79.0			
0	1764.36*	10	2.35	3530.22	3524	16	157.5			

Sample ID : S96T1220-SAM
Acquisition date : 4-MAY-1996 07:30:21

WNC-CD-WM-DP-140, REV. 1

Total number of lines in spectrum	7	
Number of unidentified lines	4	
Number of lines tentatively identified by NID	3	42.86%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	4.987E+01	4.987E+01	0.105E+01	2.10	
		Total Activity :	4.987E+01	4.987E+01			
		Grand Total Activity :	4.987E+01	4.987E+01			

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

Sample ID : S96T1220-SAM Acquisition date : 4-MAY-1996 07:30:21

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L) WHC-SD-WM-DP-140, REV.1
BE-7	409.	477.59	2.7685E+00
NA-22	37.	1274.53	2.0891E-01
NA-24	25.	1368.55	1.8524E-01
K-40	570.	1460.75	8.5267E+00
CR-51	483.	320.08	2.1600E+00
MN-54	57.	834.83	1.7990E-01
CO-56	53.	846.76	1.7572E-01
CO-57	849.	122.06	1.7570E-01
CO-58	55.	810.78	1.7284E-01
FE-59	36.	1099.25	3.2166E-01
CO-60	31.	1332.50	1.9646E-01
SE-75	572.	264.66	3.4573E-01
SR-85	281.	514.01	2.6491E-01
Y-88	11.	1836.06	1.4995E-01
NB-94	42.	871.09	1.6012E-01
ZRNB-95	77.	724.18	4.1794E-01
RU-103	308.	497.08	2.8358E-01
RURH-106	135.	621.93	4.2394E+00
AG-108m	66.	722.94	1.8615E-01
CD-109	798.	88.03	3.6622E+00
AG-110M	413.	657.76	4.1000E-01
SN-113	466.	391.69	3.9886E-01
TE-123m	801.	159.00	1.9952E-01
SB-124	147.	602.73	2.1782E-01
SB-125	474.	427.89	9.4857E-01
TE-125m	808.	109.27	5.0030E+01
I-131	451.	364.48	2.9053E-01
CS-134	141.	604.70	2.1463E-01
BA-140	210.	537.31	9.4114E-01
LA-140	13.	1596.21	1.5225E-01
CEPR-144	813.	133.51	2.7725E+00
EU-152	25.	1408.01	8.9501E-01
EU-154	37.	1274.51	6.0587E-01
EU-155	802.	105.31	6.3672E-01
HG-203	499.	279.20	2.4222E-01
TL-208	504.	277.36	3.1245E+00
BI-212	90.	727.18	2.9936E+00
PB-212	701.	238.63	4.7383E-01
BI-214	313.	609.31	7.0218E-01
PB-214	575.	351.92	1.2876E+00
RA-224	624.	240.99	4.9609E+00
RA-226	904.	186.10	5.6105E+00
AC-228	130.	911.21	1.1016E+00
TH-228	896.	84.37	1.0982E+01
TH-229	794.	88.47	5.3438E-01
PA-233	447.	312.17	5.3118E-01
UTH-233	624.	245.34	1.8600E+02
PA-234M	42.	1001.03	3.0621E-01
TH-234	847.	63.29	2.9710E+00
U-235	887.	185.71	3.3769E-01
NP-237	804.	86.48	1.0665E+00

Sample ID : S96T1220-SAM Acquisition date : 4-MAY-1996 07:30:21

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	782.	106.12	6.0331E-01
PU-239	831.	129.30	2.3901E+03
AM-241	811.	59.54	3.6723E-01
AM-243	885.	74.67	2.2731E-01

PNC-SD-WM-DP-140, REV. 1

```
*****************************************************************************
* 222-S Laboratory Counting Room    4-MAY-1996 09:17:08.26                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              8171
Sample ID:               S96T1220-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         4.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:
File Number:             dka300:[spec.GEA1]1g1860.cnf
Geometry:                41
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:14.18 sec
Dead Time:               0.5%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       4-MAY-1996 08:25:44.88
Decayed to:              4-MAY-1996 08:25:44.88
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA1]1GBACK

      >>>>>>>>>> CALIBRATION INFORMATION <<<<<<<<<<
 Date of last energy calibration:       20-MAR-1996 09:10:33.62
 Date of last efficiency calibration:   20-MAR-1996 09:10:52.48
*****************************************************************************
```

WHC-SD-WM-DP-140, REV. 1

Removed by: D. H. Milburn

Verified by: B. Bachelor 5/6/96

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	31.65	1796	1.03	63.95	58	11	10.8			
0	36.02	469	1.00	72.69	69	8	27.9			
0	510.40*	111	1.32	1021.39	1014	15	82.4			
0	609.42*	76	1.46	1219.46	1214	13	71.7			
0	661.47*	9775	1.42	1323.57	1316	16	2.2		CS-137	47.3
0	794.58*	24	1.48	1589.84	1586	8	106.7			
0	1590.40	27	1.44	3182.08	3174	16	61.0			
0	1764.58*	9	2.01	3530.66	3525	12	185.3			

Sample ID : S96T1220-DUP
Acquisition date : 4-MAY-1996 08:25:44

Total number of lines in spectrum 8
Number of unidentified lines 3
Number of lines tentatively identified by NID 5 62.50%

WHC-SD-WM-DP-140, REV. 1

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	4.734E+01	4.734E+01	0.102E+01	2.16	
		Total Activity :	4.734E+01	4.734E+01			
		Grand Total Activity :	4.734E+01	4.734E+01			

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

Sample ID : S96T1220-DUP Acquisition date : 4-MAY-1996 08:25:44

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	449.	477.59	2.9033E+00
NA-22	37.	1274.53	2.0801E-01
NA-24	20.	1368.55	1.6330E-01
K-40	609.	1460.75	8.8120E+00
CR-51	448.	320.08	2.0802E+00
MN-54	57.	834.83	1.7993E-01
CO-56	52.	846.76	1.7411E-01
CO-57	825.	122.06	1.7321E-01
CO-58	59.	810.78	1.7862E-01
FE-59	41.	1099.25	3.4368E-01
CO-60	28.	1332.50	1.8940E-01
SE-75	506.	264.66	3.2546E-01
SR-85	235.	514.01	2.4235E-01
Y-88	11.	1836.06	1.4995E-01
NB-94	71.	871.09	2.0812E-01
ZRNB-95	72.	724.18	4.0631E-01
RU-103	293.	497.08	2.7673E-01
RURH-106	123.	621.93	4.0433E+00
AG-108m	57.	722.94	1.7297E-01
CD-109	786.	88.03	3.6345E+00
AG-110M	424.	657.76	4.1548E-01
SN-113	418.	391.69	3.7801E-01
TE-123m	786.	159.00	1.9764E-01
SB-124	152.	602.73	2.2168E-01
SB-125	466.	427.89	9.4074E-01
TE-125m	784.	109.27	4.9291E+01
I-131	392.	364.48	2.7075E-01
CS-134	130.	604.70	2.0592E-01
BA-140	224.	537.31	9.7207E-01
LA-140	12.	1596.21	1.4782E-01
CEPR-144	764.	133.51	2.6872E+00
EU-152	32.	1408.01	9.9764E-01
EU-154	37.	1274.51	6.0535E-01
EU-155	810.	105.31	6.4007E-01
HG-203	482.	279.20	2.3820E-01
TL-208	513.	277.36	3.1527E+00
BI-212	86.	727.18	2.9252E+00
PB-212	734.	238.63	4.8453E-01
BI-214	287.	609.31	6.7232E-01
PB-214	580.	351.92	1.2923E+00
RA-224	623.	240.99	4.9586E+00
RA-226	877.	186.10	5.5247E+00
AC-228	144.	911.21	1.1596E+00
TH-228	886.	84.37	1.0919E+01
TH-229	768.	88.47	5.2555E-01
PA-233	444.	312.17	5.2962E-01
UTH-233	579.	245.34	1.7916E+02
PA-234M	52.	1001.03	3.4013E-01
TH-234	832.	63.29	2.9451E+00
U-235	877.	185.71	3.3579E-01
NP-237	841.	86.48	1.0910E+00

Sample ID : S96T1220-DUP Acquisition date : 4-MAY-1996 08:25:44

WHC-SD-WM-DP-140, REV. 1

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
NP-239	819.	106.12	6.1715E-01
PU-239	813.	129.30	2.3637E+03
AM-241	838.	59.54	3.7318E-01
AM-243	930.	74.67	2.3297E-01

LABCORE Data Entry Template for Worklist# 7824

Analyst: KNT **Instrument:** AB00 12 **Book#** 9856

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

Worklist Comment: B-106. Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	SOLID		
2	BLNK-PREP				@SR90-01	SOLID		
3	BLNK/BKG				@SR90-01	SOLID		
4	SAMPLE	S95T001277	0	F	@SR90-01	SOLID	95000096	B-106
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5	DUP	S95T001277	0	F	@SR90-01	SOLID		
6	SAMPLE	S95T001279	0	F	@SR90-01	SOLID	95000096	B-106
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
7	DUP	S95T001279	0	F	@SR90-01	SOLID		

Final page for worklist # 7824

Kim Thomas 4-23-96
Analyst Signature **Date**

Sharon L Udell 4-26-96
Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 7824

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

Method: _____ Rev/Mod _____

Worklist Comment: B-106. Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01 SR90-01	SOLID	1.23E-03	1.22E-3	99.187	% Recovery
1	STD		0		@SR90-01 SR90-01C	SOLID	100	9.04E+01	90.400	% Recovery
1	STD		0		@SR90-01 SR90-01E	SOLID	1.00	1.84E+00	1.840	% Ct. Error
2	BLNK-PREP		0		@SR90-01 SR90-01	SOLID	1	3.91E-2	0.039	uCi/g
2	BLNK-PREP		0		@SR90-01 SR90-01C	SOLID	100	9.00E+01	90.000	% Recovery
2	BLNK-PREP		0		@SR90-01 SR90-01E	SOLID	1.00	5.31E+01	53.100	% Ct. Error
3	BLNK/BKG		0		@SR90-01 SR90-01	SOLID	1	2.12E+00	2.120	uCi/g
4	SAMPLE	S95T001277	0	F	@SR90-01 SR90-01	SOLID	N/A	1.16E+02	238.0e-004	uCi/g
4	SAMPLE	S95T001277	0	F	@SR90-01 SR90-01C	SOLID	N/A	8.98E+01	0.0e+000	% Recovery
4	SAMPLE	S95T001277	0	F	@SR90-01 SR90-01E	SOLID	N/A	5.83E-01	0.0e+000	% Ct. Error
5	DUP	S95T001277	0	F	@SR90-01 SR90-01	SOLID	1.16E+2	1.19E+2	2.553	RPD
5	DUP	S95T001277	0	F	@SR90-01 SR90-01C	SOLID	100	9.01E+01	90.100	% Recovery
5	DUP	S95T001277	0	F	@SR90-01 SR90-01E	SOLID	1.00	5.74E-01	0.574	% Ct. Error
6	SAMPLE	S95T001279	0	F	@SR90-01 SR90-01	SOLID	N/A	1.11E+02	233.0e-004	uCi/g
6	SAMPLE	S95T001279	0	F	@SR90-01 SR90-01C	SOLID	N/A	9.07E+01	0.0e+000	% Recovery
6	SAMPLE	S95T001279	0	F	@SR90-01 SR90-01E	SOLID	N/A	5.90E-01	0.0e+000	% Ct. Error
7	DUP	S95T001279	0	F	@SR90-01 SR90-01	SOLID	1.11E+2	1.09E+2	1.818	RPD
7	DUP	S95T001279	0	F	@SR90-01 SR90-01C	SOLID	100	8.80E+01	88.000	% Recovery
7	DUP	S95T001279	0	F	@SR90-01 SR90-01E	SOLID	1.00	5.99E-01	0.599	% Ct. Error

Final page for worklist# 7824

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

5/3/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

							STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	11392	GROSS WEIGHT	(W2)		7.3145
Sample	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2241
7824	BACKGROUND in cpm	(BKG)	3.4	NET WEIGHT	(W3)		0.0904
Sample Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		9.33
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1135.80	SR-90 EFFICIENCY FACTO	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.11	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003666	TIME OF SEPARATION	(ST)	04:20	Rmax			N/A
Date Prepared	DATE OF SEPARATION	(SD)	04/23/96	DETECTION LIMIT	(Ld)		2.31
0	TIME OF COUNT	(TOC)	13:40	Sr-89/90 CONC. in µCi/L			1.2232E+00
Date Prepared	DATE OF COUNT	(DOC)	04/23/96				
N/A	STANDARD BOOK #		9B56				
Standard #	STANDARD VALUE in µCi/mL		1.2287E-03				
WL7824							
Instrument Code							
WB27811	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
Reviewed By	Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0						
SLH2	RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)						
Analyst	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
SLF	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
Analyst	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
KNT	NOTE: Expected weight = CVA * 0.1						
Date Completed	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
04/26/96	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
Analyst Date							DETECTION LEVEL
04/23/96	Sr-89/90 CONCENTRATION		1.22E-03			µCi/mL	
Analyst Time							
04:20 AM	RELATIVE COUNTING ERROR		1.8%				2.49E-06 µCi/L
Sample Point							
B-106	PERCENT CARRIER RECOVERY		90.4%				

Analyst:		KNT	Date:	26-Apr-96
Signature of Chemist:		SLF	Date:	5/3/96

STANDARD.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-140, REV 1

WORKBOOK PAGE: BLANK2

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

						BLNK-PREP
	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK-PREP	TOTAL COUNTS	(TC)	72	GROSS WEIGHT	(W2)	7.3054
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2154
7824	BACKGROUND in cpm	(BKG)	3.4	NET WEIGHT	(W3)	0.0900
	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	9.50
@SR90-01	DILUTION FACTOR	(DF)	1			
	DIGEST FACTOR (g/L)	(D g/L	2.098			
SOLID	SAMPLE COUNT RATE	(Rs)	3.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
	CRITICAL LEVEL	(Lc)	1.11	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003666	TIME OF SEPARATION	(ST)	04:20	Rmax		N/A
	DATE OF SEPARATION	(SD)	04/23/96	DETECTION LIMIT	(Ld)	2.31
0	TIME OF COUNT	(TOC)	13:50	Sr-89/90 CONC in µCi/g		3.9123E-02
	DATE OF COUNT	(DOC)	04/23/96			

N/A

WL7824

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

04/26/96

04/23/96	Sr-89/90 CONCENTRATION	3.91E-02	µCi/g	DETECTION LEVEL
04:20 AM	RELATIVE COUNTING ERROR	53.1%		2.38E-02 µCi/g
B-106	PERCENT CARRIER RECOVERY	90.0%		

Analyst:		KNT	Date:	26-Apr-96
Signature of Chemist:		SLF	Date:	5/3/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4 WHC-SD-WM-DP-140, 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)	113216	GROSS WEIGHT	(W2)		7.2887
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1989
7824	BACKGROUND in cpm	(BKG)	3.4	NET WEIGHT	(W3)		0.0898
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)		9.92
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.098				
SOLID	SAMPLE COUNT RATE	(Rs)	11318.20	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.11	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003666	TIME OF SEPARATION	(ST)	04:20	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/23/96	DETECTION LIMIT	(Ld)		2.31
0	TIME OF COUNT	(TOC)	14:15	Sr-89/90 CONC in µCi/g			1.1631E+02
Sample Prep	DATE OF COUNT	(DOC)	04/23/96				
FUSION01							
Sample ID							
S95T001277							

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
04/26/96	
Analysis Date	
04/23/96	
Analysis Time	
04:20 AM	
Sample Point	
B-106	

Sr-89/90 CONCENTRATION	1.16E+02	µCi/g	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.6%		2.38E-02 µCi/g
PERCENT CARRIER RECOVERY	89.8%		

Analyst:		KNT	Date:	26-Apr-96
Signature of Chemist:		SLF	Date:	5/3/96

SAMPLE.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: DUP5

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

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	118657	GROSS WEIGHT	(W2)		7.2585
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.1684
7824	BACKGROUND in cpm	(BKG)	3.4	NET WEIGHT	(W3)		0.0901
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)		10.17
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.108				
SOLID	SAMPLE COUNT RATE	(Rs)	11662.30	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Collection Number	CRITICAL LEVEL	(Lc)	1.11	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003666	TIME OF SEPARATION	(ST)	04:20	Rmax			N/A
Rerun #	DATE OF SEPARATION	(SD)	04/23/96	DETECTION LIMIT	(Ld)		2.31
0	TIME OF COUNT	(TOC)	14:30	Sr-89/90 CONC in µCi/g			1.1860E+02
Sample Prep	DATE OF COUNT	(DOC)	04/23/96				
FUSION01							
Sample #							
S95T001277							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
04/26/96							
Analysis Date							DETECTION LEVEL
04/23/96	Sr-89/90 CONCENTRATION			1.19E+02		µCi/g	
Analysis Time							
04:20 AM	RELATIVE COUNTING ERROR			0.6%			2.35E-02 µCi/g
Sample Point							
B-106	PERCENT CARRIER RECOVERY			90.1%			

Analyst:		KNT	Date:	26-Apr-96
Signature of Chemist:		SLF	Date:	5/3/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM6

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

Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	SAMPLE 1.000
SAMPLE	TOTAL COUNTS	(TC)	110422	GROSS WEIGHT	(W2)	7.2652
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1745
7824	BACKGROUND in cpm	(BKG)	3.4	NET WEIGHT	(W3)	0.0907
Test Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	10.42
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.1124			
SOLID	SAMPLE COUNT RATE	(Rs)	11038.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.11	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003666	TIME OF SEPARATION	(ST)	04:20	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/23/96	DETECTION LIMIT	(Ld)	2.31
0	TIME OF COUNT	(TOC)	14:45	Sr-89/90 CONC in µCi/g		1.1101E+02
Sample Prep	DATE OF COUNT	(DOC)	04/23/96			
FUSION01						
Sample #						
S95T001279						

Instrument Code: WB27811

Prepared By: SLH2

Chemist: SLF

Analyst: KNT

Date Complete: 04/26/96

Analysis Date: 04/23/96

Analysis Time: 04:20 AM

Sample Point: B-106

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.11E+02	µCi/g	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.6%		2.33E-02 µCi/g
PERCENT CARRIER RECOVERY	90.7%		

Analyst:	KNT	Date:	26-Apr-96
Signature of Chemist:	SLF	Date:	5/3/96

SAMPLE.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: DUP7

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)	DUP 1.000
DUP	TOTAL COUNTS	(TC)	107028	GROSS WEIGHT	(W2)	7.3331
Work Unit	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2451
7824	BACKGROUND in cpm	(BKG)	3.4	NET WEIGHT	(W3)	0.0880
Task Code	SAMPLE VOLUME in mL	(SS)	0.050	DELTA TIME (HOURS)	(DT)	10.58
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.142			
SOLID	SAMPLE COUNT RATE	(Rs)	10699.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.11	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003666	TIME OF SEPARATION	(ST)	04:20	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/23/96	DETECTION LIMIT	(Ld)	2.31
0	TIME OF COUNT	(TOC)	14:55	Sr-89/90 CONC in µCi/g		1.0919E+02
Sample Prep	DATE OF COUNT	(DOC)	04/23/96			
FUSION01						
Sample #						
S95T001279						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
04/26/96	
Analysis Date	
04/23/96	
Analysis Time	
04:20 AM	
Sample Point	
B-106	

Sr-89/90 CONCENTRATION	1.09E+02	µCi/g	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.6%		2.36E-02 µCi/g
PERCENT CARRIER RECOVERY	88.0%		

Analyst:	KNT	Date:	26-Apr-96
Signature of Chemist:	SLF	Date:	5/3/96

SAMPLE.WB1 REV 1.2 22010NML

783

LABCORE Data Entry Template for Worklist# 7825

Analyst: S.C.L. **Instrument:** AB00 12 **Book#** 9B56

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

Worklist Comment: B-106. Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	SOLID		
2	BLNK-PREP				@SR90-01	SOLID		
3	BLNK/BKG				@SR90-01	SOLID		
4	SAMPLE	S95T001282	0	F	@SR90-01	SOLID	95000096	B-106
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S95T001282	0	F	@SR90-01	SOLID		
6	SAMPLE	S95T001285	0	F	@SR90-01	SOLID	95000096	B-106
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
7	DUP	S95T001285	0	F	@SR90-01	SOLID		

Final page for worklist # 7825

Sue C Lai 4-22-96
Analyst Signature **Date**

Sharon L Walsh 4-25-96
Analyst Signature **Date**

C.J. Opinion 4/30/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 7825

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

Method: _____ Rev/Mod _____

Worklist Comment: B-106. Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01 SR90-01	SOLID	1.23E-03	1.24E-3	100.813	% Recovery
1	STD		0		@SR90-01 SR90-01C	SOLID	100	8.82E+01	88.200	% Recovery
1	STD		0		@SR90-01 SR90-01E	SOLID	1.00	1.91E+00	1.910	% Ct. Error
2	BLNK-PREP		0		@SR90-01 SR90-01	SOLID	1	6.15E-2	0.061	uCi/g
2	BLNK-PREP		0		@SR90-01 SR90-01C	SOLID	100	8.71E+01	87.100	% Recovery
2	BLNK-PREP		0		@SR90-01 SR90-01E	SOLID	1.00	4.11E+01	41.100	% Ct. Error
3	BLNK/BKG		0		@SR90-01 SR90-01	SOLID	1	2.41E+00	2.410	uCi/g
4	SAMPLE	S95T001282	0	F	@SR90-01 SR90-01	SOLID	N/A	7.42E+00	274.0e-004	uCi/g
4	SAMPLE	S95T001282	0	F	@SR90-01 SR90-01C	SOLID	N/A	8.75E+01	0.0e+000	% Recovery
4	SAMPLE	S95T001282	0	F	@SR90-01 SR90-01E	SOLID	N/A	2.41E+00	0.0e+000	% Ct. Error
5	DUP	S95T001282	0	F	@SR90-01 SR90-01	SOLID	7.42E+0	6.45E+0	13.987	RPD
5	DUP	S95T001282	0	F	@SR90-01 SR90-01C	SOLID	100	8.84E+01	88.400	% Recovery
5	DUP	S95T001282	0	F	@SR90-01 SR90-01E	SOLID	1.00	2.58E+00	2.580	% Ct. Error
6	SAMPLE	S95T001285	0	F	@SR90-01 SR90-01	SOLID	N/A	7.68E+01	424.0e-004	uCi/g
6	SAMPLE	S95T001285	0	F	@SR90-01 SR90-01C	SOLID	N/A	8.85E+01	0.0e+000	% Recovery
6	SAMPLE	S95T001285	0	F	@SR90-01 SR90-01E	SOLID	N/A	9.27E-01	0.0e+000	% Ct. Error
7	DUP	S95T001285	0	F	@SR90-01 SR90-01	SOLID	7.68E+1	8.28E+1	7.519	RPD
7	DUP	S95T001285	0	F	@SR90-01 SR90-01C	SOLID	100	8.70E+01	87.000	% Recovery
7	DUP	S95T001285	0	F	@SR90-01 SR90-01E	SOLID	1.00	9.09E-01	0.909	% Ct. Error

Final page for worklist# 7825

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

5/3/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1 WHC-SD-WM-DP-140, REV. 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	
STD	TOTAL COUNTS	(TC)	10674	GROSS WEIGHT	(W2)	7.3568	
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2686	
7825	BACKGROUND in cpm	(BKG)	3.9	NET WEIGHT	(W3)	0.0882	
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	4.12	
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1063.50	SR-90 EFFICIENCY FACTO	(C1)	0.4180	
Batch Number	CRITICAL LEVEL	(Lc)	1.19	Y-90 EFFICIENCY FACTOR	(C2)	0.4660	
96003667	TIME OF SEPARATION	(ST)	13:38	Rmax		N/A	
Rerun	DATE OF SEPARATION	(SD)	04/22/96	DETECTION LIMIT	(Ld)	2.47	
0	TIME OF COUNT	(TOC)	17:45	Sr-89/90 CONC. in µCi/L		1.2393E+00	
Sample Prep	DATE OF COUNT	(DOC)	04/22/96				
N/A	STANDARD BOOK #		9B56				
Sample #	STANDARD VALUE in µCi/mL		1.2288E-03				
WL7825							
Instrument Code							
WB27811							
Prepared By							
SLH							
Chemist							
SLF							
Analyst							
SCL							
Date Complete							
04/25/96							
Analysis Date							
04/22/96							
Analysis Time							
01:38 PM							
Sample Point							
B-106							

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.24E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.9%		2.88E-06 µCi/L
PERCENT CARRIER RECOVERY	88.2%		

Analyst:	SCL	Date:	25-Apr-96
Signature of Chemist:	SLF	Date:	5/3/96

STANDARD.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: BLANK2

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

						BLNK-PREP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK-PREP	TOTAL COUNTS	(TC)	94	GROSS WEIGHT	(W2)	7.3295
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2424
7825	BACKGROUND in cpm	(BKG)	3.9	NET WEIGHT	(W3)	0.0871
Test Code	SAMPLE VOLUME in mL	(SS)	5.000	DELTA TIME (HOURS)	(DT)	4.53
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.1208			
SOLID	SAMPLE COUNT RATE	(Rs)	5.50	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.19	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003667	TIME OF SEPARATION	(ST)	13:38	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/22/96	DETECTION LIMIT	(Ld)	2.47
0	TIME OF COUNT	(TOC)	18:10	Sr-89/90 CONC in µCi/g		6.1537E-02
Sample Prep	DATE OF COUNT	(DOC)	04/22/96			
N/A						
Sample #						
WL7825						
Instrument Code						
WB27811						
Prepared By						
SLH						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
04/25/96						
Analysis Date						
04/22/96						
Analysis Time						
01:38 PM						
Sample Point						
B-106						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

				DETECTION LEVEL
Sr-89/90 CONCENTRATION	6.15E-02	µCi/g		
RELATIVE COUNTING ERROR	41.1%			2.76E-02 µCi/g
PERCENT CARRIER RECOVERY	87.1%			

Analyst:	SCL	Date:	25-Apr-96
Signature of Chemist:	SLF	Date:	5/3/96

BLANK.WB1 REV 1.2 22010NML

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WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: SAM4

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

							SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	6718	GROSS WEIGHT	(W2)		7.3064
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2189
7825	BACKGROUND in cpm	(BKG)	3.9	NET WEIGHT	(W3)		0.0875
Test Code	SAMPLE VOLUME in mL	(SS)	5.000	DELTA TIME (HOURS)	(DT)		4.78
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.1208				
SOLID	SAMPLE COUNT RATE	(Rs)	667.90	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.19	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003667	TIME OF SEPARATION	(ST)	13:38	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/22/96	DETECTION LIMIT	(Ld)		2.47
0	TIME OF COUNT	(TOC)	18:25	Sr-89/90 CONC in µCi/g			7.4185E+00
Sample Prep	DATE OF COUNT	(DOC)	04/22/96				
FUSION01							
Sample #							
S95T001282							
Instrument Code							
WB27811							
Prepared By							
SLH							
Chemist							
SLF							
Analyst							
SCL							
Date Complete							
04/25/96							
Analysis Date							
04/22/96							
Analysis Time							
01:38 PM							
Sample Point							
B-106							

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	7.42E+00	µCi/g
RELATIVE COUNTING ERROR	2.4%	
PERCENT CARRIER RECOVERY	87.5%	

DETECTION LEVEL

2.74E-02 µCi/g

Analyst:	SCL	**Date:**	25-Apr-96
Signature of Chemist:	SLF	**Date:**	5/3/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

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

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	5891	GROSS WEIGHT	(W2)		7.3431
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2547
7825	BACKGROUND in cpm	(BKG)	3.9	NET WEIGHT	(W3)		0.0884
Test Code	SAMPLE VOLUME in mL	(SS)	5.000	DELTA TIME (HOURS)	(DT)		5.20
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.1068				
SOLID	SAMPLE COUNT RATE	(Rs)	585.20	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.19	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003667	TIME OF SEPARATION	(ST)	13:38	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/22/96	DETECTION LIMIT	(Ld)		2.47
0	TIME OF COUNT	(TOC)	18:50	Sr-89/90 CONC in µCi/g			6.4475E+00
Sample Prep	DATE OF COUNT	(DOC)	04/22/96				
FUSION01							
Sample #							
S95T001282							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
SLH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
04/25/96							
Analysis Date							DETECTION LEVEL
04/22/96	Sr-89/90 CONCENTRATION			6.45E+00		µCi/g	
Analysis Time							
01:38 PM	RELATIVE COUNTING ERROR			2.6%			2.72E-02 µCi/g
Sample Point							
B-106	PERCENT CARRIER RECOVERY			88.4%			

Analyst:		SCL	Date:	25-Apr-96
Signature of Chemist:		SLF	Date:	5/3/96

SAMPLE.WB1 REV 1.2 22010NML

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)	44839	GROSS WEIGHT	(W2)		7.3208
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2323
7825	BACKGROUND in cpm	(BKG)	3.9	NET WEIGHT	(W3)		0.0885
Test Code	SAMPLE VOLUME in mL	(SS)	3.000	DELTA TIME (HOURS)	(DT)		5.45
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.2472				
SOLID	SAMPLE COUNT RATE	(Rs)	4480.00	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.19	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003667	TIME OF SEPARATION	(ST)	13:38	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/22/96	DETECTION LIMIT	(Ld)		2.47
0	TIME OF COUNT	(TOC)	19:05	Sr-89/90 CONC in µCi/g			7.6832E+01
Sample Prep	DATE OF COUNT	(DOC)	04/22/96				
FUSION01							
Sample #							
S95T001285							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
SLH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
04/25/96							
Analysis Date							DETECTION LEVEL
04/22/96	Sr-89/90 CONCENTRATION			7.68E+01	µCi/g		
Analysis Time							
01:38 PM	RELATIVE COUNTING ERROR			0.9%			4.24E-02 µCi/g
Sample Point							
B-106	PERCENT CARRIER RECOVERY			88.5%			

Analyst:		SCL	Date:	25-Apr-96
Signature of Chemist:		SLF	Date:	5/3/96

SAMPLE.WB1 REV 1.2 22010NML

WHC-CD-WM-DP-140, REV. 1

WORKBOOK PAGE: DUP7

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

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	46578	GROSS WEIGHT	(W2)		7.3035
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2165
7825	BACKGROUND in cpm	(BKG)	3.9	NET WEIGHT	(W3)		0.0870
Test Code	SAMPLE VOLUME in mL	(SS)	3.000	DELTA TIME (HOURS)	(DT)		5.70
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.1984				
SOLID	SAMPLE COUNT RATE	(Rs)	4653.90	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.19	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003667	TIME OF SEPARATION	(ST)	13:38	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/22/96	DETECTION LIMIT	(Ld)		2.47
0	TIME OF COUNT	(TOC)	19:20	Sr-89/90 CONC in µCi/g			8.2772E+01
Sample Prep	DATE OF COUNT	(DOC)	04/22/96				
FUSION01							
Sample #							
S95T001285							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
SLH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
04/25/96							
Analysis Date							DETECTION LEVEL
04/22/96	Sr-89/90 CONCENTRATION			8.28E+01	µCi/g		
Analysis Time							
01:38 PM	RELATIVE COUNTING ERROR			0.9%			4.39E-02 µCi/g
Sample Point							
B-106	PERCENT CARRIER RECOVERY			87.0%			

Analyst:		SCL	Date:	25-Apr-96
Signature of Chemist:		SLF	Date:	5/3/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 7826

Analyst: KNT **Instrument:** AB00 12 **Book#** 9856

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

Worklist Comment: B-106. Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	SOLID		
2	BLNK-PREP				@SR90-01	SOLID		
3	BLNK/BKG				@SR90-01	SOLID		
4	SAMPLE	S95T001299	0	F	@SR90-01	SOLID	95000096	B-106
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5	DUP	S95T001299	0	F	@SR90-01	SOLID		
6	SAMPLE	S95T001303	0	F	@SR90-01	SOLID	95000096	B-106
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
7	DUP	S95T001303	0	F	@SR90-01	SOLID		

Final page for worklist # 7826

Kim Thomas 4-27-96
Analyst Signature **Date**

Sharon L Hahle 5.2.96
Analyst Signature **Date**

Sue E. Hogan 5/3/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 7826

Analyst: cjo **Instrument:** AB12 **Book#** 9856

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

Worklist Comment: B-106. Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01 SR90-01	SOLID	1.23E-03	1.13E-3	91.870	% Recovery
1	STD		0		@SR90-01 SR90-01C	SOLID	100	9.16E+01	91.600	% Recovery
1	STD		0		@SR90-01 SR90-01E	SOLID	1.00	1.97E+00	1.970	% Ct. Error
2	BLNK-PREP		0		@SR90-01 SR90-01	SOLID	1	5.07E-2	0.051	uCi/g
2	BLNK-PREP		0		@SR90-01 SR90-01C	SOLID	100	9.13E+01	91.300	% Recovery
2	BLNK-PREP		0		@SR90-01 SR90-01E	SOLID	1.00	2.70E+01	27.000	% Ct. Error
3	BLNK/BKG		0		@SR90-01 SR90-01	SOLID	1	1.77E+00	1.770	uCi/g
4	SAMPLE	S95T001299	0	F	@SR90-01 SR90-01	SOLID	N/A	6.46E+01	130.0e-004	uCi/g
4	SAMPLE	S95T001299	0	F	@SR90-01 SR90-01C	SOLID	N/A	9.11E+01	0.0e+000	% Recovery
4	SAMPLE	S95T001299	0	F	@SR90-01 SR90-01E	SOLID	N/A	5.66E-01	0.0e+000	% Ct. Error
5	DUP	S95T001299	0	F	@SR90-01 SR90-01	SOLID	6.46E+1	6.47E+1	0.155	RPD
5	DUP	S95T001299	0	F	@SR90-01 SR90-01C	SOLID	100	9.11E+01	91.100	% Recovery
5	DUP	S95T001299	0	F	@SR90-01 SR90-01E	SOLID	1.00	5.61E-01	0.561	% Ct. Error
6	SAMPLE	S95T001303	0	F	@SR90-01 SR90-01	SOLID	N/A	1.06E+02	136.0e-004	uCi/g
6	SAMPLE	S95T001303	0	F	@SR90-01 SR90-01C	SOLID	N/A	9.12E+01	0.0e+000	% Recovery
6	SAMPLE	S95T001303	0	F	@SR90-01 SR90-01E	SOLID	N/A	4.52E-01	0.0e+000	% Ct. Error
7	DUP	S95T001303	0	F	@SR90-01 SR90-01	SOLID	1.06E+2	1.08E+2	1.869	RPD
7	DUP	S95T001303	0	F	@SR90-01 SR90-01C	SOLID	100	9.11E+01	91.100	% Recovery
7	DUP	S95T001303	0	F	@SR90-01 SR90-01E	SOLID	1.00	4.40E-01	0.440	% Ct. Error

Final page for worklist# 7826

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

[signature] 5/7/96
Reviewer Signature **Date**

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

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: STD1

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

						STANDARD
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
STD	TOTAL COUNTS	(TC)	9973	GROSS WEIGHT	(W2)	7.3515
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2599
7826	BACKGROUND in cpm	(BKG)	3.7	NET WEIGHT	(W3)	0.0916
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	2.75
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	DDF	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	993.60	SR-90 EFFICIENCY FACTO	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.16	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003668	TIME OF SEPARATION	(ST)	15:30	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/27/96	DETECTION LIMIT	(Ld)	2.41
0	TIME OF COUNT	(TOC)	18:15	Sr-89/90 CONC. in µCi/L		1.1320E+00
Sample Prep	DATE OF COUNT	(DOC)	04/27/96			
N/A	STANDARD BOOK #		9B56			
Sample #	STANDARD VALUE in µCi/mL		1.2284E-03			
WL7826						
Instrument Code						
WB27811	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
Prepared By	Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0					
SLH2	RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
Chemist	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
SLF	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
Analyst	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
KNT	NOTE: Expected weight = CVA * 0.1					
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
05/02/96	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
Analysis Date						DETECTION LEVEL
04/27/96	Sr-89/90 CONCENTRATION		1.13E-03	µCi/mL		
Analysis Time						
03:30 PM	RELATIVE COUNTING ERROR		2.0%			2.74E-06 µCi/L
Sample Point						
B-106	PERCENT CARRIER RECOVERY		91.6%			

Analyst:	KNT	Date:	02-May-96
Signature of Chemist: [signature]	SLF	Date:	5/7/96

STANDARD.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: BLANK2

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

						BLNK-PREP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
BLNK-PREP	TOTAL COUNTS	(TC)	131	GROSS WEIGHT	(W2)	7.2959
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2046
7826	BACKGROUND in cpm	(BKG)	3.7	NET WEIGHT	(W3)	0.0913
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	3.08
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.1112			
SOLID	SAMPLE COUNT RATE	(Rs)	9.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.16	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003668	TIME OF SEPARATION	(ST)	15:30	Rmax		N/A
Return	DATE OF SEPARATION	(SD)	04/27/96	DETECTION LIMIT	(Ld)	2.41
0	TIME OF COUNT	(TOC)	18:35	Sr-89/90 CONC in µCi/g		5.0702E-02
Sample Prep	DATE OF COUNT	(DOC)	04/27/96			
N/A						
Sample #						
WL7826						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)					
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/02/96						
Analysis Date						DETECTION LEVEL
04/27/96	Sr-89/90 CONCENTRATION		5.07E-02	µCi/g		
Analysis Time						
03:30 PM	RELATIVE COUNTING ERROR		27.0%			1.30E-02 µCi/g
Sample Point						
B-106	PERCENT CARRIER RECOVERY		91.3%			

Analyst:	KNT	Date:	02-May-96
Signature of Chemist: [signature]	SLF	Date:	5/7/96

BLANK.WB1 REV 1.2 22010NML

735

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WORKBOOK PAGE: SAM4

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

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	120108	GROSS WEIGHT	(W2)	7.2587
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1676
7826	BACKGROUND in cpm	(BKG)	3.7	NET WEIGHT	(W3)	0.0911
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	3.50
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.1112			
SOLID	SAMPLE COUNT RATE	(Rs)	12007.10	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.16	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003668	TIME OF SEPARATION	(ST)	15:30	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/27/96	DETECTION LIMIT	(Ld)	2.41
0	TIME OF COUNT	(TOC)	19:00	Sr-89/90 CONC in µCi/g		6.4605E+01
Sample Prep	DATE OF COUNT	(DOC)	04/27/96			
FUSION01						
Sample #						
S95T001299						
Instrument Code						
WB27811						
Prepared By						
SLH2						
Chemist						
SLF						
Analyst						
KNT						
Date Complete						
05/02/96						
Analysis Date						
04/27/96						
Analysis Time						
03:30 PM						
Sample Point						
B-106						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	6.46E+01	µCi/g	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.6%		1.30E-02 µCi/g
PERCENT CARRIER RECOVERY	91.1%		

Analyst:	KNT	Date:	02-May-96
Signature of Chemist:	SLF	Date:	5/7/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

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

						DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	122142	GROSS WEIGHT	(W2)	7.2668
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.1757
7826	BACKGROUND in cpm	(BKG)	3.7	NET WEIGHT	(W3)	0.0911
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	3.67
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.1392			
SOLID	SAMPLE COUNT RATE	(Rs)	12210.50	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.16	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003668	TIME OF SEPARATION	(ST)	15:30	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/27/96	DETECTION LIMIT	(Ld)	2.41
0	TIME OF COUNT	(TOC)	19:10	Sr-89/90 CONC in µCi/g		6.4720E+01
Sample Prep	DATE OF COUNT	(DOC)	04/27/96			
FUSION01						
Sample #						
S95T001299						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)					
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/02/96						
Analysis Date						DETECTION LEVEL
04/27/96	Sr-89/90 CONCENTRATION		6.47E+01	µCi/g		
Analysis Time						
03:30 PM	RELATIVE COUNTING ERROR		0.6%			1.28E-02 µCi/g
Sample Point						
B-106	PERCENT CARRIER RECOVERY		91.1%			

Analyst:	KNT	Date:	02-May-96
Signature of Chemist:	SLF	Date:	5/7/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM6

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

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	188508	GROSS WEIGHT	(W2)	7.3014
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2102
7826	BACKGROUND in cpm	(BKG)	3.7	NET WEIGHT	(W3)	0.0912
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	4.00
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.0052			
SOLID	SAMPLE COUNT RATE	(Rs)	18847.10	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.16	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
96003668	TIME OF SEPARATION	(ST)	15:30	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/27/96	DETECTION LIMIT	(Ld)	2.41
0	TIME OF COUNT	(TOC)	19:30	Sr-89/90 CONC in µCi/g		1.0606E+02
Sample Prep	DATE OF COUNT	(DOC)	04/27/96			
FUSION01						
Sample #						
S95T001303						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)					
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/02/96						
Analysis Date						DETECTION LEVEL
04/27/96	Sr-89/90 CONCENTRATION		1.06E+02	µCi/g		
Analysis Time						
03:30 PM	RELATIVE COUNTING ERROR		0.5%			1.36E-02 µCi/g
Sample Point						
B-106	PERCENT CARRIER RECOVERY		91.2%			

Analyst:	KNT	Date:	02-May-96
Signature of Chemist: [signature]	SLF	Date:	5/7/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP7

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

							DUP
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	198171	GROSS WEIGHT	(W2)		7.3221
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2310
7826	BACKGROUND in cpm	(BKG)	3.7	NET WEIGHT	(W3)		0.0911
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		5.00
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.0412				
SOLID	SAMPLE COUNT RATE	(Rs)	19813.40	SR-90 EFFICIENCY FACTOR	(C1)		0.4180
Batch Number	CRITICAL LEVEL	(Lc)	1.16	Y-90 EFFICIENCY FACTOR	(C2)		0.4660
96003668	TIME OF SEPARATION	(ST)	15:30	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/27/96	DETECTION LIMIT	(Ld)		2.41
0	TIME OF COUNT	(TOC)	20:30	Sr-89/90 CONC in µCi/g			1.0847E+02
Sample Prep	DATE OF COUNT	(DOC)	04/27/96				
FUSION01							
Sample #							
S95T001303							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
KNT	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/02/96							
Analysis Date							DETECTION LEVEL
04/27/96	Sr-89/90 CONCENTRATION			1.08E+02		µCi/g	
Analysis Time							
03:30 PM	RELATIVE COUNTING ERROR			0.4%			1.32E-02 µCi/g
Sample Point							
B-106	PERCENT CARRIER RECOVERY			91.1%			

Analyst:		KNT	Date:	02-May-96
Signature of Chemist:	[signature]	SLF	Date:	5/7/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 7827

Analyst: S.C.L **Instrument:** AB00 #10 **Book#** 9B56

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

Worklist Comment: B-106. Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	SOLID		
2	BLNK-PREP				@SR90-01	SOLID		
3	BLNK/BKG				@SR90-01	SOLID		
4	SAMPLE	S95T001307	0	F	@SR90-01	SOLID	95000096	B-106
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S95T001307	0	F	@SR90-01	SOLID		
6	SAMPLE	S95T001311	0	F	@SR90-01	SOLID	95000096	B-106
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
7	DUP	S95T001311	0	F	@SR90-01	SOLID		

Final page for worklist # 7827

Sue C Lai 4-24-96
Analyst Signature **Date**

C.J. Cianer 4/25/96
Analyst Signature **Date**

Sue E. Hogan 4/30/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 7827

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

Method: _____ Rev/Mod _____

Worklist Comment: B-106. Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01 SR90-01	SOLID	1.23E-03	1.19E-3	96.748	% Recovery
1	STD		0		@SR90-01 SR90-01C	SOLID	100	8.81E+01	88.100	% Recovery
1	STD		0		@SR90-01 SR90-01E	SOLID	1.00	1.95E+00	1.950	% Ct. Error
2	BLNK-PREP		0		@SR90-01 SR90-01	SOLID	1	5.68E-3	0.006	uCi/g
2	BLNK-PREP		0		@SR90-01 SR90-01C	SOLID	100	8.74E+01	87.400	% Recovery
2	BLNK-PREP		0		@SR90-01 SR90-01E	SOLID	1.00	6.09E+01	60.900	% Ct. Error
3	BLNK/BKG		0		@SR90-01 SR90-01	SOLID	1	1.51E+00	1.510	uCi/g
4	SAMPLE	S95T001307	0	F	@SR90-01 SR90-01	SOLID	N/A	5.05E+00	437.0e-005	uCi/g
4	SAMPLE	S95T001307	0	F	@SR90-01 SR90-01C	SOLID	N/A	8.65E+01	0.0e+000	% Recovery
4	SAMPLE	S95T001307	0	F	@SR90-01 SR90-01E	SOLID	N/A	9.26E-01	0.0e+000	% Ct. Error
5	DUP	S95T001307	0	F	@SR90-01 SR90-01	SOLID	5.05E+0	4.73E+0	6.544	RPD
5	DUP	S95T001307	0	F	@SR90-01 SR90-01C	SOLID	100	8.46E+01	84.600	% Recovery
5	DUP	S95T001307	0	F	@SR90-01 SR90-01E	SOLID	1.00	9.80E-01	0.980	% Ct. Error
6	SAMPLE	S95T001311	0	F	@SR90-01 SR90-01	SOLID	N/A	5.90E+01	195.0e-004	uCi/g
6	SAMPLE	S95T001311	0	F	@SR90-01 SR90-01C	SOLID	N/A	8.86E+01	0.0e+000	% Recovery
6	SAMPLE	S95T001311	0	F	@SR90-01 SR90-01E	SOLID	N/A	5.71E-01	0.0e+000	% Ct. Error
7	DUP	S95T001311	0	F	@SR90-01 SR90-01	SOLID	5.90E+1	5.80E+1	1.709	RPD
7	DUP	S95T001311	0	F	@SR90-01 SR90-01C	SOLID	100	8.93E+01	89.300	% Recovery
7	DUP	S95T001311	0	F	@SR90-01 SR90-01E	SOLID	1.00	5.70E-01	0.570	% Ct. Error

Final page for worklist# 7827

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

5/3/96

Reviewer Signature **Date**

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

WNC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: STD1

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

							STANDARD
	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
STD	TOTAL COUNTS	(TC)	10420	GROSS WEIGHT	(W2)		7.0965
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0084
7827	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)		0.0881
	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)		8.33
@SR90-01	DILUTION FACTOR	(DF)	1				
	DIGEST DILUTION FACTOR	DDF	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	1032.00	SR-90 EFFICIENCY FACTO	(C1)		0.4051
	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96003669	TIME OF SEPARATION	(ST)	11:20	Rmax			N/A
	DATE OF SEPARATION	(SD)	04/24/96	DETECTION LIMIT	(Ld)		3.90
0	TIME OF COUNT	(TOC)	19:40	Sr-89/90 CONC. in µCi/L			1.1888E+00
	DATE OF COUNT	(DOC)	04/24/96				
N/A	STANDARD BOOK #		9B56				
	STANDARD VALUE in µCi/mL		1.2286E-03				

WL7827

WB26870

CJO

SLF

SCL

04/25/96

04/24/96

11:20 AM

B-106

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	1.19E-03	µCi/mL	DETECTION LEVEL
RELATIVE COUNTING ERROR	1.9%		4.49E-06 µCi/L
PERCENT CARRIER RECOVERY	88.1%		

Analyst:	SCL	Date:	25-Apr-96
Signature of Chemist:	SLF	Date:	5/3/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

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

						BLNK-PREP
[illegible]	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
BLNK-PREP	TOTAL COUNTS	(TC)	151	GROSS WEIGHT	(W2)	7.0950
[illegible]	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0076
7827	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)	0.0874
[illegible]	SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	8.58
@SR90-01	DILUTION FACTOR	(DF)	1			
[illegible]	DIGEST FACTOR (g/L)	(D g/L	2.0808			
SOLID	SAMPLE COUNT RATE	(Rs)	5.10	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
[illegible]	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96003669	TIME OF SEPARATION	(ST)	11:20	Rmax		N/A
[illegible]	DATE OF SEPARATION	(SD)	04/24/96	DETECTION LIMIT	(Ld)	3.90
0	TIME OF COUNT	(TOC)	19:55	Sr-89/90 CONC in µCi/g		5.6779E-03
[illegible]	DATE OF COUNT	(DOC)	04/24/96			
N/A						
[illegible]						
WL7827						
[illegible]	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	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					
[illegible]	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)					
CJO	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
[illegible]	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
[illegible]	NOTE: Expected weight = CVA * 0.1					
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
[illegible]	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
04/25/96						
[illegible]						DETECTION LEVEL
04/24/96	Sr-89/90 CONCENTRATION		5.68E-03		µCi/g	
[illegible]						
11:20 AM	RELATIVE COUNTING ERROR		60.9%			4.34E-03 µCi/g
[illegible]						
B-106	PERCENT CARRIER RECOVERY		87.4%			

Analyst:	SCL	Date:	25-Apr-96
Signature of Chemist: [signature]	SLF	Date:	5/3/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

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

						SAMPLE
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	45134	GROSS WEIGHT	(W2)	7.4622
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.3757
7827	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)	0.0865
Test Code	SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	8.92
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.0808			
SOLID	SAMPLE COUNT RATE	(Rs)	4503.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96003669	TIME OF SEPARATION	(ST)	11:20	Rmax		N/A
Aliquot	DATE OF SEPARATION	(SD)	04/24/96	DETECTION LIMIT	(Ld)	3.90
0	TIME OF COUNT	(TOC)	20:15	Sr-89/90 CONC in µCi/g		5.0492E+00
Sample Prep	DATE OF COUNT	(DOC)	04/24/96			
FUSION01						
Sample #						
S95T001307						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)					
CJO	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
04/25/96						
Analysis Date						DETECTION LEVEL
04/24/96	Sr-89/90 CONCENTRATION		5.05E+00	µCi/g		
Analysis Time						
11:20 AM	RELATIVE COUNTING ERROR		0.9%			4.37E-03 µCi/g
Sample Point						
B-106	PERCENT CARRIER RECOVERY		86.5%			

