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Accession #: D196007489

Document #: SD-WM-DP-148

Title/Desc:
DIRECT REV REVISED FINAL REPORT FOR TANK 241AN101 & GRAB SAMPLES 1AN-95-1 THRU 1AN-95-7

Pages: 426

COMPLETE

ENGINEERING CHANGE NOTICE

1. ECN 627068

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	3a. USQ Required?	4. Date
Supplemental [] Direct Revision [X] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	Ruth A. Esch, Production Planning and Control, T6-06, 373-4314	[] Yes [X] No	01/15/96
	5. Project Title/No./Work Order No. Tank 241-AN-101	6. Bldg./Sys./Fac. No. N/A	7. Approval Designator Q
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) WHC-SD-WM-DP-148, Rev. 0	9. Related ECN No(s). N/A	10. Related PO No. N/A

11a. Modification Work	11b. Work Package No.	11c. Modification Work Complete	11d. Restored to Original Condition (Temp. or Standby ECN only)
[] Yes (fill out Blk. 11b) [X] No (NA Blks. 11b, 11c, 11d)	N/A	N/A Cog. Engineer Signature & Date	N/A Cog. Engineer Signature & Date

12. Description of Change

This ECN is being generated in order to update/add additional information to the existing document.

13a. Justification (mark one)

Criteria Change	[X]	Design Improvement	[]	Environmental	[]	Facility Deactivation	[]
As-Found	[]	Facilitate Const	[]	Const. Error/Omission	[]	Design Error/Omission	[]

13b. Justification Details

This ECN will assist in the completion of the documentation process for this document.

14. Distribution (include name, MSIN, and no. of copies)

See attached distribution sheet.

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DATE: JAN 17 1996

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ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1) ECN-627068

15. Design Verification Required	16. Cost Impact				17. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[] Yes	Additional	[] $	Additional	[] $	Improvement	[]
[X] No	Savings	[] $	Savings	[] $	Delay	[]

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision
N/A		

20. Approvals

Signature	Date	Signature	Date
OPERATIONS AND ENGINEERING		ARCHITECT-ENGINEER	
Cog. Eng. See Page 3 for Appropriate Signatures		PE	
Cog. Mgr. "		QA	
QA "		Safety	
Safety		Design	
Environ.		Environ.	
Other		Other	
		DEPARTMENT OF ENERGY	
		Signature or a Control Number that tracks the Approval Signature	
		ADDITIONAL	

ECN-627068 3 of 3

~~ENGINEERING DATA TRANSMITTAL~~ 11-17-96 KEY

Page 1 of X

1. EDT ~~No.~~ 614771

2. To: (Receiving Organization)	3. From: (Originating Organization)	4. Related EDT No.:
Distribution	Production Planning and Control	N/A
5. Proj./Prog./Dept./Div.:	**6. Cog. Engr.:**	**7. Purchase Order No.:**
Tank 241-AN-101/Waste Management/PPC/Analytical Services	Ruth A. Esch	N/A
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		13. Permit/Permit Application No.: N/A
		14. Required Response Date: 01/15/96

15. DATA TRANSMITTED

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1	WHC-SD-WM-DP-148	N/A	1	Revised Final Report for Tank 241-~~SY~~-AN-101, Grab Samples 1AN-95-1 Through 1AN-95-7	Q	2	1	1

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 4. Review 2. Release 5. Post-Review 3. Information 6. Dist. (Receipt Acknow. Required)	1. Approved 4. Reviewed no/comment 2. Approved w/comment 5. Reviewed w/comment 3. Disapproved w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)

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2	1	Cog.Eng. Ruth A. Esch	Ruth A. Esch	1/15/96							
2	1	Cog. Mgr. J.G. Kristofzski	J.G. Kristofzski	1/16/96							
2	1	QA Tzu L. Tung	Tzu L. Tung	1/15/96							
		Safety									
		Env.									
2	1	Program Support A.D. Rice	A.D. Rice	1-16-96							
4	4	Cheryl J. Benar	Cheryl J. Benar	1-15-96							

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L.B. Webb Signature of EDT Originator — Date	N/A Authorized Representative for Receiving Organization — Date	J.G. Kristofzski 1/16/96 Cognizant Manager — Date	[] Approved [] Approved w/comments [] Disapproved w/comments

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REVISED FINAL REPORT FOR TANK 241-AN-101, GRAB SAMPLES 1AN-95-1 THROUGH 1AN-95-7.

Ruth A. Esch
Westinghouse Hanford Company, Richland, WA 99352
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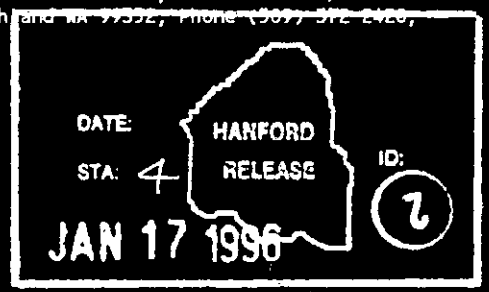

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RECORD OF REVISION	(1) Document Number WHC-SD-WM-DP-148	Page 1

(2) Title
Revised Final Report for Tank 241-AN-101, Grab Samples 1AN-95-1 through 1AN-95-7

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		for	11/7/96

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

WHC-SD-WM-DP-148, REV. 1

ANALYTICAL SERVICES

REVISED FINAL REPORT FOR TANK 241-AN-101, GRAB SAMPLES 1AN-95-1 THROUGH 1AN-95-7

Project Coordinator: RUTH A. ESCH
Prepared for the U.S. Department of Energy
Office of Environmental Restoration
and Waste Management

by

Westinghouse Hanford Company
Box 1970
Richland, Washington

WHC-SD-WM-DP-148, REV. 1
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NARRATIVE

REVISED FINAL REPORT FOR TANK 241-AN-101 GRAB SAMPLES 1AN-95-1 THROUGH 1AN-95-7

Summary

Six supernate grab samples (1AN-95-1, 1AN-95-2, 1AN-95-3, 1AN-95-4, 1AN-95-5, and 1AN-95-6) and one field blank (1AN-95-7) were taken from tank 241-AN-101. The following analyses were performed in support of the Safety Screening program: differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), density by specific gravity (Sp.G.), and total alpha activity (AT). . As appropriate, the results were compared to the safety screening limits at a confidence level of 95%. All analytical results were within the action limits stated in the TSAP (reference 1).

Based on the results of vapor monitoring prior to sampling, the vapor in tank AN-101 dome space is far below the lower flammability limits (LFL) stated in the TSAP. None of the data indicate that the tank is "unsafe" when compared to the criteria (energetics, criticality, and flammability) in the Safety Screening Data Quality Objective. (reference 2).

Scope

This document serves as the 45 day and final report deliverable for the tank 241-AN-101 liquid grab samples. Three supernate grab samples (1AN-95-1, 1AN-95-2, 1AN-95-3) were taken from tank 241-AN-101 riser 22A, on August 31, 1995, and analyzed to support the waste compatibility program in accordance with the Compatibility Grab Sampling and Analysis Plan (reference 3). Since that time, a decision was made to perform safety screening analyses on this tank. In support of this decision, samples 1AN-95-4, 1AN-95-5, 1AN-95-6 and one field blank (1AN-95-7) were collected from tank 241-AN-101 riser 15B on December 12, 1995. These samples were subsampled and analyzed in accordance with the TSAP (reference 1). The archived material from the three original samples were subsampled, in accordance to the TSAP (reference 1), to perform the total alpha analysis required for the safety screening. Included in this report are the primary safety screening results obtained from the analyses, and copies of the raw data. The data for the tank dome space flammability screening are also included.

The DSC, TGA and Sp.G. results for the original three samples that were previously presented in the 60 Day Waste Compatibility Safety Issue and Final Report (reference 4), are included in the summary table in this report for safety screening evaluation. The raw data for these tests are contained in the previous report (reference 4).

Tank Dome Space Flammability Screening

As requested in the TSAP (reference 1), prior to sampling tank AN-101, the dome space was sampled and analyzed for the presence of flammable gases. Although the TSAP indicates that the results shall be reported as a percentage of the lower flammability limit (LFL), the instrumentation used to collect the data reports as a percentage of the lower explosive limit (LEL). The Industrial Hygiene engineer responsible for the testing stated that the two values are equivalent. The results of the combustible gas monitoring inside riser 15B are presented in Table 1.

Table 1: Characteristics of Vapor Space as Determined by Combustible Gas Monitoring

Tank 241-AN-101, Dome Space in Riser 15B

Vapor Characteristic Measured	Results
Flammable vapor concentration as percent of lower explosion limit (LEL)	0%
Volume percent oxygen gas	20.9%
Concentration of ammonia gas	40 ppm
Concentration of total organic carbon vapor	1.5 ppm

ppm = parts per million

Appearance, Over-the-Top Readings (OTR), and Sample Breakdown

Attachment 1 is provided as a cross-reference for relating the tank farm customer ID numbers with the 222-S Laboratory LABCORE sample numbers. It also identifies the subsamples that were analyzed safety screening analyses. Each subsample was approximately 20 mL (40 mL for the field blank subsample).

Table 2 summarizes the appearance information and the over-the-top (OTR) dose rate readings that were taken for these samples. The reported sampling depths were recorded from the tank farm sample labels attached to the sample containers.

Table 2: Appearance and OTR for Tank 241-AN-101 Liquid Grab Samples

CUSTOMER ID	LAB ID	SAMP DEPTH (IN.)	APPEARANCE				OTR (MRAD/HR)
			Color	Clarity	Org Layer	Solids	
1AN-95-1	S95T002405	327	Yellow	Clear	None	None	3500
1AN-95-2	S95T002406	502	Yellow	Clear	None	None	4500
1AN-95-3	S95T002407	662	Yellow	Clear	None	None	4500
1AN-95-4	S95T003909	327	Yellow	Clear	None	None	7000
1AN-95-5	S95T003910	502	Yellow	Clear	None	None	7500
1AN-95-6	S95T003911	662	Yellow	Clear	None	None	5000
1AN-95-7 Field Blank	S95T003912	240	Colorless	Clear	None	None	< 0.5

Analytical Results

Attachments

Table 3 is the summary report from the Laboratory Information Management System (LABCORE).

Differential Scanning Calorimetry (DSC)

The energetics determination was performed by DSC using procedures LA-514-114 Rev. C-1 and LA-514-113 Rev. C-1. The two procedures are for the Perkin Elmer and Mettler DSC instruments, respectively, and are analytically equivalent. The analysis was performed in duplicate on direct samples. Since none of the samples exhibited exotherms, the dry calculated results were not requested. Also, the statistical calculation of an upper 95% confidence level for the samples is unnecessary when the results are all 0.0 joules/g.

Thermogravimetric Analysis (TGA)

The percent moisture content was determined by TGA using procedures LA-514-114 Rev. C-1 and LA-560-112 Rev. B-1. The procedures are for the Perkin Elmer and Mettler TGA instruments, respectively, and are analytically equivalent. The analysis was performed in duplicate on direct samples. Results were in the range of 64.95 to 66.19 percent moisture. The field blank gave an average result of 99.95 percent moisture. The relative percent difference (RPD) between sample and duplicate results for all samples were within the criterion of ±20% stated in the TSAP (reference 1). Each sample (except the field blank) produced a second weight loss step of approximately 2% to 4% between about 150° C to 210° C.

Specific Gravity (Sp.G.)

The Sp.G. determination was performed using procedure LA-510-112 Rev. C-3. The analysis was performed in duplicate on direct samples. Results for the samples were in the range of 1.21 to 1.23. The field blank gave an average result of 0.98. The relative percent difference (RPD) between sample and duplicate results for all samples were within the criterion of ±20% stated in the TSAP (reference 1).

Total Alpha (AT)

The AT determination was performed using procedure LA-508-101 Rev. D-2. The analysis was performed in duplicate on direct samples. Each sample was analyzed in replicate. All results were less than the detection level and the highest of the two replicates was reported as the "less than" result. The detection limit is calculated based on the detector background at the time each analytical batch is analyzed. Since all of the results were less than the detection limit, the statistical calculation of an upper 95% confidence level is unnecessary.

References

1. WHC-SD-WM-TSAP-064, REV. 0, "Tank 241-AN-101 Grab Sampling and Analysis Plan", dated December 1, 1995, Westinghouse Hanford Company, Richland, WA 99352

2. WHC-SD-WM-SP-004, Rev. 2, "Tank Safety Screening Data Quality Objective", dated August 31, 1995, Westinghouse Hanford Company, Richland, WA 99352

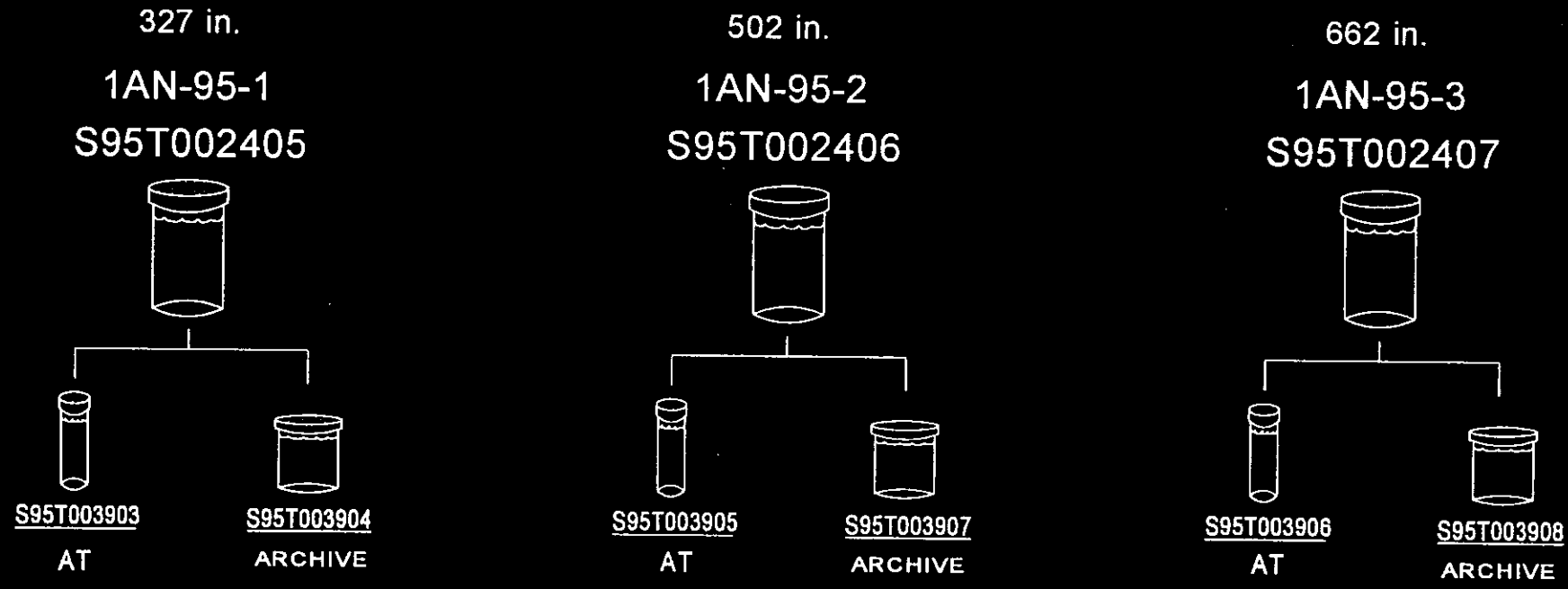
3. WHC-SD-WM-TSAP-037, Rev. 1C, "Compatibility Grab Sampling and Analysis Plan", dated November 21, 1995, Westinghouse Hanford Company, Richland, WA 99352

4. WHC-SD-WM-DP-148, REV. 0, "60-Day Waste Compatibility Safety Issue and Final Results for Tank 241-AN-101, Grab Samples 1AN-95-1, 1AN-95-2, and 1AN-95-3", dated November 2, 1995, Westinghouse Hanford Company, Richland, WA 99352

ATTACHMENT 1

AN-101 GRAB SAMPLE BREAKDOWN

Attachment 1 (1 of 2)
AN-101 GRAB SAMPLE BREAKDOWN
Riser 22A



Attachment 1 (2 of 2)
AN-101 GRAB SAMPLE BREAKDOWN
Riser 15B

WHC-SD-WM-DP-142, REV. 1

SAMPLE DATA SUMMARY

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A-0002-1

Table 3: Safety Screen Results
AN-101 GRAB

RISER: 22A
SEGMENT #: 1AN-95-1

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T002408			% Water by TGA using Mettler	%	17.00	1.0e+05	100.8	n/a	66.28	66.11	66.19	0.26	n/a	n/a	n/a
S95T002408			Specific Gravity	Sp.G.	None	None	98.20	n/a	1.230	1.240	1.235	0.81	n/a	1.00e-02	n/a
S95T002408			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	106.9	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T003903			Alpha in Liquid Samples	uCi/mL	-1.0e+00	1.50	106.5	<3.92e-04	<4.43E-04	<5.95E-4	n/a	n/a	94.64	1.00e-03	5.00E+02

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A-0002-1

Table 3: Safety Screen Results
AN-101 GRAB

RISER: 22A
SEGMENT #: 1AN-95-2

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T002409			% Water by TGA using Mettler	%	17.00	1.0e+05	100.8	n/a	66.27	65.72	66.00	0.83	n/a	n/a	n/a
S95T002409			Specific Gravity	Sp.G.	None	None	98.20	n/a	1.270	1.250	1.260	1.59	n/a	1.00e-02	n/a
S95T002409			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	106.9	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T003905			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	106.5	<3.92e-04	<5.43E-04	<3.92E-4	n/a	n/a	n/a	1.00e-03	5.00E+02

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WHC-SD-WM-DP-144, REV 1

12-jan-1996 15:38:21
A-0002-1

Table 3: Safety Screen Results
AN-101 GRAB

RISER: 22A
SEGMENT #: 1AN-95-3

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T002410			% Water by TGA using Mettler	%	17.00	1.0e+05	101.3	n/a	65.96	65.81	65.88	0.23	n/a	n/a	n/a
S95T002410			Specific Gravity	Sp.G.	None	None	98.20	n/a	1.220	1.250	1.235	2.43	n/a	1.00e-02	n/a
S95T002410			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	110.4	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T003906			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	106.5	<3.92e-04	<7.40E-04	<8.37E-4	n/a	n/a	n/a	1.00e-03	5.00E+02

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12

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

15-jan-1996 09:30:12
A-0002-1

Table 3: Safety Screen Results
AN-101 GRAB

RISER: 15B
SEGMENT #: 1AN-95-4

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T003913			% Water by TGA on Perkin Elmer	%	None	None	100.7	n/a	65.51	64.93	65.22	0.89	n/a	n/a	n/a
S95T003913			Specific Gravity	Sp.G.	None	None	98.57	n/a	1.226	1.214	1.220	0.98	n/a	1.00e-02	n/a
S95T003913			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	98.35	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T003913			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	101.6	<1.86e-03	<1.01E-03	<1.35E-3	n/a	n/a	96.94	2.41e-03	5.00E+02

=> Limit violated
=> Selected Limit

WHC-SD-WM-OP-148, REV. 1

15-jan-1996 09:30:16
A-0002-1

Table 3: Safety Screen Results
AN-101 GRAB

RISER: 15B
SEGMENT #: 1AN-95-5

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T003914			% Water by TGA on Perkin Elmer	%	None	None	100.7	n/a	64.80	65.11	64.95	0.48	n/a	n/a	n/a
S95T003914			Specific Gravity	Sp.G.	None	None	98.57	n/a	1.214	1.216	1.215	0.16	n/a	1.00e-02	n/a
S95T003914			DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+00	480.0	98.35	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T003914			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	101.6	<1.86e-03	<1.01E-03	<1.86E-3	n/a	n/a	n/a	2.41e-03	5.00E+02

=> Limit violated
=> Selected Limit

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

12-jan-1996 15:38:09
A-0002-1

Table 3: Safety Screen Results
AN-101 GRAB

RISER: 15B
SEGMENT #: 1AN-95-6

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T003915			% Water by TGA using Mettler	%	17.00	1.0e+05	101.1	n/a	65.95	66.03	65.99	0.12	n/a	n/a	n/a
S95T003915			Specific Gravity	Sp.G.	None	None	98.57	n/a	1.223	1.217	1.220	0.49	n/a	1.00e-02	n/a
S95T003915			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	100.2	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T003915			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	101.6	<1.86e-03	<2.20E-03	<1.35E-3	n/a	n/a	n/a	2.41e-03	5.00E+02

=> Limit violated
=> Selected Limit

15

WHC-SD-WM-DP-144, REV. 1

12-jan-1996 15:38:12
A-0002-1

Table 3: Safety Screen Results
AN-101 GRAB

RISER: 15B
SEGMENT #: 1AN-95-7

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits Lower	Action Limits Upper	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T003916			% Water by TGA using Mettler	%	17.00	1.0e+05	101.1	n/a	99.95	99.96	99.95	0.01	n/a	n/a	n/a
S95T003916			Specific Gravity	Sp.G.	None	None	98.57	n/a	9.77e-01	9.89e-01	9.83e-01	1.22	n/a	1.00e-02	n/a
S95T003916			DSC Exotherm using Mettler	Joules/g	-1.0e+00	480.0	100.2	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T003916			Alpha in Liquid Samples	uCi/mL	-1.0e+00	61.50	101.6	<1.86e-03	<5.00E-06	<6.69E-6	n/a	n/a	n/a	1.19e-05	5.00E+02

=> Limit violated
=> Selected Limit

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

CHAIN OF CUSTODY FORMS

12/13/95 13:23 509 373 1432 001

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST COPY

C.O.C. No. NA

Page 1 of 1

Collector: Praznik, R.J.	Contact/Requestor: W.H.C.	Telephone No.: 373-7751	MSIN: 57-03 FAX
SAF No.: NA	Sample Origin: AN-101 RISER 15B	Purchase Order/Charge Code: NA	
Project Title: NA	Logbook No.: NA	Ice Chest No.: NA	Temp.: NA
Shipped To (Lab): 222-S	Method of Shipment: TRUCK WHC TRANSPORTATION	Bill of Lading/Air Bill No.: NA	
Protocol: NA	Data Turnaround: NA	Offsite Property No.: NA	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
1AN-95-6	222-S	L	12-12-95	1400	1-Glass	Dose rate on contact 500 mR/hr Seal# 4056	NA
1AN-95-7	222-S	L	12-12-95	1324	1-Glass	Dose rate on contact <.5 mR/hr Seal# 4053	NA

18

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes): RADIOACTIVE

MSDS ☐ Yes ☒ No

SPECIAL INSTRUCTIONS: NONE

Hold Time: WHC-SD-WM-DP-148, REV. 1

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
Robert J. Praznik [signature]	12-13-95 / 1120	[signature] James R Fuhaty	12-13-95 1125
[signature] James R Fuhaty	12-13-95 1225	N. LAPIERS [signature]	12-13-95 1225

Matrix*

S = Soil		DS = Drum Solids	
SE = Sediment		DL = Drum Liquids	
SC = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (09/95)

Westinghouse Hanford Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST COPY	C.O.C. No. NA Page 1 of 1

Collector: Peuznik, R.J.	Contact/Requestor: WHC	Telephone No.: 3-7751	MSIN: 37-03 FAX: 373-
SAF No.: NA	Sample Origin: AN101 Riser 15B	Purchase Order/Charge Code: NA	
Project Title: NA	Logbook No.: NA	Ice Chest No.: NA	Temp.: NA
Shipped To (Lab): 222-S	Method of Shipment: TRUCK	Bill of Lading/Air Bill No.: NA	
Protocol: NA	Data Turnaround: NA	Offsite Property No.: NA	

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
IAN-95-4	222S	L	12-12-95	1333	1 - GLASS	Door Rate on Contact 200mR/hr Seal # 4054	NA
IAN-95-5	222S	L	12-12-95	1342	1 - GLASS	Door Rate on Contact 300mR/hr Seal # 4055	NA