Analyst:	SCL	Date:	25-Apr-96
Signature of Chemist:	SLF	Date:	5/3/96

SAMPLE.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: DUP5

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

						DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
DUP	TOTAL COUNTS	(TC)	40270	GROSS WEIGHT	(W2)	7.0806
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9960
7827	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)	0.0846
Test Code	SAMPLE VOLUME in mL	(SS)	0.500	DELTA TIME (HOURS)	(DT)	9.25
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.0208			
SOLID	SAMPLE COUNT RATE	(Rs)	4017.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96003669	TIME OF SEPARATION	(ST)	11:20	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/24/96	DETECTION LIMIT	(Ld)	3.90
0	TIME OF COUNT	(TOC)	20:35	Sr-89/90 CONC in µCi/g		4.7261E+00
Sample Prep	DATE OF COUNT	(DOC)	04/24/96			
FUSION01						
Sample #						
S95T001307						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)					
CJO	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
04/25/96						
Analysis Date						DETECTION LEVEL
04/24/96	Sr-89/90 CONCENTRATION		4.73E+00		µCi/g	
Analysis Time						
11:20 AM	RELATIVE COUNTING ERROR		1.0%			4.59E-03 µCi/g
Sample Point						
B-106	PERCENT CARRIER RECOVERY		84.6%			

Analyst:	SCL	Date:	25-Apr-96
Signature of Chemist: [signature]	SLF	Date:	5/3/96

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM6

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

							SAMPLE
	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	118310	GROSS WEIGHT	(W2)	7.4537
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.3651
7827	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)	0.0886
	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	9.58
@SR90-01	DILUTION FACTOR	(DF)	1			
	DIGEST FACTOR (g/L)	(D g/L	2.2684			
SOLID	SAMPLE COUNT RATE	(Rs)	11821.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96003669	TIME OF SEPARATION	(ST)	11:20	Rmax		N/A
	DATE OF SEPARATION	(SD)	04/24/96	DETECTION LIMIT	(Ld)	3.90
0	TIME OF COUNT	(TOC)	20:55	Sr-89/90 CONC in µCi/g		5.8959E+01
	DATE OF COUNT	(DOC)	04/24/96			

FUSION01

S95T001311

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

WB26870 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)

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

04/25/96

04/24/96	Sr-89/90 CONCENTRATION	5.90E+01	µCi/g	DETECTION LEVEL
11:20 AM	RELATIVE COUNTING ERROR	0.6%		1.95E-02 µCi/g
B-106	PERCENT CARRIER RECOVERY	88.6%		

Analyst:	SCL	Date:	25-Apr-96
Signature of Chemist:	SLF	Date:	5/3/96

SAMPLE.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: DUP7

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

							DUP
	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	118392	GROSS WEIGHT	(W2)		7.4845
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.3952
7827	BACKGROUND in cpm	(BKG)	10.0	NET WEIGHT	(W3)		0.0893
	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		9.83
@SR90-01	DILUTION FACTOR	(DF)	1				
	DIGEST FACTOR (g/L)	(D g/L	2.2828				
SOLID	SAMPLE COUNT RATE	(Rs)	11829.20	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96003669	TIME OF SEPARATION	(ST)	11:20	Rmax			N/A
	DATE OF SEPARATION	(SD)	04/24/96	DETECTION LIMIT	(Ld)		3.90
0	TIME OF COUNT	(TOC)	21:10	Sr-89/90 CONC in µCi/g			5.8027E+01
	DATE OF COUNT	(DOC)	04/24/96				

FUSION01

S95T001311

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

WB26870 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)

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

04/25/96

04/24/96

11:20 AM

B-106

Sr-89/90 CONCENTRATION	5.80E+01	µCi/g	DETECTION LEVEL
RELATIVE COUNTING ERROR	0.6%		1.91E-02 µCi/g
PERCENT CARRIER RECOVERY	89.3%		

Analyst:	SCL	Date:	25-Apr-96
Signature of Chemist:	SLF	Date:	5/3/96

SAMPLE.WB1 REV 1.2 22010NML

807

LABCORE Data Entry Template for Worklist# 7898

Analyst: S.C.L **Instrument:** AB00 #10 **Book#** 9B56

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

Worklist Comment: B-106, Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	SOLID		
2	BLNK-PREP				@SR90-01	SOLID		
3	BLNK/BKG				@SR90-01	SOLID		
4	SAMPLE	S96T001647	0	F	@SR90-01	SOLID	95000096	B-106
		Analytes Requested: SR90-01 , SR90-01C, SR90-01E						
5	DUP	S96T001647	0	F	@SR90-01	SOLID		

Final page for worklist # 7898

Sue C Lai 4-29-96
Analyst Signature **Date**

Thomas L Hulle 5/1/96
Analyst Signature **Date**

C.J. Opinen 5/1/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 7898

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

Method: _____ Rev/Mod _____

Worklist Comment: B-106, Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		●SR90-01	SR90-01	SOLID	1.23E-03	1.21E-3	98.374	% Recovery
1	STD		0		●SR90-01	SR90-01C	SOLID	100	8.57E+01	85.700	% Recovery
1	STD		0		●SR90-01	SR90-01E	SOLID	1.00	2.00E+00	2.000	% Ct. Error
2	BLNK-PREP		0		●SR90-01	SR90-01	SOLID	1	2.93E-2	0.029	uCi/g
2	BLNK-PREP		0		●SR90-01	SR90-01C	SOLID	100	8.90E+01	89.000	% Recovery
2	BLNK-PREP		0		●SR90-01	SR90-01E	SOLID	1.00	5.81E+01	58.100	% Ct. Error
3	BLNK/BKG		0		●SR90-01	SR90-01	SOLID	1	1.55E+00	1.550	uCi/g
4	SAMPLE	S96T001647	0	F	●SR90-01	SR90-01	SOLID	N/A	8.05E+01	218.0e-004	uCi/g
4	SAMPLE	S96T001647	0	F	●SR90-01	SR90-01C	SOLID	N/A	8.66E+01	0.0e+000	% Recovery
4	SAMPLE	S96T001647	0	F	●SR90-01	SR90-01E	SOLID	N/A	5.20E-01	0.0e+000	% Ct. Error
5	DUP	S96T001647	0	F	●SR90-01	SR90-01	SOLID	8.05E+1	8.07E+1	0.248	RPD
5	DUP	S96T001647	0	F	●SR90-01	SR90-01C	SOLID	100	8.74E+01	87.400	% Recovery
5	DUP	S96T001647	0	F	●SR90-01	SR90-01E	SOLID	1.00	5.14E-01	0.514	% Ct. Error

Final page for worklist# 7898

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

5/2/96

Reviewer Signature **Date**

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

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: STD1

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

						STANDARD
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
STD	TOTAL COUNTS	(TC)	9868	GROSS WEIGHT	(W2)	7.3316
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2459
7898	BACKGROUND in cpm	(BKG)	9.7	NET WEIGHT	(W3)	0.0857
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	3.95
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	DDF	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	977.10	SR-90 EFFICIENCY FACTO	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.88	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96003730	TIME OF SEPARATION	(ST)	10:23	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/29/96	DETECTION LIMIT	(Ld)	3.84
0	TIME OF COUNT	(TOC)	14:20	Sr-89/90 CONC. in µCi/L		1.2116E+00
Sample Prep	DATE OF COUNT	(DOC)	04/29/96			
N/A	STANDARD BOOK #		9B56			
Sample #	STANDARD VALUE in µCi/mL		1.2282E-03			
WL7898						
Instrument Code						
WB26870	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
Prepared By	Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0					
SLH2	RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
Chemist	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
SLF	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
Analyst	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
SCL	NOTE: Expected weight = CVA * 0.1					
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
05/01/96	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
Analysis Date						DETECTION LEVEL
04/29/96	Sr-89/90 CONCENTRATION		1.21E-03	µCi/mL		
Analysis Time						
10:23 AM	RELATIVE COUNTING ERROR		2.0%			4.77E-06 µCi/L
Sample Point						
B-106	PERCENT CARRIER RECOVERY		85.7%			

Analyst:	SCL	Date:	01-May-96
Signature of Chemist:	SLF	Date:	5/2/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

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

							BLNK-PREP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
BLNK-PREP	TOTAL COUNTS	(TC)	150	GROSS WEIGHT	(W2)		7.1338
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0448
7898	BACKGROUND in cpm	(BKG)	9.7	NET WEIGHT	(W3)		0.0890
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		4.62
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.1424				
SOLID	SAMPLE COUNT RATE	(Rs)	5.30	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.88	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96003730	TIME OF SEPARATION	(ST)	10:23	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/29/96	DETECTION LIMIT	(Ld)		3.84
0	TIME OF COUNT	(TOC)	15:00	Sr-89/90 CONC in µCi/g			2.9323E-02
Sample Prep	DATE OF COUNT	(DOC)	04/29/96				
N/A							
Sample #							
WL7898							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB26870	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/01/96							
Analysis Date							DETECTION LEVEL
04/29/96	Sr-89/90 CONCENTRATION			2.93E-02		µCi/g	
Analysis Time							
10:23 AM	RELATIVE COUNTING ERROR			58.1%			2.13E-02 µCi/g
Sample Point							
B-106	PERCENT CARRIER RECOVERY			89.0%			

Analyst:		SCL	Date:	01-May-96
Signature of Chemist:		SLF	Date:	5/2/96

BLANK.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: SAM4

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

						SAMPLE
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	142130	GROSS WEIGHT	(W2)	7.3178
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.2312
7898	BACKGROUND in cpm	(BKG)	9.7	NET WEIGHT	(W3)	0.0866
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	4.87
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.1424			
SOLID	SAMPLE COUNT RATE	(Rs)	14203.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.88	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96003730	TIME OF SEPARATION	(ST)	10:23	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	04/29/96	DETECTION LIMIT	(Ld)	3.84
0	TIME OF COUNT	(TOC)	15:15	Sr-89/90 CONC in µCi/g		8.0542E+01
Sample Prep	DATE OF COUNT	(DOC)	04/29/96			
FUSION01						
Sample #						
S96T001647						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0					
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)					
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
Analyst	NOTE: Expected weight = CVA * 0.1					
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/01/96						
Analysis Date						DETECTION LEVEL
04/29/96	Sr-89/90 CONCENTRATION		8.05E+01		µCi/g	
Analysis Time						
10:23 AM	RELATIVE COUNTING ERROR		0.5%			2.18E-02 µCi/g
Sample Point						
B-106	PERCENT CARRIER RECOVERY		86.6%			

Analyst:		SCL	Date:	01-May-96
Signature of Chemist:		SLF	Date:	5/2/96

SAMPLE.WB1 REV 1.2 22010NML

812

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: DUP5

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

							DUP
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	145958	GROSS WEIGHT	(W2)		7.3219
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.2345
7898	BACKGROUND in cpm	(BKG)	9.7	NET WEIGHT	(W3)		0.0874
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)		5.37
@SR90-01	DILUTION FACTOR	(DF)	1				
Matrix	DIGEST FACTOR (g/L)	(D g/L	2.164				
SOLID	SAMPLE COUNT RATE	(Rs)	14586.10	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.88	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96003730	TIME OF SEPARATION	(ST)	10:23	Rmax			N/A
Rerun	DATE OF SEPARATION	(SD)	04/29/96	DETECTION LIMIT	(Ld)		3.84
0	TIME OF COUNT	(TOC)	15:45	Sr-89/90 CONC in µCi/g			8.0704E+01
Sample Prep	DATE OF COUNT	(DOC)	04/29/96				
FUSION01							
Sample #							
S96T001647							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB26870	Sr-89/90 CONC in µCi/g Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0						
Prepared By	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)						
SLH2	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))						
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)						
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100						
Analyst	NOTE: Expected weight = CVA * 0.1						
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.						
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100						
05/01/96							
Analysis Date							DETECTION LEVEL
04/29/96	Sr-89/90 CONCENTRATION			8.07E+01	µCi/g		
Analysis Time							
10:23 AM	RELATIVE COUNTING ERROR			0.5%			2.13E-02 µCi/g
Sample Point							
B-106	PERCENT CARRIER RECOVERY			87.4%			

Analyst:		SCL	Date:	01-May-96
Signature of Chemist:		SLF	Date:	5/2/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 8181

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

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

Worklist Comment: B-106. Determine sample size using ludlum. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@SR90-01	SOLID		
2	BLNK-PREP				@SR90-01	SOLID		
3	BLNK/BKG				@SR90-01	SOLID		
4	SAMPLE	S96T001220	0	F	@SR90-01	SOLID	95000096	B-106
	Analytes Requested: SR90-01 , SR90-01C, SR90-01E							
5	DUP	S96T001220	0	F	@SR90-01	SOLID		

Final page for worklist # 8181

[signature] 4/31/96 [signature]
Analyst Signature **Date** 5/1/96

[signature] 5/1/96
Analyst Signature **Date**

C.J. Opinen 5/6/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8181

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

Method: _____ Rev/Mod _____

Worklist Comment: B-106. Determine sample size using ludlum. new

Seq	Type	Sample#	R	A	Test		Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@SR90-01	SR90-01	SOLID	1.23E-03	1.25E-3	101.626	% Recovery
1	STD		0		@SR90-01	SR90-01C	SOLID	100	9.18E+01	91.800	% Recovery
1	STD		0		@SR90-01	SR90-01E	SOLID	1.00	1.90E+00	1.900	% Ct. Error
2	BLNK-PREP		0		@SR90-01	SR90-01	SOLID	1	4.51E-2	0.045	uCi/g
2	BLNK-PREP		0		@SR90-01	SR90-01C	SOLID	100	9.10E+01	91.000	% Recovery
2	BLNK-PREP		0		@SR90-01	SR90-01E	SOLID	1.00	1.85E+01	18.500	% Ct. Error
3	BLNK/BKG		0		@SR90-01	SR90-01	SOLID	1	3.15E+00	3.150	uCi/g
4	SAMPLE	S96T001220	0	F	@SR90-01	SR90-01	SOLID	N/A	8.64E+01	832.0e-005	uCi/g
4	SAMPLE	S96T001220	0	F	@SR90-01	SR90-01C	SOLID	N/A	8.84E+01	0.0e+000	% Recovery
4	SAMPLE	S96T001220	0	F	@SR90-01	SR90-01E	SOLID	N/A	3.07E-01	0.0e+000	% Ct. Error
5	DUP	S96T001220	0	F	@SR90-01	SR90-01	SOLID	8.64E+1	8.95E+1	3.525	RPD
5	DUP	S96T001220	0	F	@SR90-01	SR90-01C	SOLID	100	8.70E+01	87.000	% Recovery
5	DUP	S96T001220	0	F	@SR90-01	SR90-01E	SOLID	1.00	3.15E-01	0.315	% Ct. Error

Final page for worklist# 8181

Analyst Signature **Date**

Analyst Signature **Date**

5/13/96

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

WHC-SD-WM-DP-140, REV. 1

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

						STANDARD
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
STD	TOTAL COUNTS	(TC)	10953	GROSS WEIGHT	(W2)	7.0679
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	6.9761
8181	BACKGROUND in cpm	(BKG)	10.1	NET WEIGHT	(W3)	0.0918
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	4.75
@SR90-01	DILUTION FACTOR	(DF)	1			
	DIGEST DILUTION FACTOR	DDF	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1085.20	SR-90 EFFICIENCY FACTO	(C1)	0.4051
	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96004055	TIME OF SEPARATION	(ST)	04:30	Rmax		N/A
	DATE OF SEPARATION	(SD)	05/01/96	DETECTION LIMIT	(Ld)	3.92
0	TIME OF COUNT	(TOC)	09:15	Sr-89/90 CONC. in µCi/L		1.2453E+00
Sample Prep	DATE OF COUNT	(DOC)	05/01/96			
N/A	STANDARD BOOK #		9B56			
Sample #	STANDARD VALUE in µCi/mL		1.2280E-03			
WL8181						
Instrument Code						
WB26870	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
Prepared By	Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=LcAND RS>=0 OR REPLACE RS WITH Lc IF RS<0					
SEH	RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)					
Chemist	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
SLF	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
Analyst	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
JDS	NOTE: Expected weight = CVA * 0.1					
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
05/01/96	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
Analysis Date						DETECTION LEVEL
05/01/96	Sr-89/90 CONCENTRATION		1.25E-03	µCi/mL		
Analysis Time						
04:30 AM	RELATIVE COUNTING ERROR		1.9%			4.50E-06 µCi/L
Sample Point						
B-106	PERCENT CARRIER RECOVERY		91.8%			

Analyst:	JDS	Date:	01-May-96
Signature of Chemist:	SLF	Date:	5/13/96

STANDARD.WB1 REV 1.2 22010NML

WORKBOOK PAGE: BLANK2

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

						BLNK-PREP
[illegible]	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
BLNK-PREP	TOTAL COUNTS	(TC)	318	GROSS WEIGHT	(W2)	7.1110
[illegible]	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.0200
8181	BACKGROUND in cpm	(BKG)	10.1	NET WEIGHT	(W3)	0.0910
[illegible]	SAMPLE VOLUME in mL	(SS)	0.250	DELTA TIME (HOURS)	(DT)	5.67
@SR90-01	DILUTION FACTOR	(DF)	1			
[illegible]	DIGEST FACTOR (g/L)	(D g/L	2.2084			
SOLID	SAMPLE COUNT RATE	(Rs)	21.70	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
[illegible]	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
96004055	TIME OF SEPARATION	(ST)	04:30	Rmax		N/A
[illegible]	DATE OF SEPARATION	(SD)	05/01/96	DETECTION LIMIT	(Ld)	3.92
0	TIME OF COUNT	(TOC)	10:10	Sr-89/90 CONC in µCi/g		4.5055E-02
[illegible]	DATE OF COUNT	(DOC)	05/01/96			
N/A						
[illegible]						
WL8181						
[illegible]	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	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					
[illegible]	RS*1000*DF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*DDF*REC*2220000)					
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))					
[illegible]	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)					
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100					
[illegible]	NOTE: Expected weight = CVA * 0.1					
JDS	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
[illegible]	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
05/01/96						
[illegible]						DETECTION LEVEL
05/01/96	Sr-89/90 CONCENTRATION		4.51E-02	µCi/g		
[illegible]						
04:30 AM	RELATIVE COUNTING ERROR		18.5%			8.14E-03 µCi/g
[illegible]						
B-106	PERCENT CARRIER RECOVERY		91.0%			

Analyst:	JDS	Date:	01-May-96
Signature of Chemist:	SLF	Date:	5/13/96

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

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

							SAMPLE
	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
SAMPLE	TOTAL COUNTS	(TC)	407410	GROSS WEIGHT	(W2)		7.1336
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0452
8181	BACKGROUND in cpm	(BKG)	10.1	NET WEIGHT	(W3)		0.0884
	SAMPLE VOLUME in mL	(SS)	0.250	DELTA TIME (HOURS)	(DT)		6.33
@SR90-01	DILUTION FACTOR	(DF)	1				
	DIGEST FACTOR (g/L)	(D g/L	2.2084				
SOLID	SAMPLE COUNT RATE	(Rs)	40730.90	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96004055	TIME OF SEPARATION	(ST)	04:30	Rmax			N/A
	DATE OF SEPARATION	(SD)	05/01/96	DETECTION LIMIT	(Ld)		3.92
0	TIME OF COUNT	(TOC)	10:50	Sr-89/90 CONC in µCi/g			8.6447E+01
	DATE OF COUNT	(DOC)	05/01/96				
FUSION01							
S96T001220							

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

WB26870 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)

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

05/01/96

05/01/96	Sr-89/90 CONCENTRATION	8.64E+01	µCi/g	DETECTION LEVEL
04:30 AM	RELATIVE COUNTING ERROR	0.3%		8.32E-03 µCi/g
B-106	PERCENT CARRIER RECOVERY	88.4%		

Analyst:		JDS	Date:	01-May-96
Signature of Chemist:		SLF	Date:	5/13/96

SAMPLE.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: DUP5

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

							DUP
	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)		1.000
DUP	TOTAL COUNTS	(TC)	387312	GROSS WEIGHT	(W2)		7.1291
	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)		7.0421
8181	BACKGROUND in cpm	(BKG)	10.1	NET WEIGHT	(W3)		0.0870
	SAMPLE VOLUME in mL	(SS)	0.250	DELTA TIME (HOURS)	(DT)		6.58
@SR90-01	DILUTION FACTOR	(DF)	1				
	DIGEST FACTOR (g/L)	(D g/L	2.0548				
SOLID	SAMPLE COUNT RATE	(Rs)	38721.10	SR-90 EFFICIENCY FACTOR	(C1)		0.4051
	CRITICAL LEVEL	(Lc)	1.91	Y-90 EFFICIENCY FACTOR	(C2)		0.4503
96004055	TIME OF SEPARATION	(ST)	04:30	Rmax			N/A
	DATE OF SEPARATION	(SD)	05/01/96	DETECTION LIMIT	(Ld)		3.92
0	TIME OF COUNT	(TOC)	11:05	Sr-89/90 CONC in µCi/g			8.9513E+01
	DATE OF COUNT	(DOC)	05/01/96				

FUSION01

S96T001220

WB26870

SEH

SLF

JDS

05/01/96

05/01/96

04:30 AM

B-106

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	8.95E+01	µCi/g	9.06E-03 µCi/g
RELATIVE COUNTING ERROR	0.3%		
PERCENT CARRIER RECOVERY	87.0%		

Analyst:		JDS	Date:	01-May-96
Signature of Chemist:		SLF	Date:	5/13/96

SAMPLE.WB1 REV 1.2 22010NML

LABCORE Data Entry Template for Worklist# 7828

Analyst: KNT **Instrument:** U01 _____ **Book#** 45856

Method: LA-925-009 Rev/Mod A-1

Worklist Comment: 1-10ml Sample Prep.For spike use: 0.1ml spike. new RUSH

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@U-01	SOLID		
2	BLNK-PREP				@U-01	SOLID		
3	SAMPLE	S95T001277	0	F	@U-01	SOLID	95000096	B-106
		Analytes Requested:			U-02	, U-02E		
4	DUP	S95T001277	0	F	@U-01	SOLID		
5	SAMPLE	S95T001279	0	F	@U-01	SOLID	95000096	B-106
		Analytes Requested:			U-02	, U-02E		
6	DUP	S95T001279	0	F	@U-01	SOLID		
7	SPK	S95T001279	0	F	@U-01	SOLID		

Final page for worklist # 7828

Kim Thomas 4-21-96
Analyst Signature **Date**

Sharon L Uhlke 4-22-96
Analyst Signature **Date**

Sue E. Hogan 4/22/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7828

Analyst: knt **Instrument:** U01 **Book#** 45856

Method: LA-925-009 Rev/Mod A-1

Worklist Comment: 1-10ml Sample Prep.For spike use: 0.1ml spike. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@U-01	U-02	SOLID	6.39E-02	6.24E-02	97.653	% Recovery
1	STD		0	@U-01	U-02E	SOLID	1	3.22E+00	3.220	% Inst Error
2	BLNK-PREP		0	@U-01	U-02	SOLID	1	4.05E+2	405.000	ug/g
2	BLNK-PREP		0	@U-01	U-02E	SOLID	1	1.22E+00	1.220	% Inst Error
3	SAMPLE	S95T001277	0 F	@U-01	U-02	SOLID	N/A	8.44E+03	1.940	ug/g
3	SAMPLE	S95T001277	0 F	@U-01	U-02E	SOLID	N/A	3.20E+00	0.000	% Inst Error
4	DUP	S95T001277	0 F	@U-01	U-02	SOLID	8.44E+3	8.82E+3	4.403	RPD
4	DUP	S95T001277	0 F	@U-01	U-02E	SOLID	1	3.21E+00	3.210	% Inst Error
5	SAMPLE	S95T001279	0 F	@U-01	U-02	SOLID	N/A	7.60E+03	1.930	ug/g
5	SAMPLE	S95T001279	0 F	@U-01	U-02E	SOLID	N/A	3.21E+00	0.000	% Inst Error
6	DUP	S95T001279	0 F	@U-01	U-02	SOLID	7.60E+3	7.70E+3	1.307	RPD
6	DUP	S95T001279	0 F	@U-01	U-02E	SOLID	1	3.21E+00	3.210	% Inst Error
7	SPK	S95T001279	0 F	@U-01	U-02	SOLID	5.69E+01	5.94E+01	104.394	% Recovery

Final page for worklist# 7828

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

Jennifer L. Sleppen 4/23/96
Reviewer Signature **Date**

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

Sample ID DUP. 1ML-10 4-21-96 Date/Time 04/21/96/08:53:42
Description 895T001279 Cal Y=6.07E+07X+425.453
Ref. Ratio 1.023 Intensity 8208 (t= 39 us)
Laser Pulses 500 Conc 1.50E-04 + 4.81E-06 ug/L
Lifetime 296 + 1.045 us Dilution Factor 1 mL/mL
R2 .9995
Integrated 160025 FINAL RESULT 1.50E-04 + 4.81E-06 ug/L
Record 3802 of 3805 Range: HIGH

Sample ID SPP. 1ML-10 Date/Time 04/21/96/09:02:28
Description 895T001279 Cal Y=6.07E+07X+425.453
Ref. Ratio 1.022 Intensity 10855 (t= 39 us)
Laser Pulses 500 Conc 2.00E-04 + 6.38E-06 ug/L
Lifetime 303 + 1.068 us Dilution Factor 1 mL/mL
R2 .9995
Integrated 214253 FINAL RESULT 2.00E-04 + 6.38E-06 ug/L
Record 3803 of 3805 Range: HIGH

BEST AVAILABLE COPY

URANIUM ANALYSIS

Sample ID STANDARD
Description 45B56
Ref. Ratio 1.003
Laser Pulses 500
Lifetime 297 + 1.345 us
R2 .9991
Integrated 70843
Record 3794 of 3805

Date/Time 04/21/96/07:40:19
Cal Y=6.07E+07X+425.453
Intensity 3669 (t= 39 us)
Conc 6.24E-05 + 2.01E-06 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 6.24E-05 + 2.01E-06 ug/L

Range: HIGH

Sample ID PREP-BLANK
Description 8957001277
Ref. Ratio 1.016
Laser Pulses 500
Lifetime 206 + .432 us
R2 .9998
Integrated 403089
Record 3795 of 3805

Date/Time 04/21/96/07:57:04
Cal Y=4.39E+09X+4.88E-04
Intensity 26835 (t= 39 us)
Conc 7.72E-06 + 9.44E-08 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 7.72E-06 + 9.44E-08 ug/L

Range: LOW

Sample ID BAY. 1mL-10
Description 8957001277
Ref. Ratio 1.015
Laser Pulses 500
Lifetime 307 + 1.151 us
R2 .9994
Integrated 176114
Record 3804 of 3805

Date/Time 04/21/96/09:09:34
Cal Y=6.07E+07X+425.453
Intensity 9101 (t= 39 us)
Conc 1.61E-04 + 5.15E-06 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 1.61E-04 + 5.15E-06 ug/L

Range: HIGH

Sample ID SUP. 1ML-10
Description 8957001277
Ref. Ratio 1.03
Laser Pulses 500
Lifetime 305 + 1.136 us
R2 .9994
Integrated 184096
Record 3805 of 3805

Date/Time 04/21/96/09:12:32
Cal Y=6.07E+07X+425.453
Intensity 9297 (t= 39 us)
Conc 1.69E-04 + 5.42E-06 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 1.69E-04 + 5.42E-06 ug/L

Range: HIGH

Sample ID BAY. 1mL-10 WB 4-21-96
Description 8957001279
Ref. Ratio 1.003
Laser Pulses 500
Lifetime 302 + 1.248 us
R2 .9993
Integrated 158353
Record 3801 of 3805

Date/Time 04/21/96/08:46:21
Cal Y=6.07E+07X+425.453
Intensity 8196 (t= 39 us)
Conc 1.46E-04 + 4.69E-06 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 1.46E-04 + 4.69E-06 ug/L

Range: HIGH

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WHC-SD-WM-DP-140, REV. 2

WORKBOOK PAGE: STD1

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
STD			STANDARD
Workbook	STANDARD BOOK #		45B56
7828	VOLUME OF SAMPLE (mL)	(SS)	1.00
Test Code	DILUTION FACTOR OF SAMPLE	(DF)	1.00
@U-01	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
Matrix	LIFETIME IN MICROSECONDS		297.00
LIQUID	R2 VALUE		0.9991
Batch Number	RANGE (HIGH OR LOW)		HIGH
96003670	INSTRUMENT UNCERTAINTY	(IU)	2.01E-06
Rerun	INSTRUMENT RESULT	(IR)	6.24E-05
0	DETECTION LEVEL (µg/mL)		3.70E-05
Sample Prep			
N/A	RESULT (µg/mL)		6.24E-02
Sample #	VALUE OF STANDARD		6.39E-02
WL7828	%RECOVERY		97.65
Instrument Code	RELATIVE % UNCERTAINTY		3.2
U01			
Prepared By			
SLH			
Chemist			
JLS			
Analyst			
KNT			
Date Complete			
04/22/96			
Analysis Date			
04/21/96			
Analysis Time			
07:40 AM			
Sample Point			
B-106			

Result = DF * PF * IR * 1000

Detection Level = 3.70 E-08 * DF * PF * 1000

% Recovery = Result / Value of Standard * 100

Relative % Uncertainty = IU / IR * 100

Analyst:		KNT	Date:	22-Apr-96
Signature of Chemist:		JLS	Date:	4/22/96

STANDARD.WB1 REV 2.0 925009ML

I:\925009\OUT\U7828.WB1 04/22/96 13:54:04

WORKBOOK PAGE: BLANK2

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

BLNK-PREP			BLANK
	VOLUME OF SAMPLE (mL)	(SS)	1.00
7828	DILUTION FACTOR OF SAMPLE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.0980
	LIFETIME IN MICROSECONDS		206.00
SOLID	R2 VALUE		0.9998
	RANGE (HIGH OR LOW)		LOW
96003670	INSTRUMENT UNCERTAINTY	(IU)	9.44E-08
	INSTRUMENT RESULT	(IR)	7.72E-06
0	DETECTION LEVEL µg/g		1.94E+00
N/A	CONCENTRATION IN SOLUTION (g/L)		8.49E-04
	RESULT (µg/g)		4.05E+02
WL7828	RELATIVE % UNCERTAINTY		1.2
U01			
SLH			
JLS			
KNT			
04/22/96			
04/21/96			
07:40 AM			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:		KNT	Date:	22-Apr-96
Signature of Chemist:	J L Shepherd	JLS	Date:	4/23/96

BLANK.WB1 REV 2.0 925009ML

WORKBOOK PAGE: SAM3

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

SAMPLE			SAMPLE
	VOLUME OF SAMPLE (mL)	(SS)	1.00
7828	DILUTION FACTOR OF SAMPLE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.0980
	LIFETIME IN MICROSECONDS		307.00
SOLID	R2 VALUE		0.9994
	RANGE (HIGH OR LOW)		HIGH
96003670	INSTRUMENT UNCERTAINTY	(IU)	5.15E-06
	INSTRUMENT RESULT	(IR)	1.61E-04
0	DETECTION LEVEL µg/g		1.94E+00
FUSION01	CONCENTRATION IN SOLUTION (g/L)		1.77E-02
	RESULT (µg/g)		8.44E+03
S95T001277	RELATIVE % UNCERTAINTY		3.2

U01

SLH

JLS

KNT

04/22/96

04/21/96

07:40 AM

B-106

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	KNT	Date:	22-Apr-96
Signature of Chemist:	JLS	Date:	4/23/96

SAMPLE.WB1 REV 2.0 925009ML

WORKBOOK PAGE: DUP4

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

DUP			DUP
	VOLUME OF SAMPLE (mL)	(SS)	1.00
7828	DILUTION FACTOR OF SAMPLE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1080
	LIFETIME IN MICROSECONDS		305.00
SOLID	R2 VALUE		0.9994
	RANGE (HIGH OR LOW)		HIGH
96003670	INSTRUMENT UNCERTAINTY	(IU)	5.42E-06
	INSTRUMENT RESULT	(IR)	1.69E-04
0	DETECTION LEVEL µg/g		1.93E+00
FUSION01	CONCENTRATION IN SOLUTION (g/L)		1.86E-02
	RESULT (µg/g)		8.82E+03
S95T001277	RELATIVE % UNCERTAINTY		3.2

U01

SLH

JLS

KNT

04/22/96

04/21/96

07:40 AM

B-106

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:		KNT	Date:	22-Apr-96
Signature of Chemist:		JLS	Date:	4/23/96

SAMPLE.WB1 REV 2.0 925009ML

WORKBOOK PAGE: SAM5

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

SAMPLE			SAMPLE
	VOLUME OF SAMPLE (mL)	(SS)	1.00
7828	DILUTION FACTOR OF SAMPLE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1124
	LIFETIME IN MICROSECONDS		302.00
SOLID	R2 VALUE		0.9993
	RANGE (HIGH OR LOW)		HIGH
96003670	INSTRUMENT UNCERTAINTY	(IU)	4.69E-06
	INSTRUMENT RESULT	(IR)	1.46E-04
0	DETECTION LEVEL µg/g		1.93E+00
FUSION01	CONCENTRATION IN SOLUTION (g/L)		1.61E-02
	RESULT (µg/g)		7.60E+03
S95T001279	RELATIVE % UNCERTAINTY		3.2

U01

SLH

JLS

KNT

04/22/96

04/21/96

07:40 AM

B-106

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:		KNT	Date:	22-Apr-96
Signature of Chemist:		JLS	Date:	4/23/96

SAMPLE.WB1 REV 2.0 925009ML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: DUP6

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

DUP			DUP
	VOLUME OF SAMPLE (mL)	(SS)	1.00
7828	DILUTION FACTOR OF SAMPLE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1420
	LIFETIME IN MICROSECONDS		296.00
SOLID	R2 VALUE		0.9995
	RANGE (HIGH OR LOW)		HIGH
96003670	INSTRUMENT UNCERTAINTY	(IU)	4.81E-06
	INSTRUMENT RESULT	(IR)	1.50E-04
0	DETECTION LEVEL µg/g		1.90E+00
FUSION01	CONCENTRATION IN SOLUTION (g/L)		1.65E-02
	RESULT (µg/g)		7.70E+03
S95T001279	RELATIVE % UNCERTAINTY		3.2

U01

SLH

JLS

KNT

04/22/96

04/21/96

07:40 AM

B-106

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:		KNT	Date:	22-Apr-96
Signature of Chemist:		JLS	Date:	4/23/96

SAMPLE.WB1 REV 2.0 925009ML

I:\925009\OUT\U7828.WB1 04/22/96 09:56:27

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: SPIKE7

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

			SPIKE
SPK	SPIKE BOOK #		22B55
	VOLUME OF SAMPLE + SPIKE (mL)	(SS)	1.00
7828	DILUTION FACTOR OF SAMPLE + SPIKE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF)	10.00
@U-01	DIGEST FACTOR OF SAMPLE	(DDF)	2.1124
	LIFETIME IN MICROSECONDS		303.00
SOLID	R2 VALUE		0.9995
	RANGE (HIGH OR LOW)		HIGH
96003670	INSTRUMENT RESULT	(IR)	2.00E-04
	CONCENTRATION IN SOLUTION (g/L)	(CONC)	2.20E-02
0	SPIKE VALUE (g/L)	(SV)	5.69E-02
	INITIAL VOLUME OF SPIKE (mL)	(IV)	0.10
FUSION01	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV)	1.00
	CONCENTRATION IN SOLN (g/L) FROM SAMPLE FORM	(SR)	1.61E-02
S95T001279			
U01	Concentration = IR * DF * PF		
SLH	QC Actual (µg/mL) = SV (g/L) * 1000		
JLS	QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000		
KNT	% Recovery = QC FOUND / QC ACTUAL		
04/22/96			
04/21/96	QC ACTUAL	=	5.69E+01 µg/mL
	QC FOUND	=	5.94E+01 µg/mL
07:40 AM	% SPIKE RECOVERY	=	104.4%
B-106			

Analyst:		KNT	Date:	22-Apr-96
Signature of Chemist:	[signature]	JLS	Date:	4/23/96

SPIKE.WB1 REV 2.0 925009ML

I:\925009\OUT\U7828.WB1 04/22/96 09:57:35

LABCORE Data Entry Template for Worklist# 7829

Analyst: WGB **Instrument:** U01 _____ **Book#** ~~47856~~ 45856 4/21/96

Method: LA-925-009 Rev/Mod A-1

RUSH

Worklist Comment: 1-10ml Sample Prep.For spike use: 0.1ml spike. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@U-01	SOLID		
2	BLNK-PREP				@U-01	SOLID		
3	SAMPLE	S95T001282	0	F	@U-01	SOLID	95000096	B-106
		Analytes Requested:			U-02	, U-02E		
4	DUP	S95T001282	0	F	@U-01	SOLID		
5	SPK	S95T001282	0	F	@U-01	SOLID		
6	SAMPLE	S95T001285	0	F	@U-01	SOLID	95000096	B-106
		Analytes Requested:			U-02	, U-02E		
7	DUP	S95T001285	0	F	@U-01	SOLID		

Final page for worklist # 7829

Nagan L Burkardt 4-21-96
Analyst Signature **Date**

Sharon L Clark 4-22-96
Analyst Signature **Date**

Sue E. Hogan 4/22/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7829

Analyst: wgb **Instrument:** U01 **Book#** 45856

Method: LA-925-009 Rev/Mod A-1

Worklist Comment: 1-10ml Sample Prep.For spike use: 0.1ml spike. new

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@U-01	U-02	SOLID	6.39E-02	6.22E-02	97.340	% Recovery
1	STD		0		@U-01	U-02E	SOLID	1	3.22E+00	3.220	% Inst Error
2	BLNK-PREP		0		@U-01	U-02	SOLID	1	<1.74E-1		ug/g
2	BLNK-PREP		0		@U-01	U-02E	SOLID	1	N/A		% Inst Error
3	SAMPLE	S95T001282	0	F	@U-01	U-02	SOLID	N/A	1.93E+03	0.174	ug/g
3	SAMPLE	S95T001282	0	F	@U-01	U-02E	SOLID	N/A	3.24E+00	0.000	% Inst Error
4	DUP	S95T001282	0	F	@U-01	U-02	SOLID	1.93E+3	1.58E+3	19.943	RPD
4	DUP	S95T001282	0	F	@U-01	U-02E	SOLID	1	3.22E+00	3.220	% Inst Error
5	SPK	S95T001282	0	F	@U-01	U-02	SOLID	5.69E+01	7.10E+01	124.780	% Recovery
6	SAMPLE	S95T001285	0	F	@U-01	U-02	SOLID	N/A	1.91E+04	1.810	ug/g
6	SAMPLE	S95T001285	0	F	@U-01	U-02E	SOLID	N/A	3.22E+00	0.000	% Inst Error
7	DUP	S95T001285	0	F	@U-01	U-02	SOLID	1.91E+4	2.22E+4	15.012	RPD
7	DUP	S95T001285	0	F	@U-01	U-02E	SOLID	1	3.18E+00	3.180	% Inst Error

Final page for worklist# 7829

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

[signature] 4/23/96
Reviewer Signature **Date**

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

```
Sample ID  STANDARD                    Date/Time  04/21/96/11:08:25
Description  45856                     Cal Y=6.07E+07X+425.433
Ref. Ratio 1.01                        Intensity 3646      (t=  39     us)
Laser Pulses 500                       Conc 6.22E-05 + 2.00E-06 ug/L
Lifetime 292 + 1.259 us                Dilution Factor 1 mL/mL
R2 .9992
Integrated 69664            FINAL RESULT  6.22E-05 + 2.00E-06 ug/L
Range: HIGH
-----------------------------------------------------------------------------
Sample ID  BLANK-PREP                  Date/Time  04/21/96/11:11:27
Description  5957001282                Cal Y=4.39E+09X+4.88E-04
Ref. Ratio 1.017                       Intensity -319      (t=  39     us)
Laser Pulses 500                       Conc  +  ug/L
Lifetime  +  us                        Dilution Factor  X  mL/mL
R2
Integrated 0                FINAL RESULT
Range: LOW
Sample <= Blank
-----------------------------------------------------------------------------
Sample ID  BAh.                        Date/Time  04/21/96/11:5:40
Description  5957001282                Cal Y=6.07E+07X+425.433
Ref. Ratio 1.016                       Intensity 21179     (t=  39     us)
Laser Pulses 500                       Conc 4.10E-04 + 1.33E-05 ug/L
Lifetime 248 + 1.248 us                Dilution Factor 1 mL/mL
R2 .9991
Integrated 763503           FINAL RESULT  4.10E-04 + 1.33E-05 ug/L
Range: HIGH
-----------------------------------------------------------------------------
Sample ID  BUF.                        Date/Time  04/21/96/16:56:10
Description  5957001282                Cal Y=6.07E+07X+425.433
Ref. Ratio .959                        Intensity 17261     (t=  39     us)
Laser Pulses 500                       Conc 3.32E-04 + 1.07E-05 ug/L
Lifetime 256 + 1.129 us                Dilution Factor 1 mL/mL
R2 .9962
Integrated 306149           FINAL RESULT  3.32E-04 + 1.07E-05 ug/L
Range: HIGH
-----------------------------------------------------------------------------
Sample ID  BFK.                        Date/Time  04/21/96/16:56:38
Description  5957001282                Cal Y=6.07E-07X+425.433
Ref. Ratio .961                        Intensity 57723     (t=  39     us)
Laser Pulses 500                       Conc 1.12E-03 + 3.66E-05 ug/L
Lifetime 207 + 1.271 us                Dilution Factor 1 mL/mL
R2 .9988
Integrated 540876           FINAL RESULT  1.12E-03 + 3.66E-05 ug/L
Range: HIGH
```

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URANIUM ANALYSIS

```
Sample ID  SAM. 1ML-10                Date/Time  04/21/96/17:06:22
Description  595T0012B5               Cal Y=6.07E+07X+425.453
Ref. Ratio .571                       Intensity 20020     (t=  39     us)
Laser Pulses 500     .                Conc 3.91E-04 + 1.26E-05 ug/L
Lifetime 243 + .963 us                Dilution Factor 1 mL/mL
R2 .9993
Integrated 340407          FINAL RESULT  3.91E-04 + 1.26E-05 ug/L
Range: HIGH
-----------------------------------------------------------------------------
Sample ID  DUP. 1ML-10                Date/Time  04/21/96/17:11:42
Description  595T0012C5               Cal Y=6.07E+07X+425.453
Ref. Ratio .571                       Intensity 23442     (t=  39     us)
Laser Pulses 500                      Conc 4.43E-04 + 1.41E-05 ug/L
Lifetime 307 + .84 us                 Dilution Factor 1 mL/mL
R2 .9997
Integrated 471883          FINAL RESULT  4.43E-04 + 1.41E-05 ug/L
Range: HIGH
                                                                  --------
```

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WORKBOOK PAGE: STD1

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

STD			STANDARD
	STANDARD BOOK #		45B56
7829	VOLUME OF SAMPLE (mL)	(SS)	1.00
	DILUTION FACTOR OF SAMPLE	(DF)	1.00
@U-01	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
	LIFETIME IN MICROSECONDS		292.00
LIQUID	R2 VALUE		0.9992
	RANGE (HIGH OR LOW)		HIGH
96003671	INSTRUMENT UNCERTAINTY	(IU)	2.00E-06
	INSTRUMENT RESULT	(IR)	6.22E-05
0	DETECTION LEVEL (µg/mL)		3.70E-05
N/A	RESULT (µg/mL)		6.22E-02
	VALUE OF STANDARD		6.39E-02
WL7829	%RECOVERY		97.34
	RELATIVE % UNCERTAINTY		3.2
U01			
SLH	Result = DF * PF * IR * 1000		
JLS	Detection Level = 3.70 E-08 * DF * PF * 1000		
WGB	% Recovery = Result / Value of Standard * 100		
04/22/96	Relative % Uncertainty = IU / IR * 100		
04/21/96			
12:00 PM			
B-106			

Analyst:	WGB	Date:	22-Apr-96
Signature of Chemist:	JLS	Date:	

STANDARD.WB1 REV 2.0 925009ML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: BLANK2

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

BLNK-PREP			BLANK
	VOLUME OF SAMPLE (mL)	(SS)	1.00
7829	DILUTION FACTOR OF SAMPLE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1208
	LIFETIME IN MICROSECONDS		0.00
SOLID	R2 VALUE		0.0000
	RANGE (HIGH OR LOW)		LOW
96003671	INSTRUMENT UNCERTAINTY	(IU)	0.00E+00
	INSTRUMENT RESULT	(IR)	0.00E+00
0	DETECTION LEVEL µg/g		1.74E-01
N/A	CONCENTRATION IN SOLUTION (g/L)		0.00E+00
	RESULT (µg/g)	<	1.74E-01
WL7829	RELATIVE % UNCERTAINTY		N/A

U01

SLH

JLS

WGB

04/22/96

04/21/96

12:00 PM

B-106

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	WGB	Date:	22-Apr-96
Signature of Chemist:	JLS	Date:	4/23/96

BLANK.WB1 REV 2.0 925009ML

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WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: SAM3

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

SAMPLE			SAMPLE
	VOLUME OF SAMPLE (mL)	(SS)	1.00
7829	DILUTION FACTOR OF SAMPLE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1208
	LIFETIME IN MICROSECONDS		248.00
SOLID	R2 VALUE		0.9991
	RANGE (HIGH OR LOW)		HIGH
96003671	INSTRUMENT UNCERTAINTY	(IU)	1.33E-05
	INSTRUMENT RESULT	(IR)	4.10E-04
0	DETECTION LEVEL µg/g		1.74E-01
FUSION01	CONCENTRATION IN SOLUTION (g/L)		4.10E-03
	RESULT (µg/g)		1.93E+03
S95T001282	RELATIVE % UNCERTAINTY		3.2

U01

SLH

JLS

WGB

04/22/96

04/21/96

12:00 PM

B-106

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:		WGB	Date:	22-Apr-96
Signature of Chemist:		JLS	Date:	4/23/96

SAMPLE.WB1 REV 2.0 925009ML

WORKBOOK PAGE: DUP4

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

DUP			DUP
	VOLUME OF SAMPLE (mL)	(SS)	1.00
7829	DILUTION FACTOR OF SAMPLE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1068
	LIFETIME IN MICROSECONDS		258.00
SOLID	R2 VALUE		0.9992
	RANGE (HIGH OR LOW)		HIGH
96003671	INSTRUMENT UNCERTAINTY	(IU)	1.07E-05
	INSTRUMENT RESULT	(IR)	3.32E-04
0	DETECTION LEVEL µg/g		1.76E-01
FUSION01	CONCENTRATION IN SOLUTION (g/L)		3.32E-03
	RESULT (µg/g)		1.58E+03
S95T001282	RELATIVE % UNCERTAINTY		3.2
U01			
SLH			
JLS			
WGB			
04/22/96			
04/21/96			
12:00 PM			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:		WGB	Date:	22-Apr-96
Signature of Chemist:		JLS	Date:	4/23/96

SAMPLE.WB1 REV 2.0 925009ML

WMC-SD-WM-DP-140, REV. 1

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

			SPIKE
SPK	SPIKE BOOK #		22B55
	VOLUME OF SAMPLE + SPIKE (mL)	(SS)	1.00
7829	DILUTION FACTOR OF SAMPLE + SPIKE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF)	10.00
@U-01	DIGEST FACTOR OF SAMPLE	(DDF)	2.1208
	LIFETIME IN MICROSECONDS		237.00
SOLID	R2 VALUE		0.9988
	RANGE (HIGH OR LOW)		HIGH
96003671	INSTRUMENT RESULT	(IR)	1.12E-03
	CONCENTRATION IN SOLUTION (g/L)	(CONC)	1.12E-02
0	SPIKE VALUE (g/L)	(SV)	5.69E-02
	INITIAL VOLUME OF SPIKE (mL)	(IV)	0.10
FUSION01	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV)	1.00
	CONCENTRATION IN SOLN (g/L) FROM SAMPLE FORM	(SR)	4.10E-03
S95T001282			

U01

Concentration = IR * DF * PF

SLH

QC Actual (µg/mL) = SV (g/L) * 1000

JLS

QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000

WGB

% Recovery = QC FOUND / QC ACTUAL

04/22/96

04/21/96	QC ACTUAL	=	5.69E+01 µg/mL
	QC FOUND	=	7.10E+01 µg/mL
12:00 PM	% SPIKE RECOVERY	=	124.8%

B-106

Analyst:		WGB	Date:	22-Apr-96
Signature of Chemist:		JLS	Date:	4/23/96

SPIKE.WB1 REV 2.0 925009ML

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WM-DP- 140, REV. 1

WORKBOOK PAGE: SAM6

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

SAMPLE			SAMPLE
	VOLUME OF SAMPLE (mL)	(SS)	1.00
7829	DILUTION FACTOR OF SAMPLE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.2472
	LIFETIME IN MICROSECONDS		243.00
SOLID	R2 VALUE		0.9993
	RANGE (HIGH OR LOW)		HIGH
96003671	INSTRUMENT UNCERTAINTY	(IU)	1.26E-05
	INSTRUMENT RESULT	(IR)	3.91E-04
0	DETECTION LEVEL µg/g		1.81E+00
FUSION01	CONCENTRATION IN SOLUTION (g/L)		4.30E-02
	RESULT (µg/g)		1.91E+04
S95T001285	RELATIVE % UNCERTAINTY		3.2
U01			
SLH			
JLS			
WGB			
04/22/96			
04/21/96			
12:00 PM			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	WGB	Date:	22-Apr-96
Signature of Chemist:	JLS	Date:	4/23/96

SAMPLE.WB1 REV 2.0 925009ML

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WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: DUP7

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

DUP			DUP
	VOLUME OF SAMPLE (mL)	(SS)	1.00
7829	DILUTION FACTOR OF SAMPLE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1984
	LIFETIME IN MICROSECONDS		307.00
SOLID	R2 VALUE		0.9997
	RANGE (HIGH OR LOW)		HIGH
96003671	INSTRUMENT UNCERTAINTY	(IU)	1.41E-05
	INSTRUMENT RESULT	(IR)	4.43E-04
0	DETECTION LEVEL µg/g		1.85E+00
FUSION01	CONCENTRATION IN SOLUTION (g/L)		4.87E-02
	RESULT (µg/g)		2.22E+04
S95T001285	RELATIVE % UNCERTAINTY		3.2

U01

SLH

JLS

WGB

04/22/96

04/21/96

12:00 PM

B-106

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	WGB	Date:	22-Apr-96
Signature of Chemist:	JLS	Date:	4/23/96

SAMPLE.WB1 REV 2.0 925009ML

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LABCORE Data Entry Template for Worklist# 7830

Analyst: KNT **Instrument:** U01 _____ **Book#** 45856

Method: LA-925-009 Rev/Mod A-1

Worklist Comment: 1-10ml Sample Prep.For spike use: 0.1ml spike. new **RUSH**

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@U-01	SOLID		
2	BLNK-PREP				@U-01	SOLID		
3	SAMPLE	S95T001299	0	F	@U-01	SOLID	95000096	B-106
		Analytes Requested:			U-02	, U-02E		
4	DUP	S95T001299	0	F	@U-01	SOLID		
5	SPK	S95T001299	0	F	@U-01	SOLID		
6	SAMPLE	S95T001303	0	F	@U-01	SOLID	95000096	B-106
		Analytes Requested:			U-02	, U-02E		
7	DUP	S95T001303	0	F	@U-01	SOLID		

Final page for worklist # 7830

Kim Thomas 4-21-96
Analyst Signature **Date**

J. Quinn 4/22/96
Analyst Signature **Date**

Sylvia Z Cahoun 4/22/96

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 7830

Analyst: knt **Instrument:** U01 **Book#** 45B56

Method: LA-925-009 Rev/Mod A-1

Worklist Comment: 1-10ml Sample Prep.For spike use: 0.1ml spike. new

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	@U-01	U-02	SOLID	5.69E-02	6.24E-02	109.666	% Recovery
1	STD		0	@U-01	U-02E	SOLID	1	3.24E+00	3.240	% Inst Error
2	BLNK-PREP		0	@U-01	U-02	SOLID	1	7.34E+0	7.340	ug/g
2	BLNK-PREP		0	@U-01	U-02E	SOLID	1	1.39E+00	1.390	% Inst Error
3	SAMPLE	S95T001299	0 F	@U-01	U-02	SOLID	N/A	2.05E+04	0.175	ug/g
3	SAMPLE	S95T001299	0 F	@U-01	U-02E	SOLID	N/A	3.30E+00	0.000	% Inst Error
4	DUP	S95T001299	0 F	@U-01	U-02	SOLID	2.05E+4	2.19E+4	6.604	RPD
4	DUP	S95T001299	0 F	@U-01	U-02E	SOLID	1	3.21E+00	3.210	% Inst Error
5	SPK	S95T001299	0 F	@U-01	U-02	SOLID	5.69E+01	9.10E+01	159.930	% Recovery
6	SAMPLE	S95T001303	0 F	@U-01	U-02	SOLID	N/A	7.38E+03	0.185	ug/g
6	SAMPLE	S95T001303	0 F	@U-01	U-02E	SOLID	N/A	3.66E+00	0.000	% Inst Error
7	DUP	S95T001303	0 F	@U-01	U-02	SOLID	7.38E+3	9.06E+3	20.438	RPD
7	DUP	S95T001303	0 F	@U-01	U-02E	SOLID	1	3.26E+00	3.260	% Inst Error

Final page for worklist# 7830

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

[signature] 4/23/96
Reviewer Signature **Date**

High uranium concentration in sample S95T001299 interferes with spike recovery. Spike analysis was not requested per project coordinator. Rerun is not requested.