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes): RADIOACTIVE

MSDS: ☐ Yes ☒ No

SPECIAL INSTRUCTIONS: NONE

Hold Time

WHC-SD-WM-DP-148, REV. 1

Relinquished By (Print)	Sign	Date/Time	Received By (Print)	Sign	Date/Time
Robert J Peuznik		12-13-95 0920	James Fulbright		12-13-95 0955
James Fulbright		12-13-95 1045	E E Dukes		12-13-95 1045

Matrix*

S = Soil	DS = Drum Solids		
SE = Sediment	DL = Drum Liquids		
SO = Solid	T = Tissue		
SL = Sludge	Wi = Wipe		
W = Water	L = Liquid		
O = Oil	V = Vegetation		
A = Air	X = Other		

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

DISTRIBUTION: White - Remain with Samples Color - Customer

BC-6000-828 (08/95)

001 509 373 1432 12/13/95 11:39

DOME SPACE FLAMMABILITY SCREENING DATA

WHC-SD-WM-DP- 149, REV. 1

DATA SHEET 2 - IH&S VAPOR SURVEY

Tank No. AN 101 Riser No. 15B

Location (Breather, Vent, Riser, Dome Space, Breathing zone) _____

Vapor	Results
O_2	20.9%
LEL	0%
T.O.C.	4.6 PPM
NH_3	75 PPM

12-12-95 O2 LEL T.O.C. NH3 — 20.9% 0% 3.0 PPM 50 PPM

Tank No. AN 101 Riser No. 15B

Location (Breather, Vent, Riser, Dome Space, Breathing zone) _____

Vapor	Results
O_2	20.9%
LEL	0%
T.O.C.	1.5 PPM
NH_3	40 PPM

Tank No. AN 101 Riser No. 15B

Location (Breather, Vent, Riser, Dome Space, Breathing zone) _____

Vapor	Results
O_2	20.9%
LEL	0%
T.O.C.	0 PPM
NH_3	0 PPM

12-12-95 O2 LEL T.O.C. NH3 — 20.9% 0% 0 PPM 0 PPM

COMMENTS:

Kevin L. Newcomb 12-12-95
IH&S Date

12-7-95
IH&S Signature/Date

SAMPLE HANDLING

LABCORE Data Entry Template for Worklist# 4275

Analyst: KBM **Instrument:** NONE **Book #** ~/A

Method: LA-519-151 Rev/Mod E-2

Worklist Comment: AN-101 BREAKDOWN. gjh

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
95000226	AN-101 GRAB	1 SAMPLE	S95T003912	0		@BRKDWN1 DOSERATE	LIQUID	N/A	<0.5		mrad/hour
95000226	AN-101 GRAB	1 SAMPLE	S95T003912	0		@BRKDWN1 APPEAR01	LIQUID	N/A	Complete		
95000226	AN-101 GRAB	1 SAMPLE	S95T003912	0		@BRKDWN1 SAMPAMT2	LIQUID	N/A	125		mL
95000226	AN-101 GRAB	2 SAMPLE	S95T003909	0		@BRKDWN1 DOSERATE	LIQUID	N/A	~~5000~~ 7000		mrad/hour
95000226	AN-101 GRAB	2 SAMPLE	S95T003909	0		@BRKDWN1 APPEAR01	LIQUID	N/A	Complete		
95000226	AN-101 GRAB	2 SAMPLE	S95T003909	0		@BRKDWN1 SAMPAMT2	LIQUID	N/A	125		mL
95000226	AN-101 GRAB	3 SAMPLE	S95T003910	0		@BRKDWN1 DOSERATE	LIQUID	N/A	7500		mrad/hour
95000226	AN-101 GRAB	3 SAMPLE	S95T003910	0		@BRKDWN1 APPEAR01	LIQUID	N/A	Complete		
95000226	AN-101 GRAB	3 SAMPLE	S95T003910	0		@BRKDWN1 SAMPAMT2	LIQUID	N/A	125		mL
95000226	AN-101 GRAB	4 SAMPLE	S95T003911	0		@BRKDWN1 DOSERATE	LIQUID	N/A	5000		mrad/hour
95000226	AN-101 GRAB	4 SAMPLE	S95T003911	0		@BRKDWN1 APPEAR01	LIQUID	N/A	Complete		
95000226	AN-101 GRAB	4 SAMPLE	S95T003911	0		@BRKDWN1 SAMPAMT2	LIQUID	N/A	125		mL

Final page for worklist # 4275

Analyst Signature Date 12-15-95

Analyst Signature Date 12/15/95

Sample ID	Color	Clarity	Solids?	Org. Layer?
S95T003909	YELLOW	CLEAR	NONE	NONE
S95T003910	YELLOW	CLEAR	NONE	NONE
S95T003911	YELLOW	CLEAR	NONE	NONE
S95T003912	colorless	clear	None	None

Data Entry Comments:

Approved / reviewed by Ruth A Eaton 1/5/96

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.

INORGANIC ANALYSES

WHC-SD-WM-DP-~~165~~ 148, REV. ~~0~~ 1 ATW 1/11/96

LABCORE Data Entry Template for Worklist# 4454

Analyst: ADP **Instrument:** DSC0 3 **Book #** ~~12N14A~~ 12/29 BDV 12N14B

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: Please run AN-101 DSCs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-03	LIQUID	38.45	27.98	N/A	Joules/g
95000226	AN-101 GRAB	2 SAMPLE	S95T003913	0		DSC-03	LIQUID	N/A	Ø		Joules/g
95000226	AN-101 GRAB	3 DUP	S95T003913	0		DSC-03	LIQUID	Ø	Ø	N/A	Joules/g
95000226	AN-101 GRAB	4 SAMPLE	S95T003914	0		DSC-03	LIQUID	N/A	Ø		Joules/g
95000226	AN-101 GRAB	5 DUP	S95T003914	0		DSC-03	LIQUID	Ø	Ø	N/A	Joules/g

Final page for worklist # 4454

See attached for signatures
Analyst Signature **Date** 12/29/95

Linda Coulin 12/30/95
Analyst Signature **Date**

Data Entry Comments: S95T003913 produced three endotherms, one at 116.2°C with a delta H of 1555.3 J/g, second at 182.4°C with a delta H of 10.1 J/g, and third at 245.5°C with a delta H of 7.16 J/g.

S95T003914 produced two endotherms, one at 126.8°C with a delta H of 1727.6 J/g and second at 441.4°C with a delta H of 21.03 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# 4454

Analyst: ASP **Instrument:** DSC0 _____ **Book #** ~~12N14A~~ 1/2/96 BDV

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: Please run AN-101 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	LIQUID			N/A	Joules/g
95000226	AN-101 GRAB	2	SAMPLE	S95T003913	0		DSC-01	LIQUID	N/A			Joules/g
95000226	AN-101 GRAB	3	DUP	S95T003913	0		DSC-01	LIQUID			N/A	Joules/g
95000226	AN-101 GRAB	4	SAMPLE	S95T003914	0		DSC-01	LIQUID	N/A			Joules/g
95000226	AN-101 GRAB	5	DUP	S95T003914	0		DSC-01	LIQUID			N/A	Joules/g

Final page for worklist # 4454

Anthony Turner 12-23-95

Analyst Signature **Date**

Analyst Signature **Date**

Other instrument was used. 12/29/95 BDV

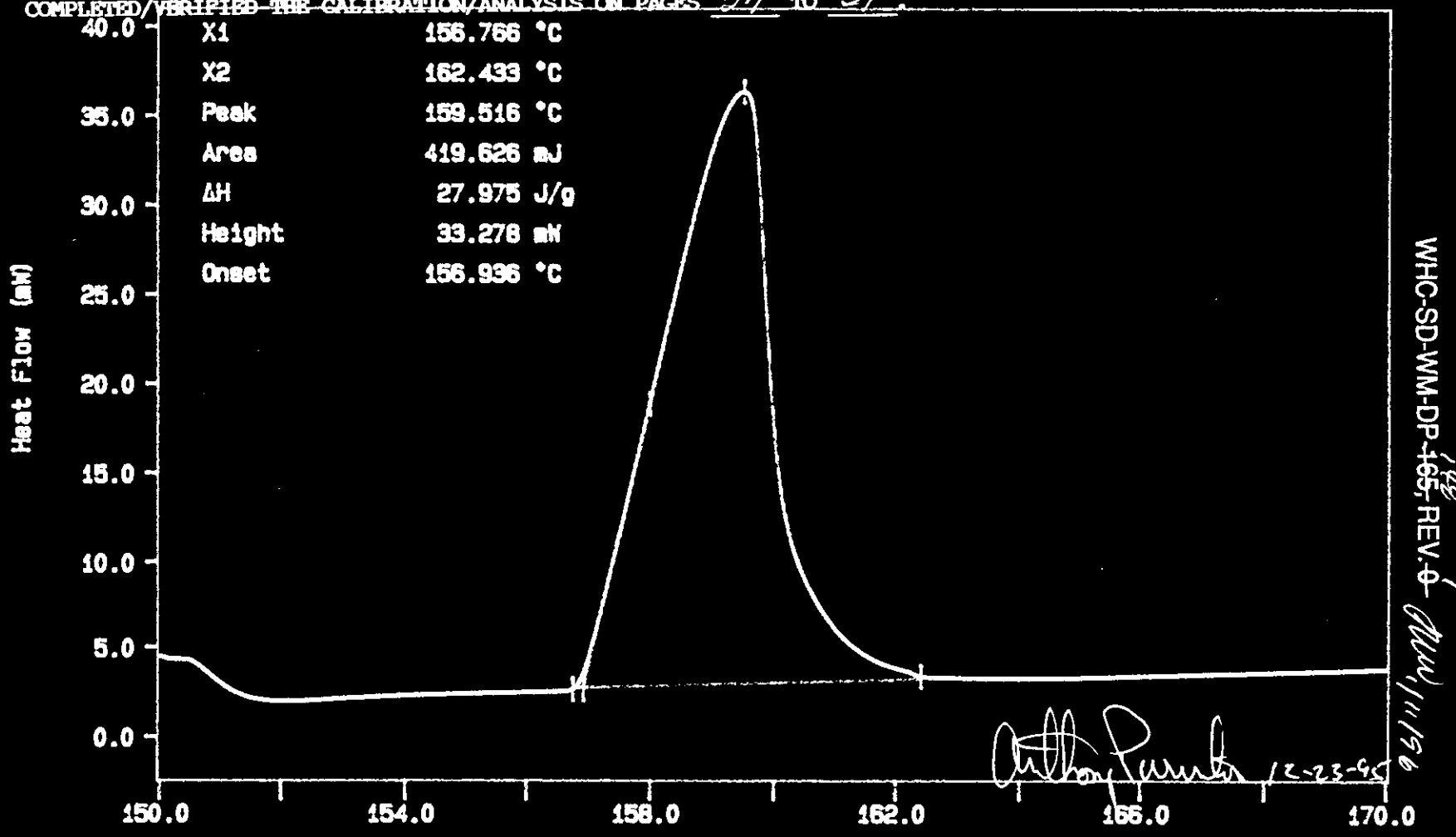
Data Entry Comments:

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.

Curve 1: DSC
File info: IND122301 Sat Dec 23 06:51:33 1995
Sample Weight: 15.000 mg
1/10/96 ~~12N14A~~ Indium at 10C/min
BAN 12N14B

BEST AVAILABLE COPY

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 27 TO 31.



Anthony Purinton 12-23-95

27

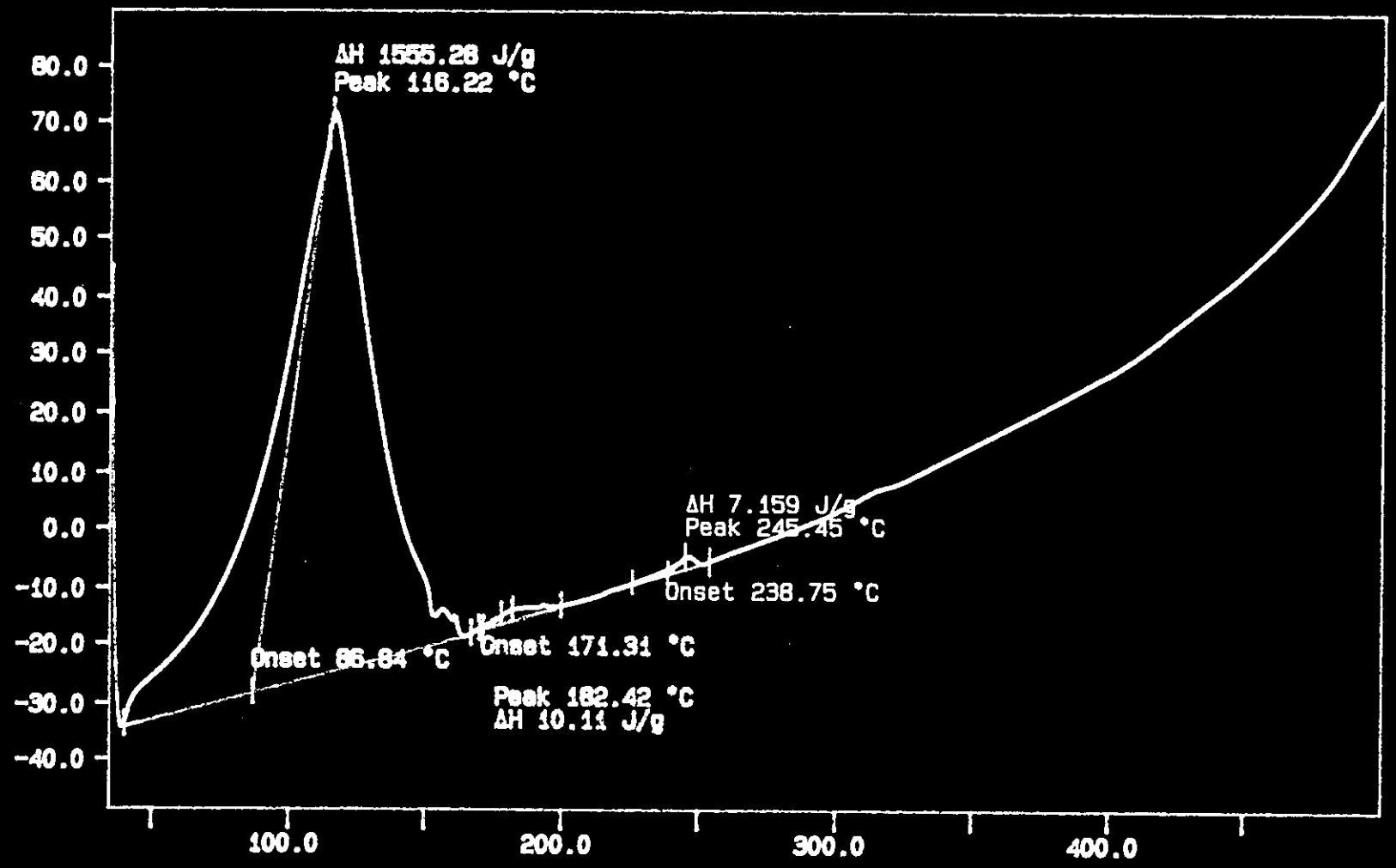
WHC-SD-WM-DP-~~165~~ 148, REV. ~~0~~ 1 1/11/96

N2, EXOTHERM DOWN
TEMP1: 150.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 170.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 23 06:55:39 1995

Curve 1: DSC
File info: SAM122305 Sat Dec 23 07:58:58 1995
Sample Weight: 16.000 mg
S95T003913 SAM

BEST AVAILABLE COPY



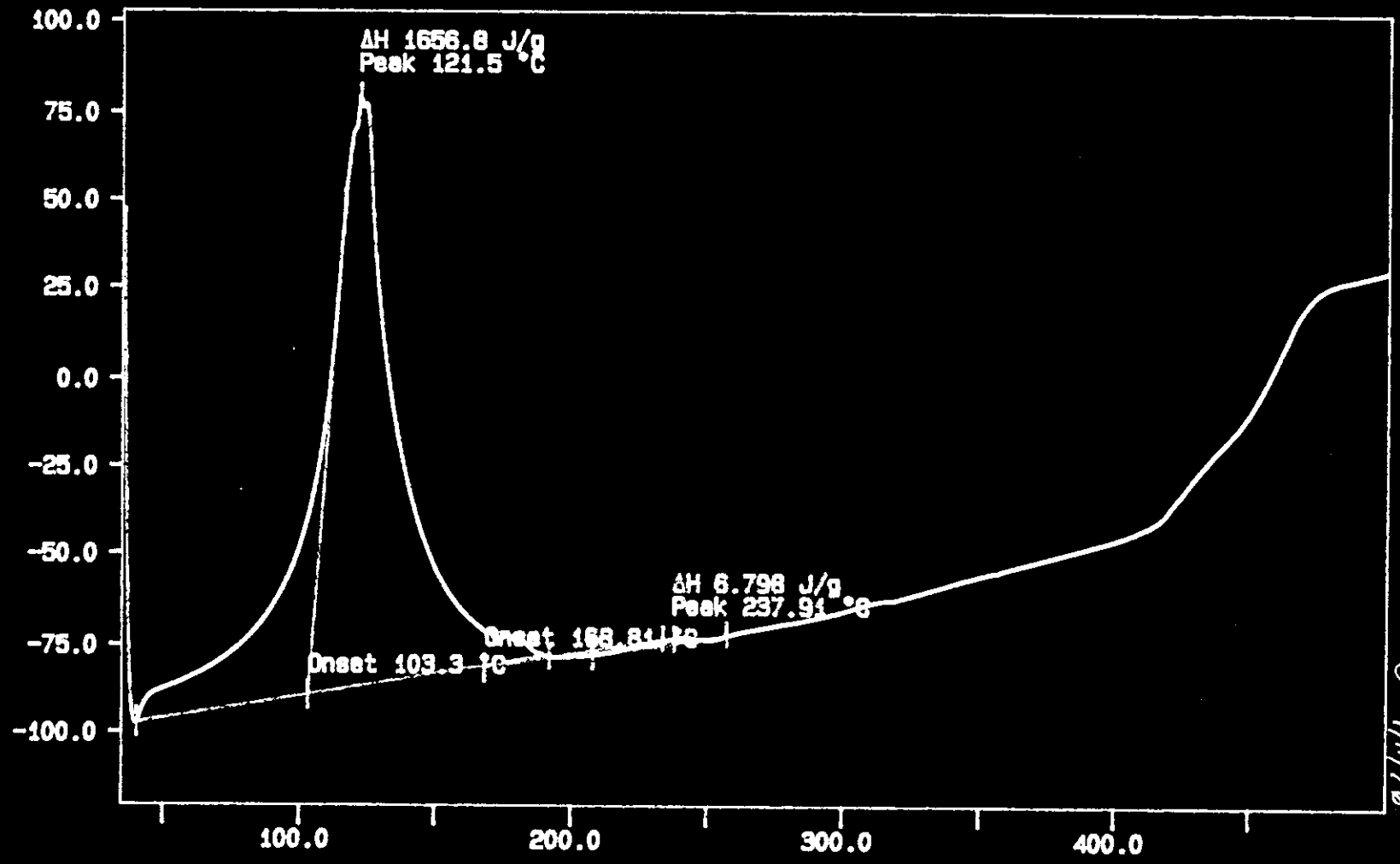
exotherm down, N2 purge gas
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 23 08:05:07 1995

WHC-SD-WM-DP-~~165~~ 149, REV. ~~0~~ 1 1/11/96

Curve 1: DSC
File info: SAM122306 Sat Dec 23 08:55:53 1995
Sample Weight: 21.210 mg
S95T003913 DUP

BEST AVAILABLE COPY



exotherm down, N2 purge gas

TEMP: 25.0 °C TIME: 0.0 min RATE: 10.0 °C/min
TEMP: 600.0 °C

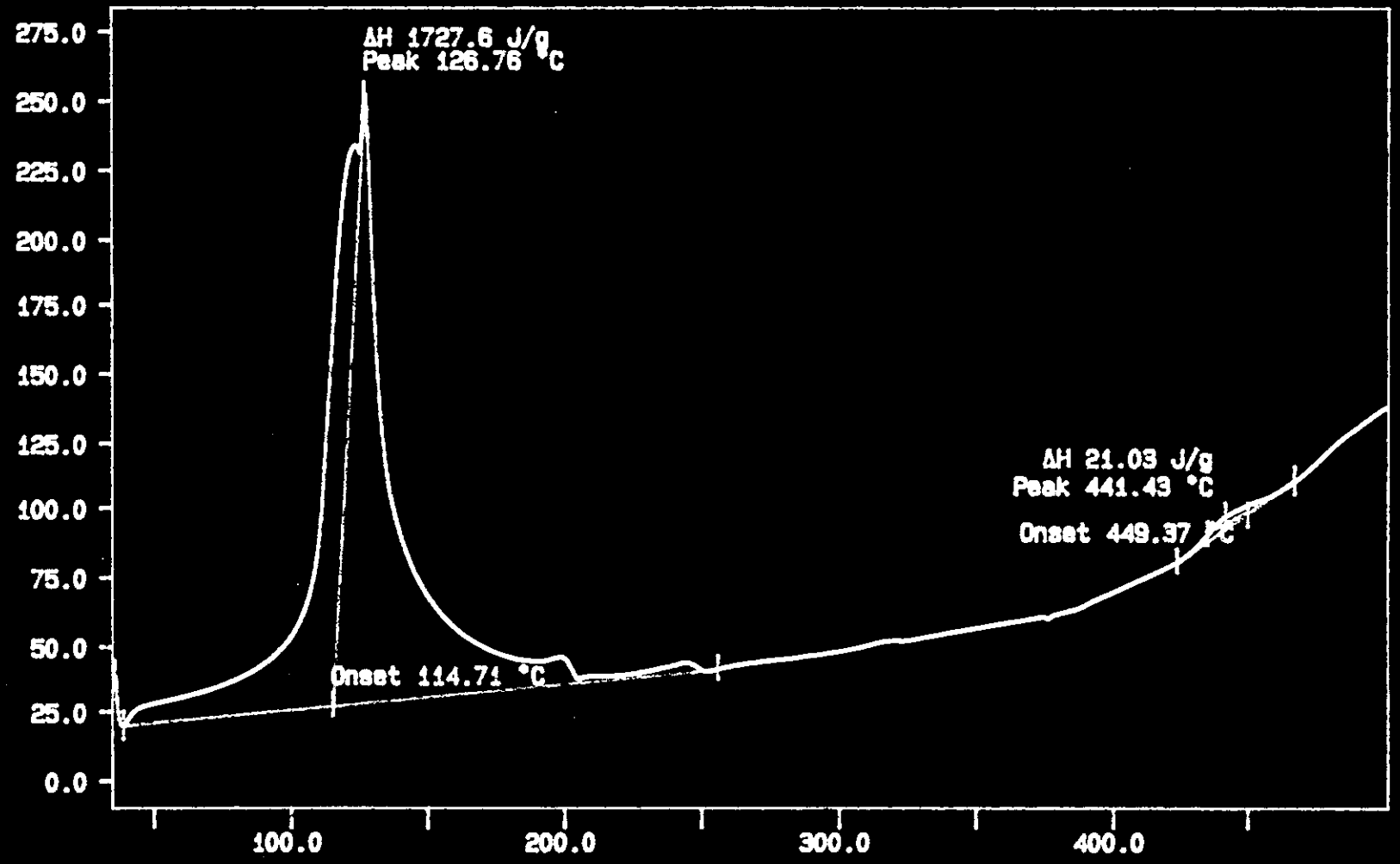
AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 23 09:14:22 1995

WHC-SD-WM-DP-165, REV. 0

29

Curve 1: DSC
File info: SAM122307 Sat Dec 23 10:15:09 1995
Sample Weight: 23.530 mg
S95T003914 SAM