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

```
Sample ID  45B56                          Date/Time  04/21/96/23:34:04
Description  STD                          Cal Y=6.07E+07X+425.453
Ref. Ratio .965                           Intensity 3585      (t=  39     us)
Laser Pulses 500                          Conc 6.24E-05 + 2.02E-06 ug/L
Lifetime 299 + 1.556 us                   Dilution Factor 1 mL/mL
R2 .9988
Integrated 71362            FINAL RESULT  6.24E-05 + 2.02E-06 ug/L
Range: HIGH
-----------------------------------------------------------------------------
Sample ID  BLNK-PREP                      Date/Time  04/21/96/23:35:45
Description                               Cal Y=6.07E+07X+425.453
Ref. Ratio .966                           Intensity 103       (t=  39     us)
Laser Pulses 500                          Conc -5.04E-06 + 2.24E-07 ug/L
Lifetime 265 + 5.785 us                   Dilution Factor 1 mL/mL
R2 .98
Integrated 1826             FINAL RESULT  -5.04E-06 + 2.24E-07 ug/L
Range: HIGH
Sample X= Blank
-----------------------------------------------------------------------------
Sample ID  BLNK-PREP                      Date/Time  04/21/96/23:36:26
Description                               Cal Y=4.39E+09X+4.88E-04
Ref. Ratio .975                           Intensity 5539      (t=  39     us)
Laser Pulses 500                          Conc 1.55E-06 + 2.16E-08 ug/L
Lifetime 273 + 1.543 us                   Dilution Factor 1 mL/mL
R2 .9986
Integrated 105997           FINAL RESULT  1.55E-06 + 2.16E-08 ug/L
Range: LOW
-----------------------------------------------------------------------------
Sample ID  8957001299                     Date/Time  04/21/96/23:38:21
Description  BAM                          Cal Y=6.07E+07X+425.453
Ref. Ratio .975                           Intensity 52551     (t= 442     us)
Laser Pulses 500                          Conc 4.33E-03 + 1.43E-04 ug/L
Lifetime 282 + .953 us                    Dilution Factor 1 mL/mL
R2 .9995
Integrated 1013757          FINAL RESULT  4.33E-03 + 1.43E-04 ug/L
Range: HIGH
-----------------------------------------------------------------------------
Sample ID  8957001299                     Date/Time  04/21/96/23:41:19
Description  DUP                          Cal Y=6.07E+07X+425.453
Ref. Ratio .985                           Intensity 52018     (t= 390     us)
Laser Pulses 500                          Conc 4.68E-03 + 1.50E-04 ug/L
Lifetime 237 + .443 us                    Dilution Factor 1 mL/mL
R2 .9999
Integrated 890818           FINAL RESULT  4.68E-03 + 1.50E-04 ug/L
Range: HIGH
```

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URANIUM ANALYSIS

Sample ID S95T001299
Description SPK
Ref. Ratio .986
Laser Pulses 500
Lifetime 301 + .926 us
R2 .9996
Integrated 1052035
Range: HIGH

Date/Time 04/21/96/23:43:20
Cal Y=6.07E+07X+425.453
Intensity 52135 (t= 533 us)
Conc 5.24E-03 + 1.72E-04 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 5.24E-03 + 1.72E-04 ug/L

Sample ID S95T001303
Description SAM
Ref. Ratio .989
Laser Pulses 500
Lifetime 227 + 2.026 us
R2 .9966
Integrated 804918
Range: HIGH

Date/Time 04/21/96/23:46:40
Cal Y=6.07E+07X+425.453
Intensity 52230 (t= 130 us)
Conc 1.48E-03 + 5.42E-05 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 1.48E-03 + 5.42E-05 ug/L

Sample ID S95T001303
Description DUP
Ref. Ratio .993
Laser Pulses 500
Lifetime 285 + 1.458 us
R2 .9997
Integrated 1012884
Range: HIGH

Date/Time 04/21/96/23:48:18
Cal Y=6.07E+07X+425.453
Intensity 52185 (t= 208 us)
Conc 1.85E-03 + 6.00E-05 ug/L
Dilution Factor 1 mL/mL

FINAL RESULT 1.85E-03 + 6.00E-05 ug/L

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WORKBOOK PAGE: STD1

WHC-SD-WM-DP-148, REV. 1

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
STD			STANDARD
Work List	STANDARD BOOK #		22B55
7830	VOLUME OF SAMPLE (mL)	(SS)	1.00
Test Code	DILUTION FACTOR OF SAMPLE	(DF)	1.00
@U-01	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
Matrix	LIFETIME IN MICROSECONDS		299.00
LIQUID	R2 VALUE		0.9988
Batch Number	RANGE (HIGH OR LOW)		HIGH
96003672	INSTRUMENT UNCERTAINTY	(IU)	2.02E-06
Rerun	INSTRUMENT RESULT	(IR)	6.24E-05
0	DETECTION LEVEL (µg/mL)		3.70E-05
Sample Prep			
N/A	RESULT (µg/mL)		6.24E-02
Sample #	VALUE OF STANDARD		5.69E-02
WL7830	%RECOVERY		109.67
Instrument Code	RELATIVE % UNCERTAINTY		3.2
U01			
Prepared By			
CJO	Result = DF * PF * IR * 1000		
Chemist			
JLS	Detection Level = 3.70 E-08 * DF * PF * 1000		
Analyst			
KNT	% Recovery = Result / Value of Standard * 100		
Date Complete			
04/22/96	Relative % Uncertainty = IU / IR * 100		
Analysis Date			
04/21/96			
Analysis Time			
11:30 PM			
Sample Point			
B-106			

Analyst:	KNT	Date:	22-Apr-96
Signature of Chemist: [signature]	JLS	Date:	4/23/96

STANDARD.WB1 REV 2.0 925009ML

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WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: BLANK2

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

BLNK-PREP			BLANK
	VOLUME OF SAMPLE (mL)	(SS)	1.00
7830	DILUTION FACTOR OF SAMPLE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1112
	LIFETIME IN MICROSECONDS		273.00
SOLID	R2 VALUE		0.9986
	RANGE (HIGH OR LOW)		LOW
96003672	INSTRUMENT UNCERTAINTY	(IU)	2.16E-08
	INSTRUMENT RESULT	(IR)	1.55E-06
0	DETECTION LEVEL µg/g		1.75E-01
N/A	CONCENTRATION IN SOLUTION (g/L)		1.55E-05
	RESULT (µg/g)		7.34E+00
WL7830	RELATIVE % UNCERTAINTY		1.4

U01

CJO

JLS

KNT

04/22/96

04/21/96

11:30 PM

B-106

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	KNT	Date:	22-Apr-96
Signature of Chemist:	JLS	Date:	4/23/96

BLANK.WB1 REV 2.0 925009ML

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WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: SAM3

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
7830	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1112
Matrix	LIFETIME IN MICROSECONDS		282.00
SOLID	R2 VALUE		0.9995
Batch Number	RANGE (HIGH OR LOW)		HIGH
96003672	INSTRUMENT UNCERTAINTY	(IU)	1.43E-04
Rerun	INSTRUMENT RESULT	(IR)	4.33E-03
0	DETECTION LEVEL µg/g		1.75E-01
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		4.33E-02
Sample #	RESULT (µg/g)		2.05E+04
S95T001299	RELATIVE % UNCERTAINTY		3.3
Instrument Code			
U01			
Prepared By			
CJO			
Chemist			
JLS			
Analyst			
KNT			
Date Complete			
04/22/96			
Analysis Date			
04/21/96			
Analysis Time			
11:30 PM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	KNT	Date:	22-Apr-96
Signature of Chemist:	JLS	Date:	4/23/96

SAMPLE.WB1 REV 2.0 925009ML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: DUP4

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
DUP			DUP
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
7830	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1392
Matrix	LIFETIME IN MICROSECONDS		237.00
SOLID	R2 VALUE		0.9999
Batch Number	RANGE (HIGH OR LOW)		HIGH
96003672	INSTRUMENT UNCERTAINTY	(IU)	1.50E-04
Rerun	INSTRUMENT RESULT	(IR)	4.68E-03
0	DETECTION LEVEL µg/g		1.73E-01
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		4.68E-02
Sample #	RESULT (µg/g)		2.19E+04
S95T001299	RELATIVE % UNCERTAINTY		3.2

Instrument Code
U01
Prepared By
CJO
Chemist
JLS
Analyst
KNT
Date Complete
04/22/96
Analysis Date
04/21/96
Analysis Time
11:30 PM
Sample Point
B-106

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	KNT	Date:	22-Apr-96
Signature of Chemist:	JLS	Date:	4/23/96

SAMPLE.WB1 REV 2.0 925009ML

I:\925009\OUT\U7830.WB1 04/22/96 10:30:06

WORKBOOK PAGE: SPIKE5

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			SPIKE
SPK	SPIKE BOOK #		22B55
Work List	VOLUME OF SAMPLE + SPIKE (mL)	(SS)	1.00
7830	DILUTION FACTOR OF SAMPLE + SPIKE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF)	10.00
@U-01	DIGEST FACTOR OF SAMPLE	(DDF)	2.1112
Matrix	LIFETIME IN MICROSECONDS		301.00
SOLID	R2 VALUE		0.9996
Batch Number	RANGE (HIGH OR LOW)		HIGH
96003672	INSTRUMENT RESULT	(IR)	5.24E-03
Aliquot	CONCENTRATION IN SOLUTION (g/L)	(CONC)	5.24E-02
0	SPIKE VALUE (g/L)	(SV)	5.69E-02
Sample Prep	INITIAL VOLUME OF SPIKE (mL)	(IV)	0.10
FUSION01	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV)	1.00
Sample Number	CONCENTRATION IN SOLN (g/L) FROM SAMPLE FORM	(SR)	4.33E-02
S95T001299			
Instrument Code			
U01	Concentration = IR * DF * PF		
Prepared By			
CJO	QC Actual (µg/mL) = SV (g/L) * 1000		
Chemist			
JLS	QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000		
Analyst			
KNT	% Recovery = QC FOUND / QC ACTUAL		
Date Complete			
04/22/96			
Analysis Date			
04/21/96	QC ACTUAL	=	5.69E+01 µg/mL
Analysis Time	QC FOUND	=	9.10E+01 µg/mL
11:30 PM	% SPIKE RECOVERY	=	159.9%
Sample Point			
B-106			

Analyst:	KNT	Date:	22-Apr-96
Signature of Chemist:	JLS	Date:	4/23/96

SPIKE.WB1 REV 2.0 925009ML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: SAM6

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
7830	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.0052
Matrix	LIFETIME IN MICROSECONDS		227.00
SOLID	R2 VALUE		0.9966
Batch Number	RANGE (HIGH OR LOW)		HIGH
96003672	INSTRUMENT UNCERTAINTY	(IU)	5.42E-05
Rerun	INSTRUMENT RESULT	(IR)	1.48E-03
0	DETECTION LEVEL µg/g		1.85E-01
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		1.48E-02
Sample #	RESULT (µg/g)		7.38E+03
S95T001303	RELATIVE % UNCERTAINTY		3.7

Instrument Code
U01
Prepared By
CJO
Chemist
JLS
Analyst
KNT
Date Complete
04/22/96
Analysis Date
04/21/96
Analysis Time
11:30 PM
Sample Point
B-106

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	KNT	Date:	22-Apr-96
Signature of Chemist:	JLS	Date:	4/23/96

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: DUP7

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
DUP			DUP
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
7830	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.0412
Matrix	LIFETIME IN MICROSECONDS		285.00
SOLID	R2 VALUE		0.9993
Batch Number	RANGE (HIGH OR LOW)		HIGH
96003672	INSTRUMENT UNCERTAINTY	(IU)	6.03E-05
Rerun	INSTRUMENT RESULT	(IR)	1.85E-03
0	DETECTION LEVEL µg/g		1.81E-01
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		1.85E-02
Sample #	RESULT (µg/g)		9.06E+03
S95T001303	RELATIVE % UNCERTAINTY		3.3
Instrument Code			
U01			
Prepared By			
CJO			
Chemist			
JLS			
Analyst			
KNT			
Date Complete			
04/22/96			
Analysis Date			
04/21/96			
Analysis Time			
11:30 PM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	KNT	Date:	22-Apr-96
Signature of Chemist:	JLS	Date:	4/23/96

LABCORE Data Entry Template for Worklist# 7831

Analyst: KNT **Instrument:** U01 _____ **Book#** 45B56

Method: LA-925-009 Rev/Mod A-1

Worklist Comment: 1-10ml Sample Prep.For spike use: 0.1ml spike. new RUSH

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@U-01	SOLID		
2	BLNK-PREP				@U-01	SOLID		
3	SAMPLE	S95T001307	0	F	@U-01	SOLID	95000096	B-106
		Analytes Requested:			U-02	, U-02E		
4	DUP	S95T001307	0	F	@U-01	SOLID		
5	SPK	S95T001307	0	F	@U-01	SOLID		
6	SAMPLE	S95T001311	0	F	@U-01	SOLID	95000096	B-106
		Analytes Requested:			U-02	, U-02E		
7	DUP	S95T001311	0	F	@U-01	SOLID		

Final page for worklist # 7831

Kim Thomas 4-22-96
Analyst Signature **Date**

C.J. Jensen 4/22/96
Analyst Signature **Date**
Sylvia L Cohrone 4/22/96

Data Entry Comments:

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

HC-SD-WM-DP-140, REV. 1

LABCORE Completed Worklist Report for Worklist# 7831

Analyst: knt **Instrument:** U01 **Book#** 45856

Method: LA-925-009 Rev/Mod A-1

Worklist Comment: 1-10ml Sample Prep.For spike use: 0.1ml spike. new

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@U-01	U-02	SOLID	6.39E-02	6.22E-02	97.340	% Recovery
1	STD			0	@U-01	U-02E	SOLID	1	3.23E+00	3.230	% Inst Error
2	BLNK-PREP			0	@U-01	U-02	SOLID	1	5.29E+1	52.900	ug/g
2	BLNK-PREP			0	@U-01	U-02E	SOLID	1	1.32E+00	1.320	% Inst Error
3	SAMPLE	S95T001307	0	F	@U-01	U-02	SOLID	N/A	3.07E+03	0.178	ug/g
3	SAMPLE	S95T001307	0	F	@U-01	U-02E	SOLID	N/A	3.24E+00	0.000	% Inst Error
4	DUP	S95T001307	0	F	@U-01	U-02	SOLID	3.07E+3	3.31E+3	7.524	RPD
4	DUP	S95T001307	0	F	@U-01	U-02E	SOLID	1	3.26E+00	3.260	% Inst Error
5	SPK	S95T001307	0	F	@U-01	U-02	SOLID	5.69E+01	5.98E+01	105.097	% Recovery
6	SAMPLE	S95T001311	0	F	@U-01	U-02	SOLID	N/A	1.74E+04	0.163	ug/g
6	SAMPLE	S95T001311	0	F	@U-01	U-02E	SOLID	N/A	3.29E+00	0.000	% Inst Error
7	DUP	S95T001311	0	F	@U-01	U-02	SOLID	1.74E+4	1.62E+4	7.143	RPD
7	DUP	S95T001311	0	F	@U-01	U-02E	SOLID	1	3.28E+00	3.280	% Inst Error

Final page for worklist# 7831

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date 4/23/96

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

URANIUM ANALYSIS

```
Sample ID  45856                    Date/Time  04/22/96/04:30:18
Description  STD                    Cal Y=6.07E+07X+425.453
Ref. Ratio .948                     Intensity 3675      (t=  39     us)
Laser Pulses 500                    Conc 6.22E-05 + 2.01E-06 ug/L
Lifetime 301 + 1.472 us             Dilution Factor 1 mL/mL
R2 .999
Integrated 71602          FINAL RESULT  6.22E-05 + 2.01E-06 ug/L
Range: HIGH
-----------------------------------------------------------------------
Sample ID  BLNK-PREP                Date/Time  04/22/96/04:32:18
Description                         Cal Y=6.07E+07X+425.453
Ref. Ratio .936                     Intensity 585       (t=  39     us)
Laser Pulses 500                    Conc 3.37E-06 + 1.14E-07 ug/L
Lifetime 310 + 2.934 us             Dilution Factor 1 mL/mL
R2 .9962
Integrated 11004          FINAL RESULT  3.37E-06 + 1.14E-07 ug/L
Range: HIGH
-----------------------------------------------------------------------
Sample ID  BLNK-PREP                Date/Time  04/22/96/04:32:59
Description                         Cal Y=4.39E+09X+4.88E-04
Ref. Ratio .947                     Intensity 42203     (t=  39     us)
Laser Pulses 500                    Conc 1.10E-05 + 1.45E-07 ug/L
Lifetime 303 + 1.501 us             Dilution Factor 1 mL/mL
R2 .9989
Integrated 827594         FINAL RESULT  1.10E-05 + 1.45E-07 ug/L
Range: LOW
-----------------------------------------------------------------------
Sample ID  895T001307               Date/Time  04/22/96/04:35:03
Description  SAM                    Cal Y=6.07E+07X+425.453
Ref. Ratio .97                      Intensity 34301     (t=  39     us)
Laser Pulses 500                    Conc 6.38E-04 + 2.07E-05 ug/L
Lifetime 277 + 1.475 us             Dilution Factor 1 mL/mL
R2 .9988
Integrated 622066         FINAL RESULT  6.38E-04 + 2.07E-05 ug/L
Range: HIGH
-----------------------------------------------------------------------
Sample ID  895T001307               Date/Time  04/22/96/04:38:05
Description  DUP                    Cal Y=6.07E+07X+425.453
Ref. Ratio .978                     Intensity 33852     (t=  39     us)
Laser Pulses 500                    Conc 6.69E-04 + 2.18E-05 ug/L
Lifetime 263 + 1.453 us             Dilution Factor 1 mL/mL
R2 .9987
Integrated 622351         FINAL RESULT  6.69E-04 + 2.18E-05 ug/L
Range: HIGH
```

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URANIUM ANALYSIS

Sample ID 595T001307 Date/Time 04/22/96/04:40:05
Description SPK Cal Y=6.07E+07X+425.453
Ref. Ratio .971 Intensity 53494 (t= 78 us)
Laser Pulses 500 Conc 1.30E-03 + 4.28E-05 ug/L
Lifetime 218 + 1.05 us Dilution Factor 1 mL/mL
R2 .999
Integrated 839835 FINAL RESULT 1.30E-03 + 4.28E-05 ug/L
Range: HIGH

Sample ID 595T001311 Date/Time 04/22/96/04:44:11
Description BAM Cal Y=6.07E+07X+425.453
Ref. Ratio .965 Intensity 50339 (t= 351 us)
Laser Pulses 500 Conc 3.95E-03 + 1.30E-04 ug/L
Lifetime 242 + .749 us Dilution Factor 1 mL/mL
R2 .9996
Integrated 923993 FINAL RESULT 3.95E-03 + 1.30E-04 ug/L
Range: HIGH

Sample ID 595T001311 Date/Time 04/22/96/04:48:09
Description DUP Cal Y=6.07E+07X+425.453
Ref. Ratio .975 Intensity 54093 (t= 377 us)
Laser Pulses 500 Conc 3.69E-03 + 1.21E-04 ug/L
Lifetime 273 + .664 us Dilution Factor 1 mL/mL
R2 .9996
Integrated 1017792 FINAL RESULT 3.69E-03 + 1.21E-04 ug/L
Range: HIGH

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WMC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: STD1

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
STD			STANDARD
Work List	STANDARD BOOK #		45B56
7831	VOLUME OF SAMPLE (mL)	(SS)	1.00
Test Code	DILUTION FACTOR OF SAMPLE	(DF)	1.00
@U-01	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
Matrix	LIFETIME IN MICROSECONDS		301.00
LIQUID	R2 VALUE		0.9990
Batch Number	RANGE (HIGH OR LOW)		HIGH
96003673	INSTRUMENT UNCERTAINTY	(IU)	2.01E-06
Rerun	INSTRUMENT RESULT	(IR)	6.22E-05
0	DETECTION LEVEL (µg/mL)		3.70E-05
Sample Prep			
N/A	RESULT (µg/mL)		6.22E-02
Sample #	VALUE OF STANDARD		6.39E-02
WL7831	%RECOVERY		97.34
Instrument Code	RELATIVE % UNCERTAINTY		3.2
U01			
Prepared By			
CJO			
Chemist			
SLF			
Analyst			
KNT			
Date Complete			
04/22/96			
Analysis Date			
04/22/96			
Analysis Time			
04:40 AM			
Sample Point			
B-106			

Result = DF * PF * IR * 1000

Detection Level = 3.70 E-08 * DF * PF * 1000

% Recovery = Result / Value of Standard * 100

Relative % Uncertainty = IU / IR * 100

Analyst:	KNT	Date:	22-Apr-96
Signature of Chemist:	SLF	Date:	4/23/96

STANDARD.WB1 REV 2.0 925009ML

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WORKBOOK PAGE: BLANK2

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
BLNK-PREP			BLANK
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
7831	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.0808
Matrix	LIFETIME IN MICROSECONDS		303.00
SOLID	R2 VALUE		0.9989
Batch Number	RANGE (HIGH OR LOW)		LOW
96003673	INSTRUMENT UNCERTAINTY	(IU)	1.45E-07
Rerun	INSTRUMENT RESULT	(IR)	1.10E-05
0	DETECTION LEVEL µg/g		1.78E-01
Sample Prep			
N/A	CONCENTRATION IN SOLUTION (g/L)		1.10E-04
Sample #	RESULT (µg/g)		5.29E+01
WL7831	RELATIVE % UNCERTAINTY		1.3
Instrument Code			
U01			
Prepared By			
CJO			
Chemist			
SLF			
Analyst			
KNT			
Date Complete			
04/22/96			
Analysis Date			
04/22/96			
Analysis Time			
04:40 AM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	KNT	Date:	22-Apr-96
Signature of Chemist:	SLF	Date:	4/23/96

BLANK.WB1 REV 2.0 925009ML

WORKBOOK PAGE: SAM3

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
7831	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.0808
Matrix	LIFETIME IN MICROSECONDS		277.00
SOLID	R2 VALUE		0.9988
Batch Number	RANGE (HIGH OR LOW)		HIGH
96003673	INSTRUMENT UNCERTAINTY	(IU)	2.07E-05
Rerun	INSTRUMENT RESULT	(IR)	6.38E-04
0	DETECTION LEVEL µg/g		1.78E-01
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		6.38E-03
Sample #	RESULT (µg/g)		3.07E+03
S95T001307	RELATIVE % UNCERTAINTY		3.2
Instrument Code			
U01			
Prepared By			
CJO			
Chemist			
SLF			
Analyst			
KNT			
Date Complete			
04/22/96			
Analysis Date			
04/22/96			
Analysis Time			
04:40 AM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	KNT	Date:	22-Apr-96
Signature of Chemist:	SLF	Date:	4/23/96

SAMPLE.WB1 REV 2.0 925009ML

WORKBOOK PAGE: DUP4

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
DUP			DUP
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
7831	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.0208
Matrix	LIFETIME IN MICROSECONDS		263.00
SOLID	R2 VALUE		0.9987
Batch Number	RANGE (HIGH OR LOW)		HIGH
96003673	INSTRUMENT UNCERTAINTY	(IU)	2.18E-05
Rerun	INSTRUMENT RESULT	(IR)	6.69E-04
0	DETECTION LEVEL µg/g		1.83E-01
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		6.69E-03
Sample #	RESULT (µg/g)		3.31E+03
S95T001307	RELATIVE % UNCERTAINTY		3.3
Instrument Code			
U01			
Prepared By			
CJO			
Chemist			
SLF			
Analyst			
KNT			
Date Complete			
04/22/96			
Analysis Date			
04/22/96			
Analysis Time			
04:40 AM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	KNT	Date:	22-Apr-96
Signature of Chemist:	SLF	Date:	4/23/96

SAMPLE.WB1 REV 2.0 925009ML

WORKBOOK PAGE: SPIKE5

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			SPIKE
SPK	SPIKE BOOK #		22B55
Work List	VOLUME OF SAMPLE + SPIKE (mL)	(SS)	1.00
7831	DILUTION FACTOR OF SAMPLE + SPIKE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF)	10.00
@U-01	DIGEST FACTOR OF SAMPLE	(DDF)	2.0808
Matrix	LIFETIME IN MICROSECONDS		218.00
SOLID	R2 VALUE		0.9990
Batch Number	RANGE (HIGH OR LOW)		HIGH
96003673	INSTRUMENT RESULT	(IR)	1.30E-03
Rerun	CONCENTRATION IN SOLUTION (g/L)	(CONC)	1.30E-02
0	SPIKE VALUE (g/L)	(SV)	5.69E-02
Sample Prep	INITIAL VOLUME OF SPIKE (mL)	(IV)	0.10
FUSION01	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV)	1.00
Sample Number	CONCENTRATION IN SOLN (g/L) FROM SAMPLE FORM	(SR)	7.02E-03
S95T001307			
Instrument Code			
U01	Concentration = IR * DF * PF		
Prepared By			
CJO	QC Actual (µg/mL) = SV (g/L) * 1000		
Chemist			
SLF	QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000		
Analyst			
KNT	% Recovery = QC FOUND / QC ACTUAL		
Date Complete			
04/22/96			
Analysis Date			
04/22/96	QC ACTUAL	=	5.69E+01 µg/mL
Analysis Time	QC FOUND	=	5.98E+01 µg/mL
04:40 AM	% SPIKE RECOVERY	=	105.1%
Sample Point			
B-106			

Analyst:	KNT	Date:	22-Apr-96
Signature of Chemist:	SLF	Date:	4/23/96

SPIKE.WB1 REV 2.0 925009ML

WORKBOOK PAGE: SAM6

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
7831	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.2684
Matrix	LIFETIME IN MICROSECONDS		242.00
SOLID	R2 VALUE		0.9996
Batch Number	RANGE (HIGH OR LOW)		HIGH
96003673	INSTRUMENT UNCERTAINTY	(IU)	1.30E-04
Rerun	INSTRUMENT RESULT	(IR)	3.95E-03
0	DETECTION LEVEL µg/g		1.63E-01
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		3.95E-02
Sample #	RESULT (µg/g)		1.74E+04
S95T001311	RELATIVE % UNCERTAINTY		3.3
Instrument Code			
U01			
Prepared By			
CJO			
Chemist			
SLF			
Analyst			
KNT			
Date Complete			
04/22/96			
Analysis Date			
04/22/96			
Analysis Time			
04:40 AM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:		KNT	Date: 22-Apr-96
Signature of Chemist:		SLF	Date: 4/23/96

SAMPLE.WB1 REV 2.0 925009ML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: DUP7

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			DUP
DUP	VOLUME OF SAMPLE (mL)	(SS)	1.00
Work List	DILUTION FACTOR OF SAMPLE	(DF)	1.00
7831	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
Test Code	DIGEST FACTOR	(Dg/L)	2.2828
@U-01	LIFETIME IN MICROSECONDS		273.00
Matrix	R2 VALUE		0.9996
SOLID	RANGE (HIGH OR LOW)		HIGH
Batch Number	INSTRUMENT UNCERTAINTY	(IU)	1.21E-04
96003673	INSTRUMENT RESULT	(IR)	3.69E-03
Rerun	DETECTION LEVEL µg/g		1.62E-01
0			
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		3.69E-02
Sample #	RESULT (µg/g)		1.62E+04
S95T001311	RELATIVE % UNCERTAINTY		3.3
Instrument Code			
U01			
Prepared By			
CJO			
Chemist			
SLF			
Analyst			
KNT			
Date Complete			
04/22/96			
Analysis Date			
04/22/96			
Analysis Time			
04:40 AM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	KNT	Date:	22-Apr-96
Signature of Chemist:	SLF	Date:	4/23/96

SAMPLE.WB1 REV 2.0 925009ML

LABCORE Data Entry Template for Worklist# 8077

Analyst: WGB **Instrument:** U01 _____ **Book#** 45856

Method: LA-925-009 Rev/Mod A-1

Worklist Comment: 1-10ml sample prep.For spike use: 0.1ml spk. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@U-01	SOLID		
2	BLNK-PREP				@U-01	SOLID		
3	SAMPLE	S96T001647	0	F	@U-01	SOLID	95000096	B-106
		Analytes Requested:			U-02	, U-02E		
4	DUP	S96T001647	0	F	@U-01	SOLID		
5	SPK	S96T001647	0	F	@U-01	SOLID		

Final page for worklist # 8077

Megan R Burchardt 4-29-96
Analyst Signature **Date**

Sue E. Hogan 4/30/96
Analyst Signature **Date**

Sharon L Walls 5-1-96

Data Entry Comments:

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

MO-03-WM-DP-140, REV. 1

LABCORE Completed Worklist Report for Worklist# 8077

Analyst: slh2 **Instrument:** U01 **Book#** ASB56

Method: LA-925-009 Rev/Mod A-1

Worklist Comment: 1-10ml sample prep.For spike use: 0.1ml spk. new

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	aU-01	U-02	SOLID	6.39E-02	5.27E-02	82.473	% Recovery
1	STD			0	aU-01	U-02E	SOLID	1	3.13E+00	3.130	% Inst Error
2	BLNK-PREP			0	aU-01	U-02	SOLID	1	1.86E+1	18.600	ug/g
2	BLNK-PREP			0	aU-01	U-02E	SOLID	1	2.53E+00	2.530	% Inst Error
3	SAMPLE	S96T001647	0	F	aU-01	U-02	SOLID	N/A	1.10E+04	1.900	ug/g
3	SAMPLE	S96T001647	0	F	aU-01	U-02E	SOLID	N/A	3.09E+00	0.000	% Inst Error
4	DUP	S96T001647	0	F	aU-01	U-02	SOLID	1.10E+4	1.09E+4	0.913	RPD
4	DUP	S96T001647	0	F	aU-01	U-02E	SOLID	1	3.08E+00	3.080	% Inst Error
5	SPK	S96T001647	0	F	aU-01	U-02	SOLID	5.69E+01	4.00E+01	70.299	% Recovery

Final page for worklist# 8077

Analyst Signature Date

Analyst Signature Date

[signature] 5/7/96
Reviewer Signature Date

High uranium concentration in samples.
Spike recovery acceptable.

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

WORKBOOK PAGE: STD1

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			STANDARD
STD	STANDARD BOOK #		45B56
Workbook	VOLUME OF SAMPLE (mL)	(SS)	1.00
8077	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
@U-01	LIFETIME IN MICROSECONDS		231.00
Matrix	R2 VALUE		0.9994
LIQUID	RANGE (HIGH OR LOW)		HIGH
Batch Number	INSTRUMENT UNCERTAINTY	(IU)	1.65E-06
96003731	INSTRUMENT RESULT	(IR)	5.27E-05
Reton	DETECTION LEVEL (µg/mL)		3.70E-05
0			
Sample Prep	RESULT (µg/mL)		5.27E-02
N/A	VALUE OF STANDARD		6.39E-02
Sample #	%RECOVERY		82.47
WL8077	RELATIVE % UNCERTAINTY		3.1
Instrument Code			
UO1			
Prepared By			
SEH			
Chemist			
JLS			
Analyst			
WGB			
Date Complete			
04/30/96			
Analysis Date			
04/29/96			
Analysis Time			
04:15 PM			
Sample Point			
B-106			

Result = DF * PF * IR * 1000

Detection Level = 3.70 E-08 * DF * PF * 1000

% Recovery = Result / Value of Standard * 100

Relative % Uncertainty = IU / IR * 100

Analyst:	WGB	Date:	30-Apr-96
Signature of Chemist:	JLS	Date:	5/7/96

STANDARD.WB1 REV 2.0 925009ML

WHS-CD-WM-DP-140, REV.1

WORKBOOK PAGE: BLANK2

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
BLNK-PREP			BLANK
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
8077	DILUTION FACTOR OF SAMPLE	(DF)	11.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1424
Matrix	LIFETIME IN MICROSECONDS		300.00
SOLID	R2 VALUE		0.9862
Batch Number	RANGE (HIGH OR LOW)		LOW
96003731	INSTRUMENT UNCERTAINTY	(IU)	9.17E-09
Rerun	INSTRUMENT RESULT	(IR)	3.63E-07
0	DETECTION LEVEL µg/g		1.90E+00
Sample Prep			
N/A	CONCENTRATION IN SOLUTION (g/L)		3.99E-05
Sample #	RESULT (µg/g)		1.86E+01
WL8077	RELATIVE % UNCERTAINTY		2.5
Instrument Code			
UO1			
Prepared By			
SEH			
Chemist			
JLS			
Analyst			
WGB			
Date Complete			
04/30/96			
Analysis Date			
04/29/96			
Analysis Time			
04:15 PM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	WGB	Date:	30-Apr-96
Signature of Chemist:	JLS	Date:	5/7/96

BLANK.WB1 REV 2.0 925009ML

867

PHG-CD-WM-DP-140, REV. 1

WORKBOOK PAGE: SAM3

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
8077	DILUTION FACTOR OF SAMPLE	(DF)	11.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1424
Matrix	LIFETIME IN MICROSECONDS		277.00
SOLID	R2 VALUE		0.9999
Batch Number	RANGE (HIGH OR LOW)		HIGH
96003731	INSTRUMENT UNCERTAINTY	(IU)	6.61E-06
Rerun	INSTRUMENT RESULT	(IR)	2.14E-04
0	DETECTION LEVEL µg/g		1.90E+00
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		2.35E-02
Sample #	RESULT (µg/g)		1.10E+04
S96T001647	RELATIVE % UNCERTAINTY		3.1
Instrument Code			
UO1			
Prepared By			
SEH			
Chemist			
JLS			
Analyst			
WGB			
Date Complete			
04/30/96			
Analysis Date			
04/29/96			
Analysis Time			
04:15 PM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	WGB	Date:	30-Apr-96
Signature of Chemist: [signature]	JLS	Date:	5/7/96

SAMPLE.WB1 REV 2.0 925009ML

WORKBOOK PAGE: DUP4

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
DUP			DUP
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
8077	DILUTION FACTOR OF SAMPLE	(DF)	11.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.1640
Matrix	LIFETIME IN MICROSECONDS		268.00
SOLID	R2 VALUE		0.9999
Batch Number	RANGE (HIGH OR LOW)		HIGH
96003731	INSTRUMENT UNCERTAINTY	(IU)	6.60E-06
Rerun	INSTRUMENT RESULT	(IR)	2.14E-04
0	DETECTION LEVEL µg/g		1.88E+00
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		2.35E-02
Sample #	RESULT (µg/g)		1.09E+04
S96T001647	RELATIVE % UNCERTAINTY		3.1
Instrument Code			
UO1			
Prepared By			
SEH			
Chemist			
JLS			
Analyst			
WGB			
Date Complete			
04/30/96			
Analysis Date			
04/29/96			
Analysis Time			
04:15 PM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	WGB	Date:	30-Apr-96
Signature of Chemist: [signature]	JLS	Date:	5/7/96

SAMPLE.WB1 REV 2.0 925009ML

WORKBOOK PAGE: SPIKE5

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

			SPIKE
SPK	SPIKE BOOK #		22B55
	VOLUME OF SAMPLE + SPIKE (mL)	(SS)	1.00
8077	DILUTION FACTOR OF SAMPLE + SPIKE	(DF)	11.00
	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF)	10.00
@U-01	DIGEST FACTOR OF SAMPLE	(DDF)	2.1424
	LIFETIME IN MICROSECONDS		270.00
SOLID	R2 VALUE		0.9998
	RANGE (HIGH OR LOW)		HIGH
96003731	INSTRUMENT RESULT	(IR)	2.50E-04
	CONCENTRATION IN SOLUTION (g/L)	(CONC)	2.75E-02
0	SPIKE VALUE (g/L)	(SV)	5.69E-02
	INITIAL VOLUME OF SPIKE (mL)	(IV)	0.10
FUSION01	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV)	1.00
	CONCENTRATION IN SOLN (g/L) FROM SAMPLE FORM	(SR)	2.35E-02
S96T001647			
UO1	Concentration = IR * DF * PF		
SEH	QC Actual (µg/mL) = SV (g/L) * 1000		
JLS	QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000		
WGB	% Recovery = QC FOUND / QC ACTUAL		
04/30/96			
04/29/96	QC ACTUAL	=	5.69E+01 µg/mL
	QC FOUND	=	4.00E+01 µg/mL
04:15 PM	% SPIKE RECOVERY	=	70.3%
B-106			

Analyst:	WGB	Date:	30-Apr-96
Signature of Chemist:	JLS	Date:	5/7/96

SPIKE.WB1 REV 2.0 925009ML

URANIUM ANALYSIS

```
Sample ID  45B56                          Date/Time  04/29/96/15:39:12
Description  STD                          Cal Y=8.21E+07X+49.852
Ref. Ratio 1.023                          Intensity 3383      (t=  39     us)
Laser Pulses 500                          Conc 5.27E-05 + 1.65E-06 g/L
Lifetime 231 + .858 us                    Dilution Factor 1 mL/mL
R2 .9994
Integrated 58453          FINAL RESULT  5.27E-05 + 1.65E-06 g/L
Record 3940 of 3946
                                                                  Range: HIGH
-----------------------------------------------------------------------------
Sample ID  BLANK-PREP                     Date/Time  04/29/96/15:50:29
Description                               Cal Y=6.28E+09X-4.88E-04
Ref. Ratio 1.005                          Intensity 2176      (t=  39     us)
Laser Pulses 500                          Conc 3.63E-07 + 9.17E-09 g/L
Lifetime 300 + 5.413 us                   Dilution Factor 1 mL/mL
R2 .9862
Integrated 39004          FINAL RESULT  3.63E-07 + 9.17E-09 g/L
Record 3941 of 3946
                                                                  Range: LOW
-----------------------------------------------------------------------------
Sample ID  896T001147                     Date/Time  04/29/96/16:16:06
Description  BAM.  1ML-10                 Cal Y=8.21E+07X+49.852
Ref. Ratio 1.014                          Intensity 14702     (t=  39     us)
Laser Pulses 500                          Conc 2.14E-04 + 6.61E-06 g/L
Lifetime 277 + .464 us                    Dilution Factor 1 mL/mL
R2 .9999
Integrated 279833         FINAL RESULT  2.14E-04 + 6.61E-06 g/L
Record 3944 of 3946
                                                                  Range: HIGH
-----------------------------------------------------------------------------
Sample ID  896T001147                     Date/Time  04/29/96/16:20:35
Description  DUP.  1ML-10                 Cal Y=8.21E+07X+49.852
Ref. Ratio 1.012                          Intensity 14656     (t=  39     us)
Laser Pulses 500                          Conc 2.14E-04 + 6.60E-06 g/L
Lifetime 268 + .442 us                    Dilution Factor 1 mL/mL
R2 .9999
Integrated 270643         FINAL RESULT  2.14E-04 + 6.60E-06 g/L
Record 3945 of 3946
                                                                  Range: HIGH
-----------------------------------------------------------------------------
Sample ID  896T001147                     Date/Time  04/29/96/16:29:42
Description  SPK.  1ML-10                 Cal Y=8.21E+07X+49.852
Ref. Ratio 1.013                          Intensity 16516     (t=  39     us)
Laser Pulses 500                          Conc 2.50E-04 + 7.74E-06 g/L
Lifetime 270 + .628 us                    Dilution Factor 1 mL/mL
R2 .9998
Integrated 319309         FINAL RESULT  2.50E-04 + 7.74E-06 g/L
Record 3946 of 3946
                                                                  Range: HIGH
```

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LABCORE Data Entry Template for Worklist# 8520

Analyst: CLJ **Instrument:** U01 _____ **Book#** 45B56

Method: LA-925-009 Rev/Mod A-1

Worklist Comment: 0.1 - 10 mL sample prep / 0.1 ml spike / rerun / jls

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@U-01	SOLID		
2	BLNK-PREP				@U-01	SOLID		
3	SAMPLE	S96T001220	0	F	@U-01	SOLID	95000096	B-106
		Analytes Requested:			U-02	, U-02E		
4	DUP	S96T001220	0	F	@U-01	SOLID		
5	SPK	S96T001220	0	F	@U-01	SOLID		

Final page for worklist # 8520

C Johnson 5/29/96
Analyst Signature **Date**

5/30/96
Analyst Signature **Date**

Sue Hogan 5/30/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8520

Analyst: crj **Instrument:** U01 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: 0.1 - 10 mL sample prep / 0.1 ml spike / rerun / jls

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@U-01	U-02	SOLID	6.39E-02	6.50E-02	101.721	% Recovery
1	STD		0		@U-01	U-02E	SOLID	1	3.09E+00	3.090	Ratio
2	BLNK-PREP		0		@U-01	U-02	SOLID	1	1.25E+2	125.000	ug/g
2	BLNK-PREP		0		@U-01	U-02E	SOLID	1	1.21E+00	1.210	Ratio
3	SAMPLE	S96T001220	0	F	@U-01	U-02	SOLID	N/A	9.51E+03	168.0e-002	ug/g
3	SAMPLE	S96T001220	0	F	@U-01	U-02E	SOLID	N/A	3.09E+00	0.0e+000	% Inst Error
4	DUP	S96T001220	0	F	@U-01	U-02	SOLID	9.51E+3	1.03E+4	7.976	RPD
4	DUP	S96T001220	0	F	@U-01	U-02E	SOLID	1	3.08E+00	3.080	Ratio
5	SPK	S96T001220	0	F	@U-01	U-02	SOLID	5.69E+01	4.95E+01	86.995	% Recovery

Final page for worklist# 8520

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

S A Cathers 5/30/96
Reviewer Signature **Date**

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

URANIUM ANALYSIS

Sample ID STD / WL#8520
Description STANDARD
Ref. Ratio 1.017
Laser Pulses 500
Lifetime 267 + .838 us
R2 .9996
Integrated 63844
Range: HIGH

Date/Time 05/29/96/10:37:39
Cal Y=7.68E+07X-8.45E+02
Intensity 3441 (t= 39 us)
Conc 6.50E-05 + 2.01E-06 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 6.50E-05 + 2.01E-06 g/L

Sample ID BLNK/ WL#8520
Description BLANK
Ref. Ratio 1.029
Laser Pulses 500
Lifetime 239 + .623 us
R2 .9997
Integrated 208001
Range: LOW

Date/Time 05/29/96/10:40:20
Cal Y=5.46E+09X-4.88E-04
Intensity 12472 (t= 39 us)
Conc 2.75E-06 + 3.34E-08 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 2.75E-06 + 3.34E-08 g/L

Sample ID S96T001220
Description SAMPLE
Ref. Ratio 1.018
Laser Pulses 500
Lifetime 269 + .767 us
R2 .9997
Integrated 236356
Range: HIGH

Date/Time 05/29/96/10:41:44
Cal Y=7.68E+07X-8.45E+02
Intensity 12826 (t= 39 us)
Conc 2.10E-04 + 6.48E-06 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 2.10E-04 + 6.48E-06 g/L

Sample ID S96T001220
Description DUP
Ref. Ratio .982
Laser Pulses 500
Lifetime 280 + .812 us
R2 .9996
Integrated 247255
Range: HIGH

Date/Time 05/29/96/10:42:53
Cal Y=7.68E+07X-8.45E+02
Intensity 13166 (t= 39 us)
Conc 2.12E-04 + 6.54E-06 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 2.12E-04 + 6.54E-06 g/L

Sample ID S96T001220
Description SPIKE
Ref. Ratio 1.015
Laser Pulses 500
Lifetime 245 + .814 us
R2 .9996
Integrated 757761
Range: HIGH

Date/Time 05/29/96/10:44:04
Cal Y=7.68E+07X-8.45E+02
Intensity 43993 (t= 39 us)
Conc 7.05E-04 + 2.19E-05 g/L
Dilution Factor 1 mL/mL

FINAL RESULT 7.05E-04 + 2.19E-05 g/L

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WORKBOOK PAGE: STD1

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
STD			STANDARD
Work List	STANDARD BOOK #		45B56
8520	VOLUME OF SAMPLE (mL)	(SS)	1.00
Test Code	DILUTION FACTOR OF SAMPLE	(DF)	1.00
@U-01	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
Matrix	LIFETIME IN MICROSECONDS		267.00
LIQUID	R2 VALUE		0.9996
Batch Number	RANGE (HIGH OR LOW)		HIGH
96004464	INSTRUMENT UNCERTAINTY	(IU)	2.01E-06
Rerun	INSTRUMENT RESULT	(IR)	6.50E-05
0	DETECTION LEVEL (µg/mL)		3.70E-05
Sample Prep			
N/A	RESULT (µg/mL)		6.50E-02
Sample #	VALUE OF STANDARD		6.39E-02
WL8520	%RECOVERY		101.72
Instrument Code	RELATIVE % UNCERTAINTY		3.1
U01			
Prepared By			
MCB	Result = DF * PF * IR * 1000		
Chemist			
JLS	Detection Level = 3.70 E-08 * DF * PF * 1000		
Analyst			
CRJ	% Recovery = Result / Value of Standard * 100		
Date Complete			
05/30/96	Relative % Uncertainty = IU / IR * 100		
Analysis Date			
05/29/96			
Analysis Time			
11:30 AM			
Sample Point			
B-106			

Analyst:	CRJ	Date:	30-May-96
Signature of Chemist:	JLS	Date:	

STANDARD.WB1 REV 2.0 925009ML

WORKBOOK PAGE: BLANK2

HO-SD-WM-DP-140, REV. 1

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
BLNK-PREP			BLANK
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
8520	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST FACTOR	(Dg/L)	2.2084
Matrix	LIFETIME IN MICROSECONDS		239.00
SOLID	R2 VALUE		0.9997
Batch Number	RANGE (HIGH OR LOW)		LOW
96004464	INSTRUMENT UNCERTAINTY	(IU)	3.34E-08
Rerun	INSTRUMENT RESULT	(IR)	2.75E-06
0	DETECTION LEVEL µg/g		1.68E+00
Sample Prep			
N/A	CONCENTRATION IN SOLUTION (g/L)		2.75E-04
Sample #	RESULT (µg/g)		1.25E+02
WL8520	RELATIVE % UNCERTAINTY		1.2
Instrument Code			
U01			
Prepared By			
MCB			
Chemist			
JLS			
Analyst			
CRJ			
Date Complete			
05/30/96			
Analysis Date			
05/29/96			
Analysis Time			
11:30 AM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	CRJ	Date:	30-May-96
Signature of Chemist:	JLS	Date:	

BLANK.WB1 REV 2.0 925009ML

WORKBOOK PAGE: SAM3

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
8520	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
@U-01	DIGEST FACTOR	(Dg/L)	2.2084
Matrix	LIFETIME IN MICROSECONDS		269.00
SOLID	R2 VALUE		0.9997
Batch Number	RANGE (HIGH OR LOW)		HIGH
96004464	INSTRUMENT UNCERTAINTY	(IU)	6.48E-06
Rerun	INSTRUMENT RESULT	(IR)	2.10E-04
1	DETECTION LEVEL µg/g		1.68E+00
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		2.10E-02
Sample #	RESULT (µg/g)		9.51E+03
S96T001220	RELATIVE % UNCERTAINTY		3.1
Instrument Code			
U01			
Prepared By			
MCB			
Chemist			
JLS			
Analyst			
CRJ			
Date Complete			
05/30/96			
Analysis Date			
05/29/96			
Analysis Time			
11:30 AM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	CRJ	Date:	30-May-96
Signature of Chemist:	JLS	Date:	

SAMPLE.WB1 REV 2.0 925009ML

WORKBOOK PAGE: DUP4

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			DUP
DUP	VOLUME OF SAMPLE (mL)	(SS)	1.00
Work List	DILUTION FACTOR OF SAMPLE	(DF)	1.00
8520	PREPARATION FACTOR OF SAMPLE	(PF)	100.00
Test Code	DIGEST FACTOR	(Dg/L)	2.0548
@U-01	LIFETIME IN MICROSECONDS		280.00
Matrix	R2 VALUE		0.9996
SOLID	RANGE (HIGH OR LOW)		HIGH
Batch Number	INSTRUMENT UNCERTAINTY	(IU)	6.54E-06
96004464	INSTRUMENT RESULT	(IR)	2.12E-04
Rerun	DETECTION LEVEL µg/g		1.80E+00
1			
Sample Prep	CONCENTRATION IN SOLUTION (g/L)		2.12E-02
FUSION01	RESULT (µg/g)		1.03E+04
Sample #	RELATIVE % UNCERTAINTY		3.1
S96T001220			
Instrument Code			
U01			
Prepared By			
MCB			
Chemist			
JLS			
Analyst			
CRJ			
Date Complete			
05/30/96			
Analysis Date			
05/29/96			
Analysis Time			
11:30 AM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	CRJ	Date:	30-May-96
Signature of Chemist:	JLS	Date:	

SAMPLE.WB1 REV 2.0 925009ML

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: SPIKE5

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			SPIKE
SPK	SPIKE BOOK #		22B55
Work List	VOLUME OF SAMPLE + SPIKE (mL)	(SS)	1.00
8520	DILUTION FACTOR OF SAMPLE + SPIKE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF)	100.00
@U-01	DIGEST FACTOR OF SAMPLE	(DDF)	2.2084
Matrix	LIFETIME IN MICROSECONDS		245.00
SOLID	R2 VALUE		0.9996
Batch Number	RANGE (HIGH OR LOW)		HIGH
96004464	INSTRUMENT RESULT	(IR)	7.05E-04
Rerun	CONCENTRATION IN SOLUTION (g/L)	(CONC)	7.05E-02
1	SPIKE VALUE (g/L)	(SV)	5.69E-02
Sample Prep	INITIAL VOLUME OF SPIKE (mL)	(IV)	0.10
FUSION01	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV)	0.10
Sample Number	CONCENTRATION IN SOLN (g/L) FROM SAMPLE FORM	(SR)	2.10E-02
S96T001220			
Instrument Code			
U01			
Prepared By			
MCB			
Chemist			
JLS			
Analyst			
CRJ			
Date Complete			
06/30/96			
Analysis Date			
06/29/96			
Analysis Time			
11:30 AM			
Sample Point			
B-106			

Concentration = IR * DF * PF

QC Actual (µg/mL) = SV (g/L) * 1000

QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000

% Recovery = QC FOUND / QC ACTUAL

QC ACTUAL	=	5.69E+01	µg/mL
QC FOUND	=	4.95E+01	µg/mL
% SPIKE RECOVERY	=	87.0%	

Analyst:	CRJ	Date:	30-May-96
Signature of Chemist:	JLS	Date:	

SPIKE.WB1 REV 2.0 925009ML

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

LABCORE Data Entry Template for Worklist# 8191

Analyst: KNT **Instrument:** U01 _____ **Book#** 45B56

Method: LA-925-009 Rev/Mod A-1

Worklist Comment: 1-10ml Sample Prep.For spike use: 0.1ml. new

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@U-01	SOLID		
2	BLNK-PREP				@U-01	SOLID		
3	SAMPLE	S96T001220	0	F	@U-01	SOLID	95000096	B-106
		Analytes Requested:			U-02	, U-02E		
4	DUP	S96T001220	0	F	@U-01	SOLID		
5	SPK	S96T001220	0	F	@U-01	SOLID		

Final page for worklist # 8191

Kim Thomas 5-2-96
Analyst Signature **Date**

Sue E. Hogan 5/3/96
Analyst Signature **Date**

G.J. Opinen 5/7/96

Data Entry Comments:

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

LABCORE Completed RadChem Report for Worklist#: 8191

Analyst: cjo **Instrument:** U01 **Book#** 45856

Method: LA-925-009 Rev/Mod A-1

Worklist Comment: 1-10ml Sample Prep.For spike use: 0.1ml. new

Seq	Type	Sample#	R	A		Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@U-01	U-02	SOLID	6.39E-02	6.18E-02	96.714	% Recovery
1	STD		0		@U-01	U-02E	SOLID	1	3.24E+00	3.240	% Inst Error
2	BLNK-PREP		0		@U-01	U-02	SOLID	1	1.16E+3	1160.000	ug/g
2	BLNK-PREP		0		@U-01	U-02E	SOLID	1	2.00E+00	2.000	% Inst Error
3	SAMPLE	S96T001220	0	F	@U-01	U-02	SOLID	N/A	1.19E+04	184.0e-002	ug/g
3	SAMPLE	S96T001220	0	F	@U-01	U-02E	SOLID	N/A	3.17E+00	0.0e+000	% Inst Error
4	DUP	S96T001220	0	F	@U-01	U-02	SOLID	1.19E+4	1.16E+4	2.553	RPD
4	DUP	S96T001220	0	F	@U-01	U-02E	SOLID	1	3.21E+00	3.210	% Inst Error
5	SPK	S96T001220	0	F	@U-01	U-02	SOLID	5.69E+01	0.00E+00	0.000	% Recovery

Final page for worklist# 8191

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

J. L. Slippers 5/9/96
Reviewer Signature **Date**

Sample concentration too high for spike concentration. Sample will be rerun with dilution.

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

URANIUM ANALYSIS

```
Sample ID  45856                          Date/Time  05/02/96/03:11:07
Description  STD                          Cal Y=6.27E+07X-2.90E+02
Ref. Ratio 1.011                          Intensity 3097      (t=  39     us)
Laser Pulses 500                          Conc 6.18E-05 + 2.00E-06 g/L
Lifetime 259 + 1.306 us                   Dilution Factor 1 mL/mL
R2 .9989
Integrated 53748              FINAL RESULT  6.18E-05 + 2.00E-06 g/L
Range: HIGH
```

```
Sample ID                                 Date/Time  05/02/96/04:22:25
Description  BLNK-PREP                    Cal Y=4.67E+09X0
Ref. Ratio .988                           Intensity 49716     (t=  78     us)
Laser Pulses 500                          Conc 2.33E-05 + 4.65E-07 g/L
Lifetime 108 + .436 us                    Dilution Factor 1 mL/mL
R2 .9993
Integrated 415719             FINAL RESULT  2.33E-05 + 4.65E-07 g/L
Range: LOW
```

```
Sample ID  896T001220                     Date/Time  05/02/96/04:29:04
Description  BAM                          Cal Y=6.27E+07X-2.90E+02
Ref. Ratio 1.011                          Intensity 12222     (t=  39     us)
Laser Pulses 500                          Conc 2.38E-04 + 7.54E-06 g/L
Lifetime 282 + .631 us                    Dilution Factor 1 mL/mL
R2 .9998
Integrated 235198             FINAL RESULT  2.38E-04 + 7.54E-06 g/L
Range: HIGH
```

```
Sample ID  896T001220                     Date/Time  05/02/96/04:31:24
Description  DLF                          Cal Y=6.27E+07X-2.90E+02
Ref. Ratio 1.007                          Intensity 50934     (t= 260     us)
Laser Pulses 500                          Conc 2.38E-03 + 7.64E-05 g/L
Lifetime 256 + .655 us                    Dilution Factor 1 mL/mL
R2 .9997
Integrated 929179             FINAL RESULT  2.38E-03 + 7.64E-05 g/L
Range: HIGH
```

```
Sample ID  896T001220                     Date/Time  05/02/96/04:33:42
Description  BPK                          Cal Y=6.27E+07X-2.90E+02
Ref. Ratio 1.022                          Intensity 50279     (t= 130     us)
Laser Pulses 500                          Conc 1.39E-03 + 4.44E-05 g/L
Lifetime 266 + .752 us                    Dilution Factor 1 mL/mL
R2 .9997
Integrated 943991             FINAL RESULT  1.39E-03 + 4.44E-05 g/L
Range: HIGH
```

WHC-SD-WM-DP-140, REV. 1

WORKBOOK PAGE: STD1

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			STANDARD
STD	STANDARD BOOK #		45B56
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
8191	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	1.00
@U-01	LIFETIME IN MICROSECONDS		259.00
Matrix	R2 VALUE		0.9989
LIQUID	RANGE (HIGH OR LOW)		HIGH
Batch Number	INSTRUMENT UNCERTAINTY	(IU)	2.00E-06
96004056	INSTRUMENT RESULT	(IR)	6.18E-05
Rerun	DETECTION LEVEL (µg/mL)		3.70E-05
0			
Sample Prep			
N/A	RESULT (µg/mL)		6.18E-02
Sample #	VALUE OF STANDARD		6.39E-02
WL8191	%RECOVERY		96.71
Instrument Code	RELATIVE % UNCERTAINTY		3.2
UO1			
Prepared By			
SEH			
Chemist			
JLS			
Analyst			
KNT			
Date Complete			
05/03/96			
Analysis Date			
05/02/96			
Analysis Time			
04:45 AM			
Sample Point			
B-106			

Result = DF * PF * IR * 1000

Detection Level = 3.70 E-08 * DF * PF * 1000

% Recovery = Result / Value of Standard * 100

Relative % Uncertainty = IU / IR * 100

Analyst:	KNT	Date:	03-May-96
Signature of Chemist:	JLS	Date:	5/9/96

STANDARD.WB1 REV 2.0 925009ML

WORKBOOK PAGE: BLANK2

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
BLNK-PREP			BLANK
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
8191	DILUTION FACTOR OF SAMPLE	(DF)	11.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.2084
Matrix	LIFETIME IN MICROSECONDS		108.00
SOLID	R2 VALUE		0.9993
Batch Number	RANGE (HIGH OR LOW)		LOW
96004056	INSTRUMENT UNCERTAINTY	(IU)	4.65E-07
Rerun	INSTRUMENT RESULT	(IR)	2.33E-05
0	DETECTION LEVEL µg/g		1.84E+00
Sample Prep			
N/A	CONCENTRATION IN SOLUTION (g/L)		2.56E-03
Sample #	RESULT (µg/g)		1.16E+03
WL8191	RELATIVE % UNCERTAINTY		2.0
Instrument Code			
UO1			
Prepared By			
SEH			
Chemist			
JLS			
Analyst			
KNT			
Date Complete			
05/03/96			
Analysis Date			
05/02/96			
Analysis Time			
04:45 AM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:		KNT	Date: 03-May-96
Signature of Chemist:		JLS	Date: 5/9/96

BLANK.WB1 REV 2.0 925009ML

WORKBOOK PAGE: SAM3

[illegible]-DP-140, REV. 1

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
SAMPLE			SAMPLE
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
8191	DILUTION FACTOR OF SAMPLE	(DF)	11.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.2084
Matrix	LIFETIME IN MICROSECONDS		282.00
SOLID	R2 VALUE		0.9998
Batch Number	RANGE (HIGH OR LOW)		HIGH
96004056	INSTRUMENT UNCERTAINTY	(IU)	7.54E-06
Rerun	INSTRUMENT RESULT	(IR)	2.38E-04
0	DETECTION LEVEL µg/g		1.84E+00
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		2.62E-02
Sample #	RESULT (µg/g)		1.19E+04
S96T001220	RELATIVE % UNCERTAINTY		3.2
Instrument Code			
UO1			
Prepared By			
SEH			
Chemist			
JLS			
Analyst			
KNT			
Date Complete			
05/03/96			
Analysis Date			
05/02/96			
Analysis Time			
04:45 AM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	KNT	Date:	03-May-96
Signature of Chemist: J. L. Slipper	JLS	Date:	5/9/96

SAMPLE.WB1 REV 2.0 925009ML

WORKBOOK PAGE: DUP4

[illegible]-WM DP- 140, REV. 1

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

Type			
DUP			DUP
Work List	VOLUME OF SAMPLE (mL)	(SS)	1.00
8191	DILUTION FACTOR OF SAMPLE	(DF)	1.00
Test Code	PREPARATION FACTOR OF SAMPLE	(PF)	10.00
@U-01	DIGEST FACTOR	(Dg/L)	2.0548
Matrix	LIFETIME IN MICROSECONDS		256.00
SOLID	R2 VALUE		0.9997
Batch Number	RANGE (HIGH OR LOW)		HIGH
96004056	INSTRUMENT UNCERTAINTY	(IU)	7.64E-05
Rerun	INSTRUMENT RESULT	(IR)	2.38E-03
0	DETECTION LEVEL µg/g		1.80E-01
Sample Prep			
FUSION01	CONCENTRATION IN SOLUTION (g/L)		2.38E-02
Sample #	RESULT (µg/g)		1.16E+04
S96T001220	RELATIVE % UNCERTAINTY		3.2
Instrument Code			
UO1			
Prepared By			
SEH			
Chemist			
JLS			
Analyst			
KNT			
Date Complete			
05/03/96			
Analysis Date			
05/02/96			
Analysis Time			
04:45 AM			
Sample Point			
B-106			

Result = Conc. in Solution (g/L) * 1000000 / Dg/L

Detection Level = 3.70 E-08 * DF * PF * 1000000/ DF

Relative % Uncertainty = IU / IR * 100

Concentration in Solution (g/L) = IR * DF * PF

Analyst:	KNT	Date:	03-May-96
Signature of Chemist: J L Slippers	JLS	Date:	5/9/96

SAMPLE.WB1 REV 2.0 925009ML

WORKBOOK PAGE: SPIKE5

Uranium by Phosphorescence: LA-925-009 (A-1) LIQUID/SOLID

			SPIKE
SPK	SPIKE BOOK #		22B55
	VOLUME OF SAMPLE + SPIKE (mL)	(SS)	1.00
8191	DILUTION FACTOR OF SAMPLE + SPIKE	(DF)	1.00
	PREPARATION FACTOR OF SAMPLE + SPIKE	(PF)	10.00
@U-01	DIGEST FACTOR OF SAMPLE	(DDF)	2.2084
	LIFETIME IN MICROSECONDS		266.00
SOLID	R2 VALUE		0.9997
	RANGE (HIGH OR LOW)		HIGH
96004056	INSTRUMENT RESULT	(IR)	1.39E-03
	CONCENTRATION IN SOLUTION (g/L)	(CONC)	1.39E-02
0	SPIKE VALUE (g/L)	(SV)	5.69E-02
	INITIAL VOLUME OF SPIKE (mL)	(IV)	0.10
FUSION01	ORIGINAL SAMPLE VOLUME BEFORE PREP (mL)	(OSV)	1.00
	CONCENTRATION IN SOLN (g/L) FROM SAMPLE FORM	(SR)	2.62E-02
S96T001220			
UO1			
SEH			
JLS			
KNT			
05/03/96			
05/02/96			
04:45 AM			
B-108			

Concentration = IR * DF * PF

QC Actual (µg/mL) = SV (g/L) * 1000

QC Found (µg/mL) = (CONC - SR) * OSV / IV * 1000

% Recovery = QC FOUND / QC ACTUAL

QC FOUND IS A < VALUE; 0 WILL BE REPORTED TO MLIMS AND DVD

QC ACTUAL	=	5.69E+01	µg/mL
QC FOUND	<	-1.23E+02	µg/mL
% SPIKE RECOVERY	<	-215.8%	

Analyst:	KNT	Date:	03-May-96
Signature of Chemist:	JLS	Date:	5/9/96

SPIKE.WB1 REV 2.0 925009ML

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

PART II

WHC-SD-WM-DP-140, REV. 0

ANALYTICAL SERVICES

45-DAY SAFETY SCREEN RESULTS FOR TANK 241-B-106, PUSH MODE CORES 93 AND 94

Date Printed: AUGUST 17, 1995

54-7600-075

Hanford Operations and Engineering Contractor for the US Department of Energy

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NARRATIVE

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45-DAY SAFETY SCREENING REPORT FOR TANK 241-B-106, PUSH MODE CORE SAMPLES 93 AND 94

ANALYTICAL SUMMARY

Two push-mode core samples, consisting of two segments each, were taken from tank 241-B-106 (B-106). The samples were received at the 222-S Laboratories and underwent safety screening analyses, consisting of differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), and determination of total alpha activity. All of the analytical results were within the action limits stated in the Sampling and Analysis Plan (SAP) [Reference 1]. As required in the revised *Tank Safety Screening Data Quality Objective* (DQO) [Reference 2], a 90% confidence interval was calculated for the sample results. The precision requirements of the SAP were satisfied by comparing a one-sided 90% confidence interval of the mean for each sample to the action limit, rather than requiring a relative percent difference between sample and duplicate results of less than 10%. Results for all samples remained within the action limits when compared at a 90% confidence level. The statistical technique that was used is described in Attachment 1.

When compared to the decision rules in the DQO [2], none of the data indicate that the tank should be considered "unsafe." The tank can be considered "safe" once it has been determined that no flammability concern exists in the tank vapor space.

As lithium bromide was used as a tracer in the hydrostatic head fluid (HHF) used during drilling, the samples were tested for lithium by inductively coupled plasma spectroscopy (ICP) to determine whether the HHF had contaminated the samples. All results were below detection limits, and below the action limit stated in the SAP [1]. Sample S95T001277 will be rerun due to poor spike recovery.

SCOPE

This document serves as the 45-day report deliverable for the tank B-106 push mode core samples collected on July 17 and 18, 1995 (core samples 93 and 94). The 222-S Laboratories received, extruded, and analyzed each sample in accordance with the SAP referenced below. Included in this report are the primary safety screening results obtained from the analyses, and copies of all DSC and TGA raw data scans as requested in the SAP [1].

No additional testing to support safety screening analyses is required. Any additional analyses conducted by the 222-S Laboratories on the B-106 core samples will be included in a revision to this report.

SAMPLE RECEIPT, EXTRUSION, AND SUBSAMPLING

Core 93

Push mode core sample 93 was collected from riser 2 of tank B-106 on July 14, 1995. The core sample consisted of two segments and a field blank. The samples were received at the 222-S Laboratories on July 17 and extruded on July 18 and 19.

Field blank. Upon extrusion, the field blank was collected into two jars. A total of 241.3 g of clear, colorless liquid was recovered. A subsample was loaded out of the hot cell for analysis, and an archive sample was retained in the hot cell.

Segment 1 (sample number 95-0110). Approximately 11 inches of wet, brown, solids were extruded from segment 1. The sample did not retain its shape, but tended to sag and spread out on the tray. A total of 84.2 grams of light-brown drainable liquid was recovered. The solids were subsampled into half-segments. The lower half-segment solids weighed 166.0 grams. This portion of the sample appeared to be slightly lighter in color than the upper half-segment. The upper half-segment solids weighed 121.6 grams. Subsamples for laboratory analyses and archiving were created as called for in the tank SAP.

Segment 2 (sample number 95-0111). Approximately 19 inches were recovered from segment 2. No drainable liquid was observed nor collected. The lower 5.5 inches appeared to be a light-green, creamy, sludge. This portion (95.7 g) was subsampled as the lower half-segment. The upper 13.5 inches were a brown sludge similar in appearance to the first segment solids. This material (238.8 g) was subsampled as the upper half-segment. Subsamples were created for laboratory analyses and archiving as called for in the SAP.

Core 94

Push mode core sample 94 was collected from riser 7 of the tank on July 18, 1995. The core sample consisted of two segments. The samples were received at the laboratory on July 18 and extruded on July 20.

HHF blank. An HHF blank was shipped along with the samples, but was not loaded into the hot cell as it was not radioactively contaminated. A subsample from the HHF blank was taken for laboratory analyses.

Segment 1 (sample number 95-0112). Approximately 19 inches were recovered from segment 1. No drainable liquid was observed nor collected. The sample appeared to be a creamy, brown, sludge, which tended to sag and spread out on the tray. The lower 5 inches were a darker shade of brown than the upper 14 inches. The sample was broken into half-segments at the point of the color change. The lower half-segment solids weighed 87.8 grams, and the upper half-segment solids weighed 335.9 grams. Subsamples were created for laboratory analyses and archiving as called for in the SAP.

Segment 2 (sample number 95-0113). Approximately 16 inches of sample were extruded from segment 2. No drainable liquid was observed nor collected. The lower portion (4.5 inches) of the sample was a light-green color, while the upper portion (11.5 inches) was light brown. A total of 91.3 grams was subsampled as the lower half-segment, and 217.9 grams were subsampled as the upper half-segment. Subsamples were created for laboratory analyses and archiving in accordance with the SAP.

ANALYTICAL RESULTS

Thermogravimetric Analysis

One drainable liquid sample and eight half-segment solids samples were submitted for determination of moisture content by TGA in accordance with procedure LA-560-112, Rev. A-2 (the first weight-loss step on the TGA scans is interpreted as a loss of moisture from the sample). The samples were analyzed in duplicate. The results are presented in the summary tables, and the raw data scans are attached. All results were well above the action limit of 17 weight percent water (the lowest measured moisture content was 55.98%). As required in the revised safety screening DQO, the sample results were compared to the action limit at a 90% confidence level. These comparisons are presented in Table 1. A summary of the statistical technique is presented in Attachment 1. The lower 90% confidence level for all samples is well above the action limit of 17%.

Six standards were run with these samples. The percent recovery for each standard analyzed was within the 90-110% range specified in the SAP. The results are presented in the summary tables.

Differential Scanning Calorimetry

One drainable liquid sample and eight half-segment solids samples were submitted for determination of energetics by DSC in accordance with procedure LA-514-113, Rev. B-1. The samples were analyzed in duplicate. The results are presented in the summary tables, and the raw data scans are attached. Any exotherms on the scans would be visible as a rise from the baseline established at the beginning and ending of the scan. None of the samples exhibited exotherms. Therefore, the upper 90% confidence level values calculated for each sample (presented in Table 2) are all zero as well.

Seven standards were run with these samples. The percent recovery for each standard analyzed was within the 90-110% range specified in the SAP. The results are presented in the summary tables.

Alpha Total

Eight half-segment solids samples were submitted for total alpha analysis in accordance with procedure LA-508-101, Rev. D-2. The samples were fused as called for in procedure LA-549-141, Rev. D-0 prior to analysis. Two fusions were prepared for each sample (for duplicate results). Each fused dilution was analyzed twice; the results were averaged and reported as one value. The highest result returned was 0.0617 μCi/g, almost three orders of magnitude below the action limit of 41 μCi/g. The upper 90% confidence level for each sample has been calculated and is presented in Table 3. All of the adjusted results are far below the action limit.

Results for the four blanks run with these samples were below detection limits. Three of the four standards run with these samples exhibited recoveries within the 90-110% range specified in the SAP. The standard run with samples S95T001307 and S95T001311 exhibited a recovery of 87.10%. Since the results for these samples were very low (less-than-detectable for

S95T001311 and an average of 0.0615 µCi/g for S95T001307) and the standard recovery was within the method control limits (70.5% to 128.9%), reruns to improve standard recovery were deemed unnecessary. A spike was run with sample S95T001277. The spike recovery was acceptable (96.70%). These quality control results are presented in the summary tables.

Lithium (by ICP)

Lithium was analyzed by ICP as called for in procedure LA-505-151, Rev. D-2, or LA-505-161, Rev. A-1 (depending on which ICP analyzer was used). Solids subsamples were prepared by fusion as called for in procedure LA-549-141, Rev. D-0. All analyses were performed in duplicate. All results for all samples from the tank (one drainable liquid sample and eight fused solids samples) were below detection limits. The results on all samples from the tank were below the notification limit of 100 µg/g. All results are presented in the summary tables.

Results for the field blank submitted with core 93 averaged 0.0172 µg/g. This value is less than two times the detection limit, indicating very little contamination of lithium in the field blank. A hydrostatic head fluid blank was submitted with core 94. The results on this sample averaged 1930 µg/g. These results are presented in the summary tables.

All five standards run with these samples exhibited recoveries within the 90-110% range specified in the SAP. Five instrument blanks were also analyzed along with these samples. The highest concentration for a blank sample was 0.0415 µg/g. Spiked samples were analyzed along with all nine of the tank waste samples. Spike recoveries for seven of the samples were between 87% and 94%. The spike recovery for sample S95T001282 was 80.83%, which is still within the laboratories' internal quality control limits of 75-125%. The spike recovery for sample S95T001277 was 71.18%. This sample will be rerun, and the results will be provided in a subsequent report. All quality control results are presented in the summary tables.

REFERENCES

[1] J. M. Conner, *Tank 241-B-106 Push Mode Core Sampling and Analysis Plan*, WHC-SD-WM-TSAP-002, Rev. 0, Westinghouse Hanford Company, Richland, Washington, June 15, 1995.

[2] H. Babad, J. W. Hunt, and K. S. Redus, *Tank Safety Screening Data Quality Objective*, WHC-SD-WM-SP-004, Rev. 1, Westinghouse Hanford Company, Richland, Washington, April 27, 1995.

Table 1. 90% Lower Confidence Interval Limits for (TGA) Percent Water (Units are in %).

Sample Number and Description	$\hat{\mu}$	$\hat{\sigma}^2_{\hat{\mu}}$	LL
S95T001272 C93/S1 Dr.Liq.	67.23	0.009	66.93
S95T001278 C93/S1 UH	59.18	0.116	58.13
S95T001275 C93/S1 LH	63.06	0.212	61.64
S95T001284 C93/S2 UH	59.76	0.397	57.82
S95T001281 C93/S2 LH	56.59	0.372	54.71
S95T001302 C94/S1 UH	62.35	0.0001	62.32
S95T001298 C94/S1 LH	64.09	0.922	61.14
S95T001310 C94/S2 UH	61.38	0.005	61.16
S95T001306 C94/S2 LH	57.05	0.001	56.94

C = Core Number
S = Segment Number
UH = Upper Half
LH = Lower Half
Dr.Liq. = Drainable Liquid

Table 2. 90% Upper Confidence Interval Limits for DSC (Units are in Joules/g).

Sample Number and Description	$\hat{\mu}$	$\hat{\sigma}^2_{\hat{\mu}}$	UL
S95T001272 C93/S1 Dr.Liq.	0	0	0
S95T001278 C93/S1 UH	0	0	0
S95T001275 C93/S1 LH	0	0	0
S95T001284 C93/S2 UH	0	0	0
S95T001281 C93/S2 LH	0	0	0
S95T001302 C94/S1 UH	0	0	0
S95T001298 C94/S1 LH	0	0	0
S95T001310 C94/S2 UH	0	0	0
S95T001306 C94/S2 LH	0	0	0

C = Core Number
S = Segment Number
UH = Upper Half
LH = Lower Half
Dr.Liq. = Drainable Liquid

Table 3. 90% Upper Confidence Interval Limits for Total Alpha (Units are in μCi/g).

Sample Number and Description	$\hat{\mu}$	$\hat{\sigma}^2_{\hat{\mu}}$	UL
S95T001279* C93/S1 UH	0.07	0.000119	0.10
S95T001277* C93/S1 LH	0.04	0.000033	0.06
S95T001285* C93/S2 UH	0.06	0.000001	0.06
S95T001282 C93/S2 LH	0.05	0.0000006	0.06
S95T001303* C94/S1 UH	0.04	0.0000001	0.04
S95T001299* C94/S1 LH	0.04	0.00000006	0.04
S95T001311* C94/S2 UH	0.03	0.0000245	0.05
S95T001307 C94/S2 LH	0.06	0.00000004	0.06

C = Core Number
S = Segment Number
UH = Upper Half
LH = Lower Half
* indicates that less-than-detectable values were used for the calculation

ATTACHMENT 1

Discussion of 90% Confidence Limits

The 90% Confidence Interval lower limit (LL) on the mean for percent water (TGA) data is

$$\hat{\mu} - t_{(a-1)} * \sqrt{\hat{\sigma}^2_{\hat{\mu}}}$$

The 90% Confidence Interval upper limit (UL) on the mean for DSC and total alpha data is

$$\hat{\mu} + t_{(a-1)} * \sqrt{\hat{\sigma}^2_{\hat{\mu}}}$$

where $\hat{\mu}$ is the ordinary sample mean and $\hat{\sigma}^2_{\hat{\mu}}$ is the variance of the sample mean and $t_{(a-1)}$ is a quantile from Student's t distribution with a-1 degrees of freedom. In these equations a is the number of samples in each sub-segment, and $t_{(1)}$ is equal to 3.078 for a one-sided 90% confidence interval.

Note: $\hat{\sigma}^2_{\hat{\mu}} = \hat{\sigma}^2/n$

Table 1 of the report gives the lower limits (LL) to the 90% confidence interval on the percent water (TGA) for each sub-segment in B-106. If the lower limit is greater than 17%, then we reject the null hypothesis that the percent water is less than or equal to 17 percent.

Table 2 of the report gives the upper limit (UL) to the 90% confidence interval for DSC for each sub-segment in B-106. If the upper limit is less than 481 Joules/g, then we reject the null hypothesis that DSC is greater than or equal to 481 Joules/g.

Table 3 of the report gives the upper limit (UL) to the 90% confidence interval on the Total Alpha for each sub-segment in B-106. If the upper limit is less than 41 μCi/g, then we reject the null hypothesis that the Total Alpha is greater than or equal to 41 μCi/g.

WHC-SD-WM-DP-140, REV. 0

SAMPLE DATA SUMMARY

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INTERIM

45-Day Safety Screening Results
B-106

CORE NUMBER: 93, 94
SEGMENT #: Core 93 Seg 1

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001278			% Water by TGA using Mettler	%	17.00	115.0	101.4	n/a	59.52	58.84	59.18	1.15	n/a	n/a	n/a
S95T001278			DSC Exotherm using Mettler	Joules/g	-9.9e+01	481.0	110.0	n/a	0.00e+00	0.00e+00	0.00e+00	n/a	n/a	n/a	n/a
S95T001279		F	Alpha of Digested Solid	uCi/g	-9.9e+01	41.01	105.0	<3.40e-02	< 8.19e-2	<6.00e-2	n/a	n/a	n/a	7.68e-02	162.5
S95T001279		F	Lithium -ICP-Fusion	ug/g	-9.9e+01	100.0	98.40	1.75e-02	< 47.3400	<46.6800	n/a	n/a	93.24	47.30	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001275			% Water by TGA using Mettler	%	17.00	115.0	103.7	n/a	63.52	62.60	63.06	1.46	n/a	n/a	n/a
S95T001275			DSC Exotherm using Mettler	Joules/g	-9.9e+01	481.0	109.0	n/a	0.00e+00	0.00e+00	0.00e+00	n/a	n/a	n/a	n/a
S95T001277		F	Alpha of Digested Solid	uCi/g	-9.9e+01	41.01	105.0	<3.40e-02	< 3.40e-2	<4.55e-2	n/a	n/a	96.70	7.74e-02	99.9
S95T001277		F	Lithium -ICP-Fusion	ug/g	-9.9e+01	100.0	98.40	1.75e-02	< 47.6600	<47.4400	n/a	n/a	71.18	47.70	n/a

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INTERIM

INTERIM

45-Day Safety Screening Results
B-106

CORE NUMBER: 93, 94
SEGMENT #: Core 93 Seg 1

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001272			% Water by TGA using Mettler	%	17.00	115.0	103.4	n/a	67.32	67.13	67.22	0.28	n/a	n/a	n/a
S95T001272			DSC Exotherm using Mettler	Joules/g	-9.9e+01	481.0	102.6	n/a	0.00e+00	0.00e+00	0.00e+00	n/a	n/a	n/a	n/a
S95T001272		D	Lithium-ICP-Acid Dil.	ug/mL	-9.9e+01	100.0	98.48	7.00e-04	< 4.0100	<4.0100	n/a	n/a	89.33	4.010	n/a

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INTERIM

INTERIM

45-Day Safety Screening Results
B-106

CORE NUMBER: 93, 94
SEGMENT #: Core 93 blank

SEGMENT PORTION: n/a

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count ErrX
S95T001269		D	Lithium-ICP-Acid Dil.	ug/mL	-9.9e+01	100.0	98.48	7.00e-04	1.73e-02	1.71e-02	1.72e-02	1.16	n/a	1.00e-02	n/a

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INTERIM

INTERIM

45-Day Safety Screening Results
B-106

CORE NUMBER: 93, 94
SEGMENT #: Core 93 Seg 2

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001284			% Water by TGA using Mettler	%	17.00	115.0	101.2	n/a	59.13	60.39	59.76	2.11	n/a	n/a	n/a
S95T001284			DSC Exotherm using Mettler	Joules/g	-9.9e+01	481.0	95.61	n/a	0.00e+00	0.00e+00	0.00e+00	n/a	n/a	n/a	n/a
S95T001285		F	Alpha of Digested Solid	uCi/g	-9.9e+01	41.01	97.85	<3.08e-03	< 5.62E-2	<5.41e-2	n/a	n/a	n/a	6.68e-02	500
S95T001285		F	Lithium -ICP-Fusion	ug/g	-9.9e+01	100.0	100.5	4.15e-02	< 44.5000	<45.4880	n/a	n/a	93.53	44.50	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001281			% Water by TGA using Mettler	%	17.00	115.0	101.2	n/a	55.98	57.20	56.59	2.16	n/a	n/a	n/a
S95T001281			DSC Exotherm using Mettler	Joules/g	-9.9e+01	481.0	95.61	n/a	0.00e+00	0.00e+00	0.00e+00	n/a	n/a	n/a	n/a
S95T001282		F	Alpha of Digested Solid	uCi/g	-9.9e+01	41.01	97.85	<3.08e-03	5.40e-02	5.25e-02	5.32e-02	2.82	n/a	7.01e-03	17
S95T001282		F	Lithium -ICP-Fusion	ug/g	-9.9e+01	100.0	100.5	4.15e-02	< 47.1520	<47.4650	n/a	n/a	80.83	47.20	n/a

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INTERIM

INTERIM

45-Day Safety Screening Results
B-106

CORE NUMBER: 93, 94
SEGMENT #: HHF blank

SEGMENT PORTION: Hydrostatic Head Fluid

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001286		D	Lithium-ICP-Acid Dil.	ug/mL	-9.9e+01	100.0	98.48	7.00e-04	1.94e+03	1.93e+03	1.93e+03	0.28	n/a	1.010	n/a

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INTERIM

INTERIM

45-Day Safety Screening Results
B-106

CORE NUMBER: 93, 94
SEGMENT #: Core 94 Seg 1

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count ErrX
S95T001302			% Water by TGA using Mettler	%	17.00	115.0	100.3	n/a	62.36	62.34	62.35	0.03	n/a	n/a	n/a
S95T001302			DSC Exotherm using Mettler	Joules/g	-9.9e+01	481.0	98.77	n/a	0.00e+00	0.00e+00	0.00e+00	n/a	n/a	n/a	n/a
S95T001303		F	Alpha of Digested Solid	uCi/g	-9.9e+01	41.01	95.34	<3.61e-02	< 3.80e-2	<3.73e-2	n/a	n/a	n/a	8.51e-02	438.3
S95T001303		F	Lithium -ICP-Fusion	ug/g	-9.9e+01	100.0	99.87	8.80e-03	< 49.8700	<48.9910	n/a	n/a	88.82	49.90	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count ErrX
S95T001298			% Water by TGA using Mettler	%	17.00	115.0	103.3	n/a	65.05	63.13	64.09	3.00	n/a	n/a	n/a
S95T001298			DSC Exotherm using Mettler	Joules/g	-9.9e+01	481.0	98.77	n/a	0.00e+00	0.00e+00	0.00e+00	n/a	n/a	n/a	n/a
S95T001299		F	Alpha of Digested Solid	uCi/g	-9.9e+01	41.01	95.34	<3.61e-02	< 3.61e-2	<3.56e-2	n/a	n/a	n/a	8.08e-02	155
S95T001299		F	Lithium -ICP-Fusion	ug/g	-9.9e+01	100.0	99.87	8.80e-03	< 47.3660	<46.7460	n/a	n/a	89.81	47.40	n/a

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INTERIM

INTERIM

45-Day Safety Screening Results
B-106

CORE NUMBER: 93, 94
SEGMENT #: Core 94 Seg 2

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001310			% Water by TGA using Mettler	%	17.00	115.0	103.7	n/a	61.31	61.45	61.38	0.23	n/a	n/a	n/a
S95T001310			DSC Exotherm using Mettler	Joules/g	-9.9e+01	481.0	95.96	n/a	0.00e+00	0.00e+00	0.00e+00	n/a	n/a	n/a	n/a
S95T001311		F	Alpha of Digested Solid	uCi/g	-9.9e+01	41.01	87.10	<2.74e-03	< 3.51e-2	<2.52e-2	n/a	n/a	n/a	5.84e-02	500.0
S95T001311		F	Lithium -ICP-Fusion	ug/g	-9.9e+01	100.0	98.47	-1.00e-04	< 44.0839	<43.8059	n/a	n/a	90.31	44.10	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T001306			% Water by TGA using Mettler	%	17.00	115.0	101.8	n/a	57.01	57.08	57.05	0.12	n/a	n/a	n/a
S95T001306			DSC Exotherm using Mettler	Joules/g	-9.9e+01	481.0	109.0	n/a	0.00e+00	0.00e+00	0.00e+00	n/a	n/a	n/a	n/a
S95T001307		F	Alpha of Digested Solid	uCi/g	-9.9e+01	41.01	87.10	<2.74e-03	6.17e-02	6.13e-02	6.15e-02	0.65	n/a	6.30e-03	15.1
S95T001307		F	Lithium -ICP-Fusion	ug/g	-9.9e+01	100.0	98.47	-1.00e-04	< 48.0584	<49.4854	n/a	n/a	89.44	48.10	n/a

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WHC-SD-WM-DP-140, REV. 0

INORGANIC ANALYSES

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LABCORE Data Entry Template for Worklist# 1892

Analyst: JDS **Instrument:** DSC0 1 **Book #** 12N14A

Method: LA-514-113 Rev/Mod ~~B~~ B-1 8-17-95 BDV WHC-SD-WM-DP 140, REV. 1

Worklist Comment: Please run B-106 DSC under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID	28.45	31.0	N/A	Joules/g
95000096	B-106	2	SAMPLE	S95T001275	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000096	B-106	3	DUP	S95T001275	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g
		4	STD				DSC-01	SOLID	28.45	31.3	N/A	Joules/g
95000096	B-106	5	SAMPLE	S95T001278	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000096	B-106	6	DUP	S95T001278	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 1892

See attached for signatures
Analyst Signature **Date** 7-31-95

Verified by Blandina Valenzuela BDV 8-2-95

[signature] 7-31-95
Analyst Signature **Date**

Data Entry Comments: S95T001275 produced two endothermic regions one at 116.3°C with a delta H of 1174.5 J/g and second at 295.0°C with a delta H of 28.9 J/g.
S95T001278 produced two endothermic regions one at 113.3°C with a delta H of 1208.8 J/g and second at 296.8°C with a delta H of 25.1 J/g.

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# 1892

Analyst: ds **Instrument:** DSC0 _____ **Book #** 12N14A

Method: LA-514-113 Rev/Mod B-1

WHC-SD-WM-DP-140, REV. 1

Worklist Comment: Please run B-106 DSC under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Joules/g
95000096	B-106	2	SAMPLE	S95T001275	0		DSC-01	SOLID	N/A			Joules/g
95000096	B-106	3	DUP	S95T001275	0		DSC-01	SOLID			N/A	Joules/g
95000096	B-106	4	SAMPLE	S95T001278	0		DSC-01	SOLID	N/A			Joules/g
95000096	B-106	5	DUP	S95T001278	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 1892

[signature] 7-28-95

Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-27 TO 2-32.

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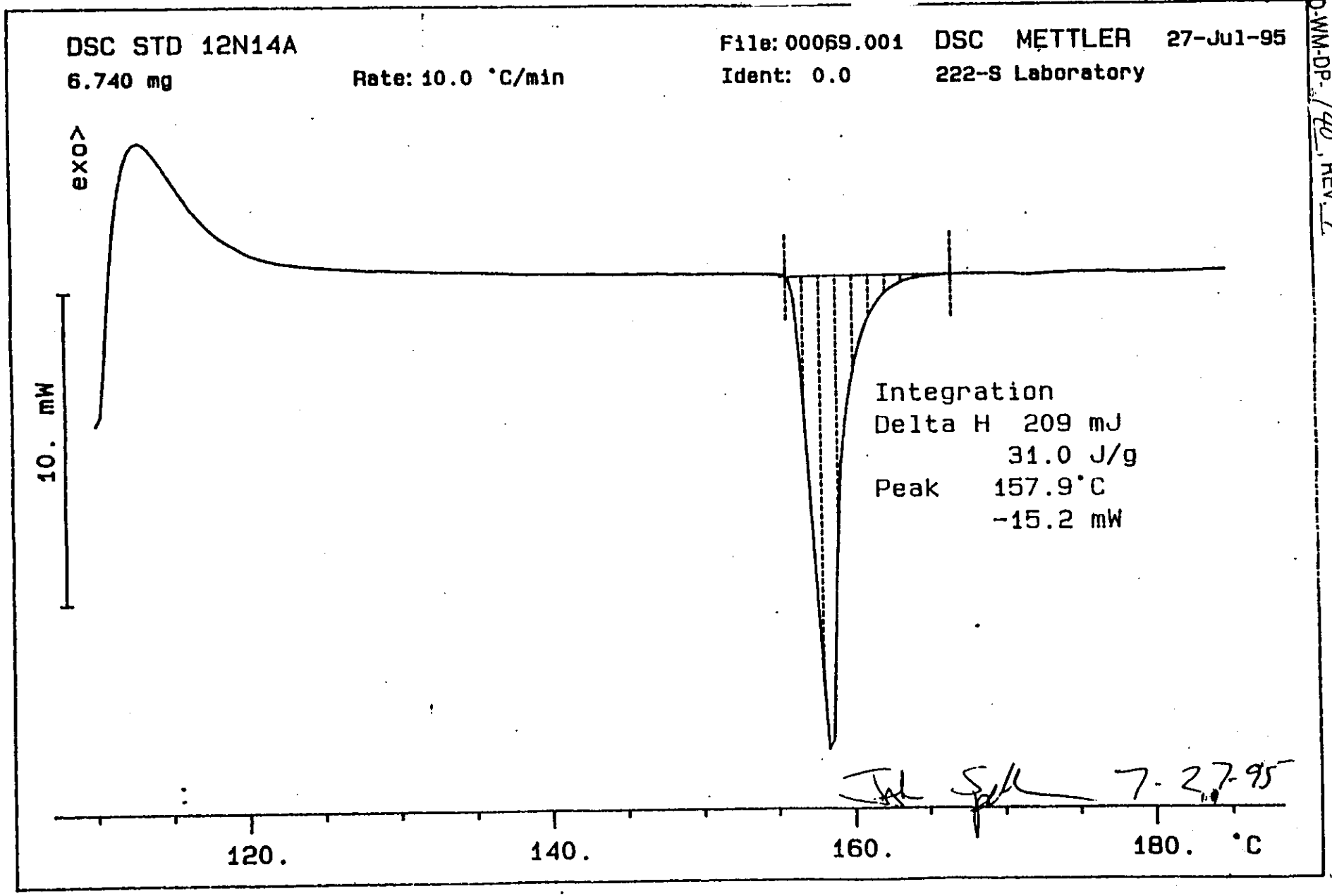

7-27-95

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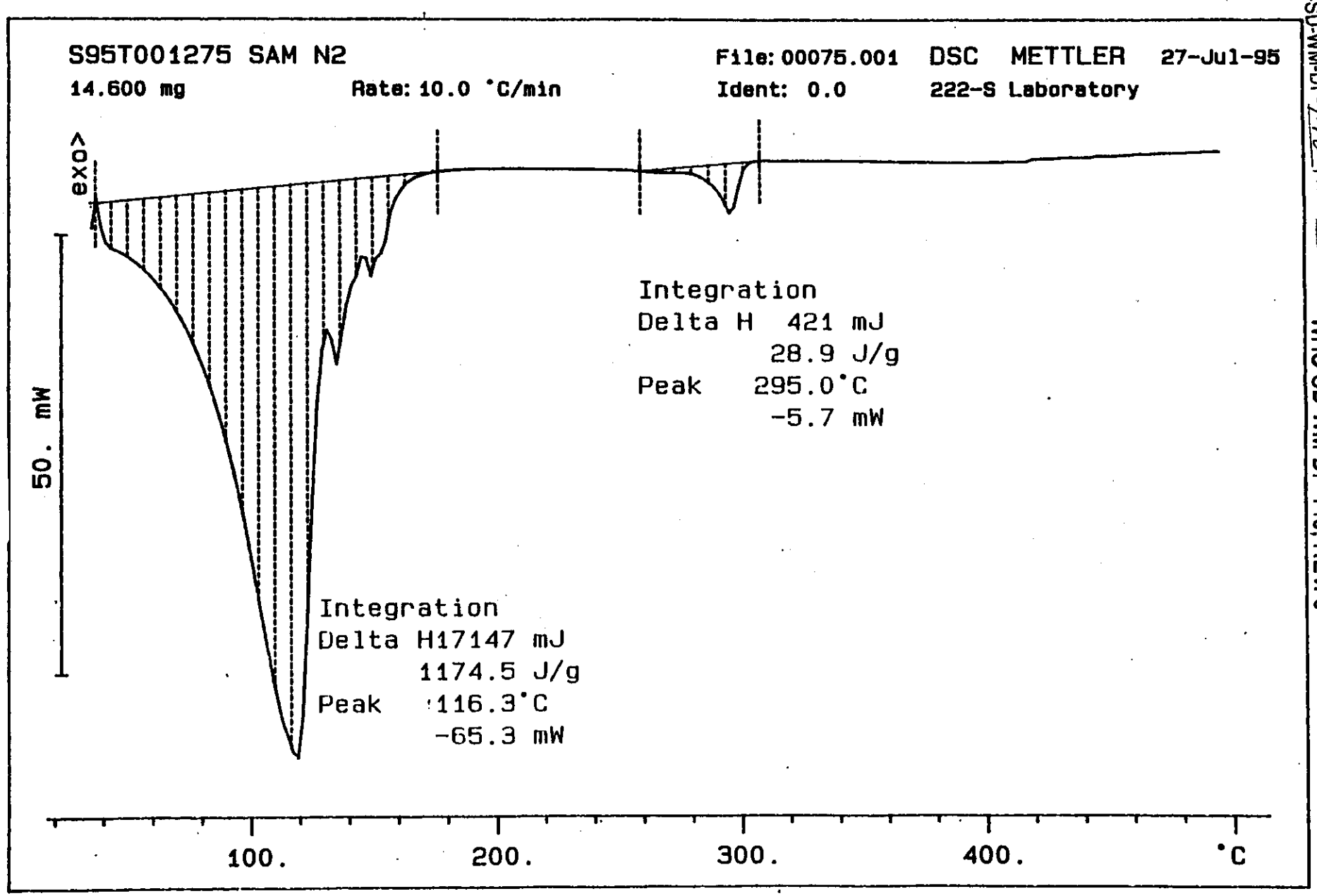