BEST AVAILABLE COPY



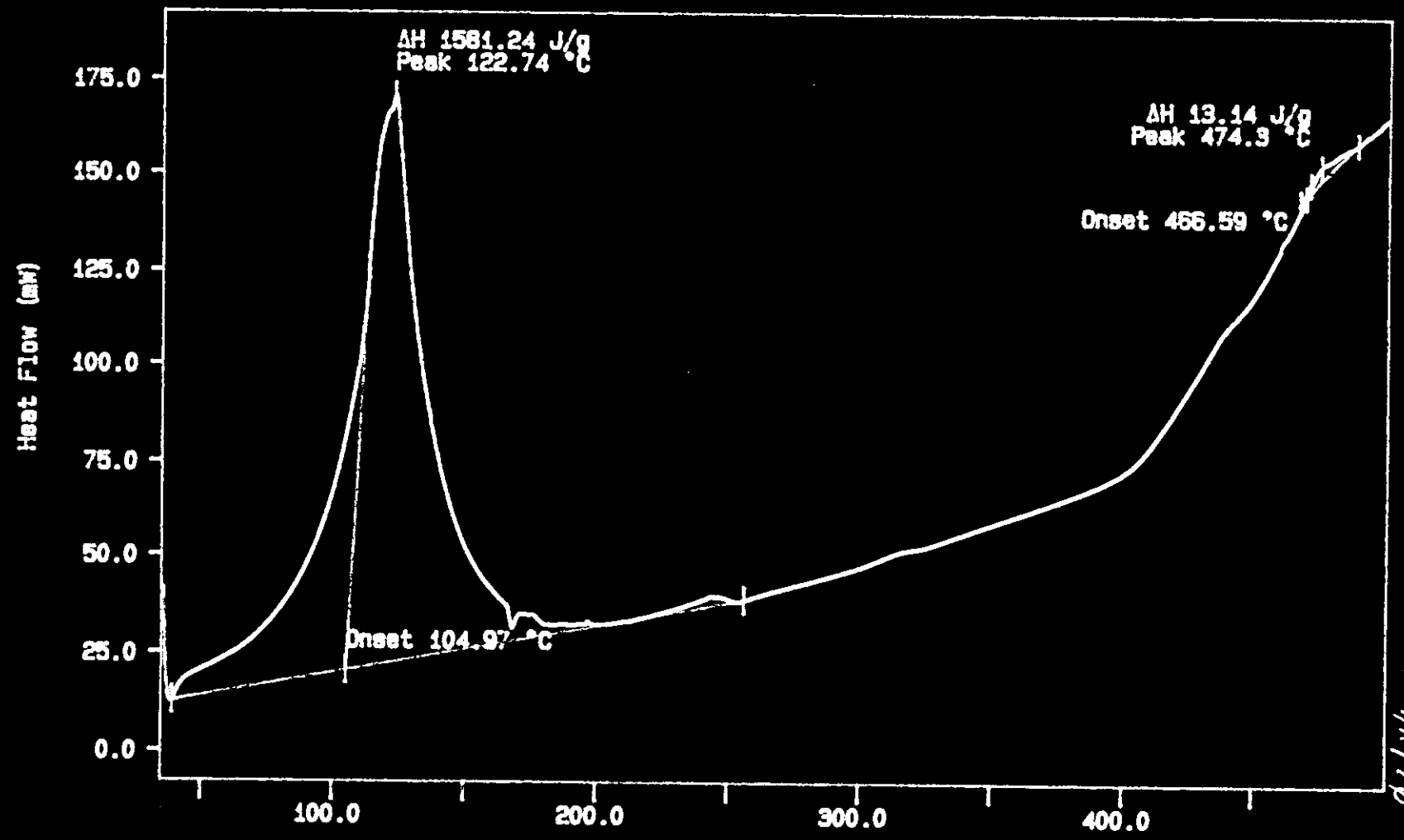
AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 23 10:33:33 1995

30

WHC-SD-WM-DP-~~165~~ 148 REV. 0 (Add) 1/11/96

Curve 1: DSC
File info: SAM122308 Sat Dec 23 11:37:51 1995
Sample Weight: 21.270 mg
S95T003914 DUP

BEST AVAILABLE COPY



AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 23 11:39:15 1995

WHC-SD-WM-DP-165, REV. 0 / 1/11/96

LABCORE Data Entry Template for Worklist# 4455

Analyst: RDM **Instrument:** DSC0 1 **Book #** 12N14B

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: Please run AN-101 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	LIQUID	28.45	30.0	N/A	Joules/g
95000226	AN-101 GRAB	2	SAMPLE	S95T003915	0		DSC-01	LIQUID	N/A	Ø		Joules/g
		3	STD				DSC-01	LIQUID	28.45 Ø 1/4/96 BDV	28.5 Ø 1/4/96 BDV	N/A	Joules/g
95000226	AN-101 GRAB	4	DUP	S95T003915	0		DSC-01	LIQUID	Ø	Ø	N/A	Joules/g
95000226	AN-101 GRAB	5	SAMPLE	S95T003916	0		DSC-01	LIQUID	N/A	Ø		Joules/g
95000226	AN-101 GRAB	6	DUP	S95T003916	0		DSC-01	LIQUID	Ø	Ø	N/A	Joules/g

Final page for worklist # 4455

See attached for signatures
Analyst Signature **Date** 1/4/96 BDV

Verified by Blandina Valenzuela 1-8-96

[signature] 1-8-96
Analyst Signature **Date**

Data Entry Comments: S95T003915 produced two endotherms one at 125.5°C with a delta H of 2004 J/g and second at 241.7°C with a delta H of 29.4 J/g
S95T003916 produced an endotherm at 108.3°C with a delta H of 3193.3 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# 4455

Analyst: KMM **Instrument:** DSC0 **Book #** 12N14B

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: Please run AN-101 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	LIQUID			N/A	Joules/g
95000226	AN-101 GRAB	2	SAMPLE	S95T003915	0		DSC-01	LIQUID	N/A			Joules/g
95000226	AN-101 GRAB	3	DUP	S95T003915	0		DSC-01	LIQUID			N/A	Joules/g
95000226	AN-101 GRAB	4	SAMPLE	S95T003916	0		DSC-01	LIQUID	N/A			Joules/g
95000226	AN-101 GRAB	5	DUP	S95T003916	0		DSC-01	LIQUID			N/A	Joules/g

Final page for worklist # 4455

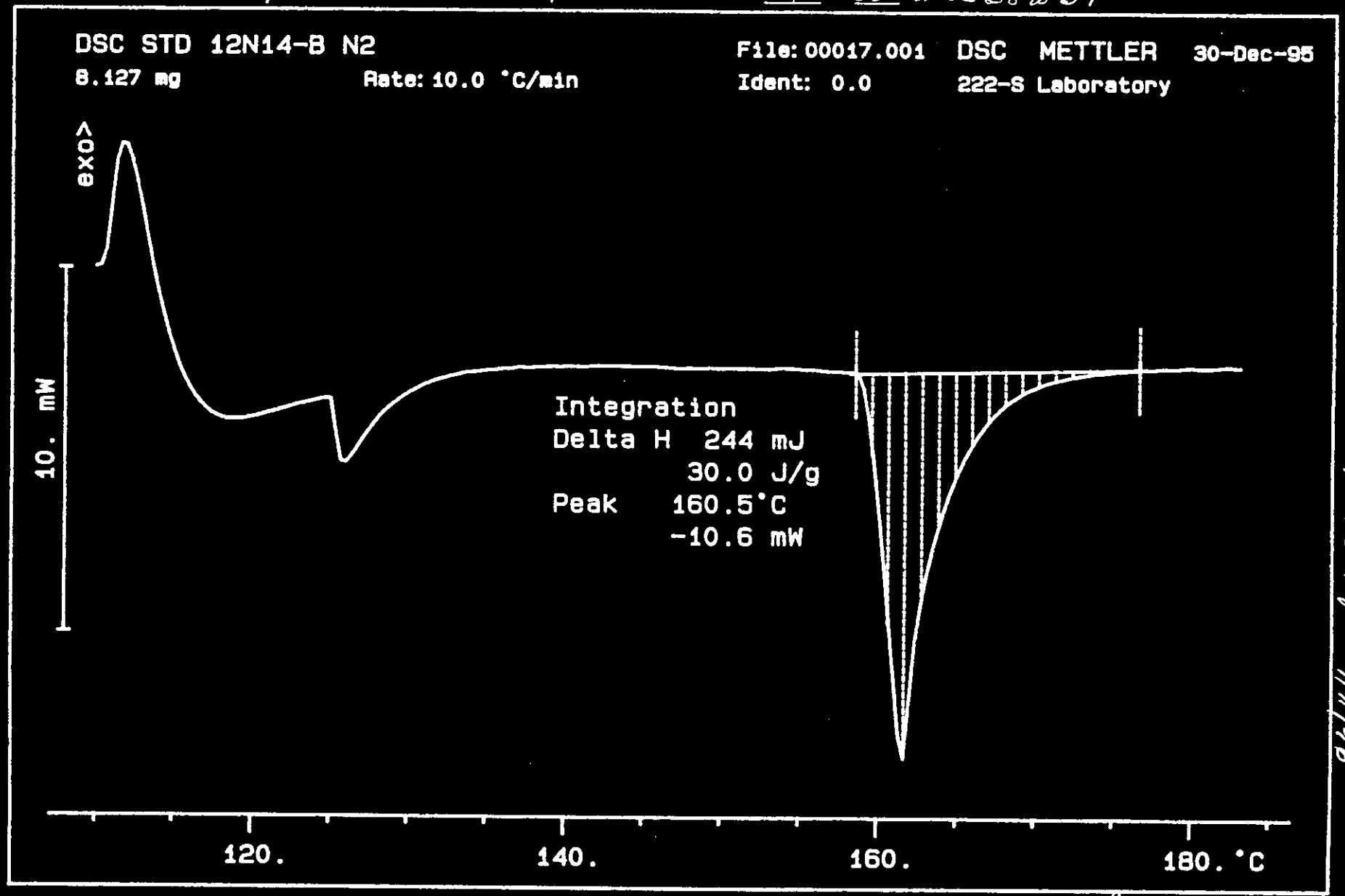
KMMoyer 12/31/95
Analyst Signature **Date**

Analyst Signature **Date**

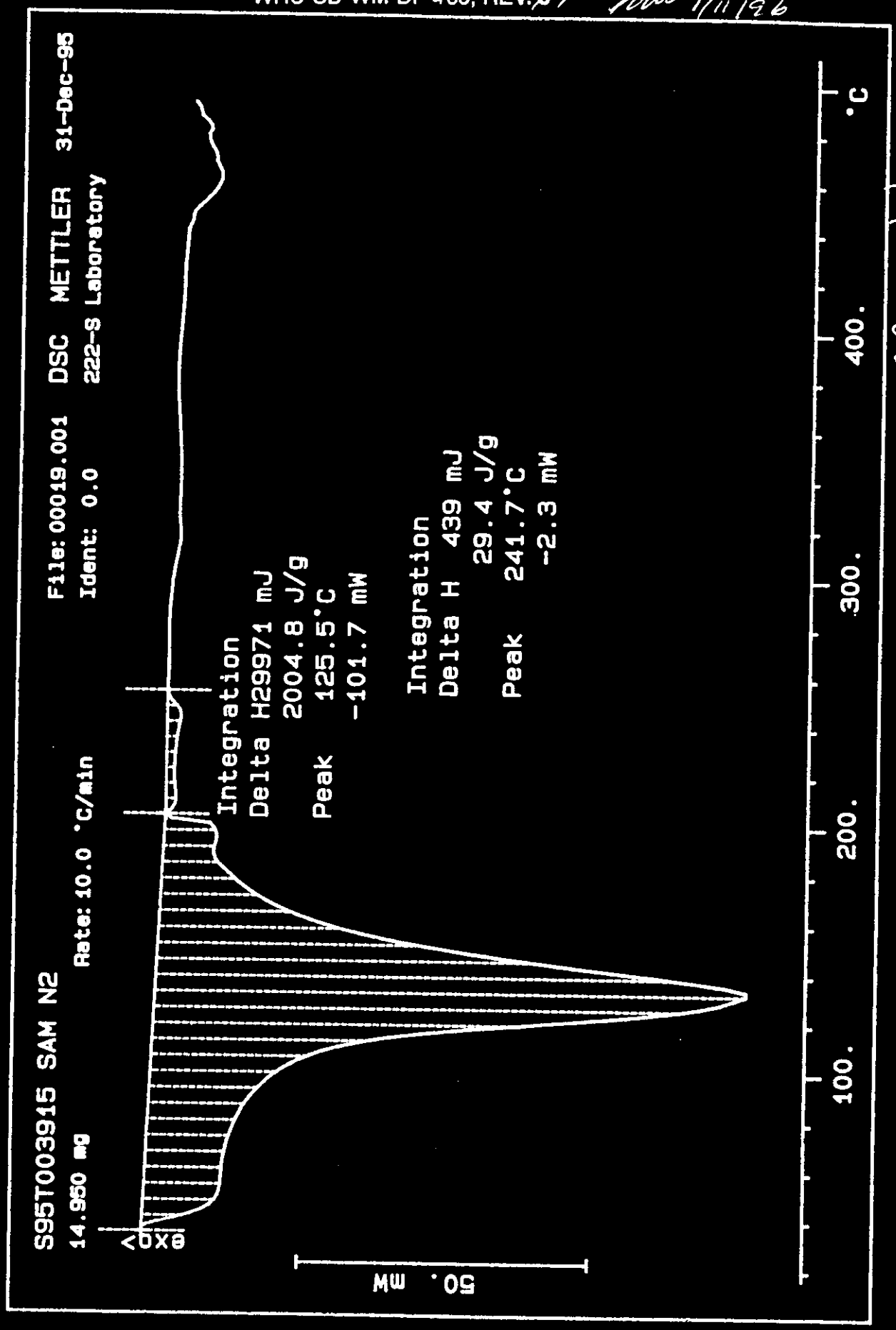
Data Entry Comments:

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.