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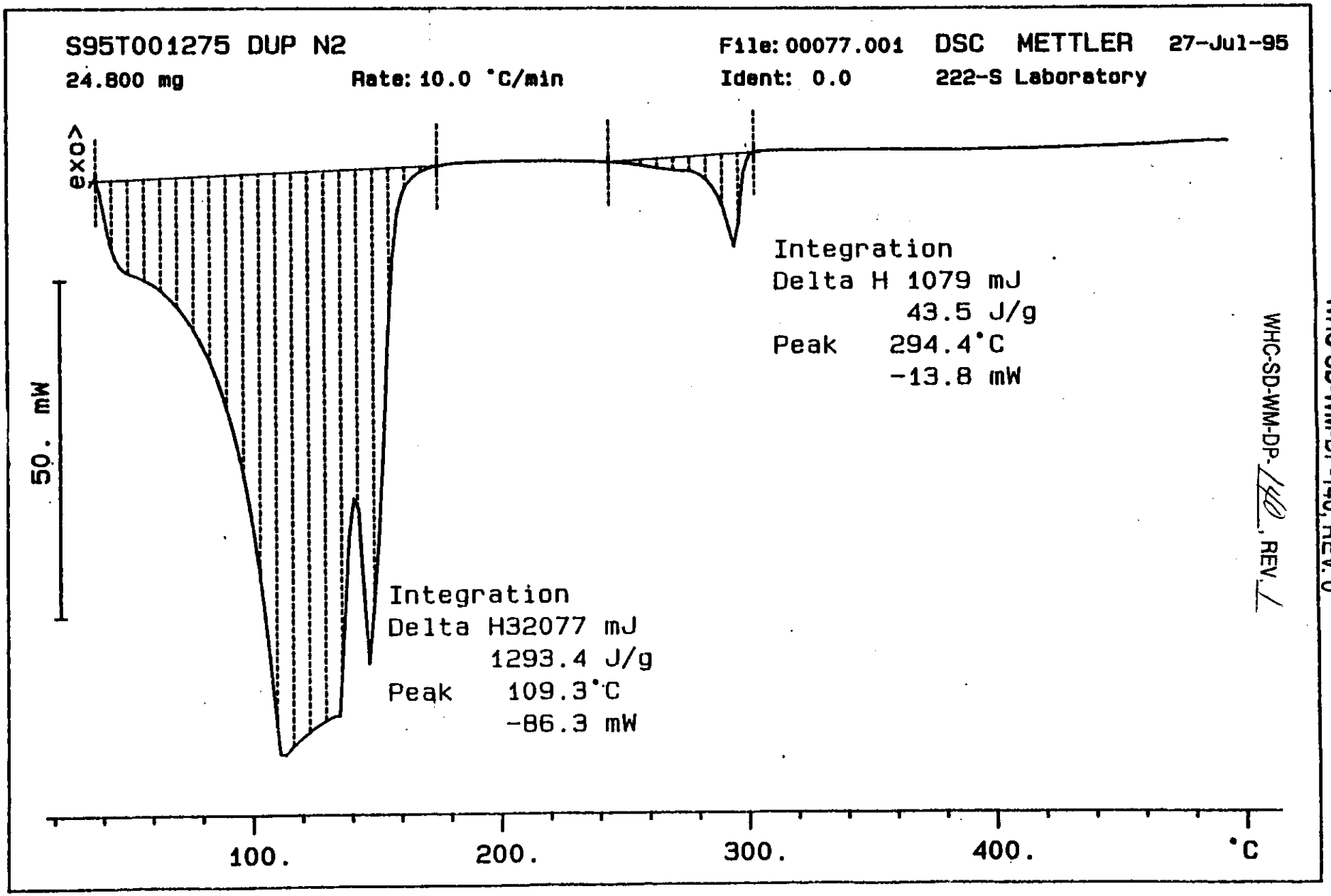

WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

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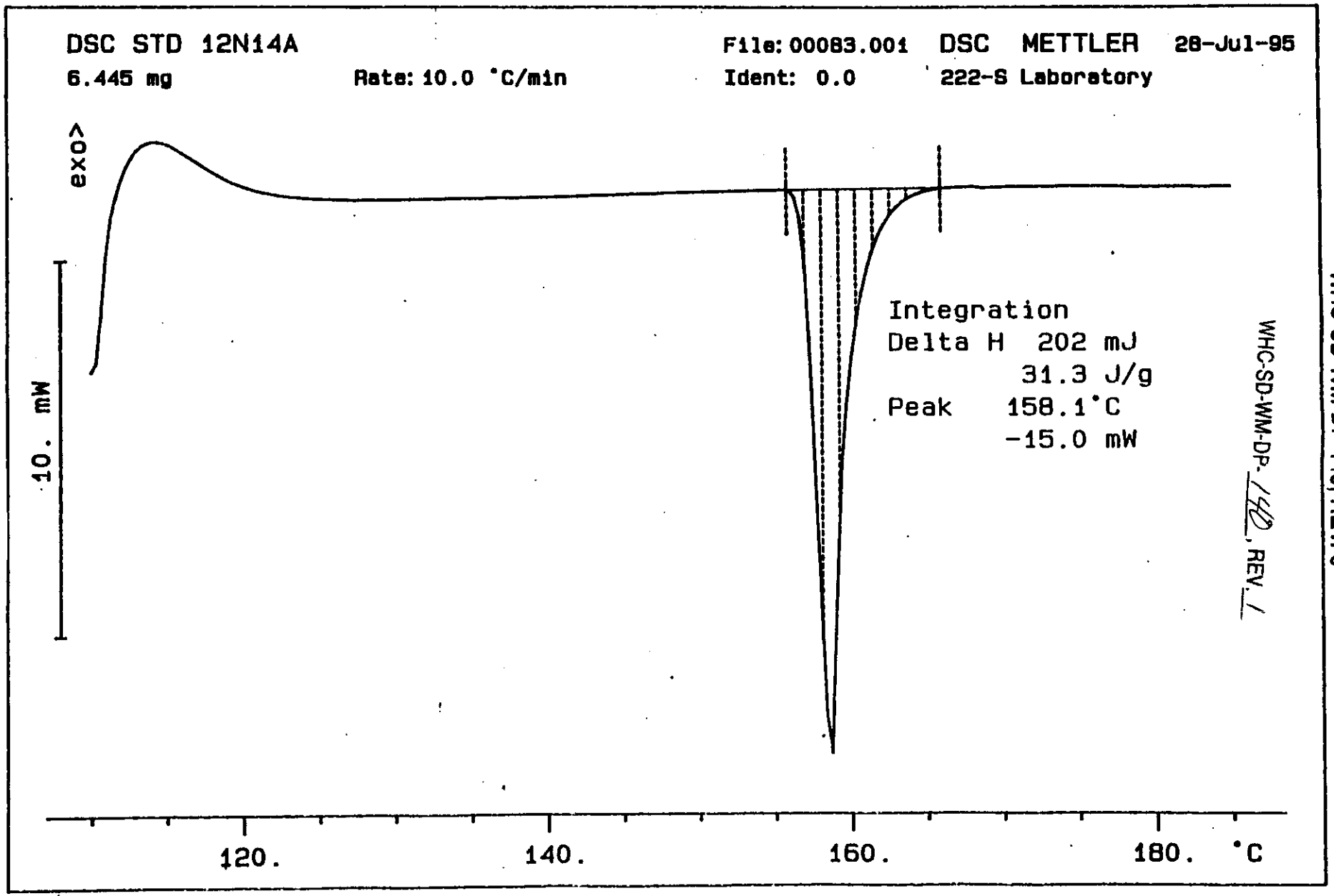
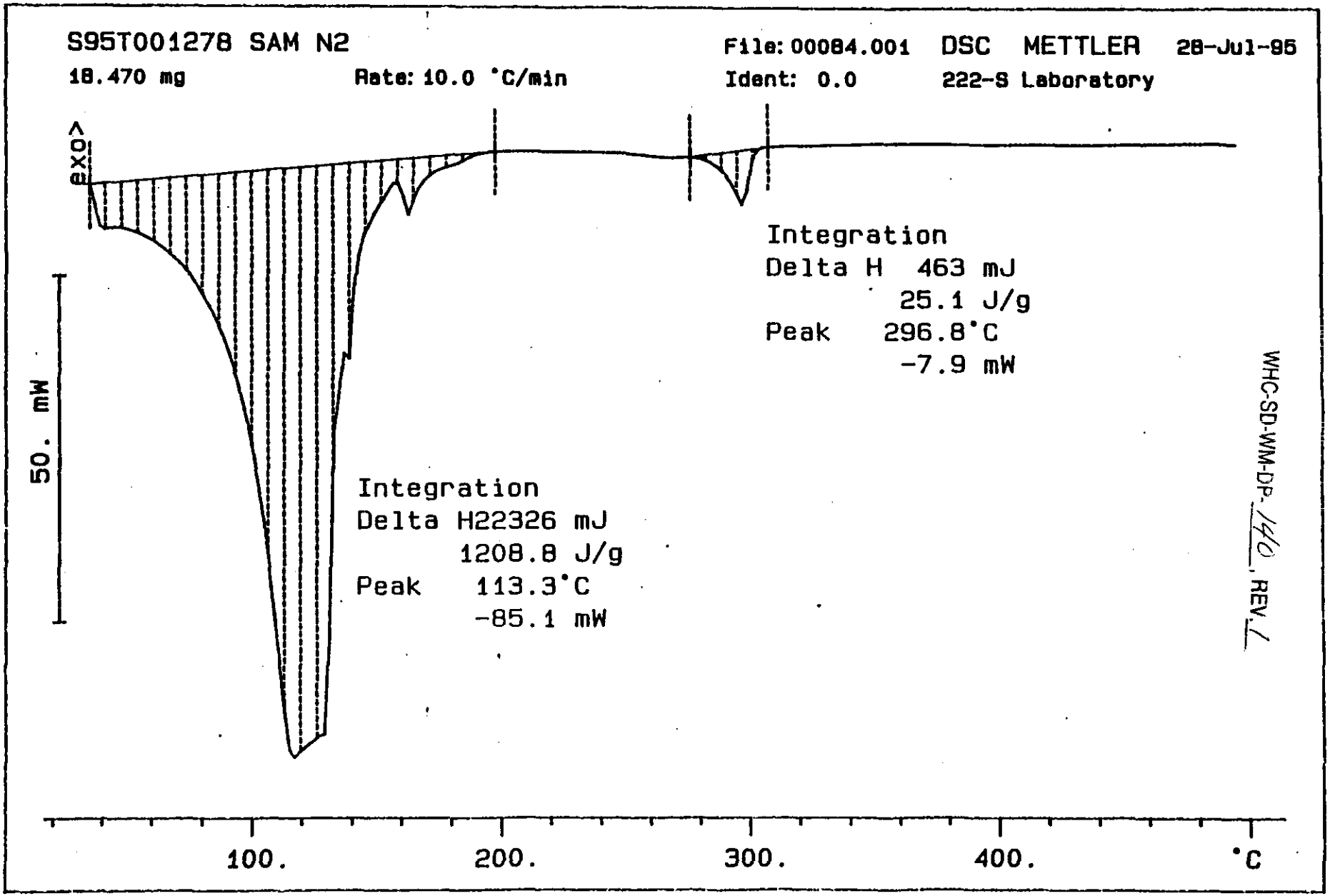


WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

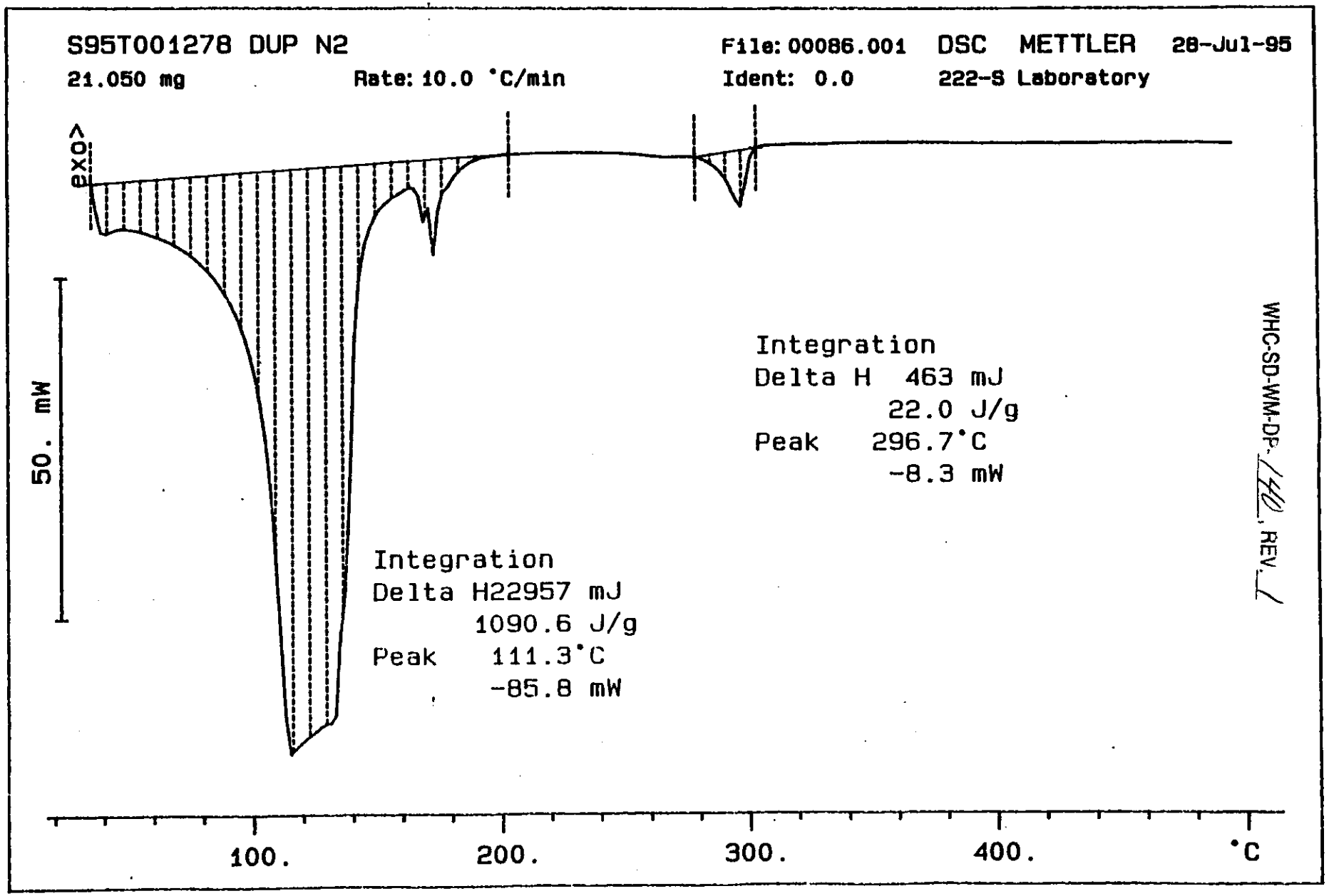
BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 1

LABCORE Data Entry Template for Worklist# 1893

Analyst: JJS **Instrument:** DSC0 1 **Book #** 12N144

Method: LA-514-113 Rev/Mod B-1 WHC-SD-WM-DP-140, REV. 1

Worklist Comment: Please run B-106 DSCs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-01	SOLID	28.45	27.2	N/A	Joules/g
95000096	B-106	2 SAMPLE	S95T001281	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000096	B-106	3 DUP	S95T001281	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g
95000096	B-106	4 SAMPLE	S95T001284	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000096	B-106	5 DUP	S95T001284	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 1893

JJS 8-2-95
Analyst Signature **Date**

8-7-95
Analyst Signature **Date**

Verified by Blandina Valenzuela 8-8-95

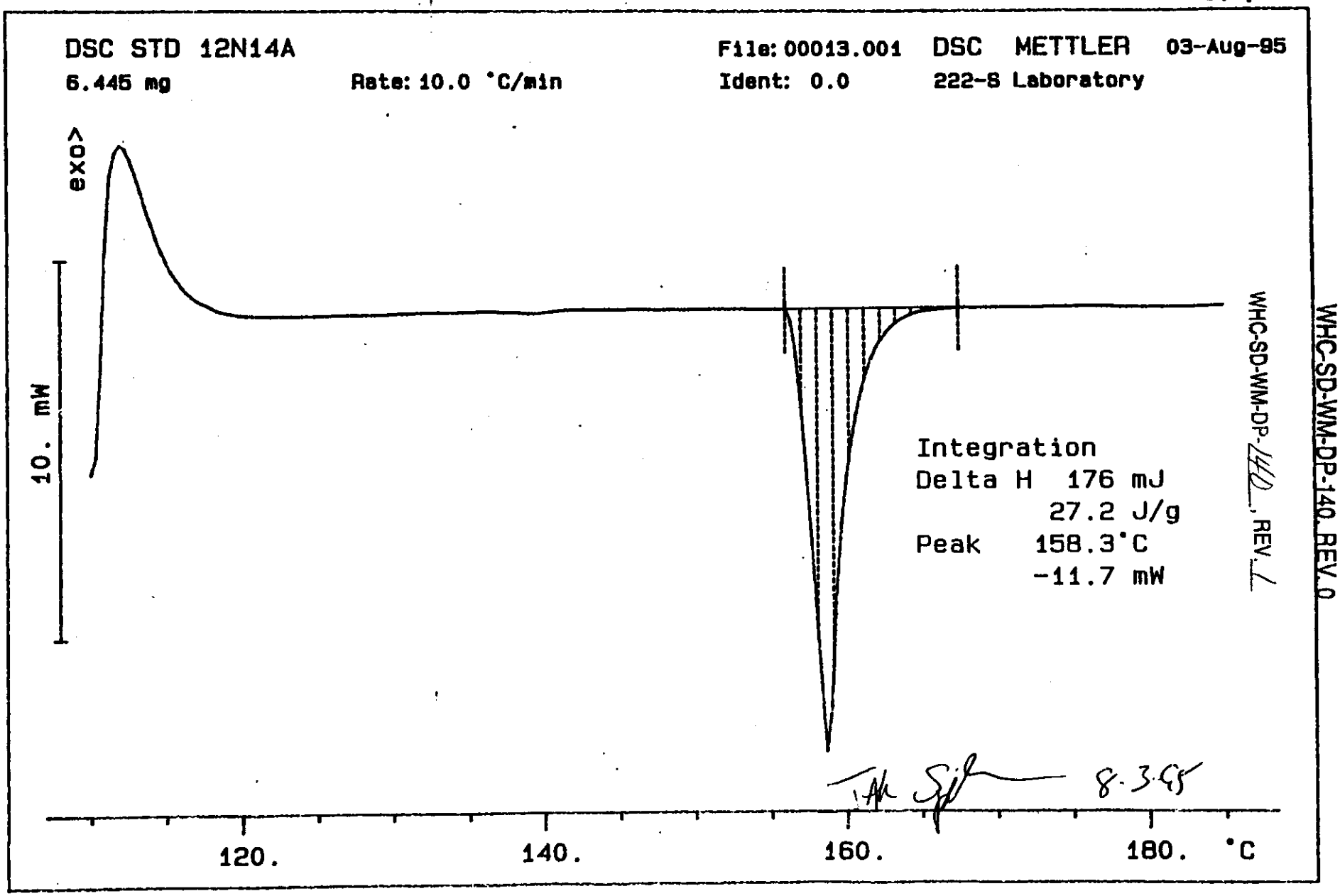
S95T001281 produced two endothermic regions, one at 109.3°C and a delta H of 841.5 J/g and the second at 290.5°C with a delta H of 27.9 J/g

Data Entry Comments: S95T001284 produced two endothermic regions, one at 107.3°C with a delta H of 481.2 J/g and second at 294.5°C with a delta H of 23.4 J/g.

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.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 3-34 TO 238.

BEST AVAILABLE COPY

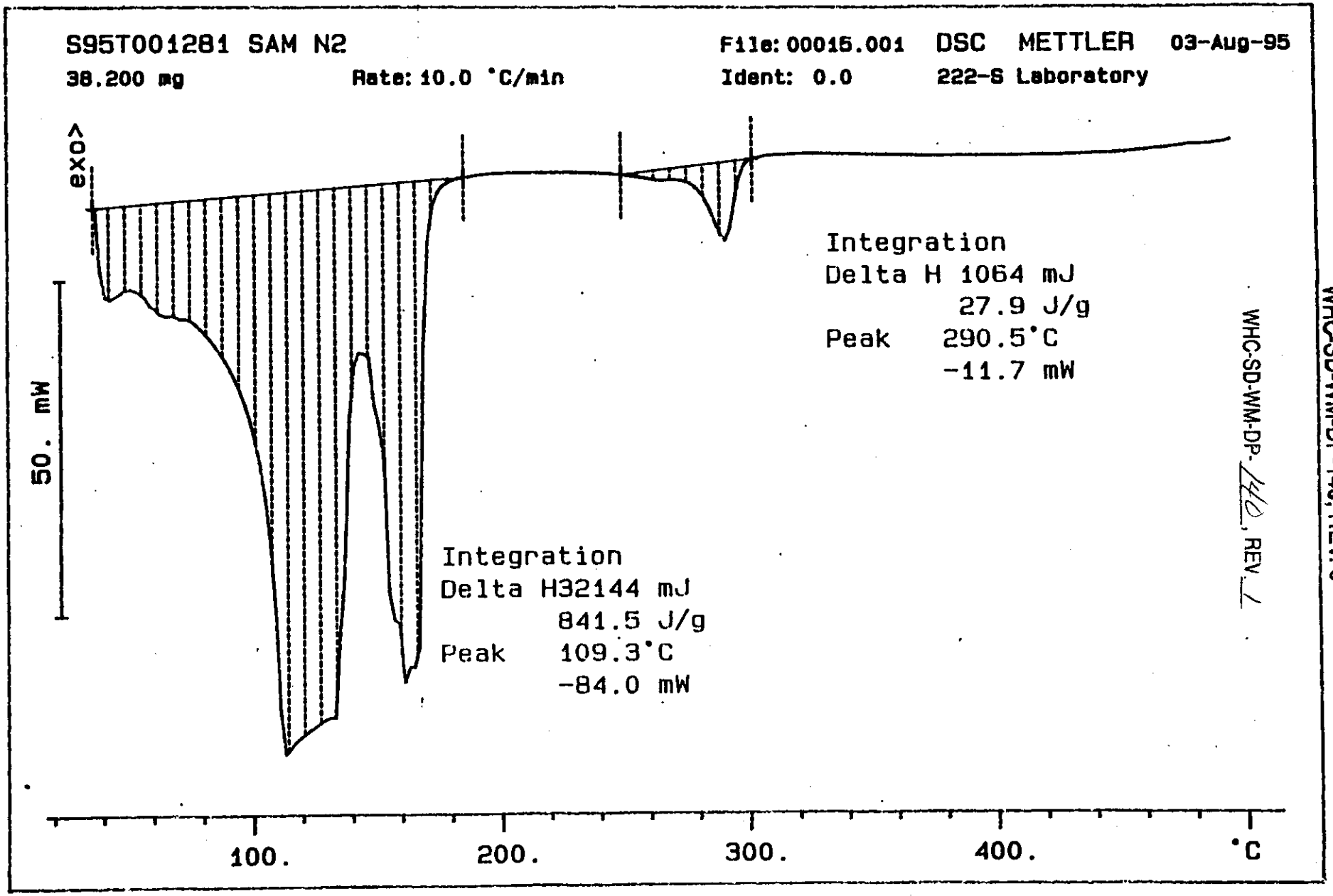


8-3-95

WHC-SD-WM-DP-140, REV. 1

WHC-SD-WM-DP-140 REV.0

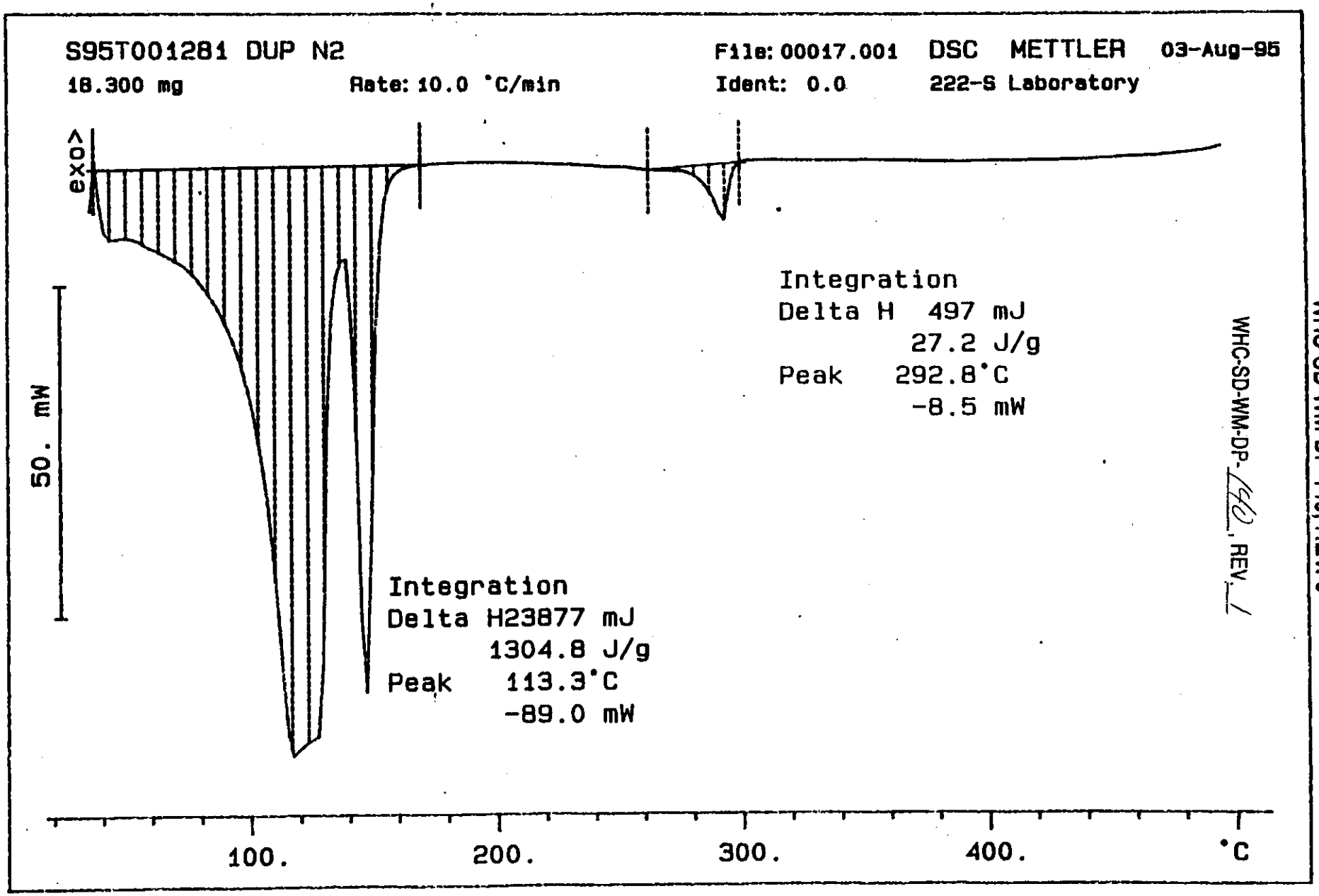
BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 1

WHC-SD-WM-DP-140, REV. 0

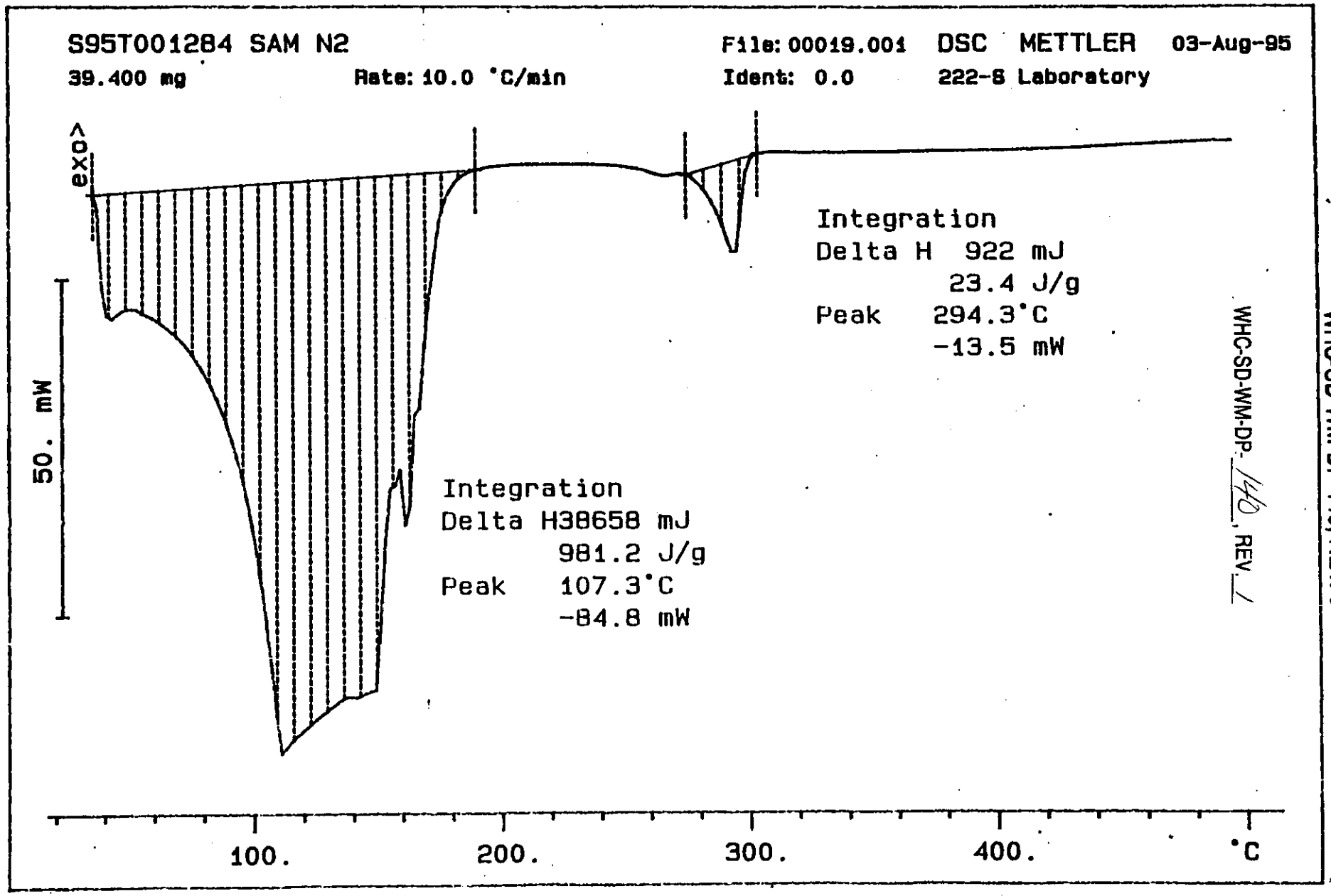
BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

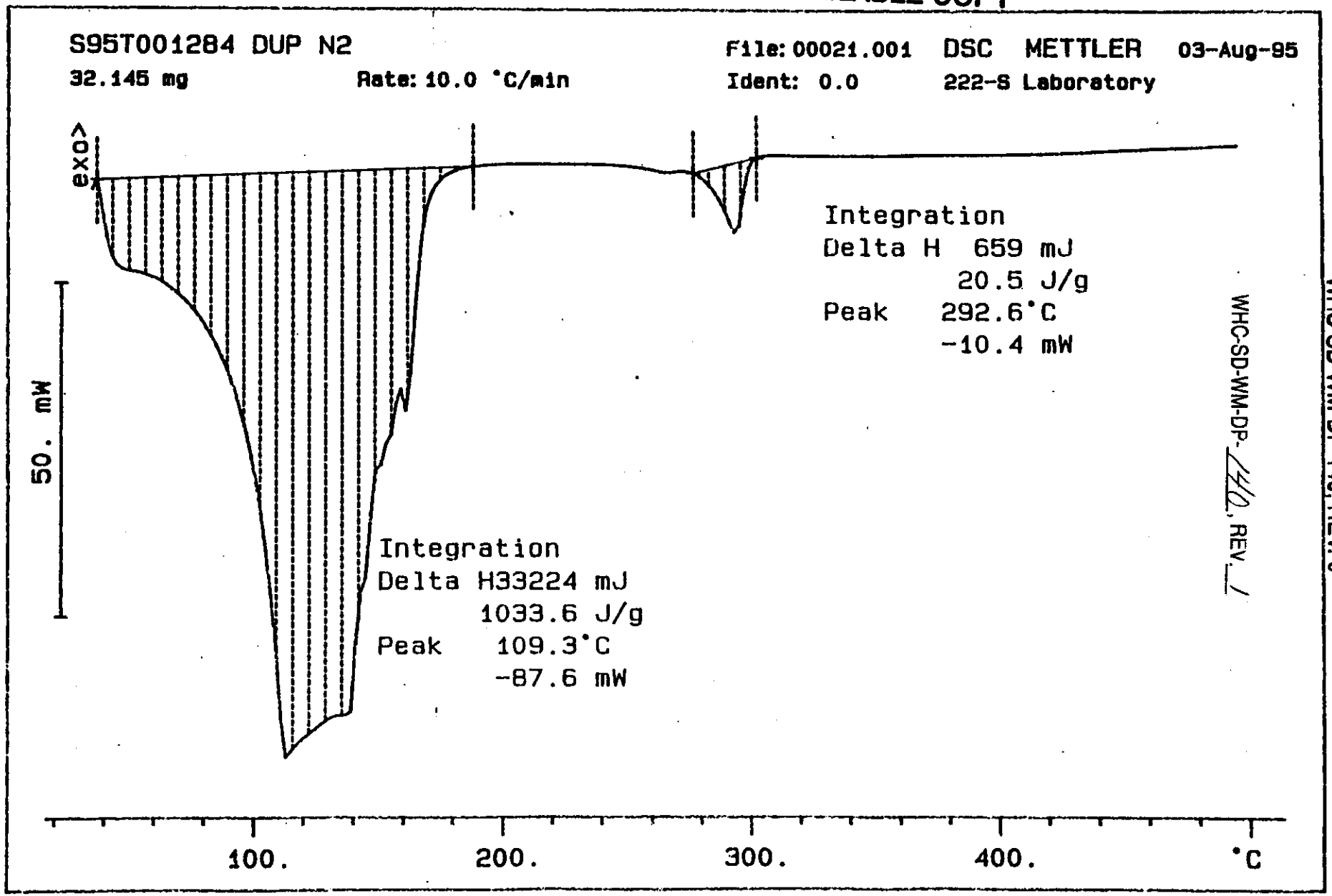
BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

LABCORE Data Entry Template for Worklist# 1894

Analyst: ADP **Instrument:** DSC0 1 **Book #** 12N14A

Method: LA-514-113 Rev/Mod B-1 WHC-SD-WM-DP-140, REV. 1

Worklist Comment: Please run B-106 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID	28.45	28.1	N/A	Joules/g
95000096	B-106	2	SAMPLE	S95T001298	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000096	B-106	3	DUP	S95T001298	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g
95000096	B-106	4	SAMPLE	S95T001302	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000096	B-106	5	DUP	S95T001302	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 1894

[signature] 8-4-95
Analyst Signature Date ADP

[signature] 8-8-95
Analyst Signature Date

Verified by Blandina Valenzuela 8-8-95

S95T001298 produced two endothermic regions one at 113.3°C with a delta H of 1068.9 J/g and the second at 294.7°C with a delta H of 21.1 J/g.

Data Entry Comments: S95T001302 produced two endothermic regions one at 99.3°C with a delta H of 499.5 J/g and the second at 295.5°C with a delta H of 24.2 J/g

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.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 240 TO 244

BEST AVAILABLE COPY

DSC STD 12N14-A

6.445 mg

Rate: 10.0 °C/min

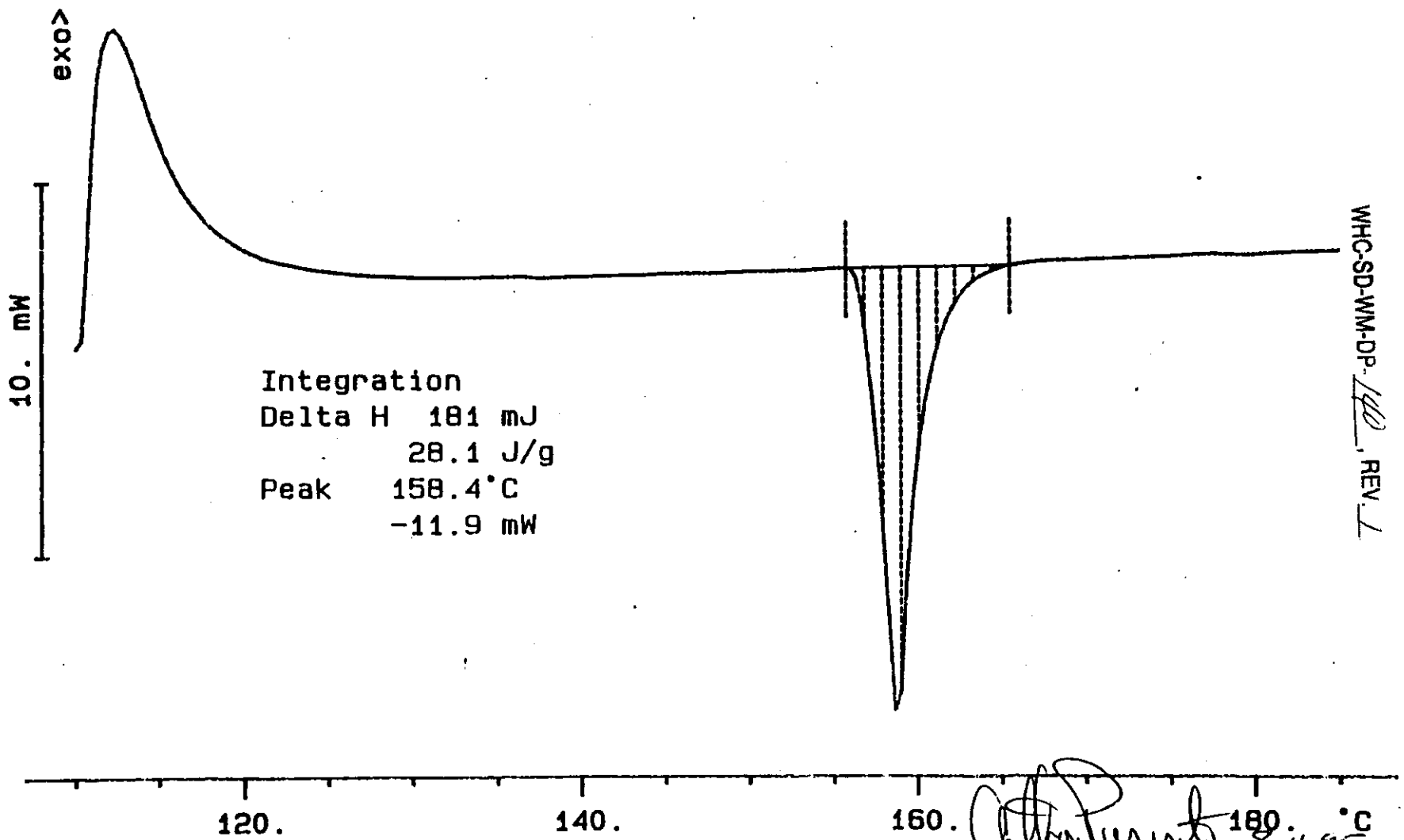
File: 00024.001

Ident: 0.0

DSC METTLER

222-S Laboratory

04-Aug-95



WHC-SD-WM-DP-140, REV. 1

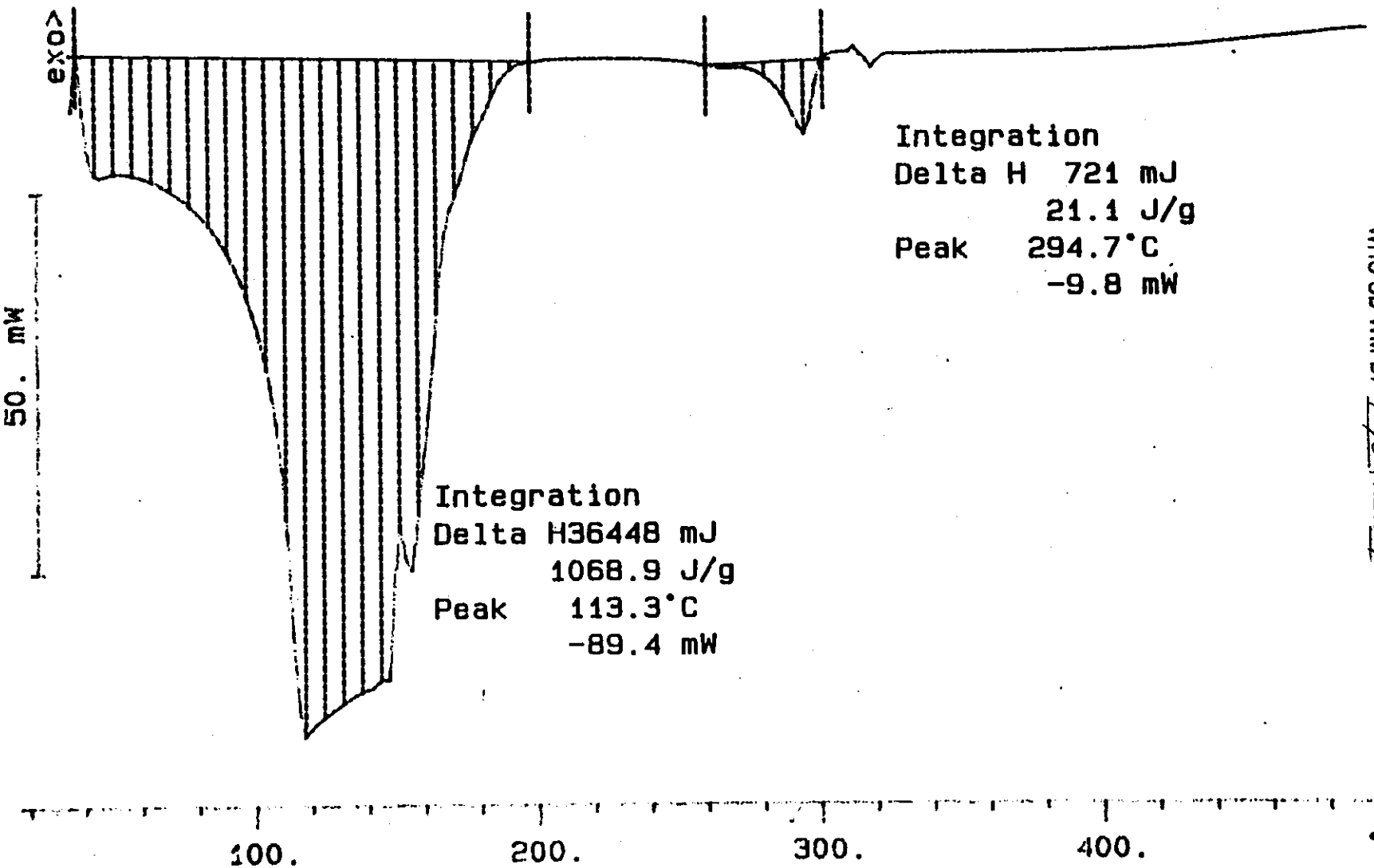
WHC-SD-WM-DP-140, REV.0

8-4-95

BEST AVAILABLE COPY

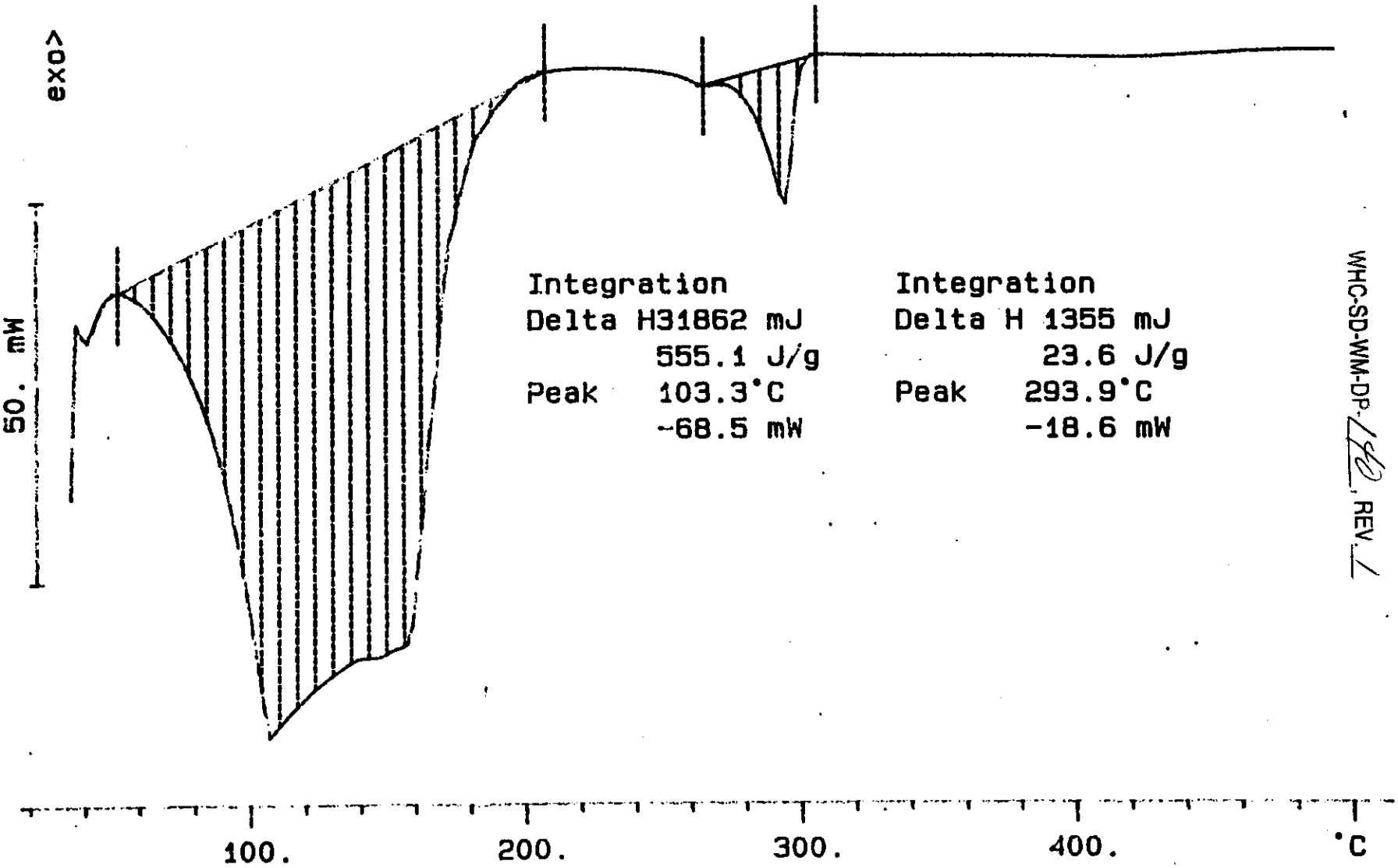
S95T001298 SAM N2 File: 00025.001 DSC METTLER 04-Aug-95

34.100 mg Rate: 10.0 °C/min Ident: 0.0 222-S Laboratory



BEST AVAILABLE COPY

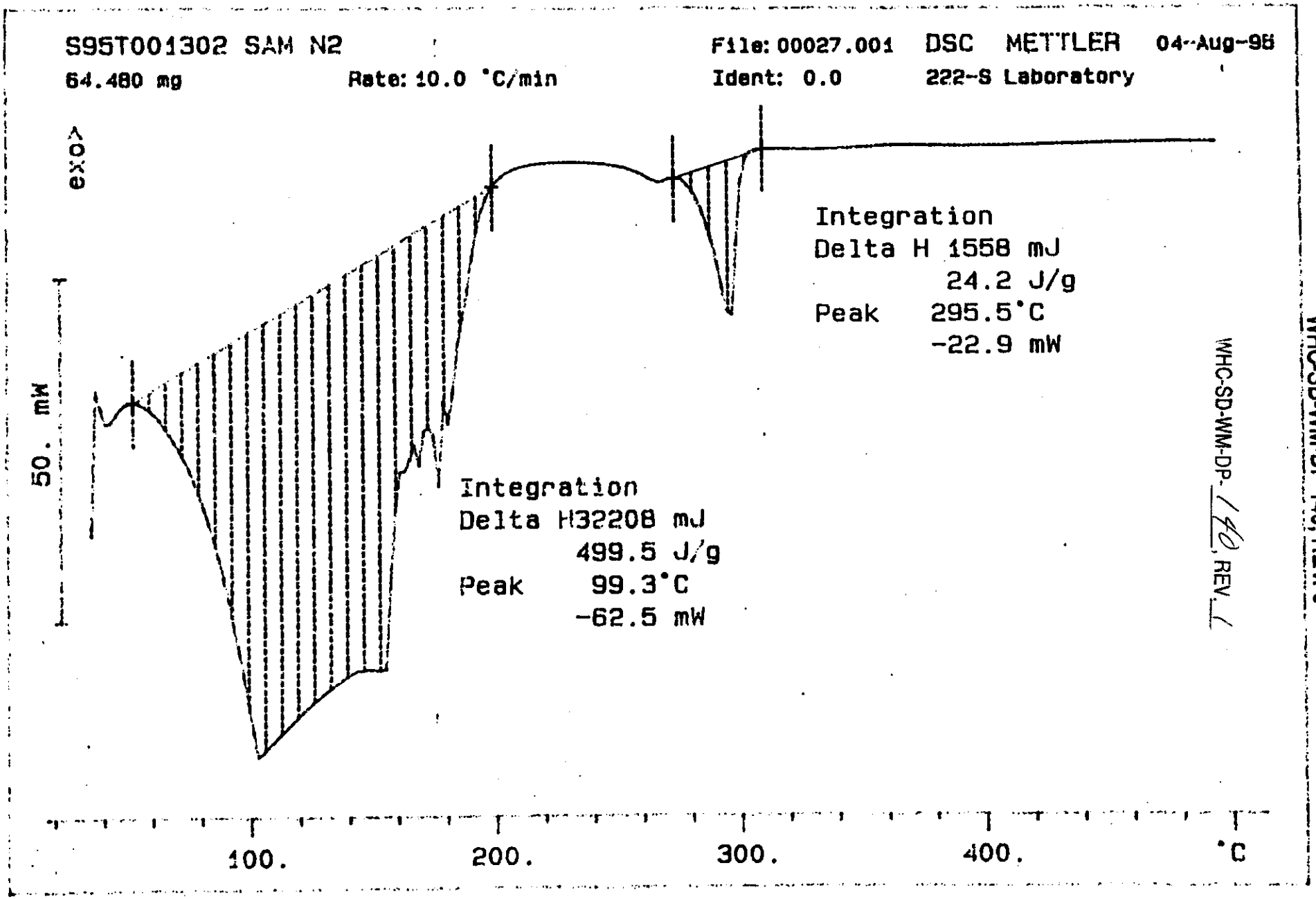
S95T001298 DUP N2
57.401 mg
Rate: 10.0 °C/min
File: 00026.001
Ident: 0.0
DSC METTLER 04-Aug-95
222-S Laboratory



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

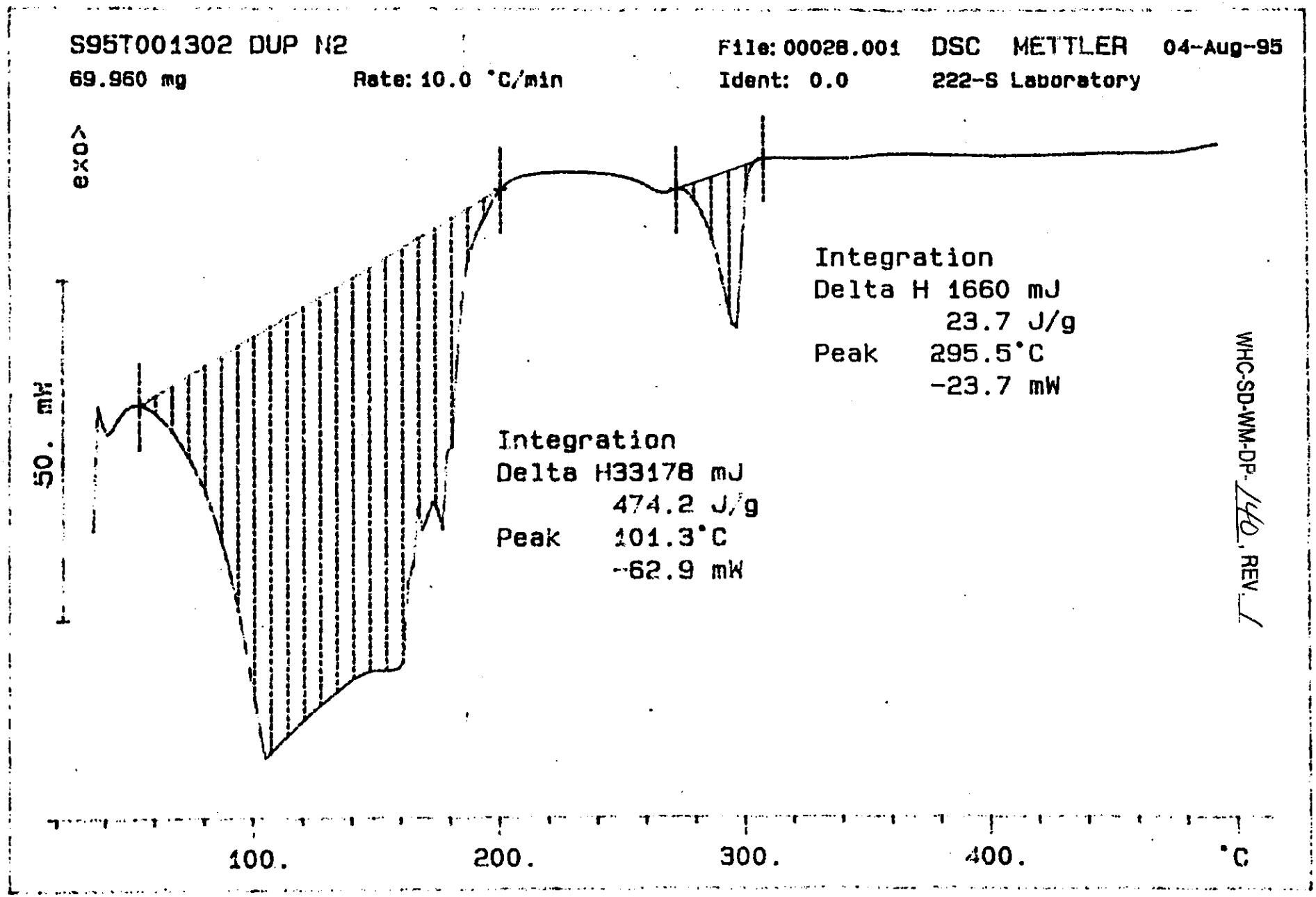
BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

LABCORE Data Entry Template for Worklist# 1895

Analyst: JDS **Instrument:** DSC0 1 **Book #** 12N14-A

Method: LA-514-113 Rev/Mod B-1 WHC-SD-WM-DP-140, REV: 1

Worklist Comment: Please run B-106 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID	28.45	31.0	N/A	Joules/g
95000096	B-106	2	SAMPLE	S95T001306	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000096	B-106	3	DUP	S95T001306	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g
		4	STD				DSC-01	SOLID	28.45	27.3	N/A	Joules/g
95000096	B-106	5	SAMPLE	S95T001310	0		DSC-01	SOLID	N/A	Ø		Joules/g
95000096	B-106	6	DUP	S95T001310	0		DSC-01	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 1895

See attached for signatures
Analyst Signature **Date** 8-1-95

Verified by Blandina Valenzuela 8-2-95

[signature] 8-2-95
Analyst Signature **Date**

S95T001306 produced two endothermic regions one at 109.3°C with a delta H of 994.7 J/g and the second at 294.4°C with a delta H of 21.3 J/g.

Data Entry Comments: S95T001310 produced two endothermic regions one at 109.3°C with a delta H of 1125.0 J/g and the second at 292.5°C with a delta H of 22.4 J/g

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# 1895

Analyst: bds **Instrument:** DSC0 _____ **Book #** 12 N/A

Method: LA-514-113 Rev/Mod B-1 WHC-SD-WM-DP-140, REV. 1

Worklist Comment: Please run B-106 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Joules/g
95000096	B-106	2	SAMPLE	S95T001306	0		DSC-01	SOLID	N/A			Joules/g
95000096	B-106	3	DUP	S95T001306	0		DSC-01	SOLID			N/A	Joules/g
95000096	B-106	4	SAMPLE	S95T001310	0		DSC-01	SOLID	N/A			Joules/g
95000096	B-106	5	DUP	S95T001310	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 1895

8-1-95

Analyst Signature Date

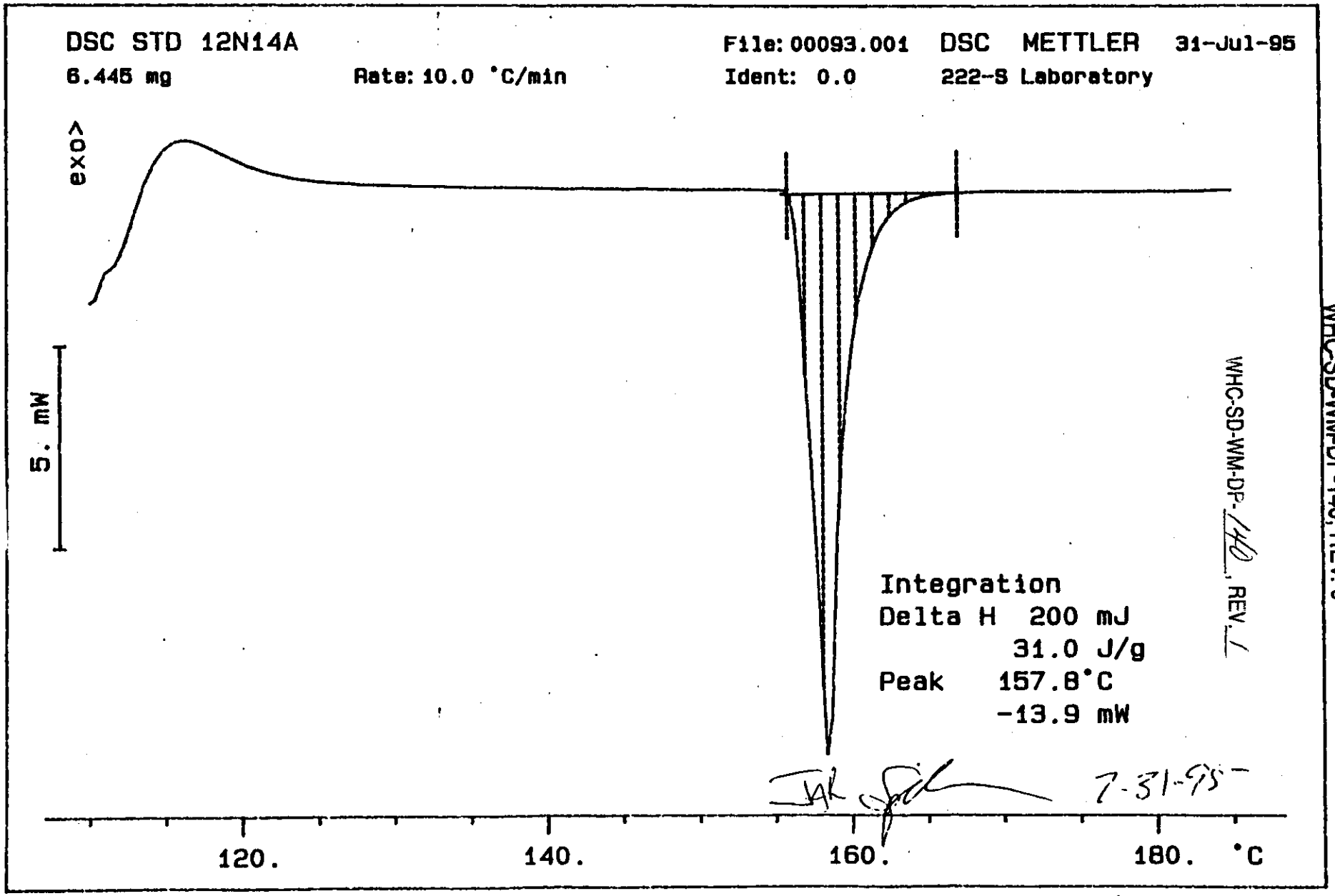
Analyst Signature Date

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-47 TO 2-52

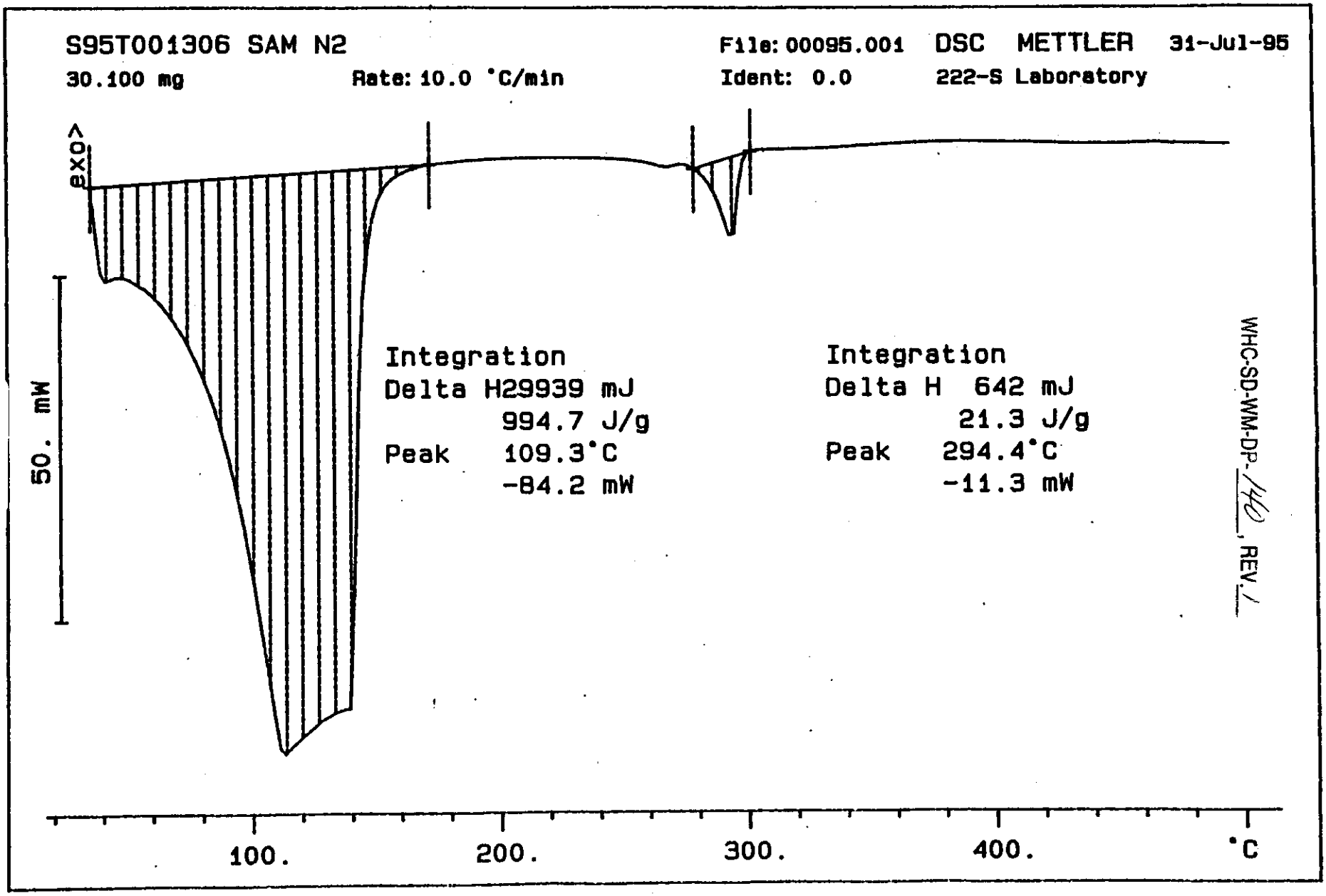
BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

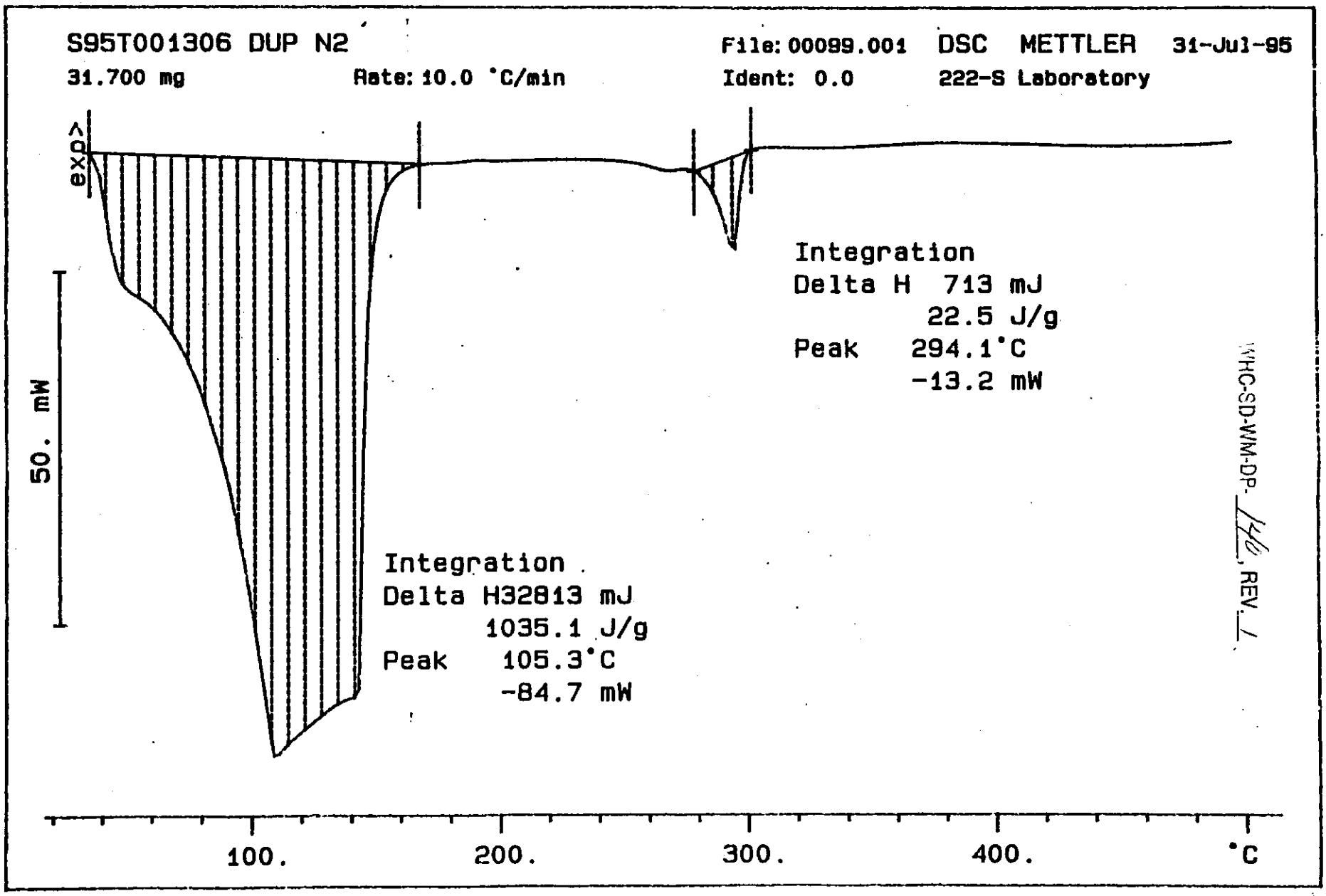
BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 1

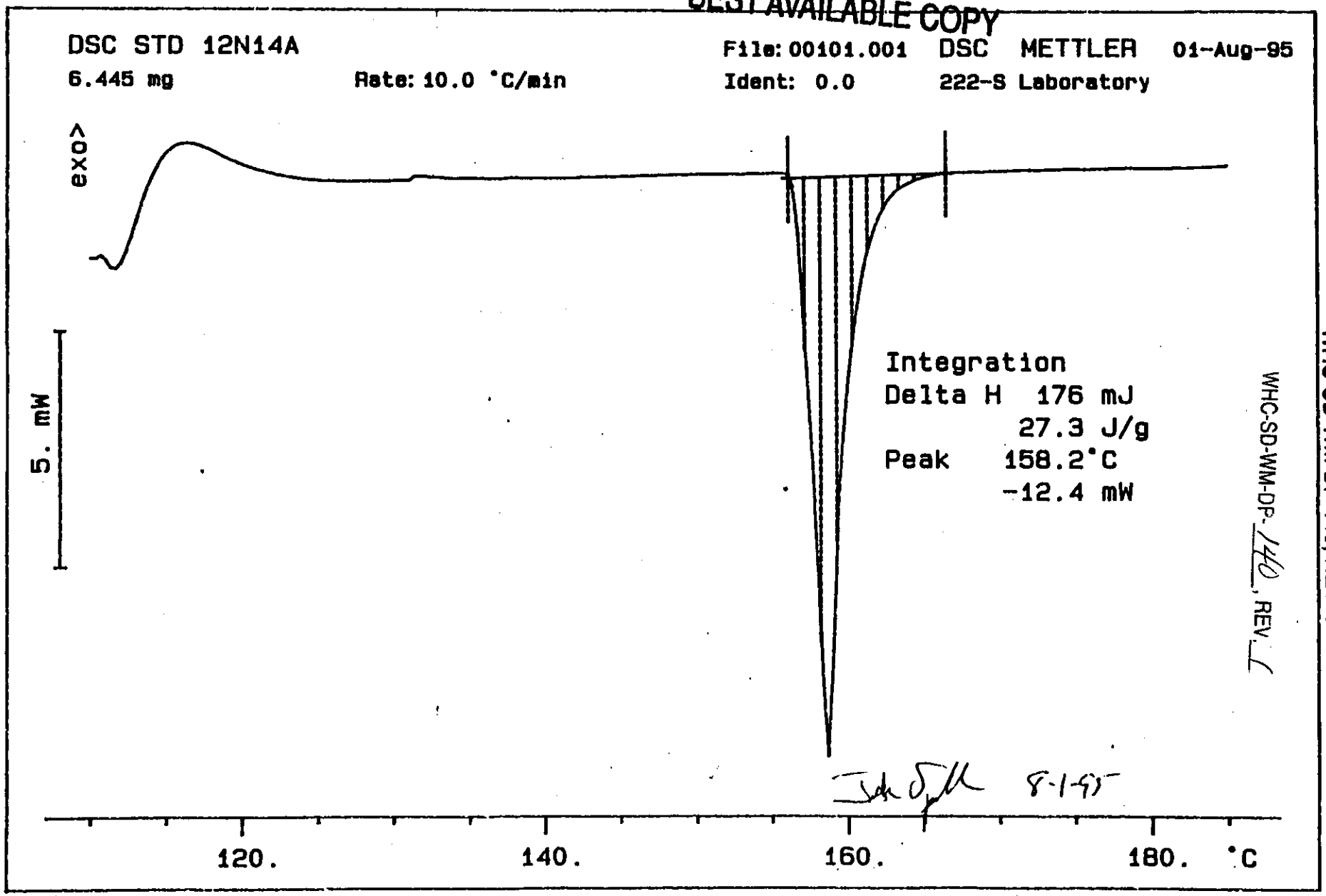
WHC-SD-WM-DP-140, REV. C

BEST AVAILABLE COPY



WHC-SD-WM-DP-146, REV. 1

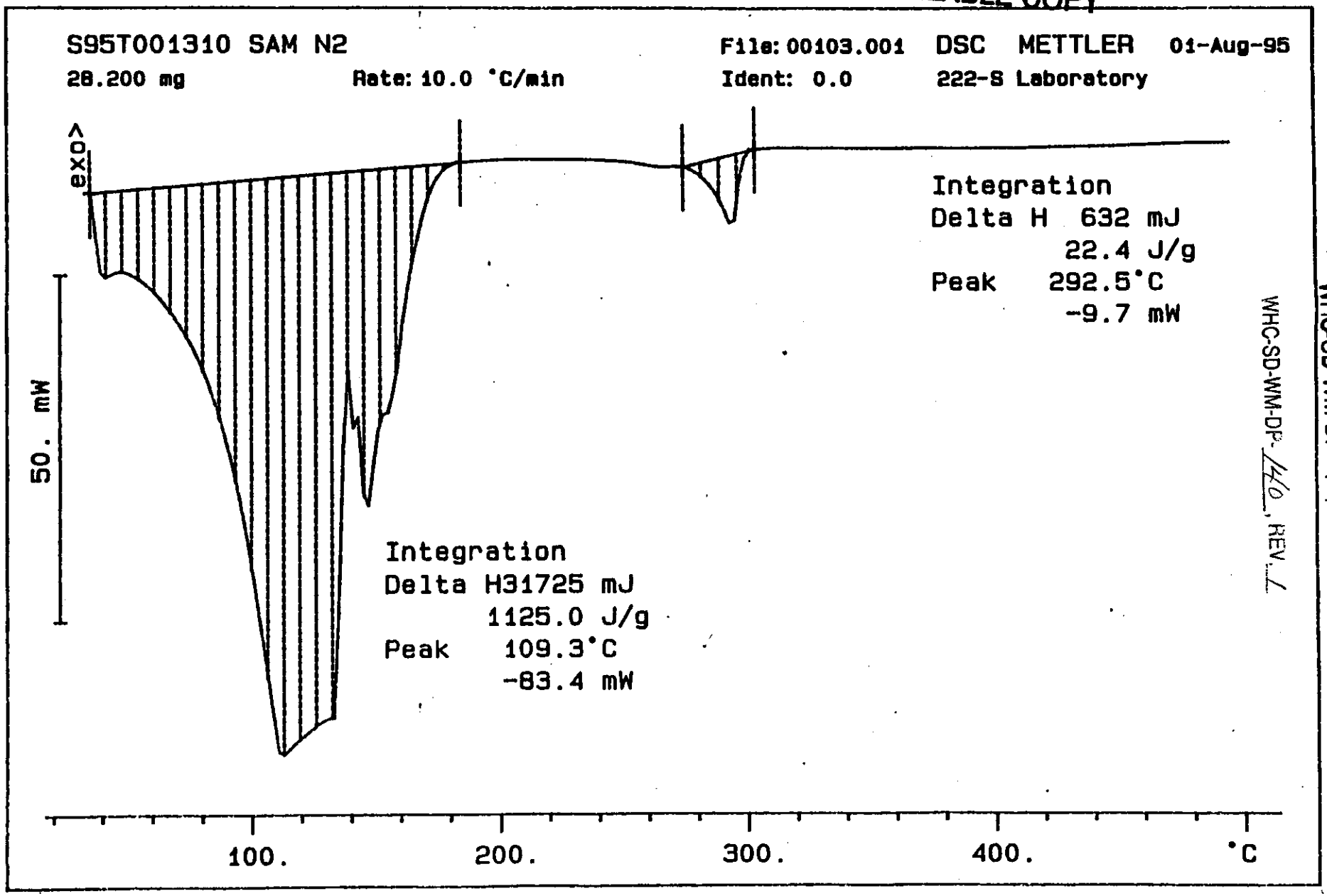
BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY



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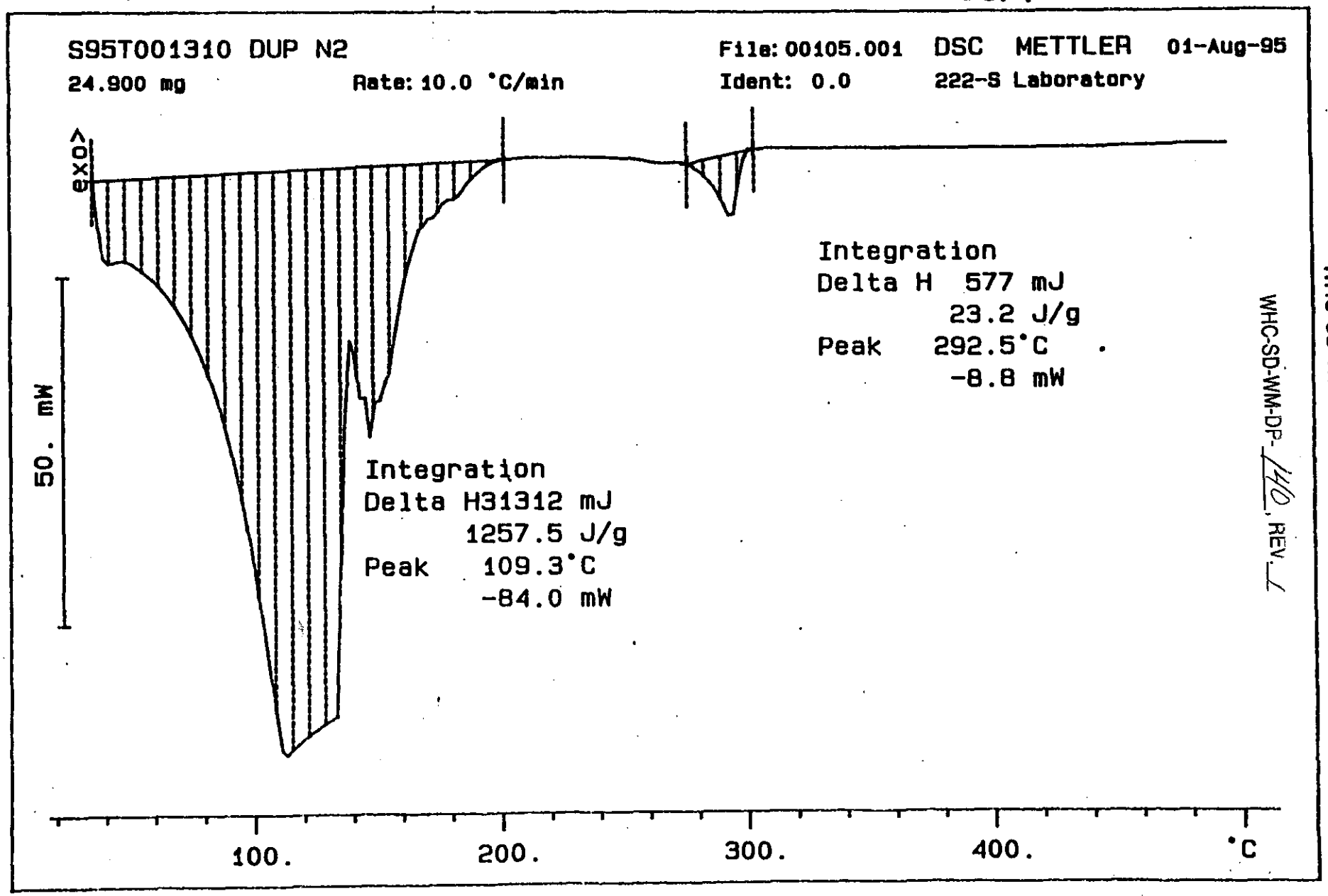


WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

LABCORE Data Entry Template for Worklist# 1896

Analyst: JCBm **Instrument:** DSC0 1 **Book #** 12N4A

Method: LA-514-113 Rev/Mod B-1 WHC-SD-WM-DP-140, REV. 1

Worklist Comment: Please run B-106 DSCs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-01	LIQUID	28.45	29.2	N/A	Joules/g
95000096	B-106	2 SAMPLE	S95T001272	0		DSC-01	LIQUID	N/A	Ø		Joules/g
95000096	B-106	3 DUP	S95T001272	0		DSC-01	LIQUID	Ø	Ø	N/A	Joules/g

Final page for worklist # 1896

Analyst Signature 7/27/95 Date

Analyst Signature 7-29-95 Date

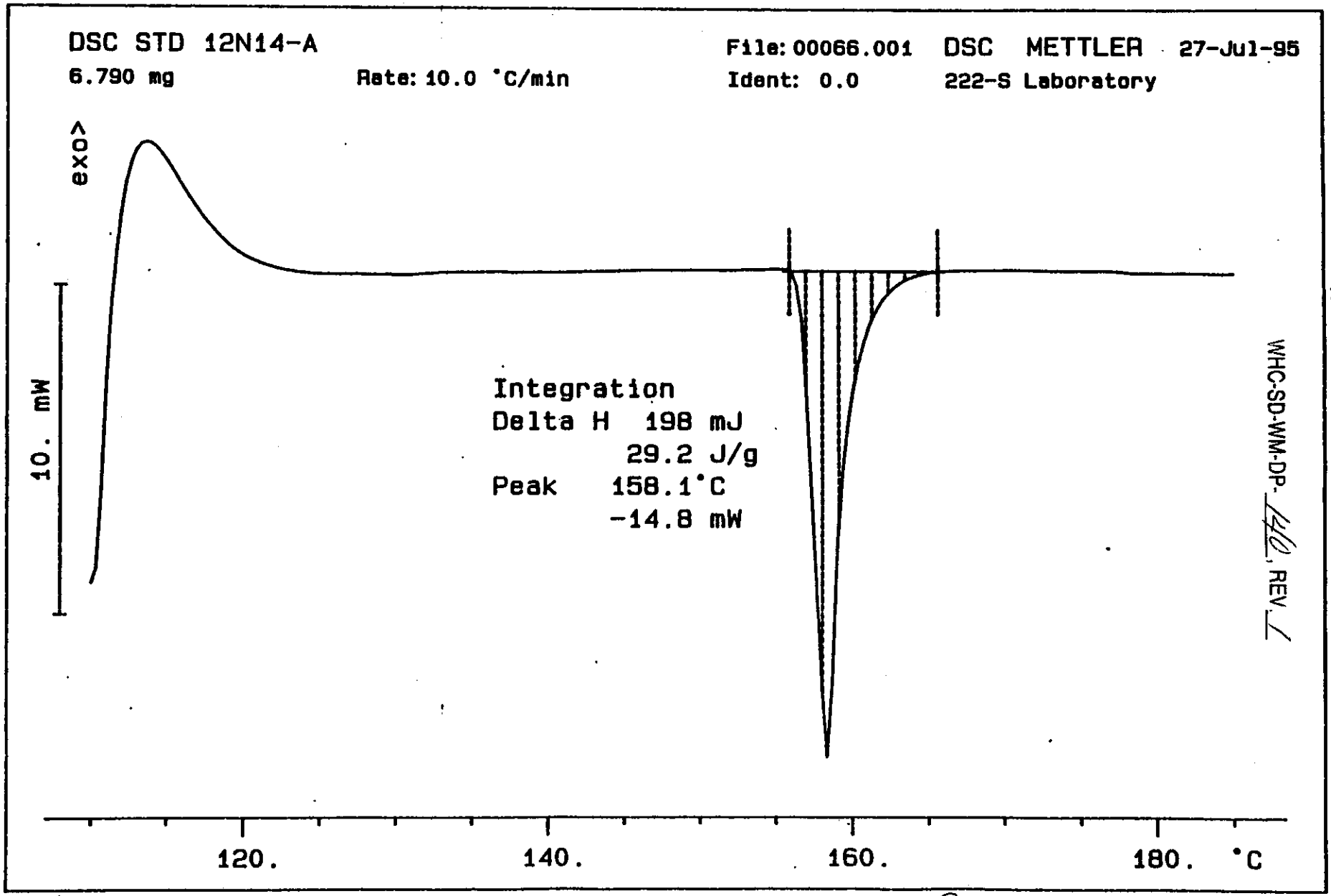
Verified by Blandina Valenzuela (8-2-95)

Data Entry Comments: The sample produced two endothermic regions, one at 108.5°C with a delta H of 1304.1 J/g and the second at 293.3°C with a delta H of 20.0 J/g.

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.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 254 TO 256.

BEST AVAILABLE COPY

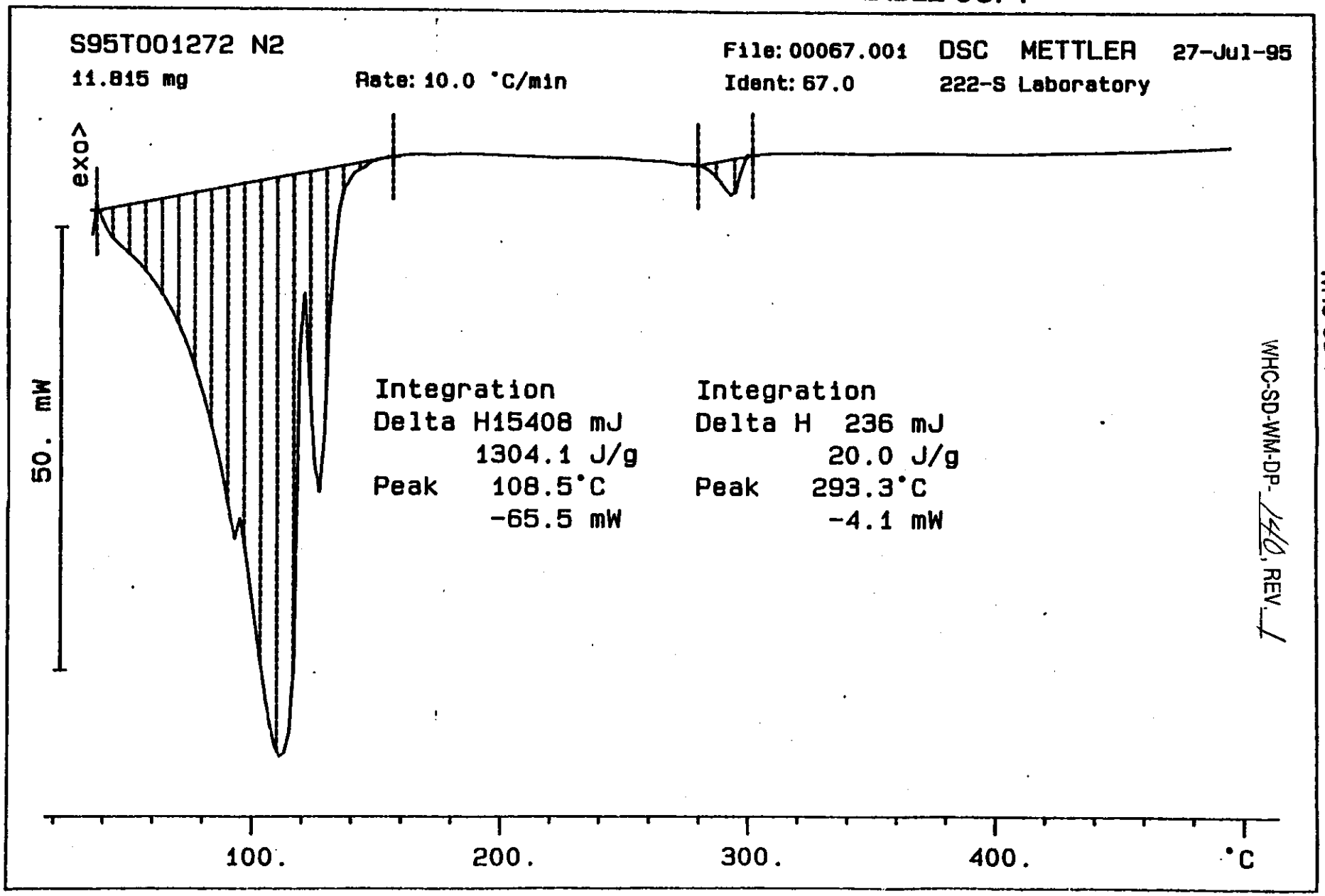


WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

7/27/95

BEST AVAILABLE COPY

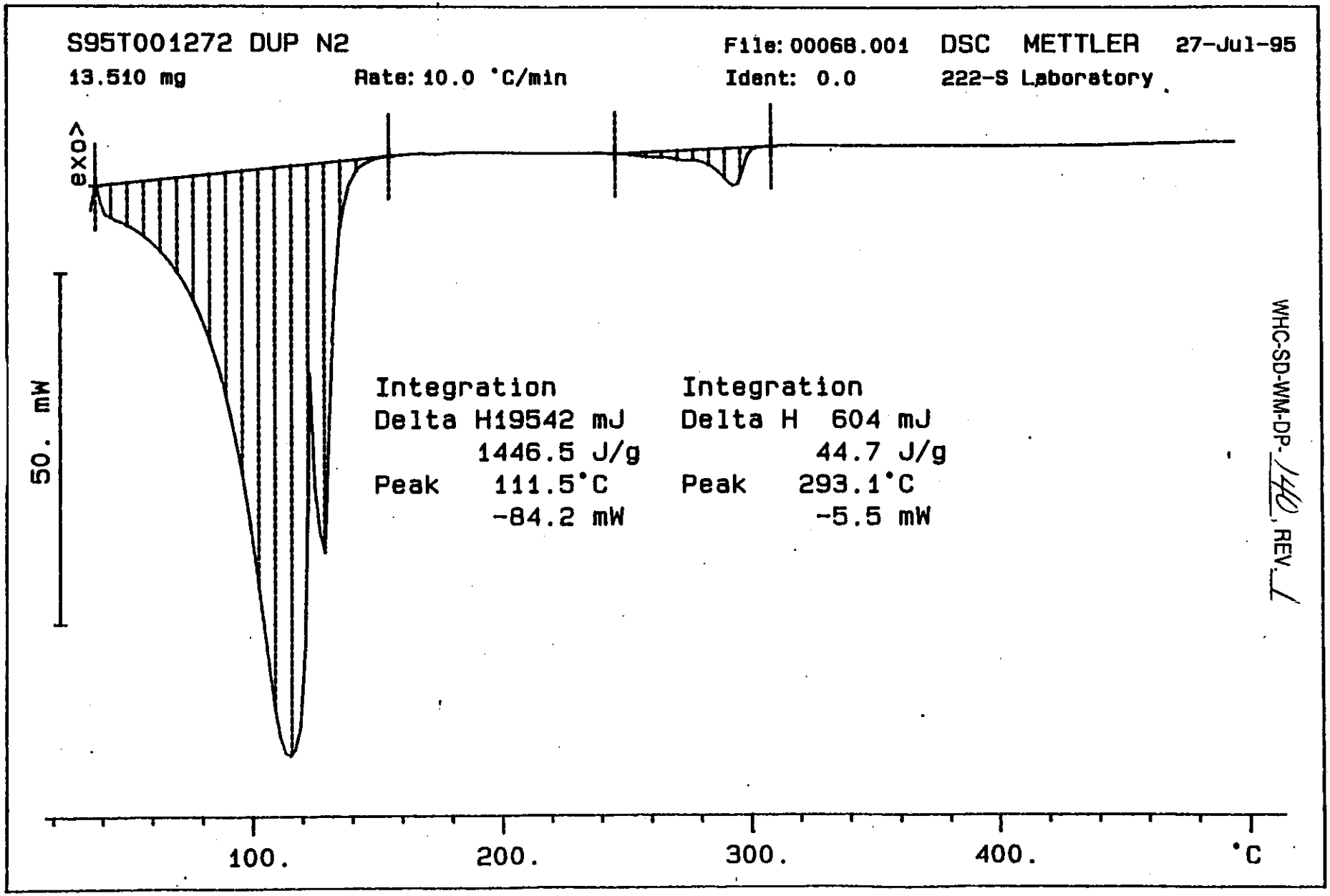


WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

7/27/95

BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

worklistrpt Version 2.1 05/15/95
07/31/95 11:03

LABCORE Data Entry Template for Worklist# 1897

Analyst: JDS **Instrument:** TGA0 1 **Book #** 65N8A

Method: LA-560-112 Rev/Mod A-2 WHC-SD-WM-DP-140, REV. 1

Worklist Comment: Please run B-106 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	59.74	61.94	N/A	%
95000096	B-106	2	SAMPLE	S95T001275	0		TGA-01	SOLID	N/A	~~62.60~~ 63.52 7-31-95 BDV		%
95000096	B-106	3	DUP	S95T001275	0		TGA-01	SOLID	63.52	62.60	N/A	%
		4	STD				TGA-01	SOLID	59.74	60.60	N/A	%
95000096	B-106	5	SAMPLE	S95T001278	0		TGA-01	SOLID	N/A	59.52		%
95000096	B-106	6	DUP	S95T001278	0		TGA-01	SOLID	59.52	58.84	N/A	%

Final page for worklist # 1897

See attached for signatures
Analyst Signature Date 7-31-95 BDV

Verified by Blandina Valenzuela 8-2-95

Analyst Signature Date 7-31-95

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# 1897

Analyst: Jds **Instrument:** TGA0 _____ **Book #** 65N84

Method: LA-560-112 Rev/Mod A-2 WHC-SD-WM-DP-140, REV. 1

Worklist Comment: Please run B-106 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID			N/A	%
95000096	B-106	2	SAMPLE	S95T001275	0		TGA-01	SOLID	N/A			%
95000096	B-106	3	DUP	S95T001275	0		TGA-01	SOLID			N/A	%
95000096	B-106	4	SAMPLE	S95T001278	0		TGA-01	SOLID	N/A			%
95000096	B-106	5	DUP	S95T001278	0		TGA-01	SOLID			N/A	%

Final page for worklist # 1897

[signature] 7-28-95
Analyst Signature Date

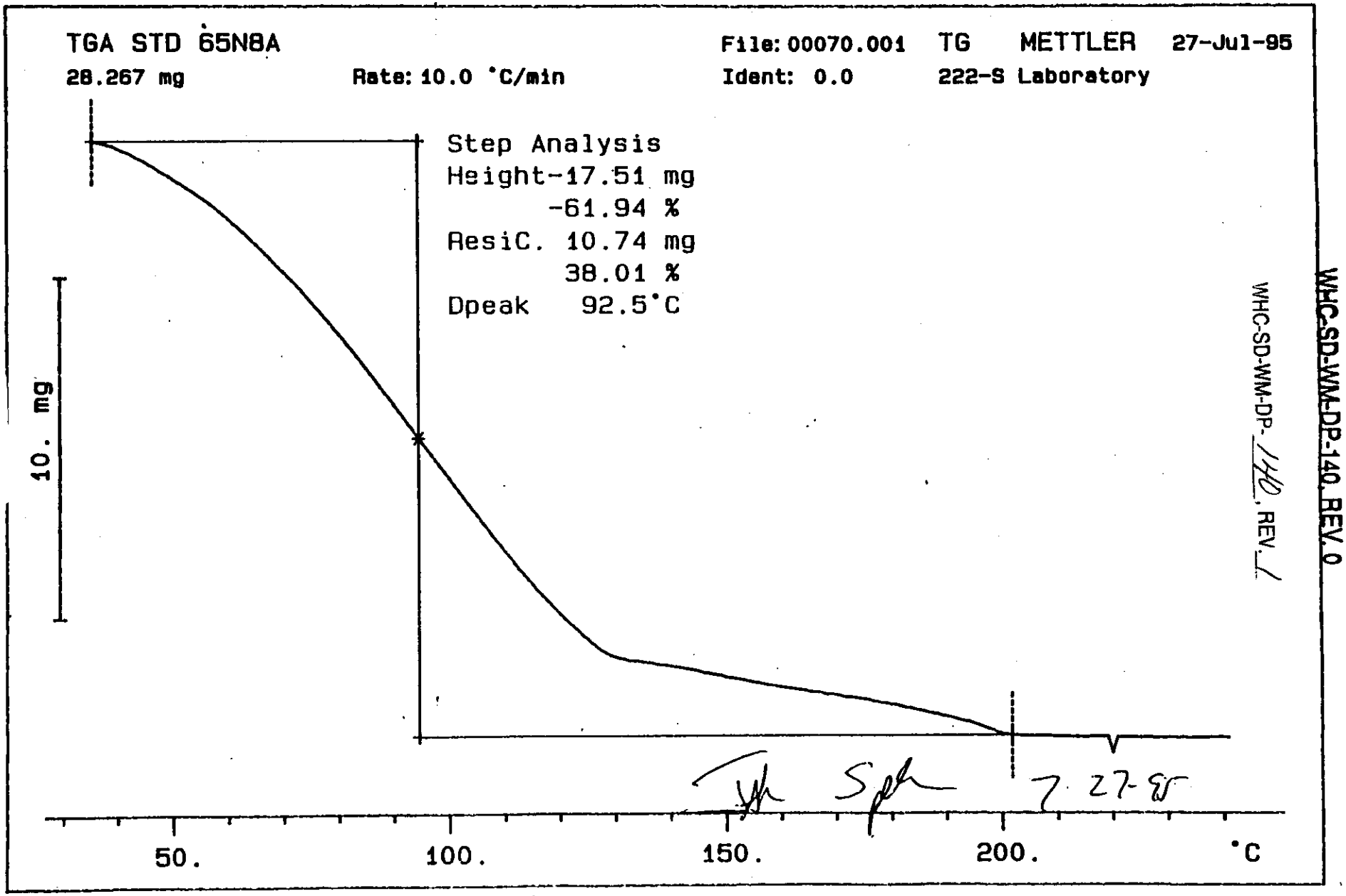
Analyst Signature Date

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES TO ____

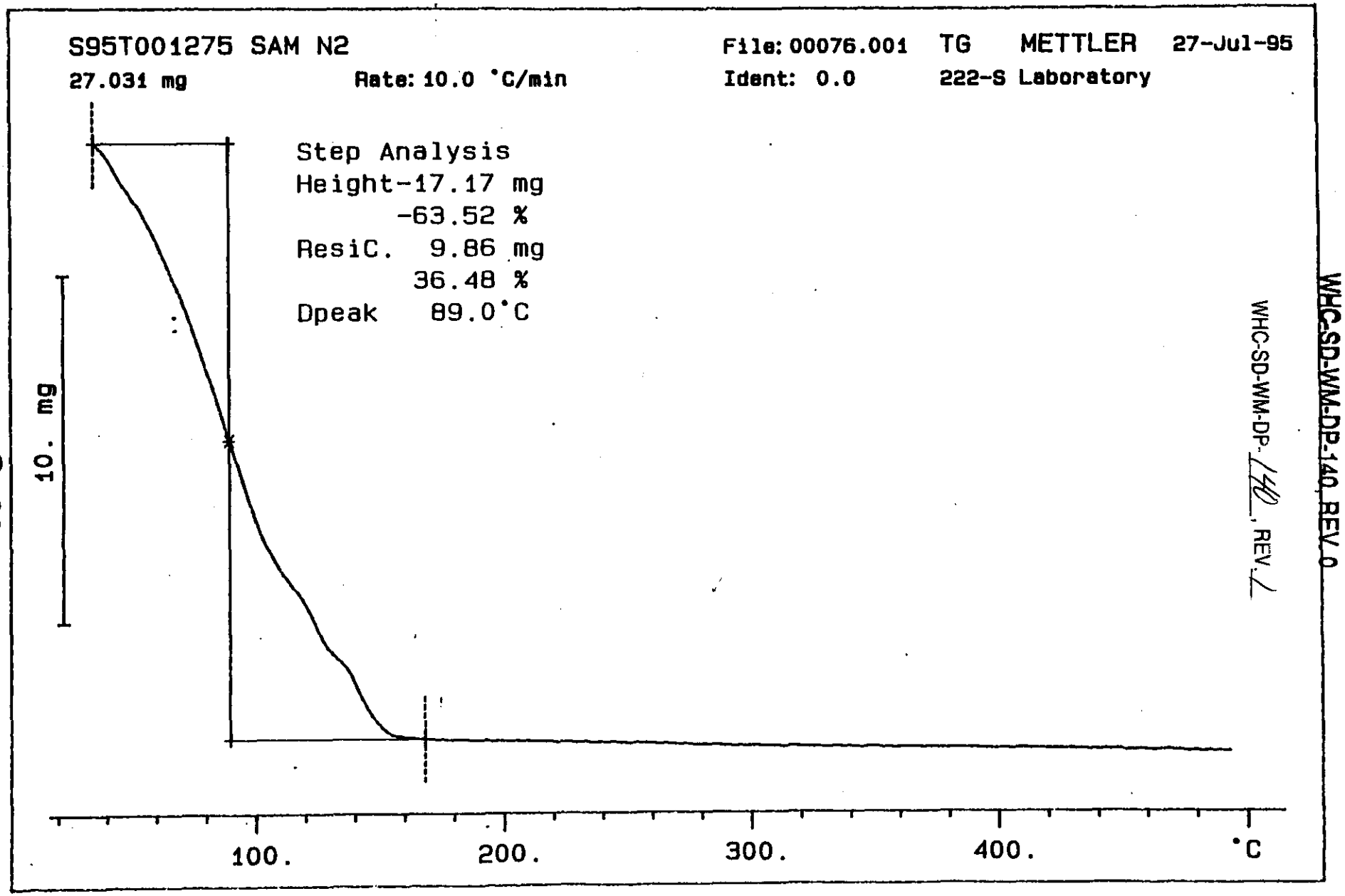
BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 1