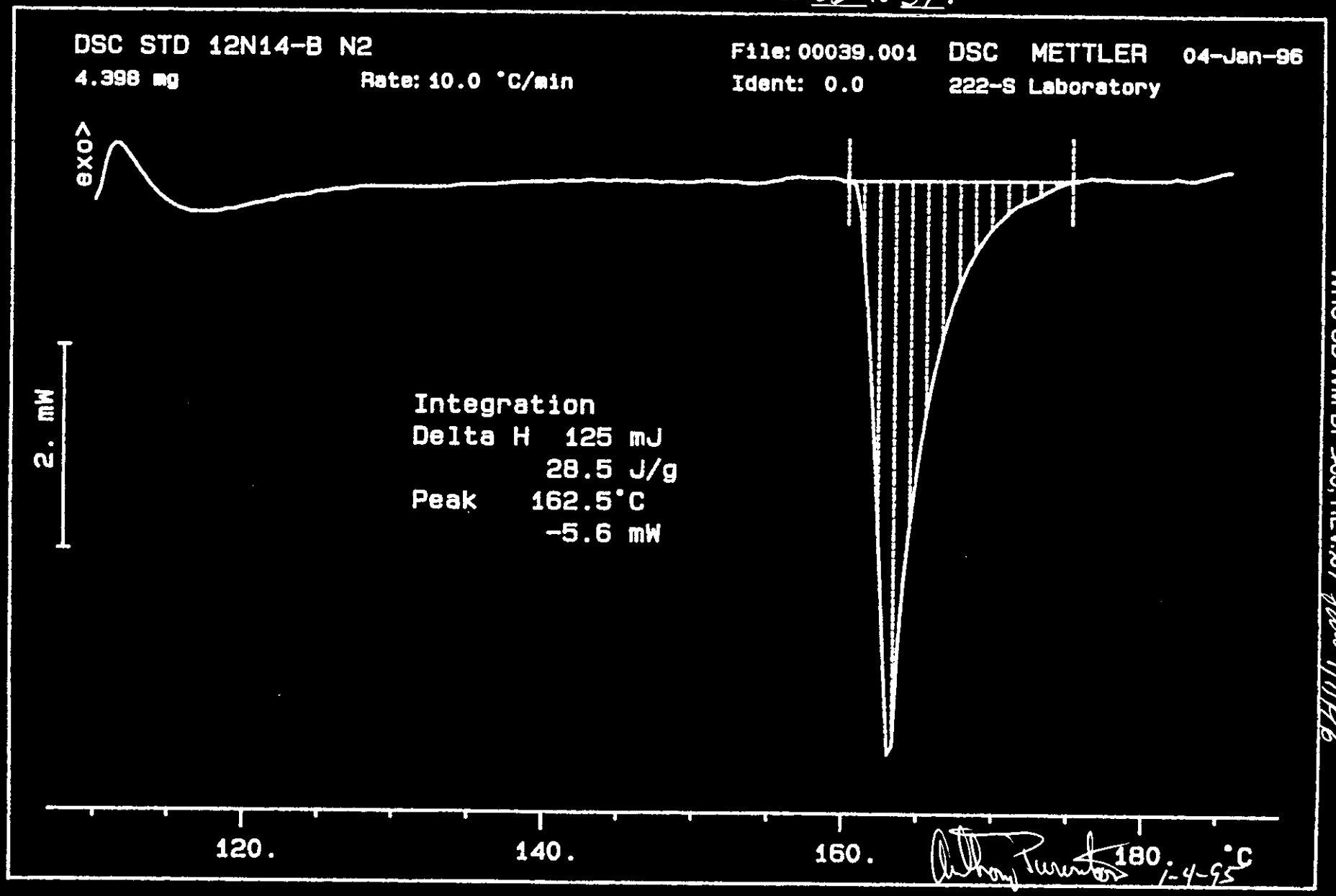
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 34 TO 35. and 38 to 39

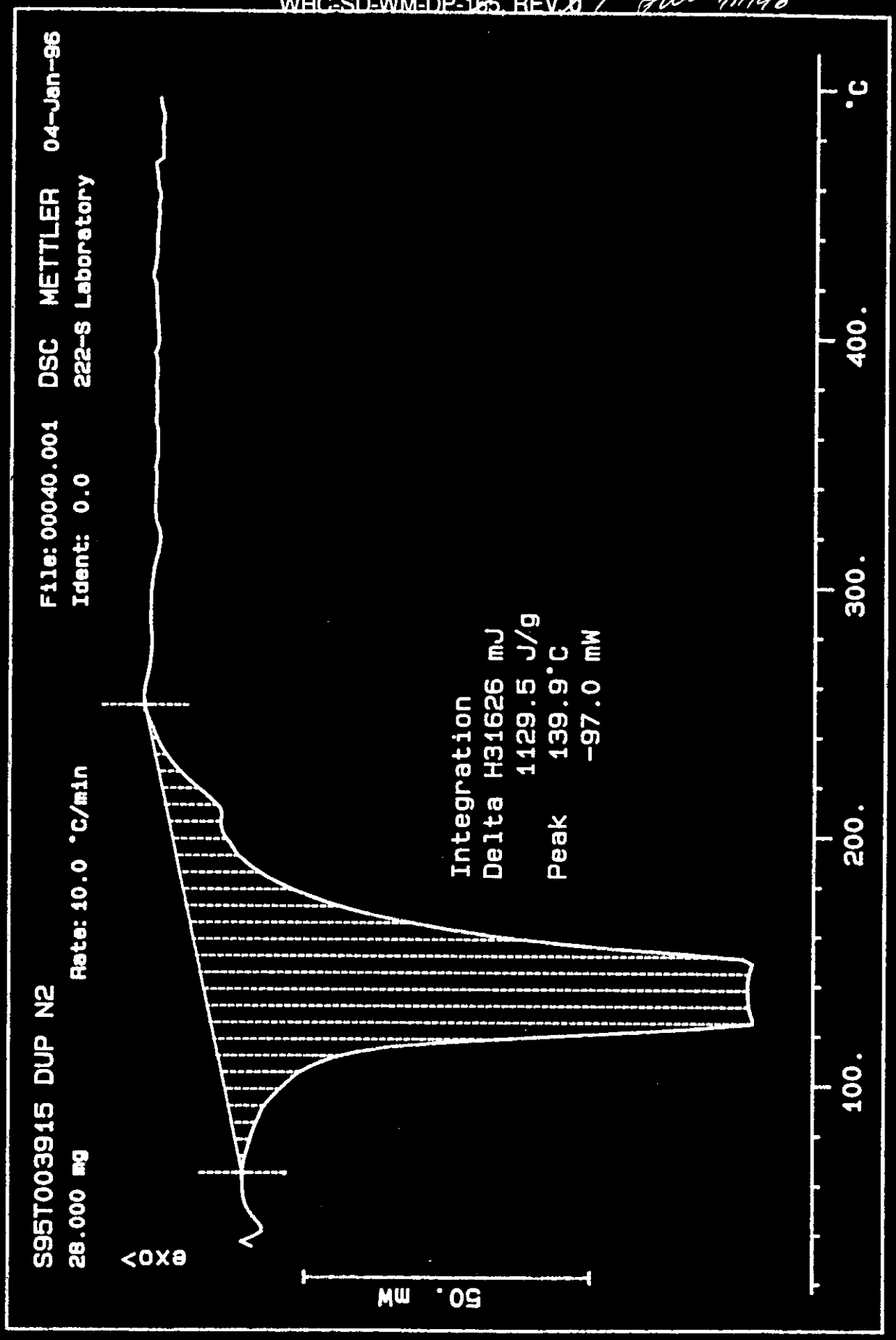


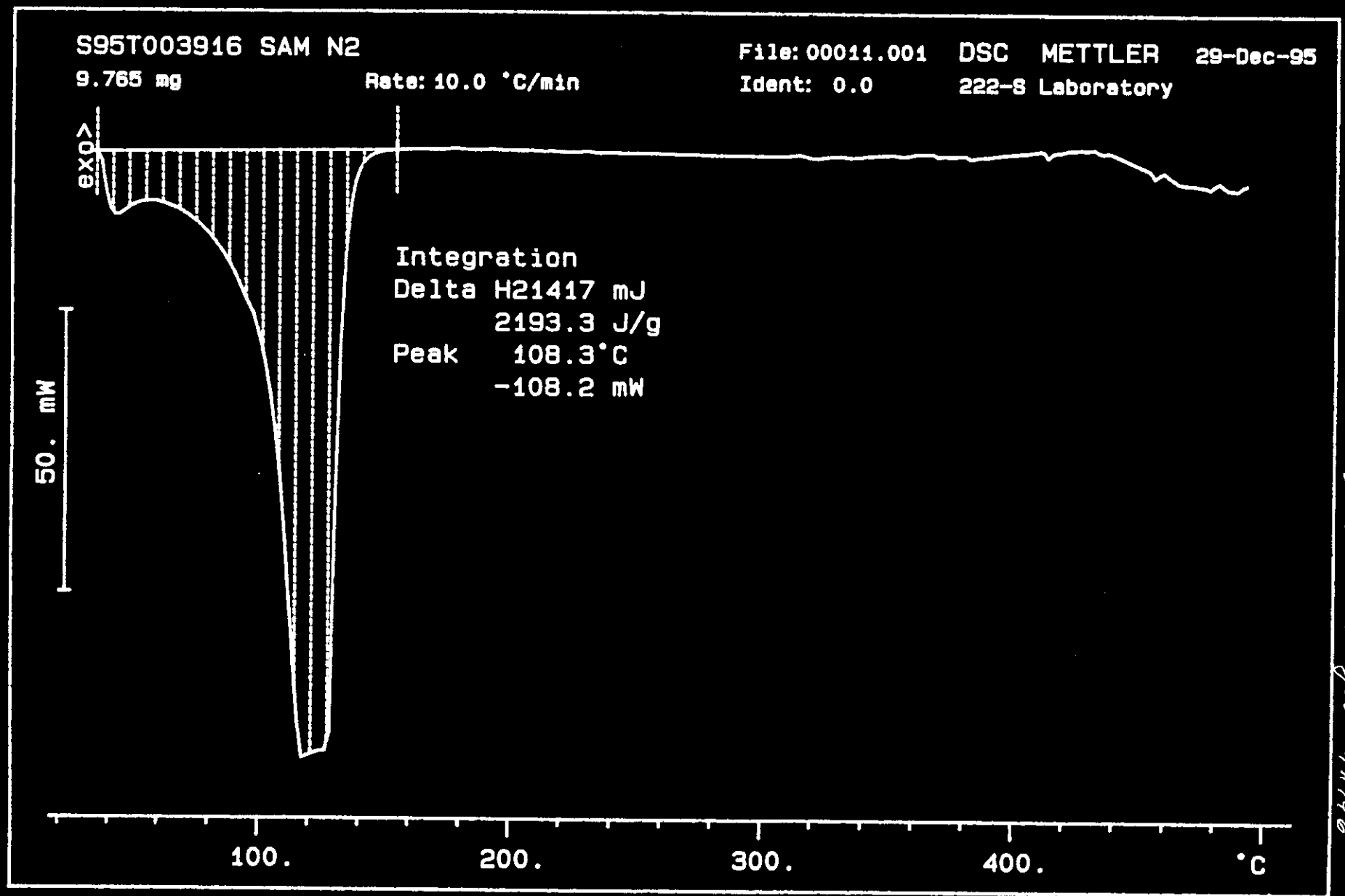
R [illegible] 12/31/95


S95T003915 SAM N2
14.960 mg
Rate: 10.0 °C/min
File: 00019.001
Ident: 0.0
DSC METTLER 31-Dec-95
222-S Laboratory
Integration
Delta H29971 mJ
2004.8 J/g
Peak 125.5°C
-101.7 mW
Integration
Delta H 439 mJ
29.4 J/g
Peak 241.7°C
-2.3 mW
EXO
50. mW
100.
200.
300.
400.
°C

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 36 TO 37.