WHC-SD-WM-DP-140, REV. 0

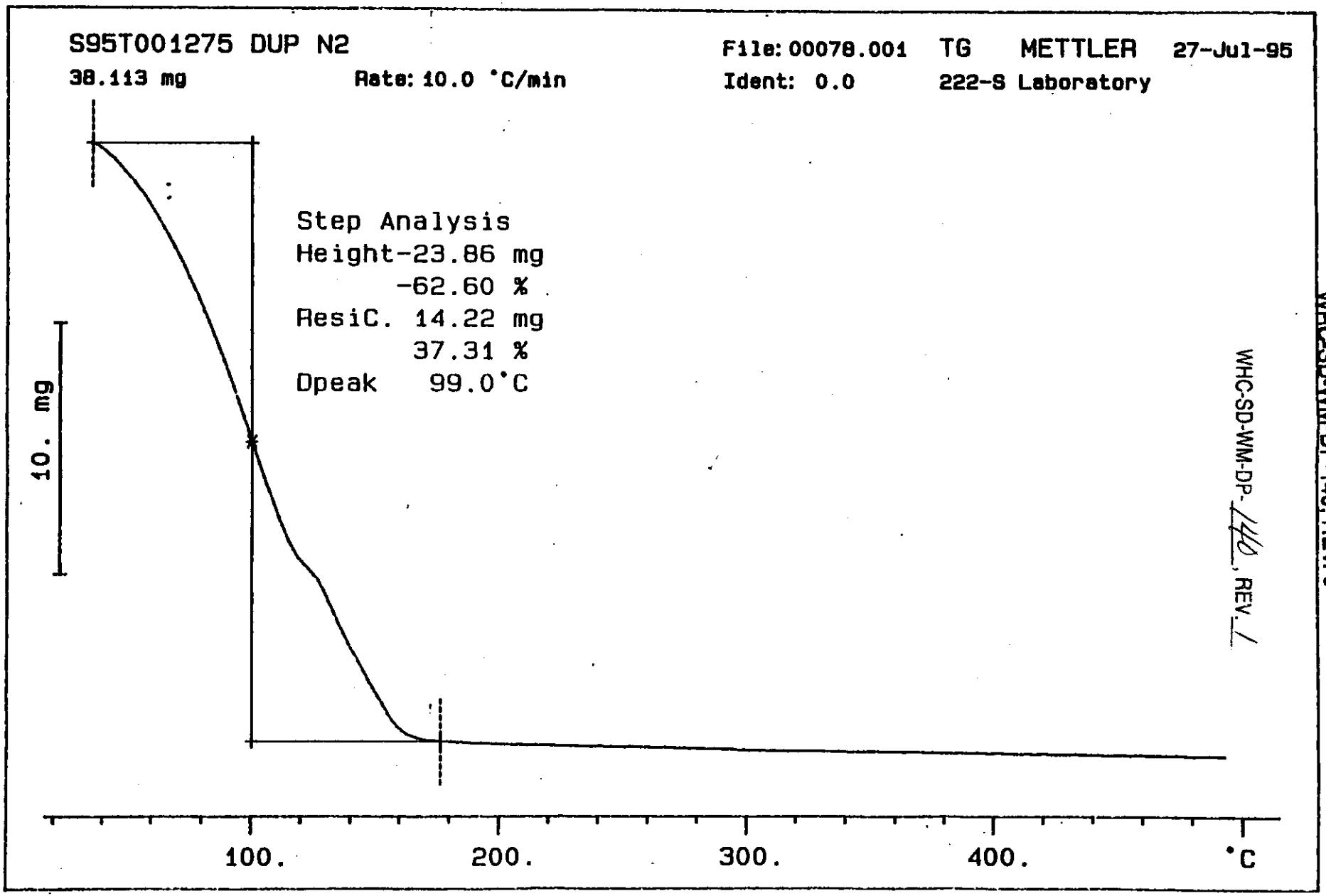
BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 0

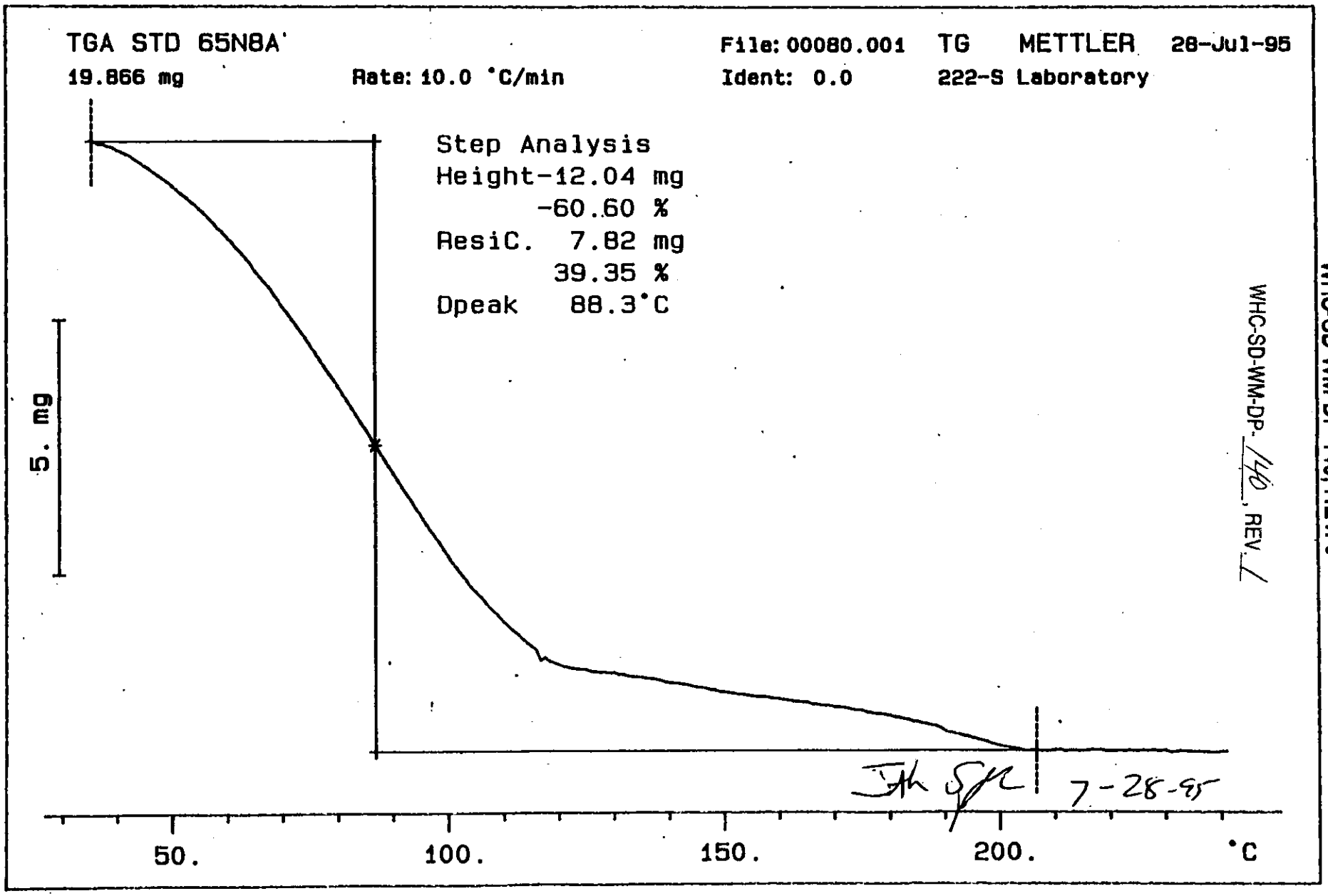
BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

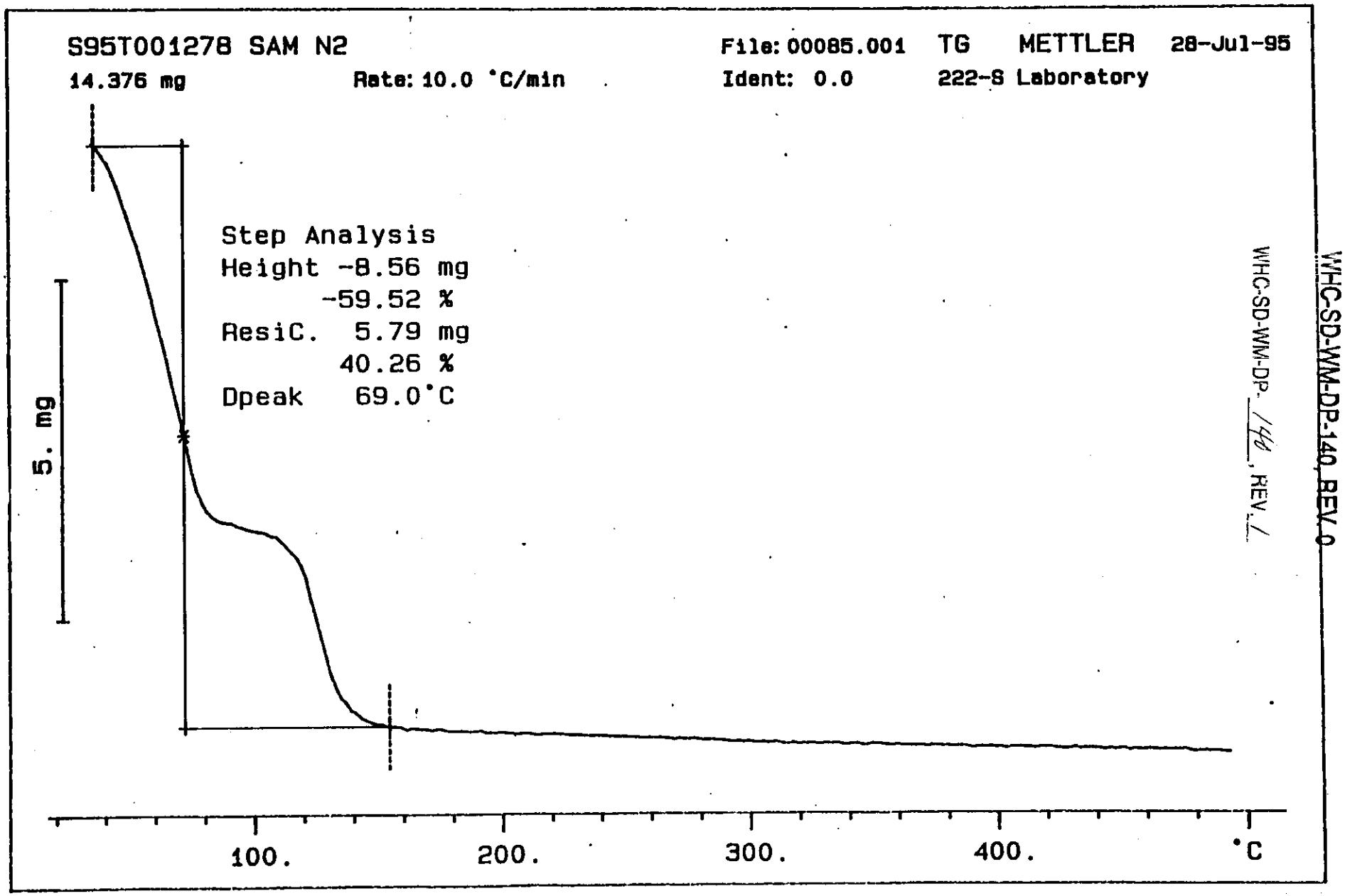
WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 1

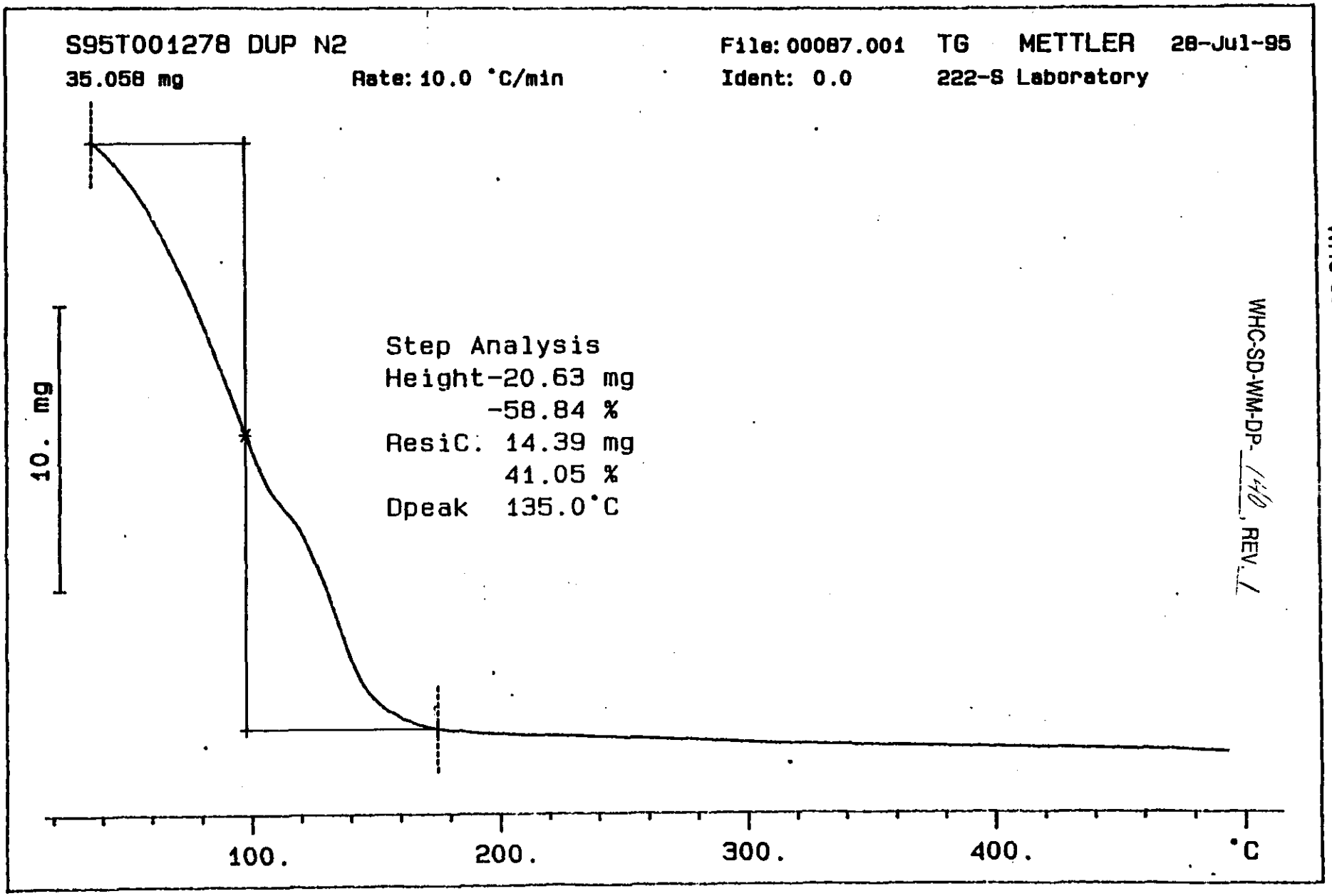
BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 1

LABCORE Data Entry Template for Worklist# 1898

Analyst: Sds **Instrument:** TGA0 1 **Book #** 65 N84

Method: LA-560-112 Rev/Mod A-2 WHC-SD-WM-DP-140, REV. 1

Worklist Comment: Please run B-106 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	59.74	60.44	N/A	%
95000096	B-106	2 SAMPLE	S95T001281	0		TGA-01	SOLID	N/A	55.48		%
95000096	B-106	3 DUP	S95T001281	0		TGA-01	SOLID	55.98	57.20	N/A	%
95000096	B-106	4 SAMPLE	S95T001284	0		TGA-01	SOLID	N/A	59.13		%
95000096	B-106	5 DUP	S95T001284	0		TGA-01	SOLID	59.13	60.39	N/A	%

Final page for worklist # 1898

Analyst Signature 8-3-95 Date

Analyst Signature 8-7-95 Date

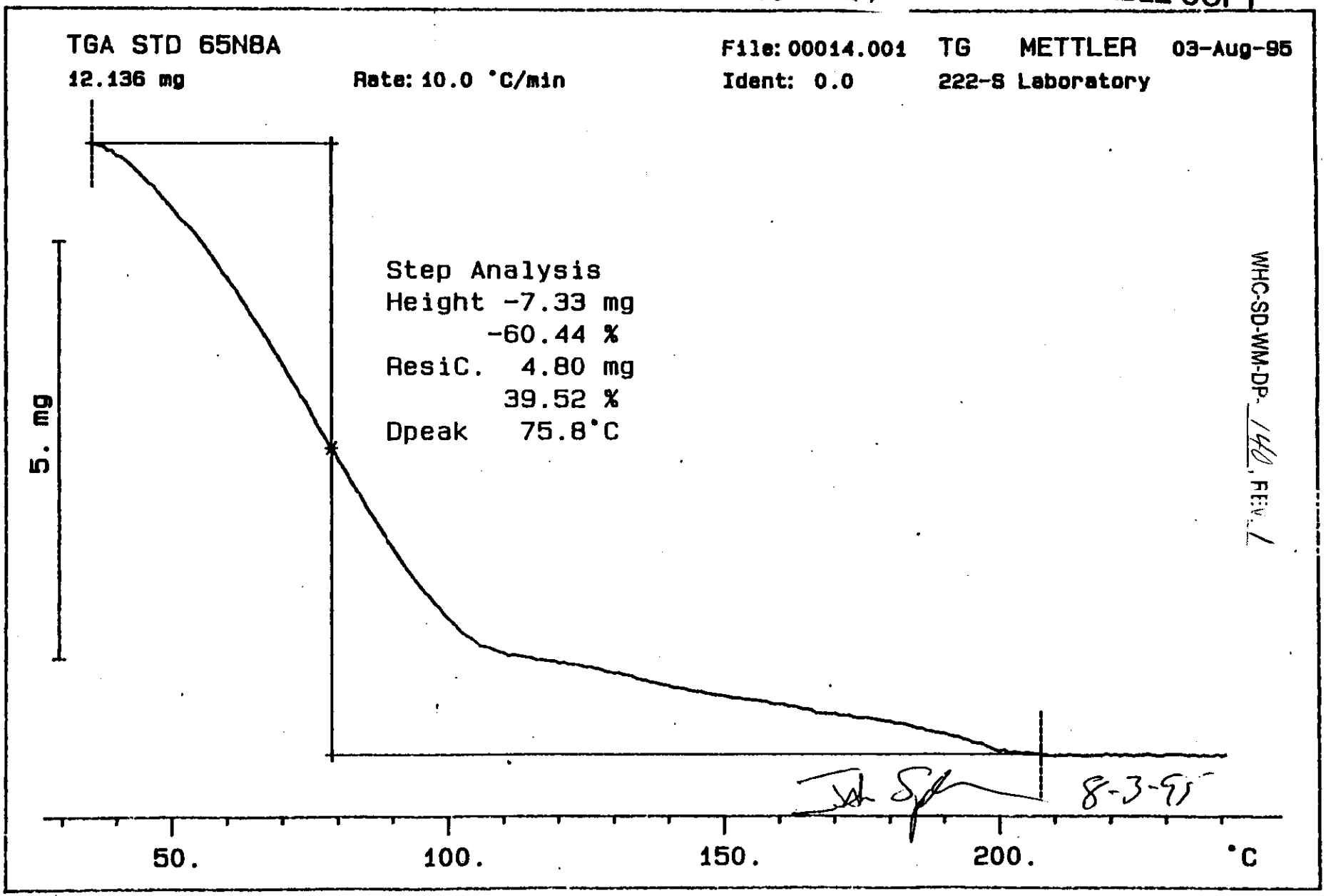
Verified by Blandina Valenzuela 8-8-95

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.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-66 TO 2-70

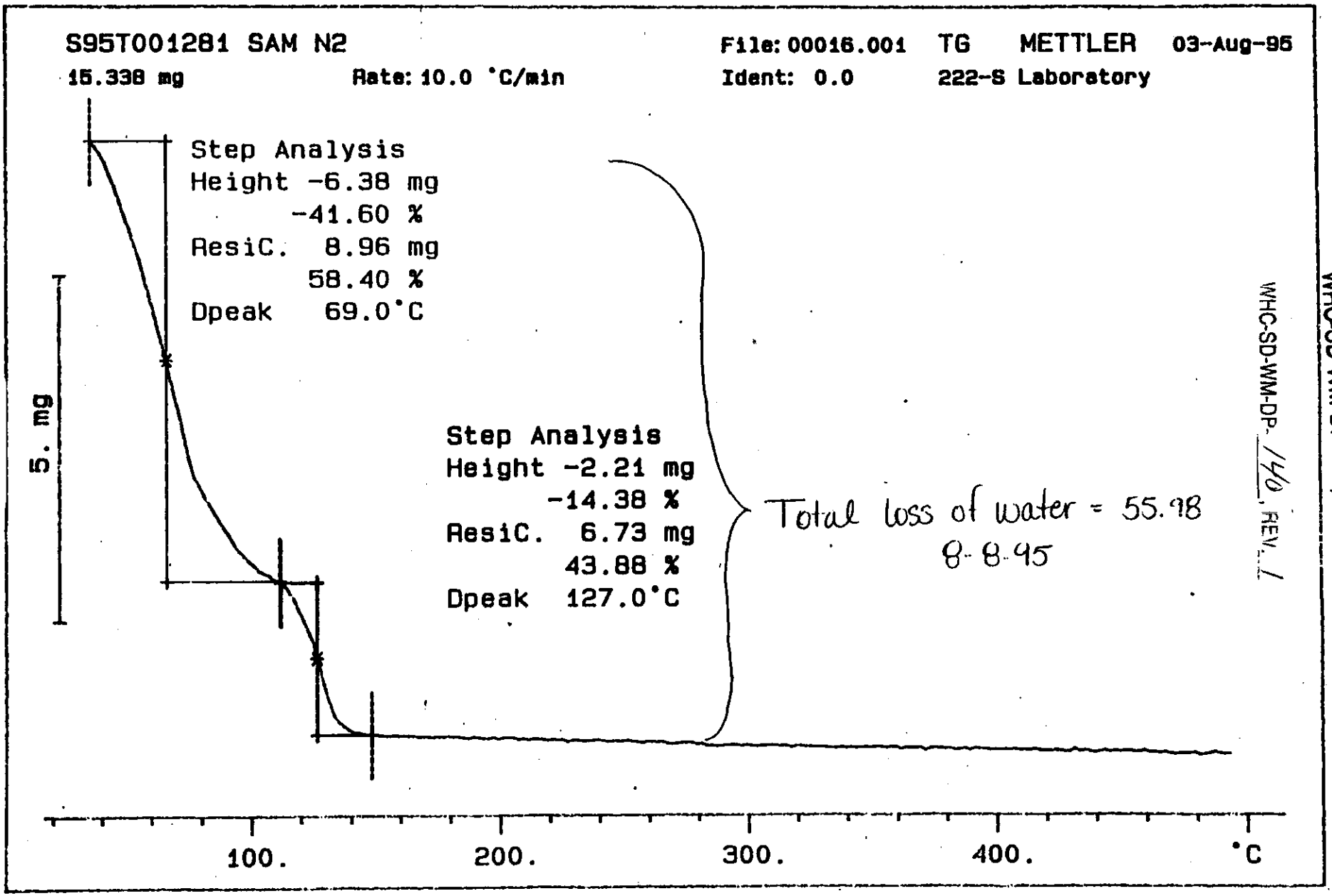
BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY

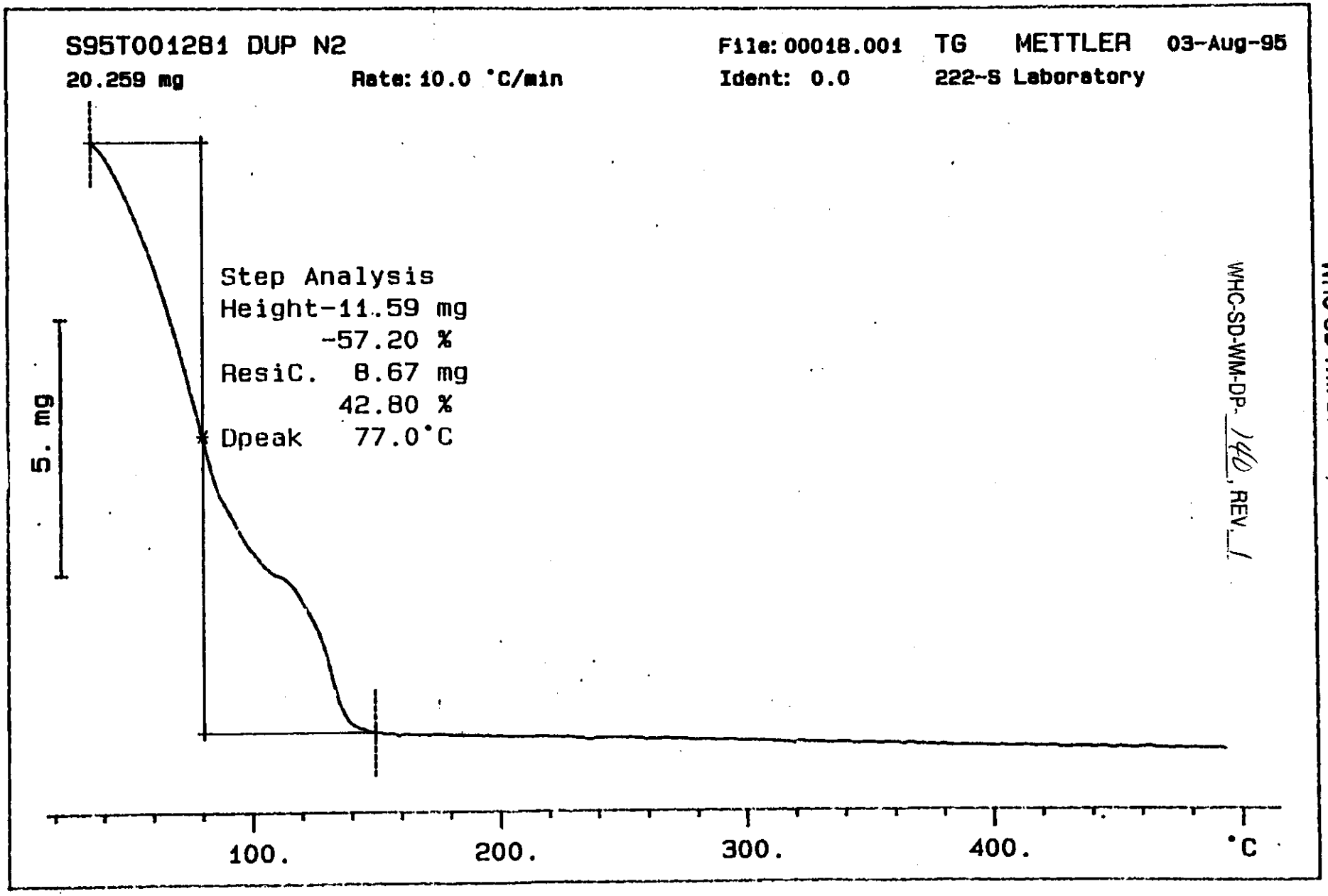


Total loss of water = 55.98
8-8-95

WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

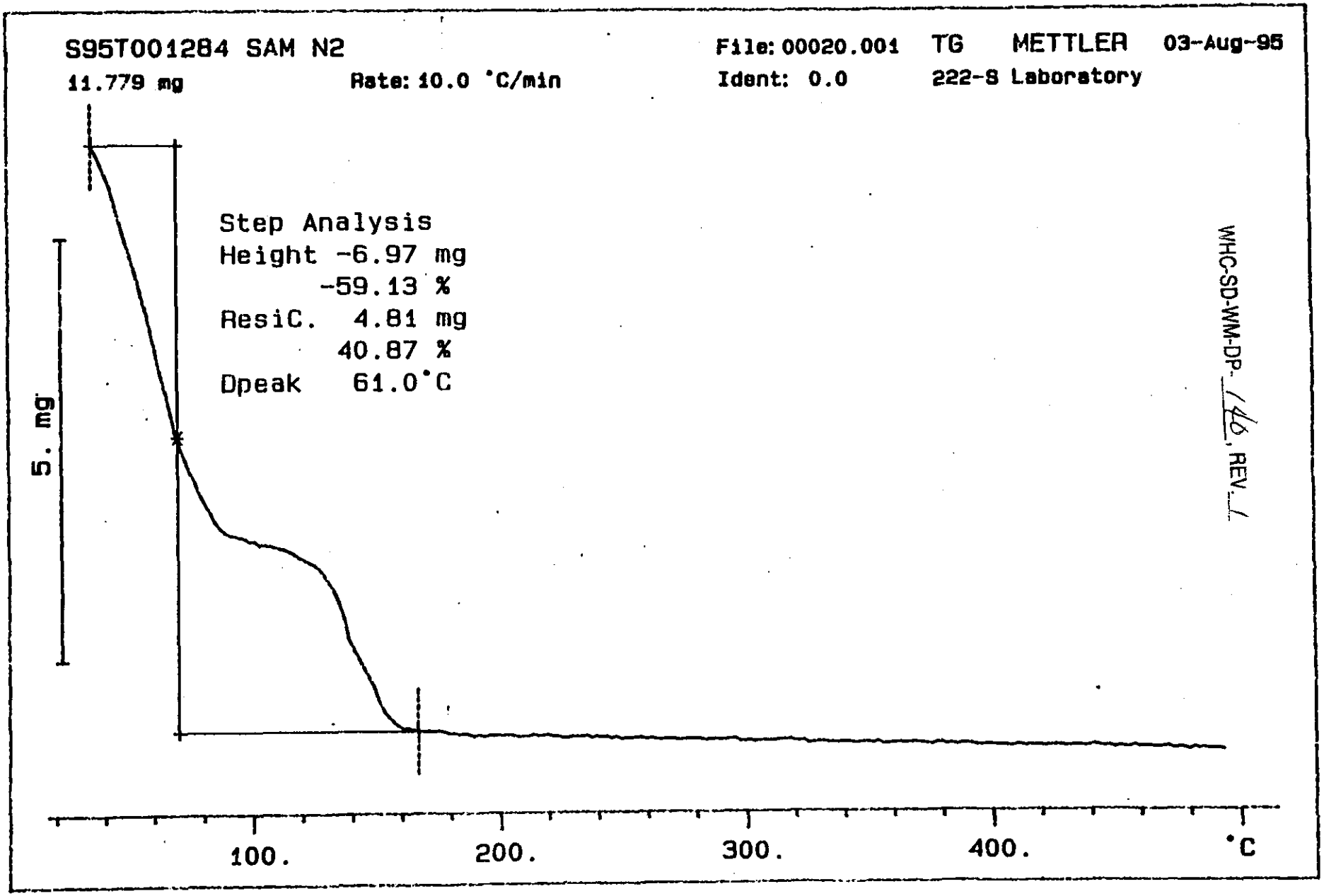
BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

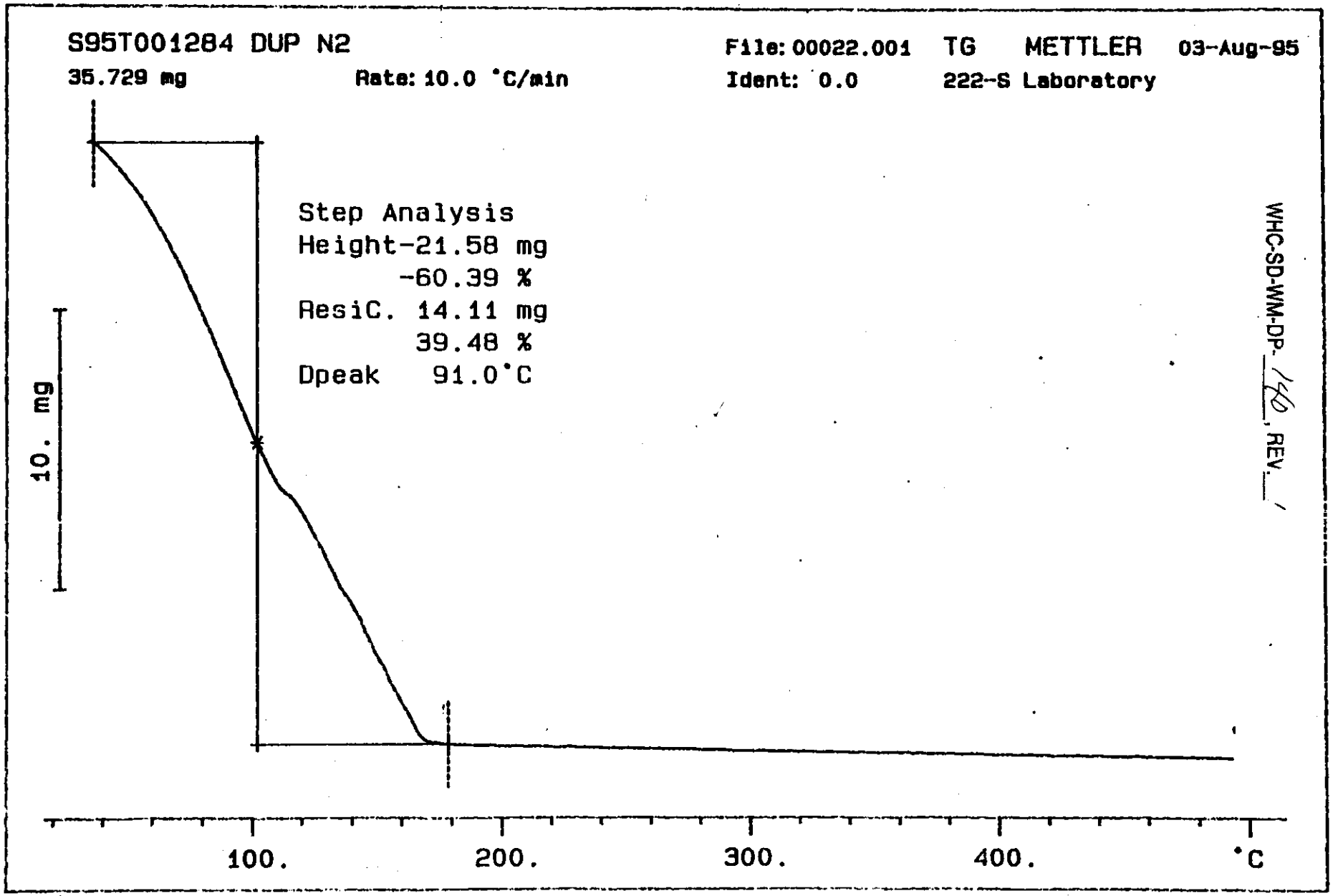
WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

LABCORE Data Entry Template for Worklist# 1899

Analyst: SMF **Instrument:** TGA0 1 **Book #** 65N8-A

Method: LA-560-112 Rev/Mod A-2 WHC-SD-WM-DP-140, REV. 1

Worklist Comment: Please run B-106 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	59.74	61.74	N/A	%
95000096	B-106	2	SAMPLE	S95T001298	0		TGA-01	SOLID	N/A	65.05		%
95000096	B-106	3	DUP	S95T001298	0		TGA-01	SOLID	65.05	63.13	N/A	%
		4	STD				TGA-01	SOLID	59.74	59.92	N/A	%
95000096	B-106	5	SAMPLE	S95T001302	0		TGA-01	SOLID	N/A	62.36		%
95000096	B-106	6	DUP	S95T001302	0		TGA-01	SOLID	62.36	62.34	N/A	%

Final page for worklist # 1899

See attached for signatures 8-8-95
Analyst Signature **Date**

[illegible] 8-8-95
Analyst Signature **Date**

Verified by Blandina Valenzuela 8-9-95

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# 1899

Analyst: SMF **Instrument:** TGA0 1 **Book #** 965N8A

Method: LA-560-112 Rev/Mod A-2 WHC-SD-WM-DP-140, REV. 1

Worklist Comment: Please run B-106 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID			N/A	%
95000096	B-106	2	SAMPLE	S95T001298	0		TGA-01	SOLID	N/A			%
95000096	B-106	3	DUP	S95T001298	0		TGA-01	SOLID			N/A	%
95000096	B-106	4	SAMPLE	S95T001302	0		TGA-01	SOLID	N/A			%
95000096	B-106	5	DUP	S95T001302	0		TGA-01	SOLID			N/A	%

Final page for worklist # 1899

Susie M. Dutton 8-8-95

Analyst Signature Date

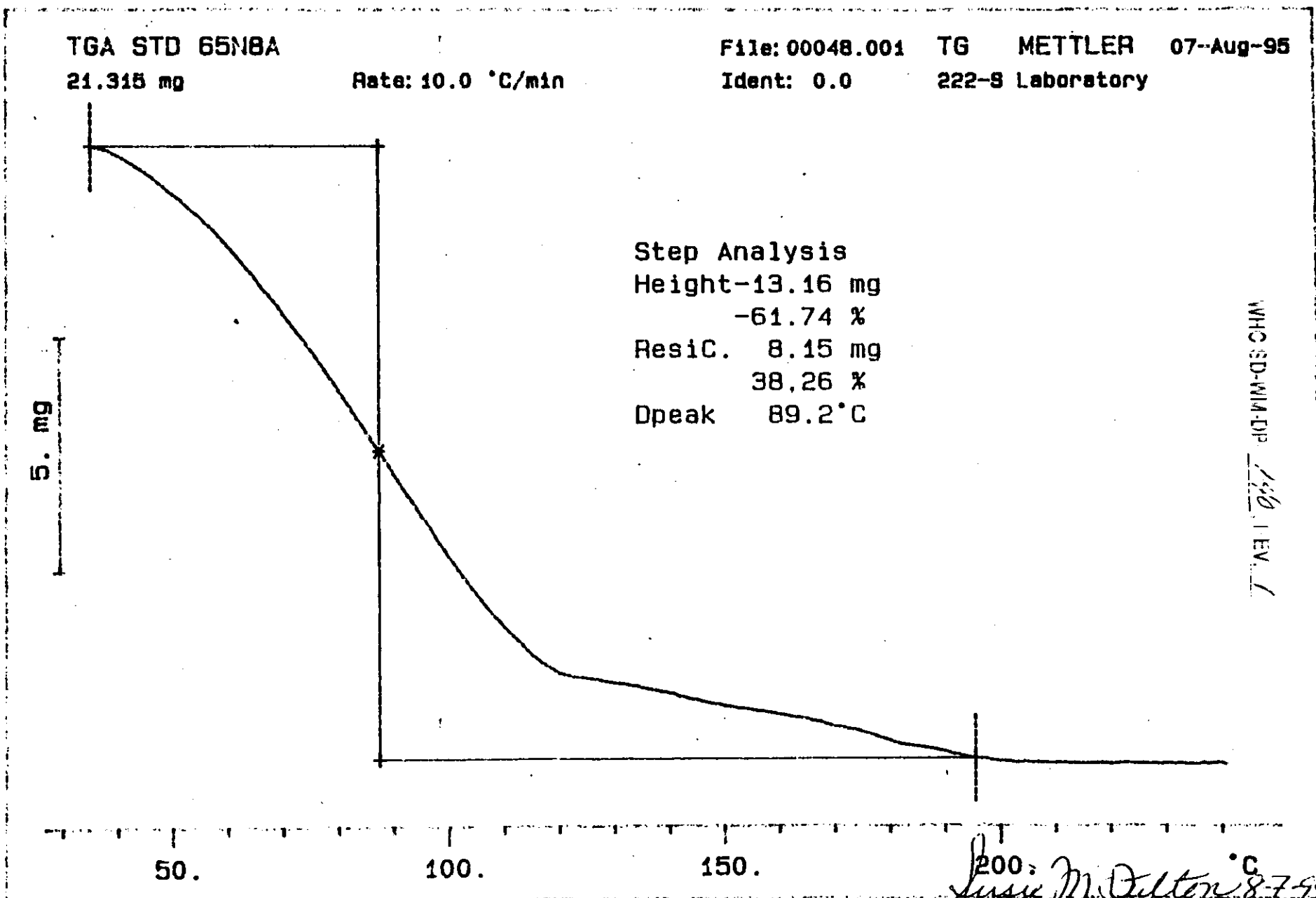
Analyst Signature Date

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-73 TO 2-78

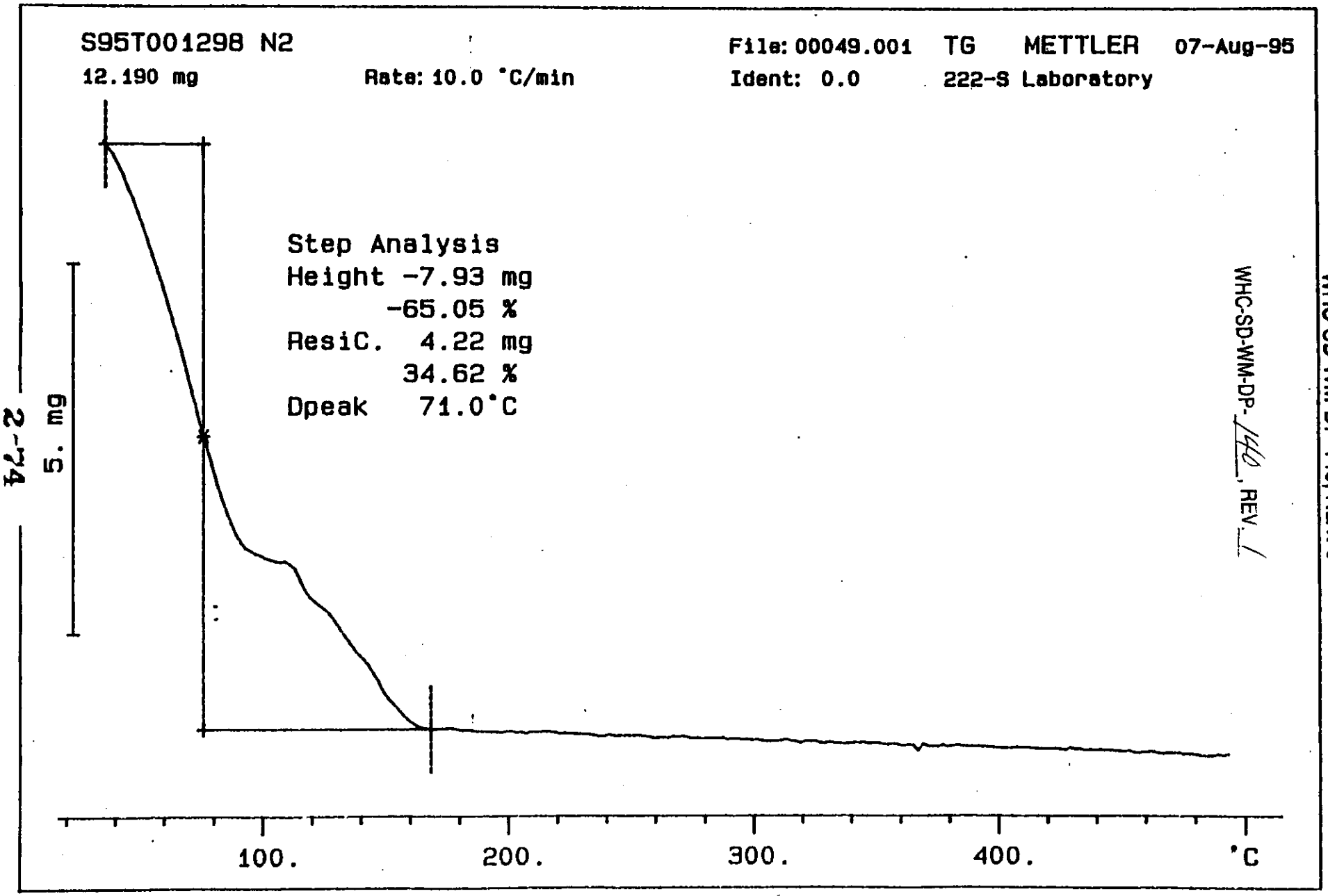
BEST AVAILABLE COPY



Susie M. Dalton 8-7-95

WHC SD-WM-DP 140 REV. 1

BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY

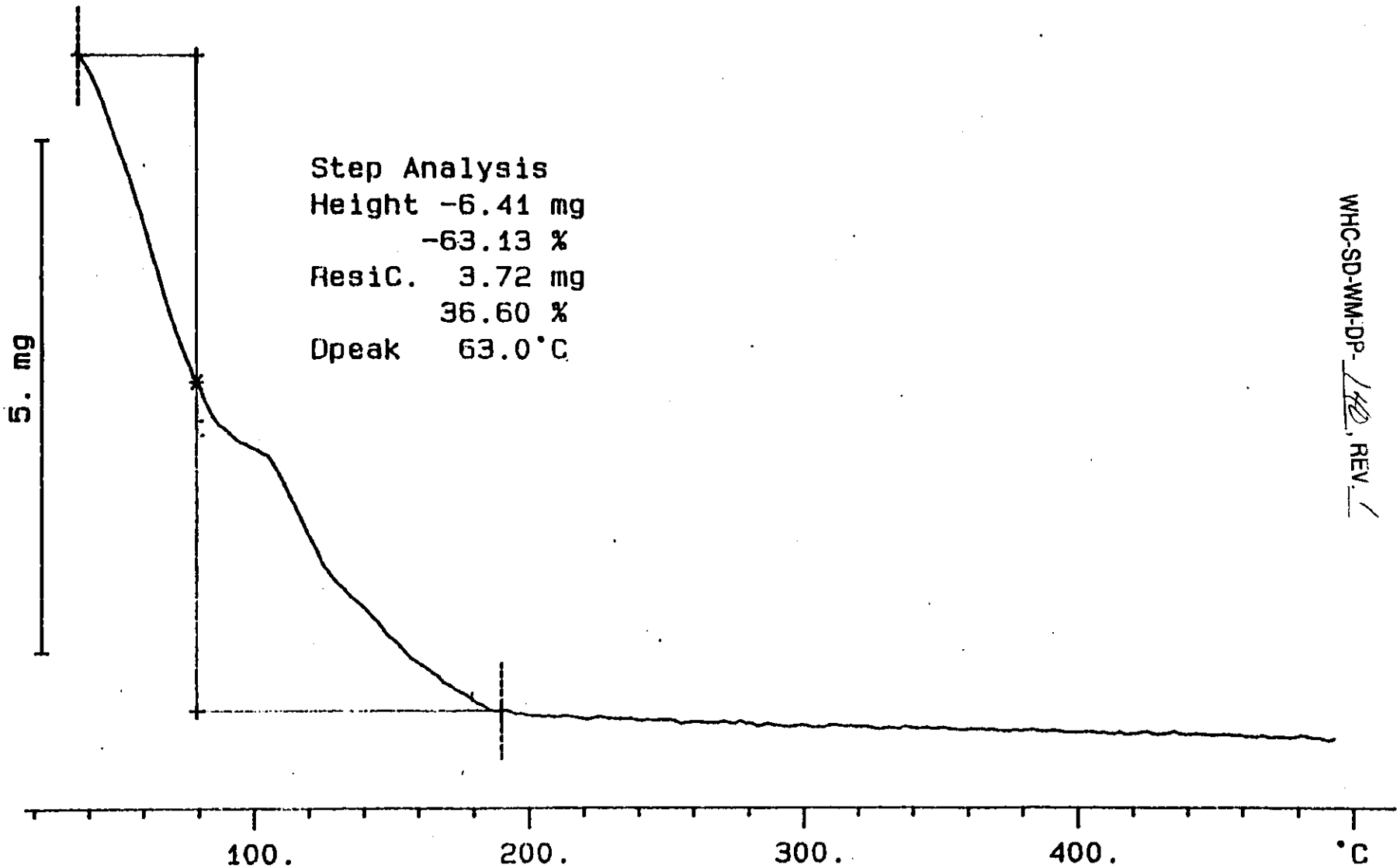
S95T001298 DUP N2

10.161 mg

Rate: 10.0 °C/min

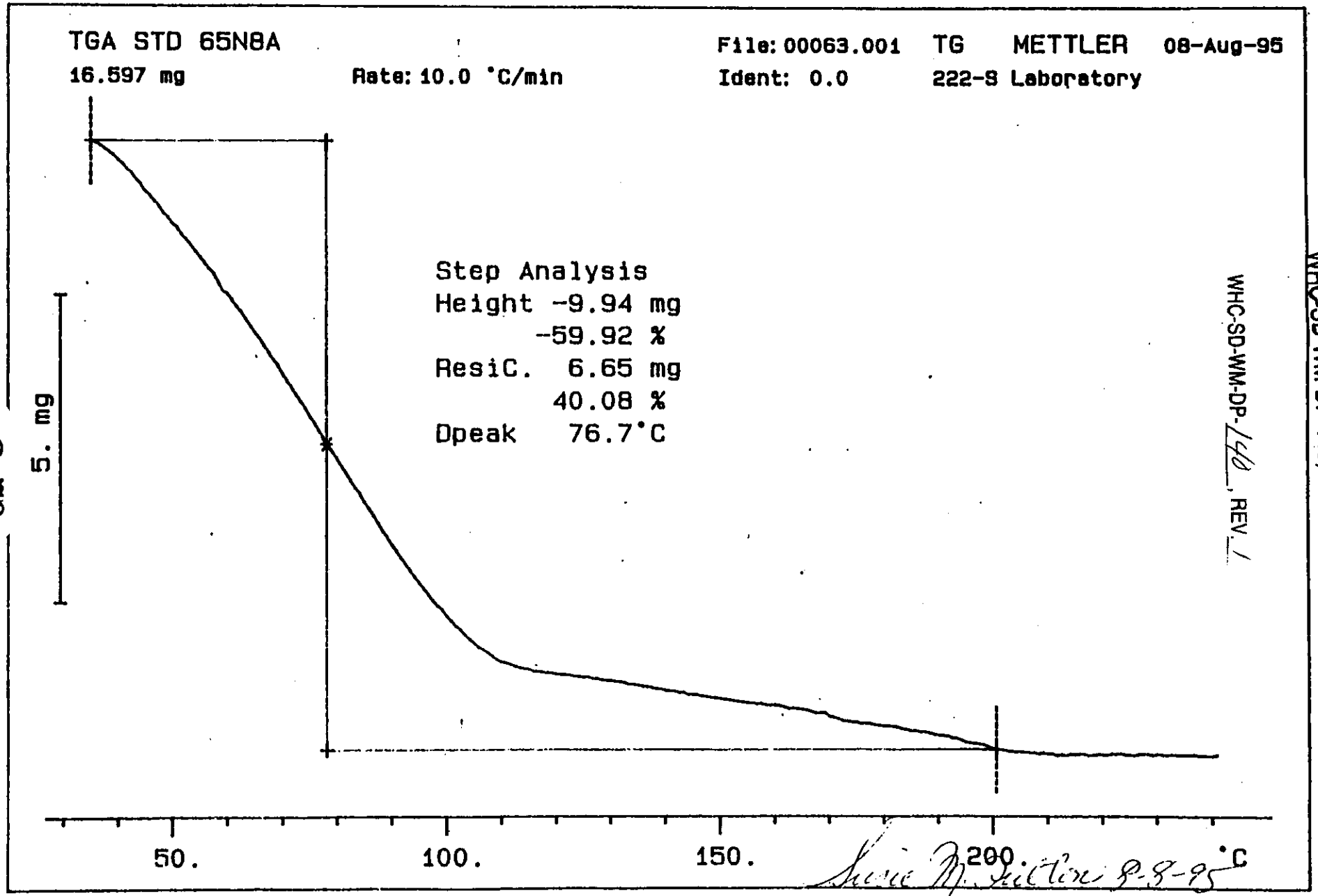
File: 00050.001 TG METTLER 07-Aug-95

Ident: 0.0 222-S Laboratory



WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY

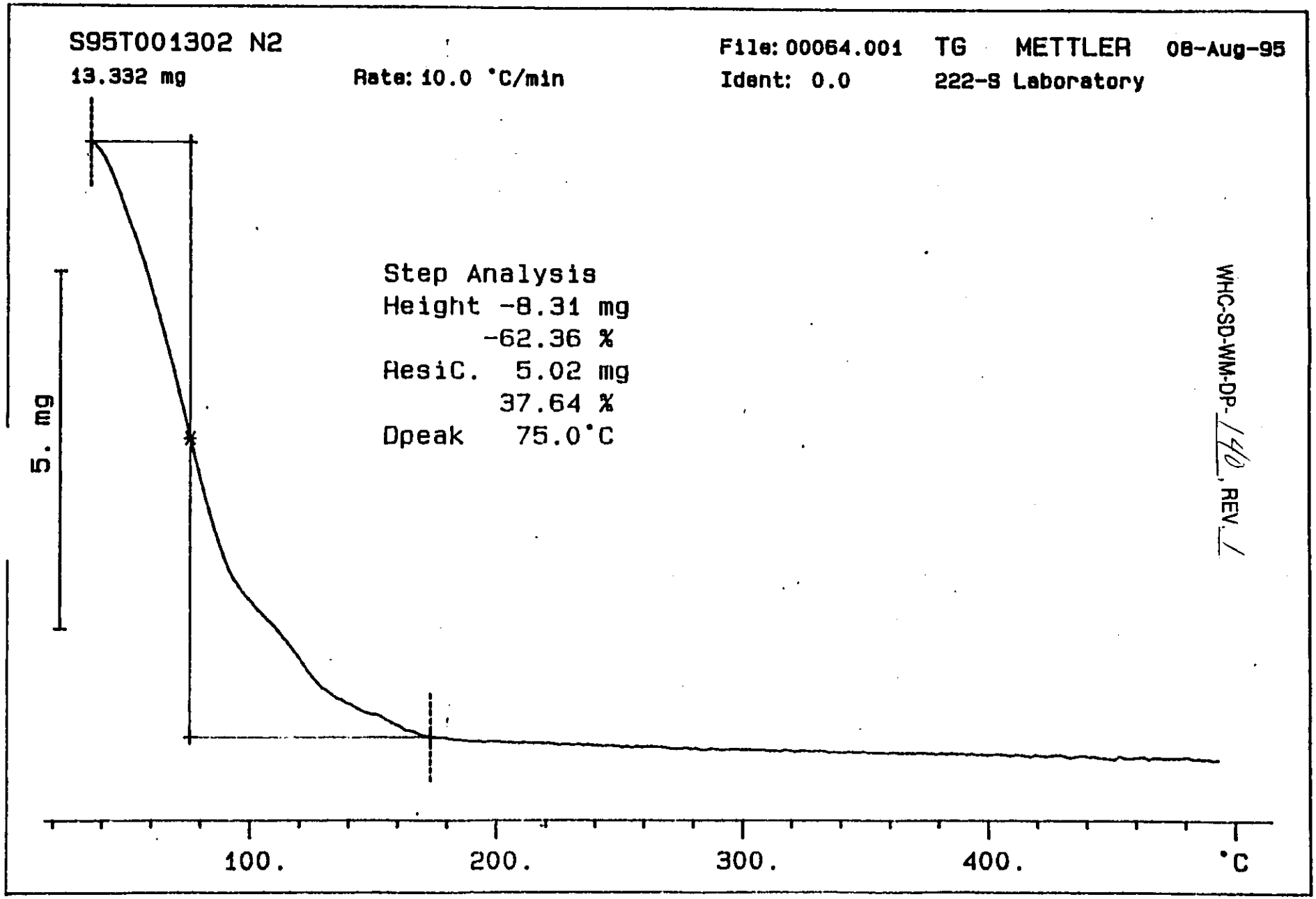


Steve M. Sutton 8-8-95

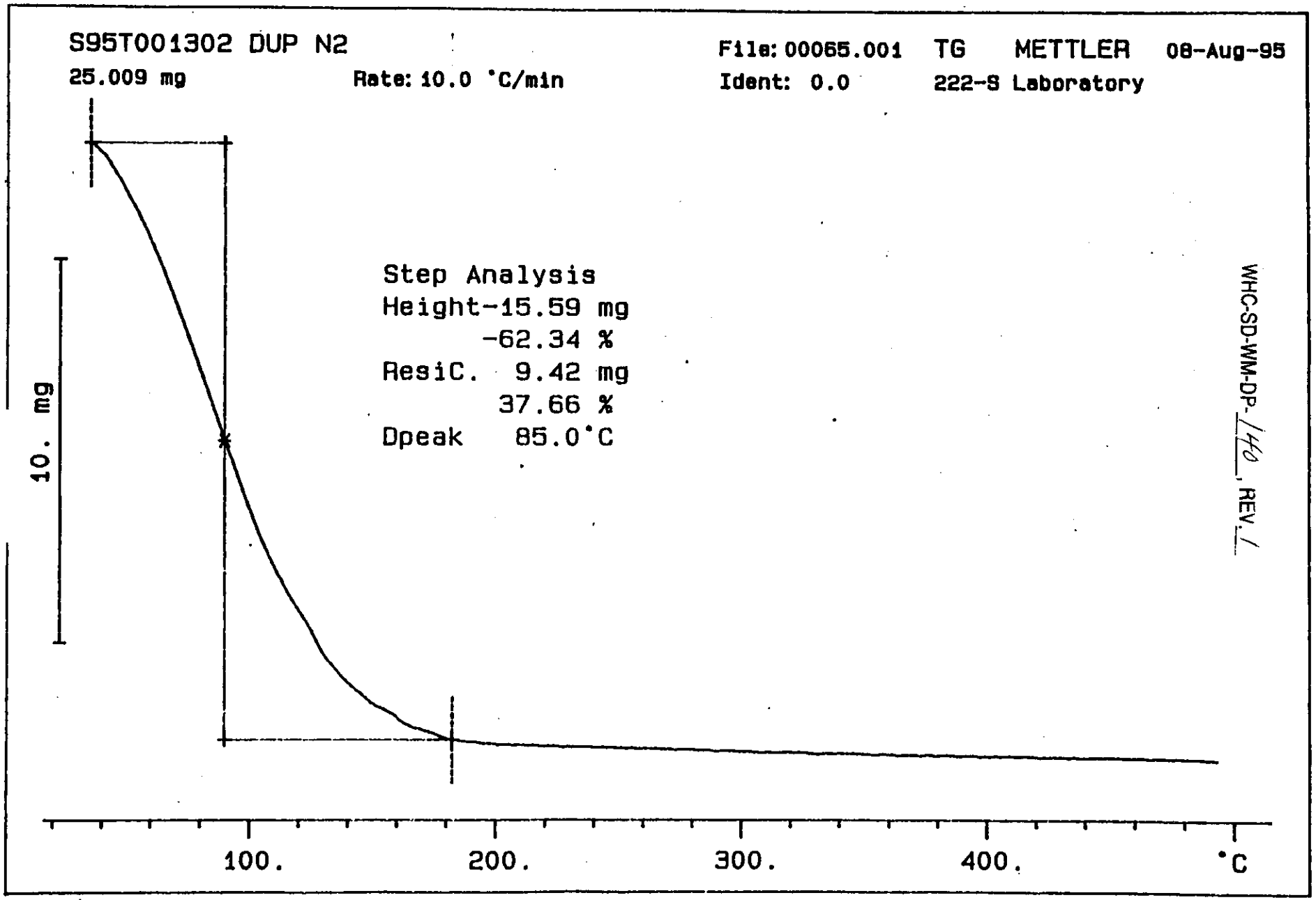
WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY



BEST AVAILABLE COPY



LABCORE Data Entry Template for Worklist# 1900

Analyst: JDS **Instrument:** TGA0 1 **Book #** 65N8-A

Method: LA-560-112 Rev/Mod A-2 WHC-SD-WM-DP-140, REV. 1

Worklist Comment: Please run B-106 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	59.74	60.83	N/A	%
95000096	B-106	2	SAMPLE	S95T001306	0		TGA-01	SOLID	N/A	57.01		%
95000096	B-106	3	DUP	S95T001306	0		TGA-01	SOLID	57.01	57.08	N/A	%
		4	STD				TGA-01	SOLID	59.74	61.96	N/A	%
95000096	B-106	5	SAMPLE	S95T001310	0		TGA-01	SOLID	N/A	61.31		%
95000096	B-106	6	DUP	S95T001310	0		TGA-01	SOLID	61.31	61.45	N/A	%

Final page for worklist # 1900

See attached for signatures
Analyst Signature Date 8-1-95

Analyst Signature Date 8-2-95

Verified by Blandina Valenzuela 8-2-95

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# 1900

Analyst: JDS **Instrument:** TGA0 _____ **Book #** 65 N8A

Method: LA-560-112 Rev/Mod A-2 WHC-SD-WM-DP-140, REV. 1

Worklist Comment: Please run B-106 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID			N/A	%
95000096	B-106	2	SAMPLE	S95T001306	0		TGA-01	SOLID	N/A			%
95000096	B-106	3	DUP	S95T001306	0		TGA-01	SOLID			N/A	%
95000096	B-106	4	SAMPLE	S95T001310	0		TGA-01	SOLID	N/A			%
95000096	B-106	5	DUP	S95T001310	0		TGA-01	SOLID			N/A	%

Final page for worklist # 1900

8-1-95

Analyst Signature Date

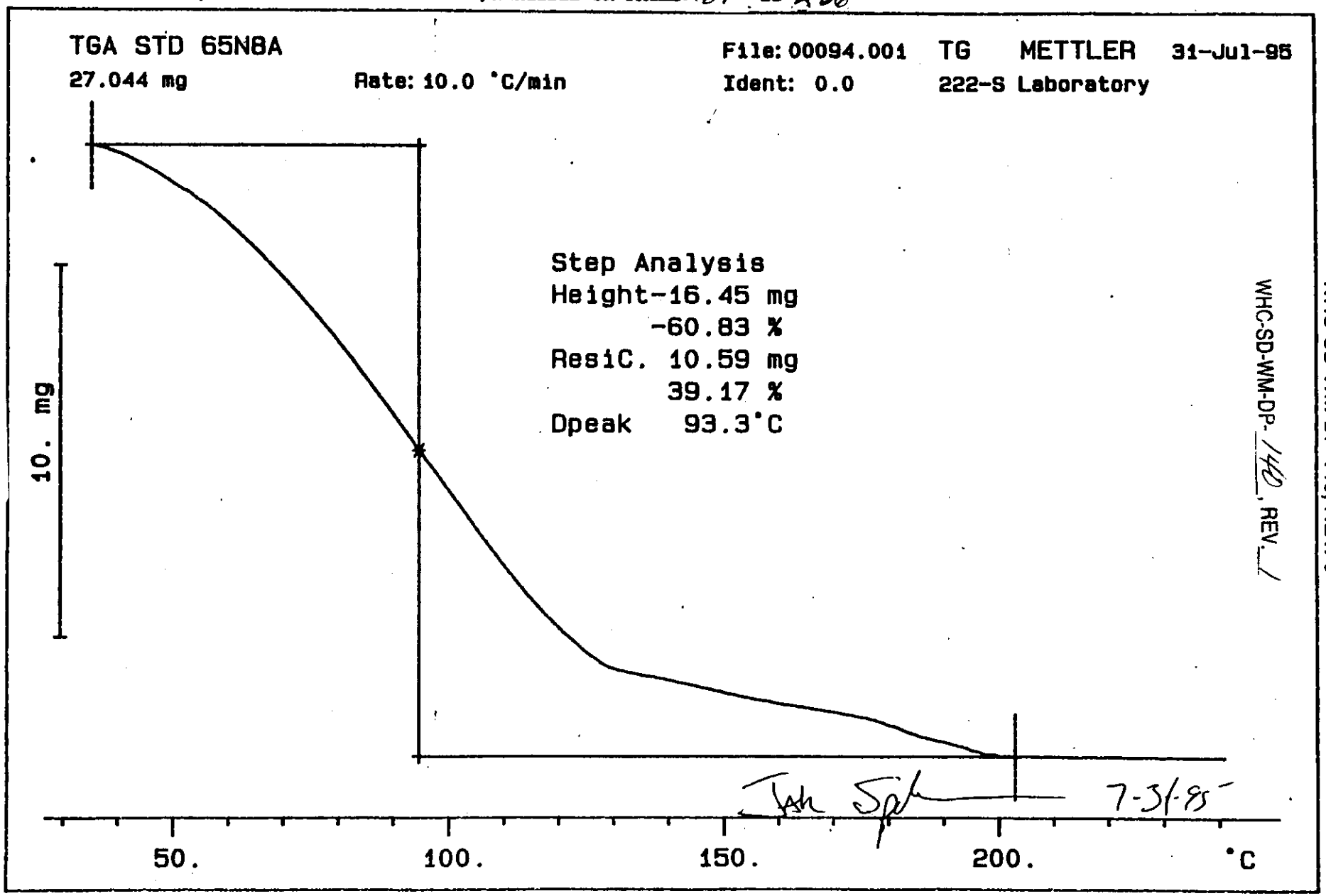
Analyst Signature Date

Data Entry Comments:

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 2-81 TO 2-86

BEST AVAILABLE COPY

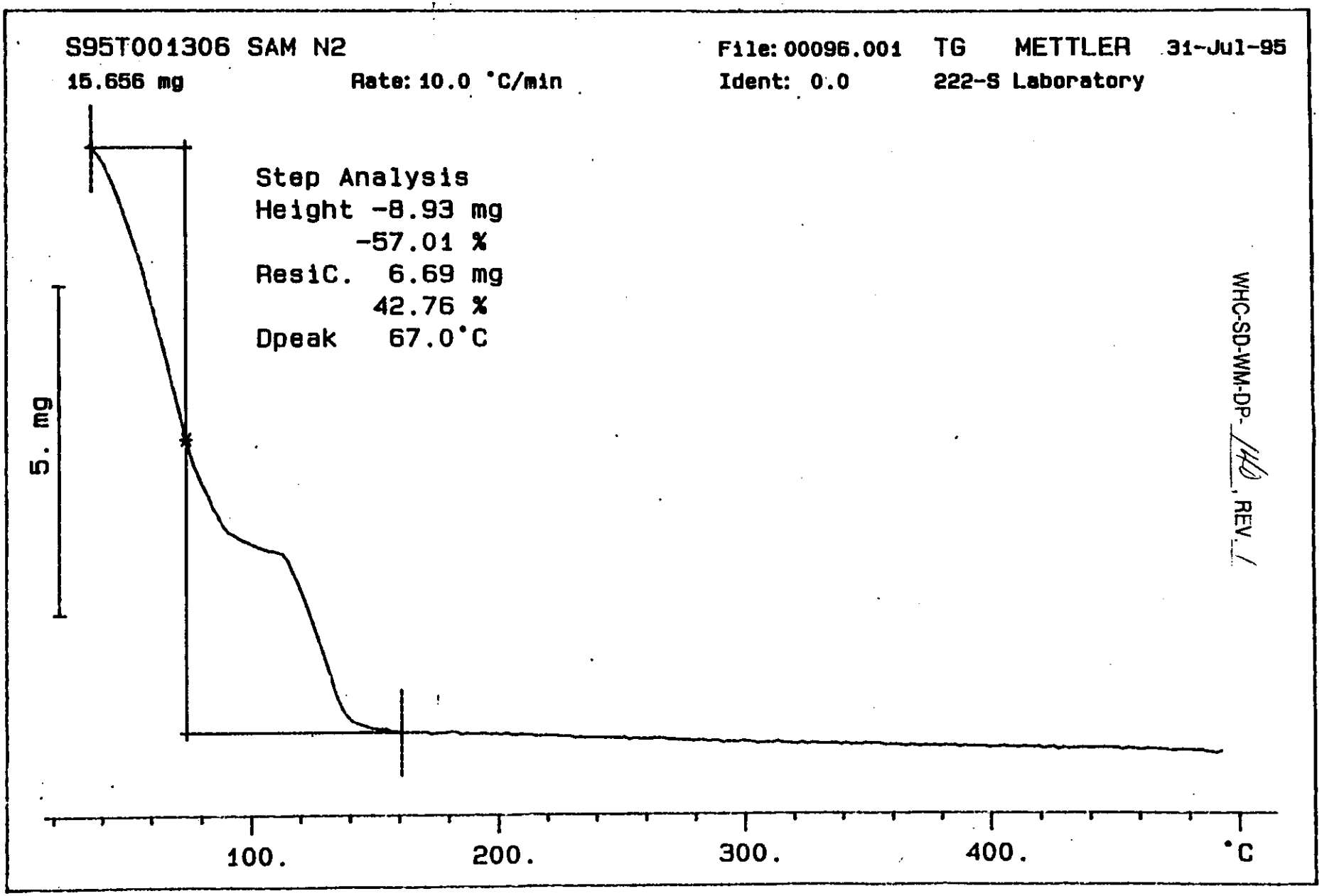


7-31-95

WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY

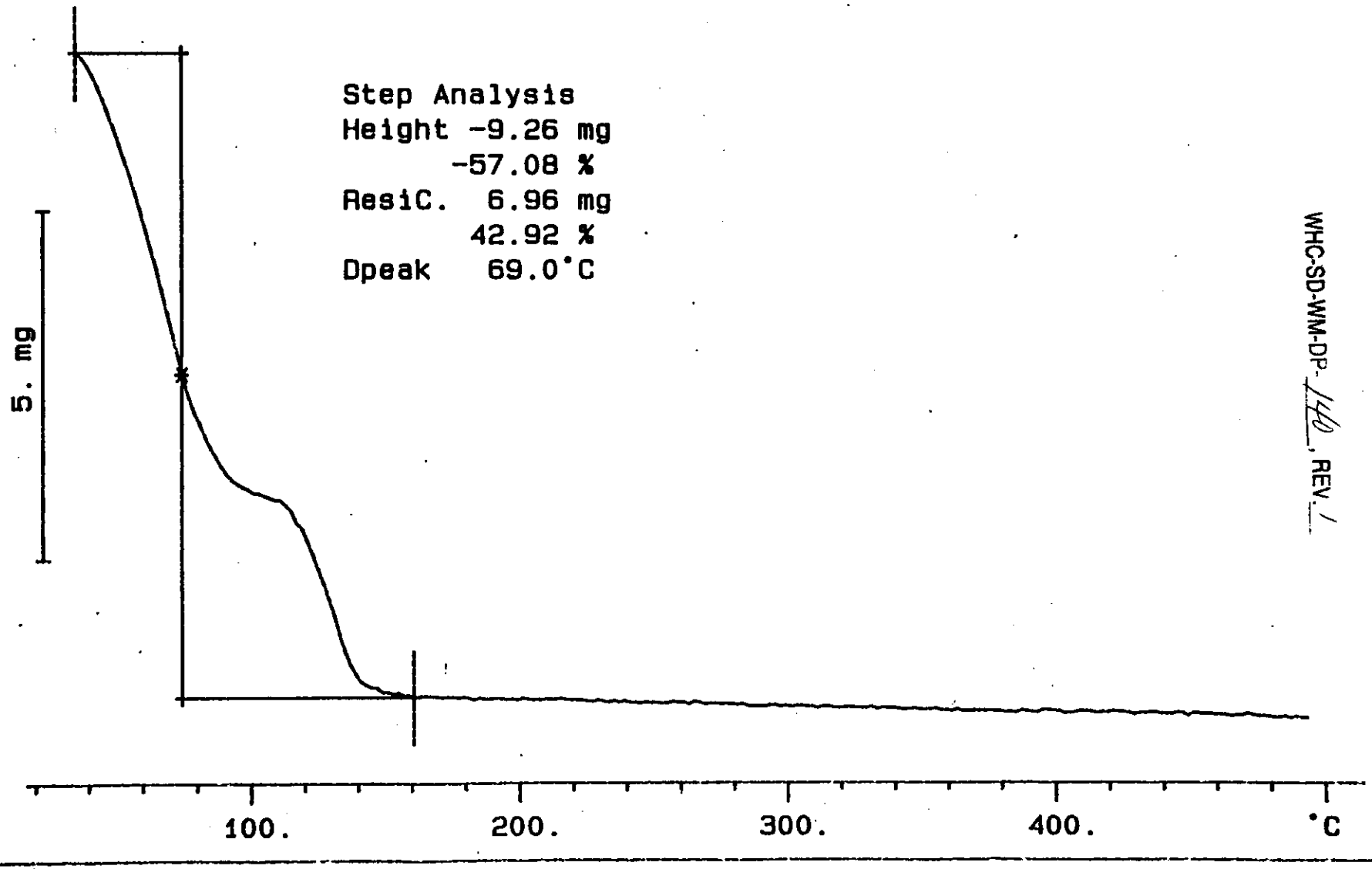
S95T001306DUP

16.215 mg

Rate: 10.0 °C/min

File: 00100.001 TG METTLER 31-Jul-95

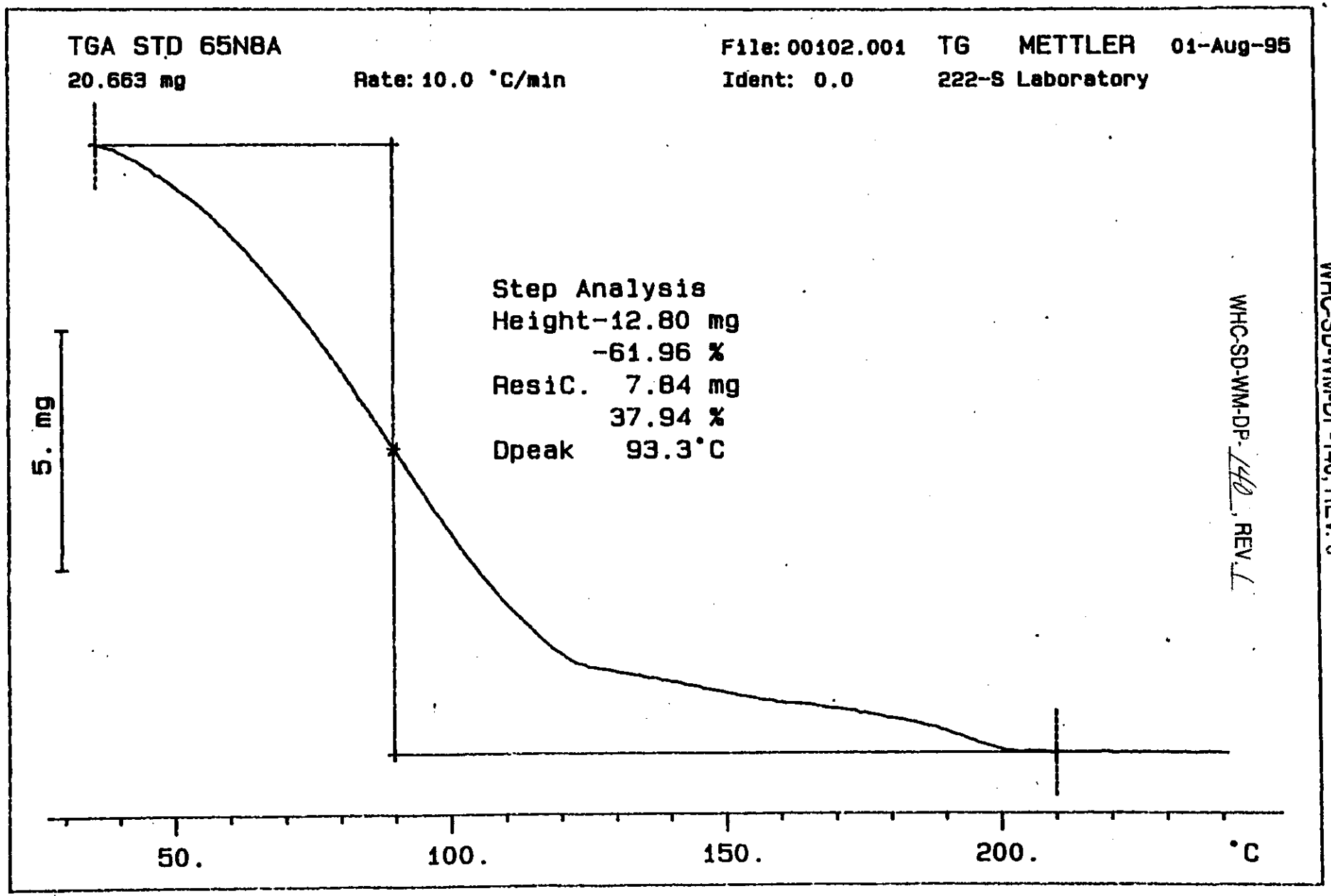
Ident: 0.0 222-S Laboratory



WHC-SD-WM-DP-140, REV. 1

WHC-SD-WM-DP-140, REV. 0

BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 1

BEST AVAILABLE COPY

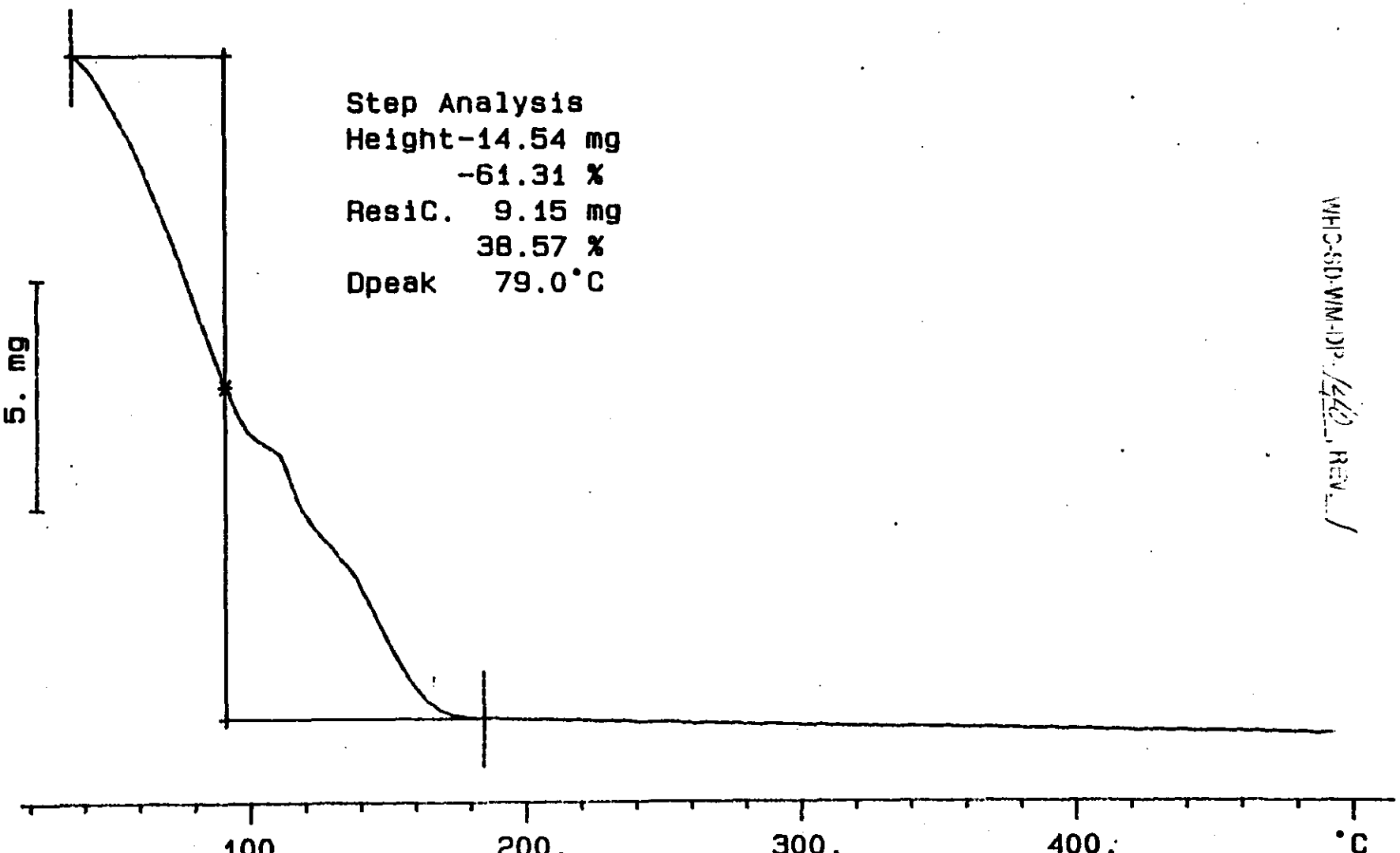
S95T001310 SAM N2

23.715 mg

Rate: 10.0 °C/min

File: 00104.001 TG METTLER 01-Aug-95

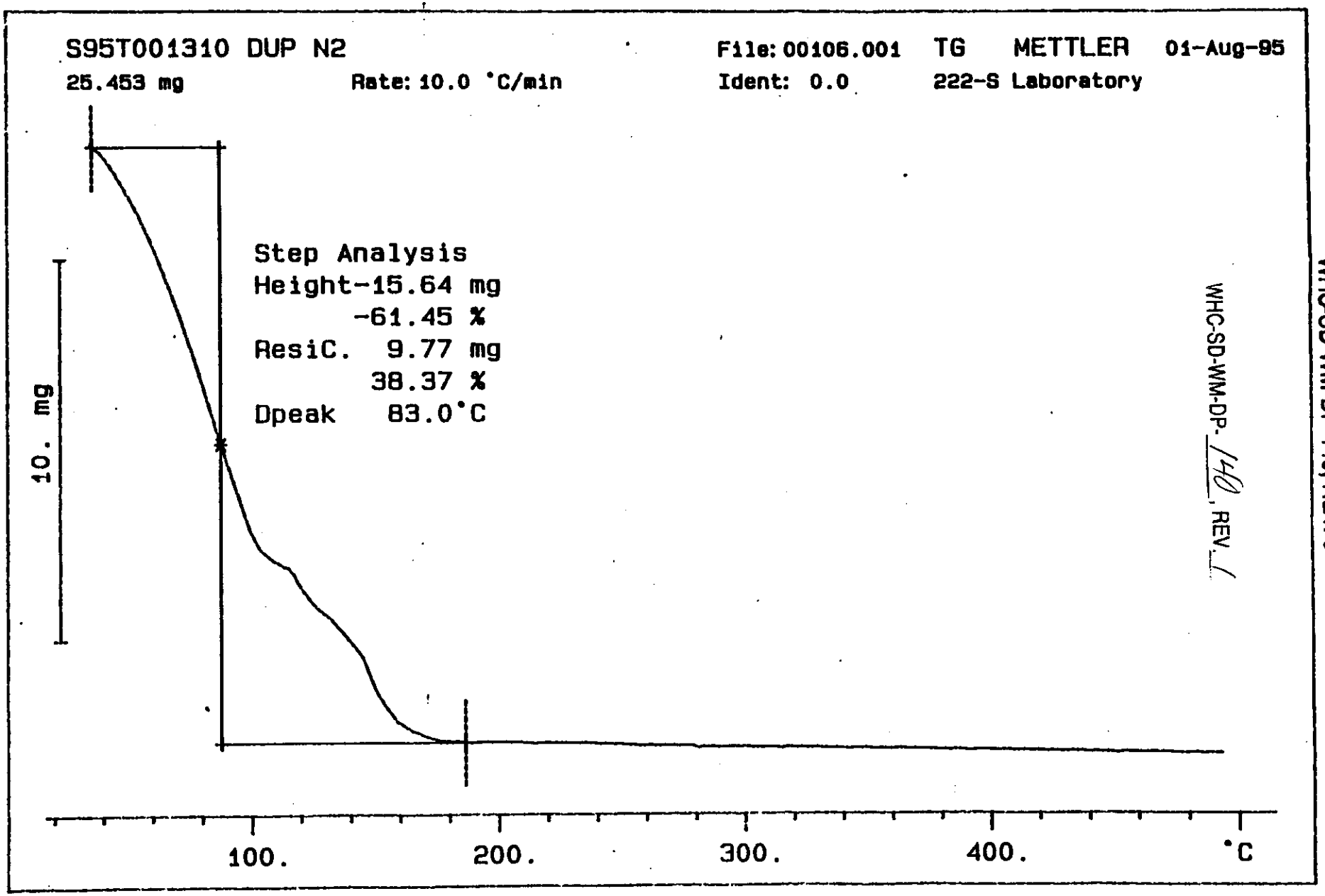
Ident: 0.0 222-S Laboratory



WHC-SD-WM-DP-440, REV. 0

WHC-SD-WM-DP-440, REV. 0

BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 1

LABCORE Data Entry Template for Worklist# 1901

Analyst: JDS **Instrument:** TGA0 1 **Book #** 65N84

Method: LA-560-112 Rev/Mod A2 WHC-SD-WM-DP-140, REV. 1

Worklist Comment: Please run B-106 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	LIQUID	59.74	61.80	N/A	%
95000096	B-106	2	SAMPLE	S95T001272	0		TGA-01	LIQUID	N/A	67.32		%
95000096	B-106	3	DUP	S95T001272	0		TGA-01	LIQUID	67.32	67.13	N/A	%

Final page for worklist # 1901

JDS 7-27-95
Analyst Signature Date

7-27-95
Analyst Signature Date

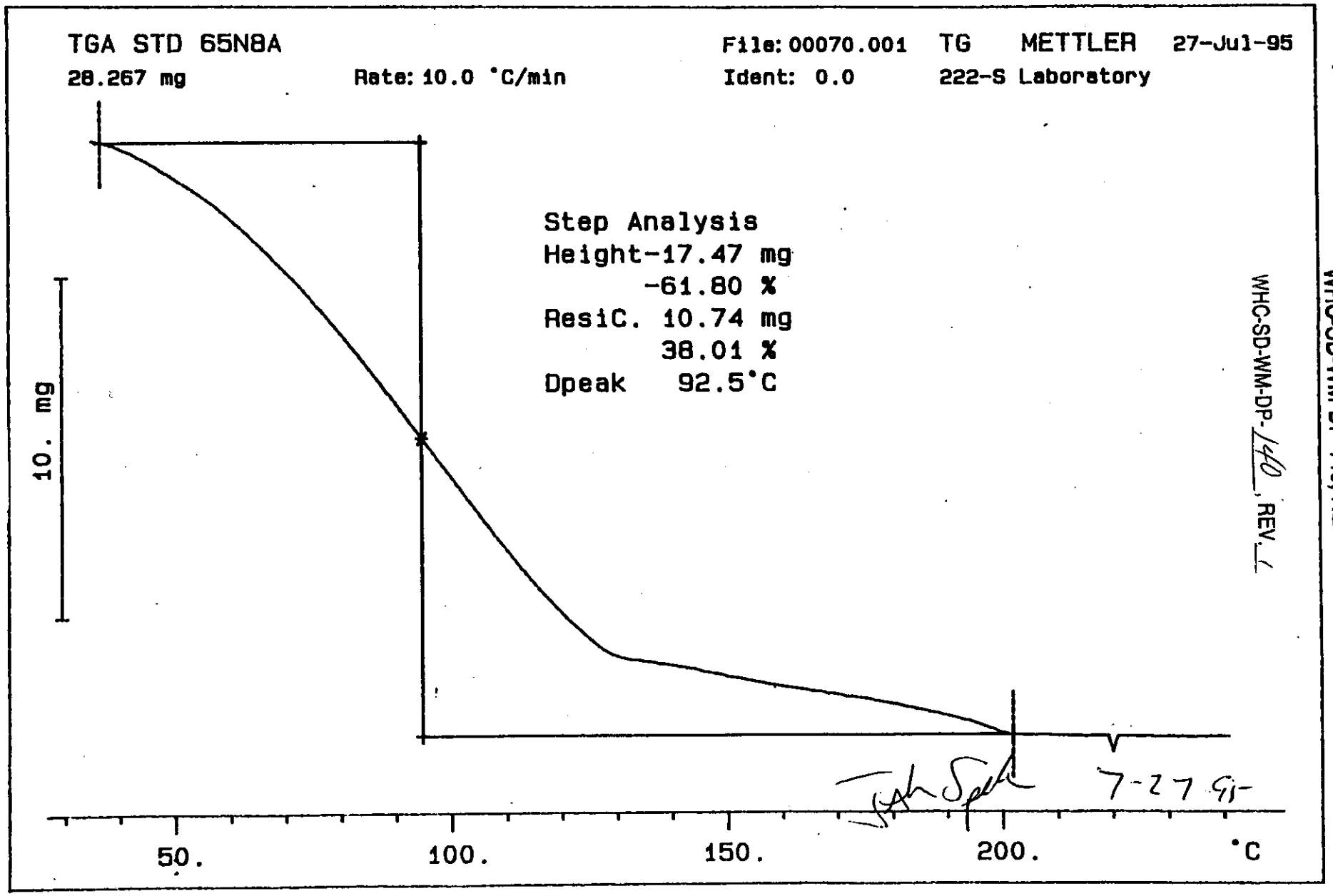
Verified by Blandina D Valenzuela 7-28-95

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.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 288 TO 290

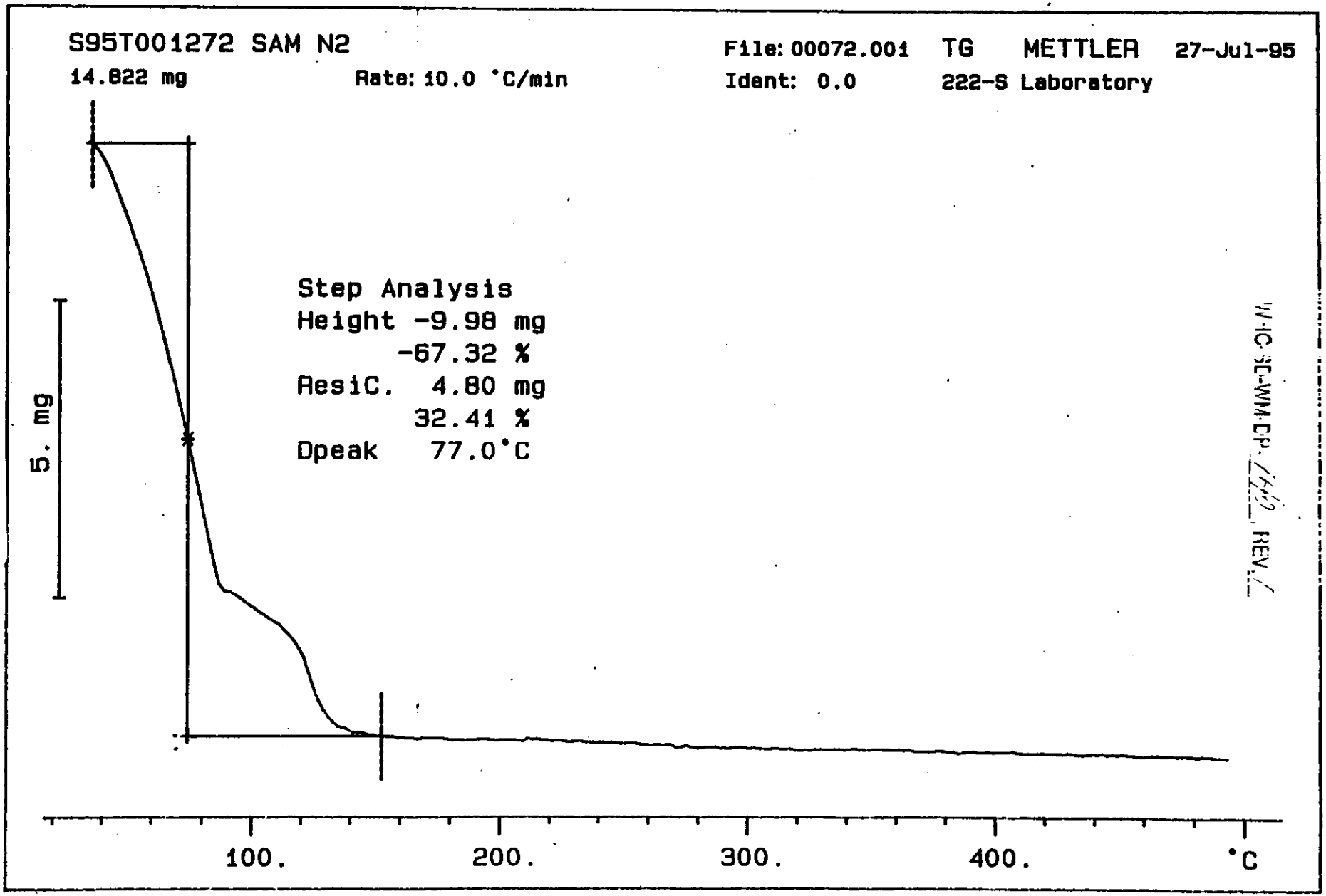
BEST AVAILABLE COPY



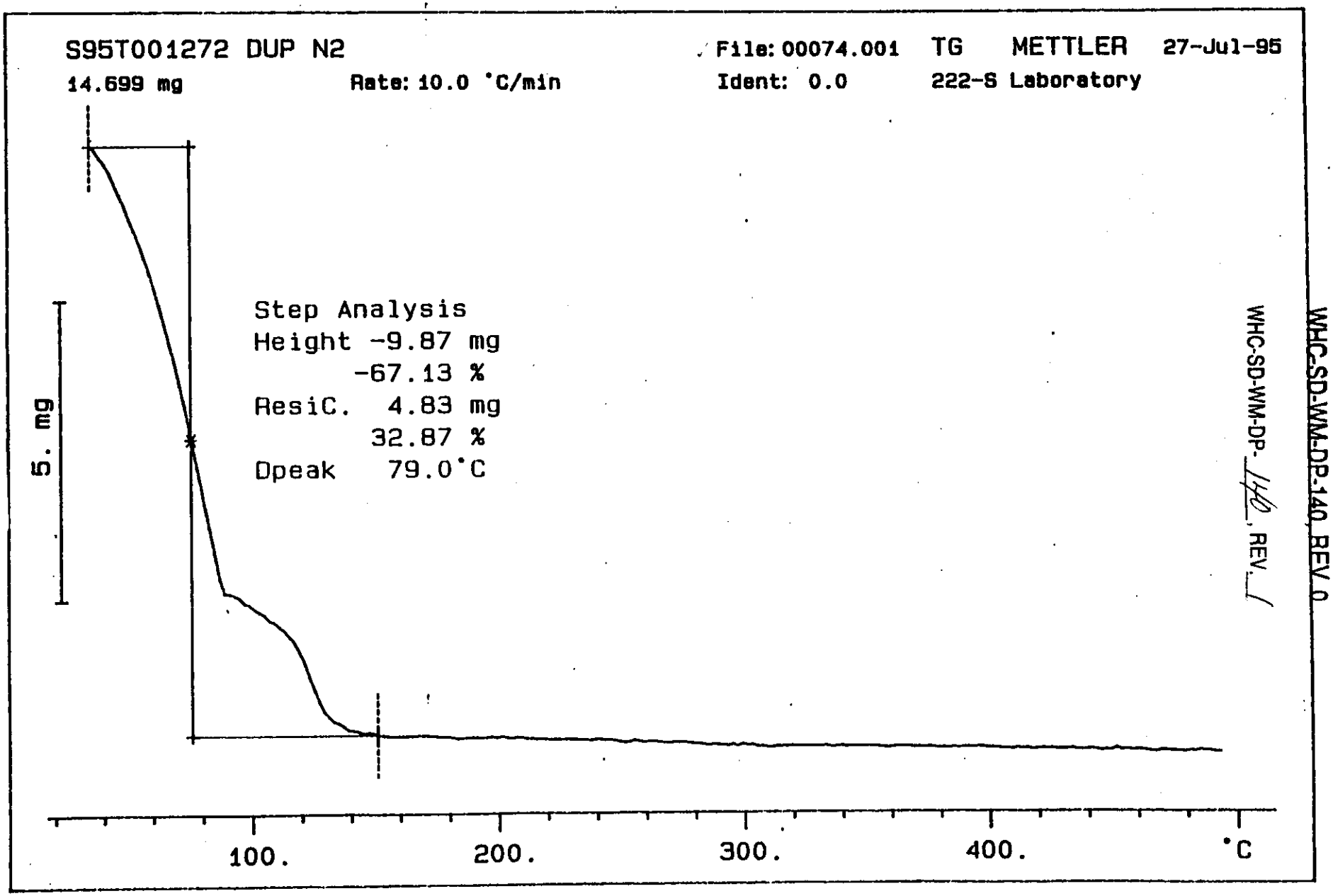
WHC-SD-WM-DP-140, REV. 0

WHC-SD-WM-DP-140, REV. 0

BEST AVAILABLE COPY



BEST AVAILABLE COPY



WHC-SD-WM-DP-140, REV. 1

WHC-SD-WM-DP-140, REV 0