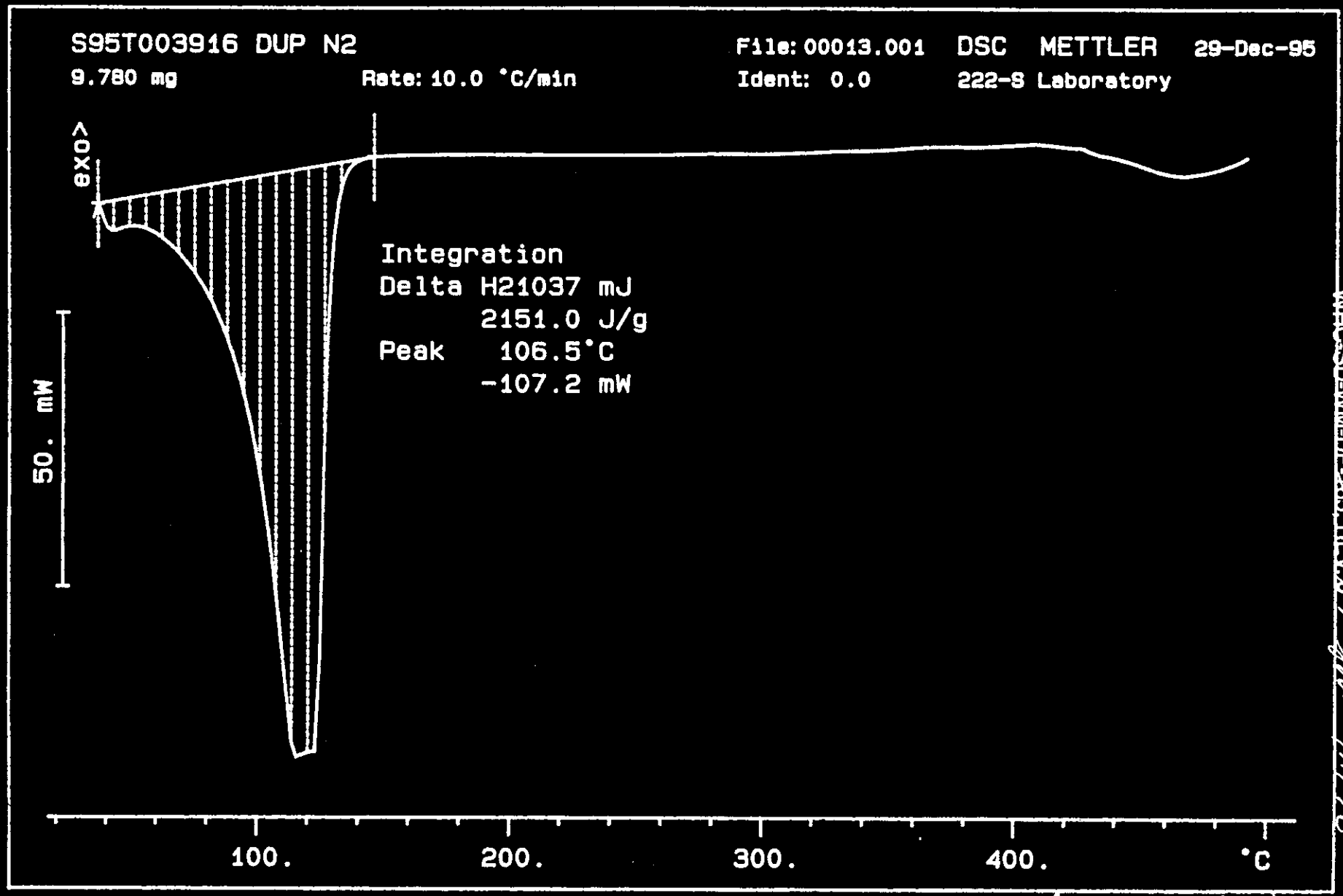



S95T003915 DUP N2
28.000 mg
Rate: 10.0 °C/min
File: 00040.001 DSC METTLER 04-Jan-96
Ident: 0.0 222-S Laboratory
Integration
Delta H31626 mJ
1129.5 J/g
Peak 139.9°C
-97.0 mW
exo>
50. mW
100.
200.
300.
400.
°C



38

WHC-SD-WM-DP-165, REV.0



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WHC-SD-WM-DP-165 REV.0

12/29/95

12/29/95

LABCORE Data Entry Template for Worklist# 4461

Analyst: ADP **Instrument:** TGA0 3 **Book #** 65N8A

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: Please run AN-101 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-03	LIQUID	59.74	60.18	N/A	%
95000226	AN-101 GRAB	2 SAMPLE	S95T003913	0		TGA-03	LIQUID	N/A	65.51		%
95000226	AN-101 GRAB	3 DUP	S95T003913	0		TGA-03	LIQUID	65.51	64.93	N/A	%
95000226	AN-101 GRAB	4 SAMPLE	S95T003914	0		TGA-03	LIQUID	N/A	64.80		%
95000226	AN-101 GRAB	5 DUP	S95T003914	0		TGA-03	LIQUID	64.80	65.11	N/A	%

Final page for worklist # 4461

See attached for signatures
Analyst Signature **Date** 12/29/95 BDV

Linda Coulin 12/29/95
Analyst Signature **Date**

S95T003913 produced a second weight loss step of 3.72 wt % at approximately 200°C.

Data Entry Comments: S95T003914 produced a second weight loss step of 4.23 wt % BDV 12/29/95

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

LABCORE Data Entry Template for Worklist# 4461

Analyst: HDP **Instrument:** TGA0 **Book #** 65N8 A

Method: LA-560-112 Rev/Mod C1

Worklist Comment: Please run AN-101 TGAs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	LIQUID			N/A	%
95000226	AN-101 GRAB	2	SAMPLE	S95T003913	0		TGA-01	LIQUID	N/A			%
95000226	AN-101 GRAB	3	DUP	S95T003913	0		TGA-01	LIQUID			N/A	%
95000226	AN-101 GRAB	4	SAMPLE	S95T003914	0		TGA-01	LIQUID	N/A			%
95000226	AN-101 GRAB	5	DUP	S95T003914	0		TGA-01	LIQUID			N/A	%

Final page for worklist # 4461

H D Pruntz 12-23-95
Analyst Signature **Date**

Analyst Signature **Date**

Other instrument was used 12/29/95 BJW

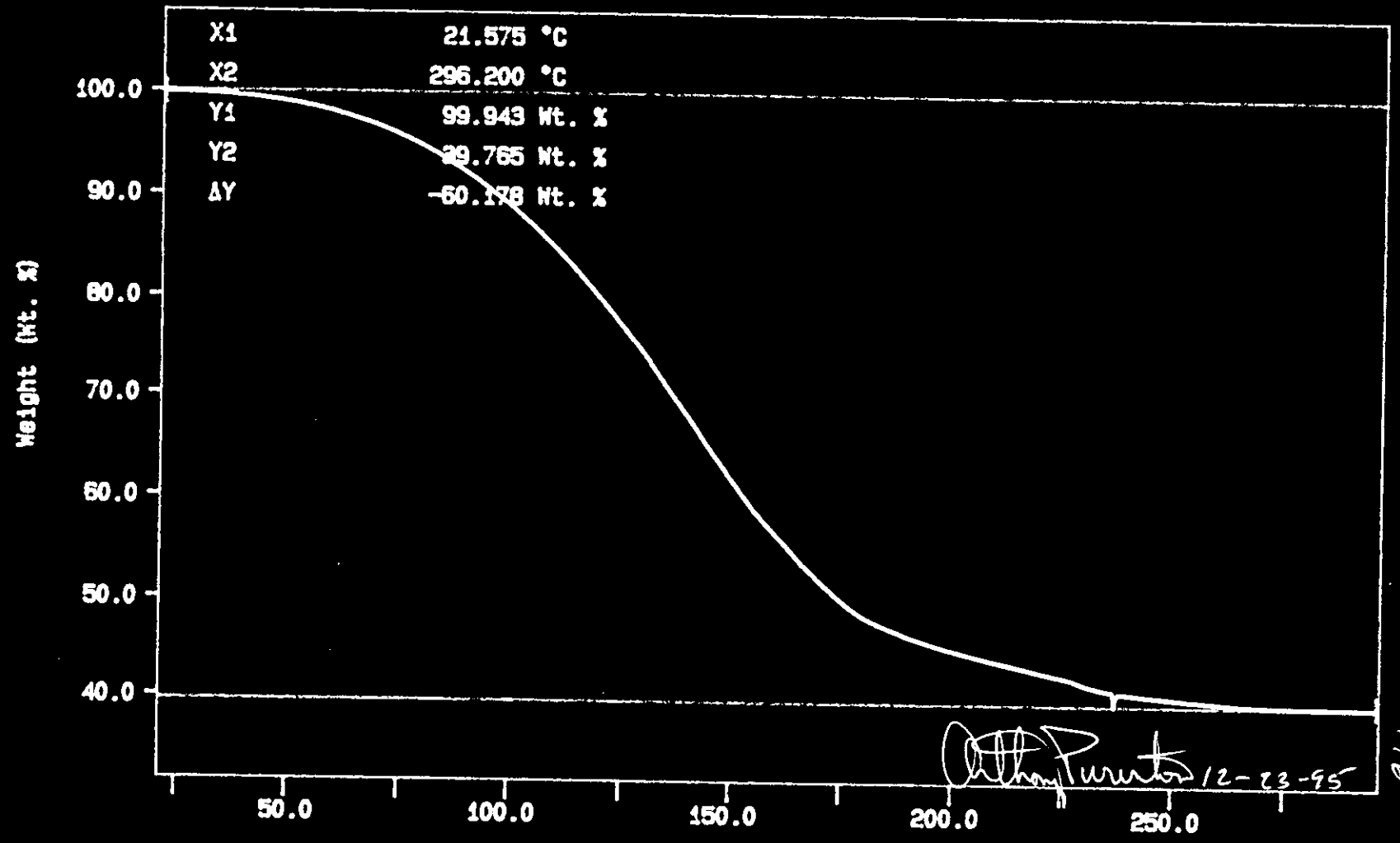
Data Entry Comments:

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.

Curve 1: TGA
File info: TER122304 Sat Dec 23 09:34:18 1995
Sample Weight: 27.452 mg
65N8-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 42 TO 46.

BEST AVAILABLE COPY



12-23-95

N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 23 09:51:25 1995

42

WHC-SD-WM-DP-185, REV.0 / 11/1/96

Curve 1: TGA
File info: SAM122301 Sat Dec 23 10:45:06 1995
Sample Weight: 16.682 mg
S95T003913 SAM

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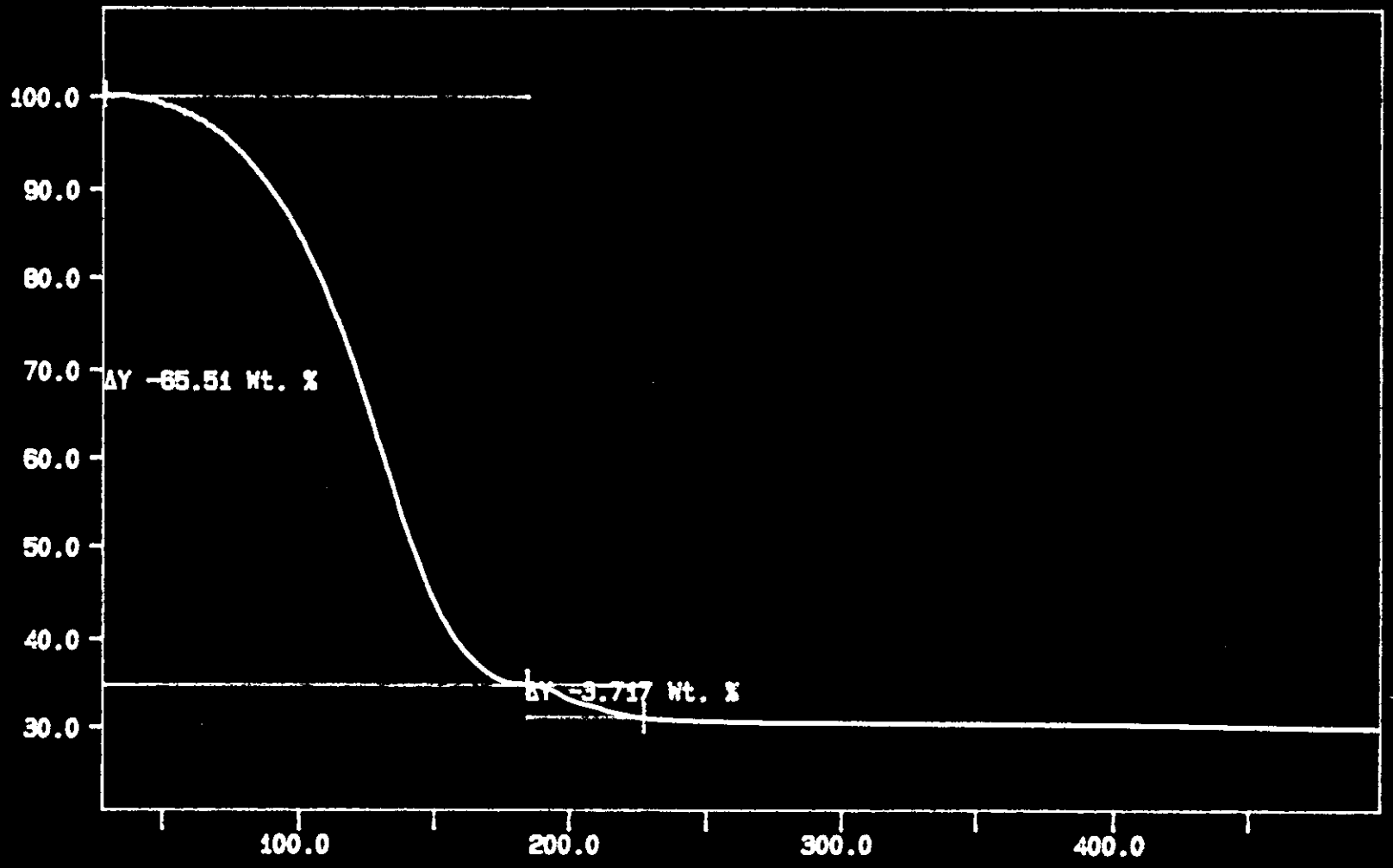


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

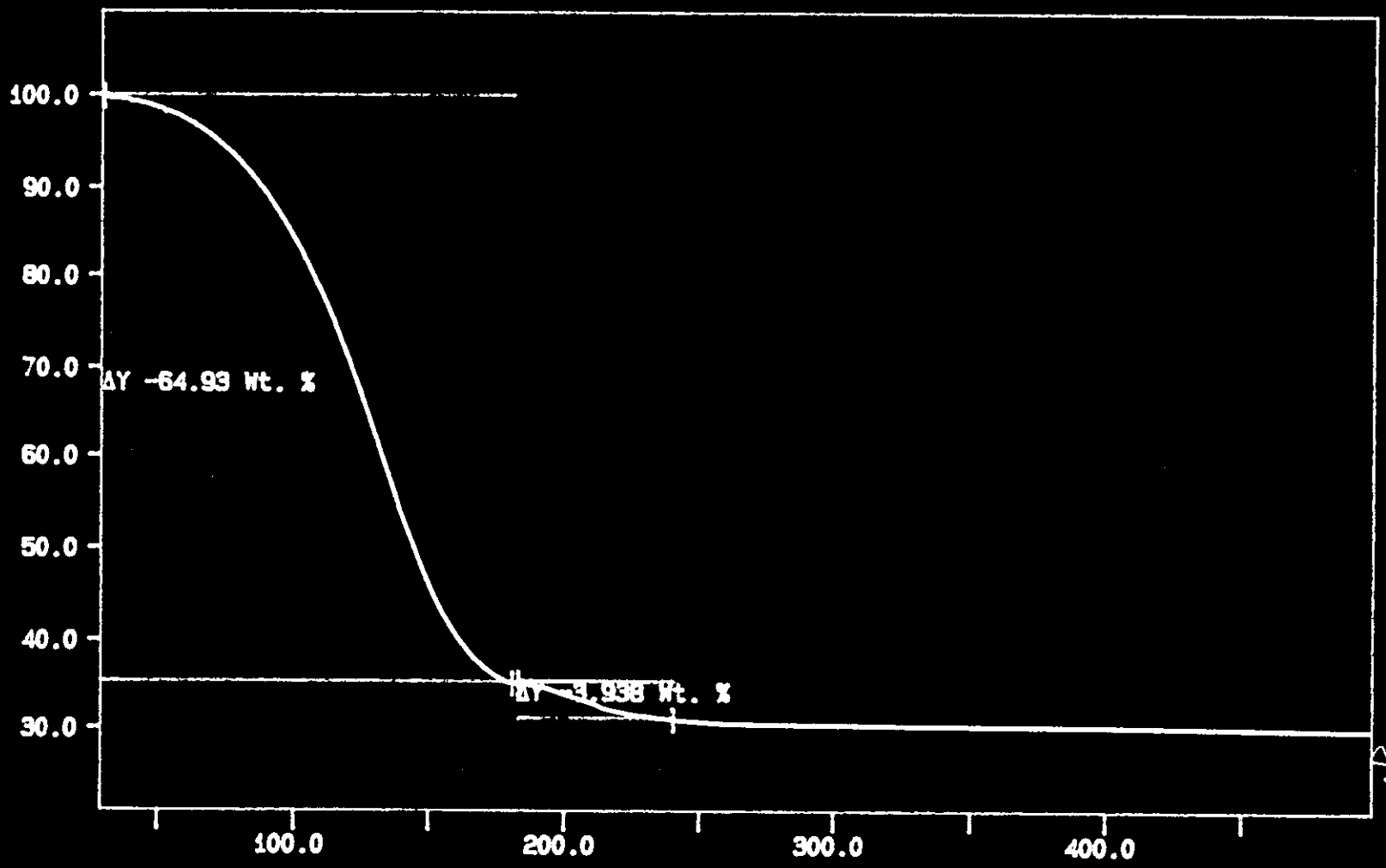
AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 23 10:52:46 1995

43

WHC-SD-WM-DP-165, REV. 01 1/11/96

Curve 1: TGA
File info: SAM122302 Sat Dec 23 11:55:30 1995
Sample Weight: 19.364 mg
S95T003913 DUP

BEST AVAILABLE COPY



10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 23 11:56:48 1995

WHC-SD-WM-DP-~~165~~ 148, REV. ~~0~~ 1 1/11/99

Curve 1: TGA
File info: SAM122309 Sat Dec 23 14:16:26 1995
Sample Weight: 19.951 mg
S95T003914 SAM

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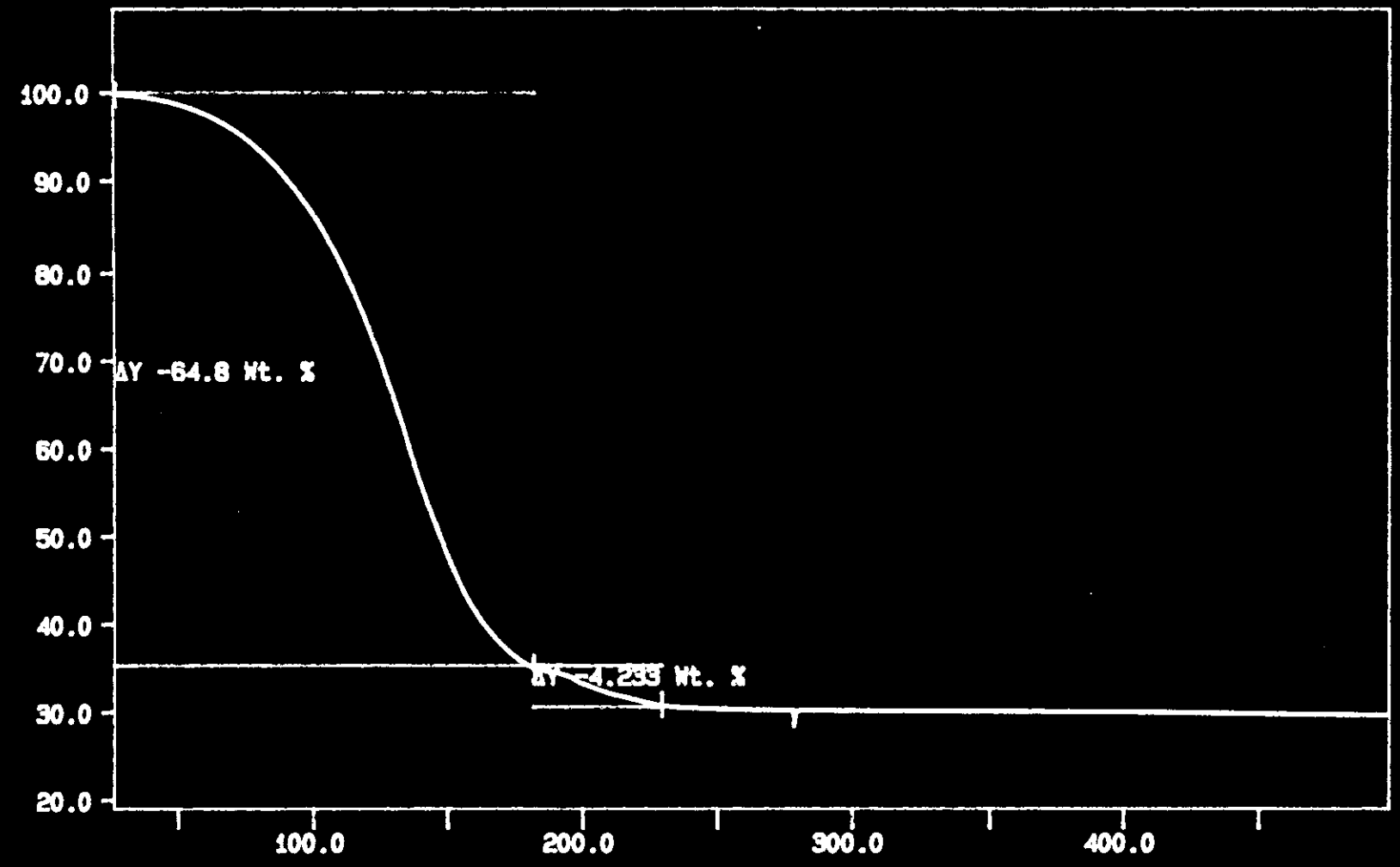

10C/MIN N2
TEMP1: 25.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 800.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 23 14:20:06 1995

WHC-SD-WM-DP-~~165~~ 148, REV. ~~0~~ 1 JMW 11/4/96

Curve 1: TGA
File info: SAM122304 Sat Dec 23 15:28:05 1995
Sample Weight: 17.455 mg
S95T003914 DUP

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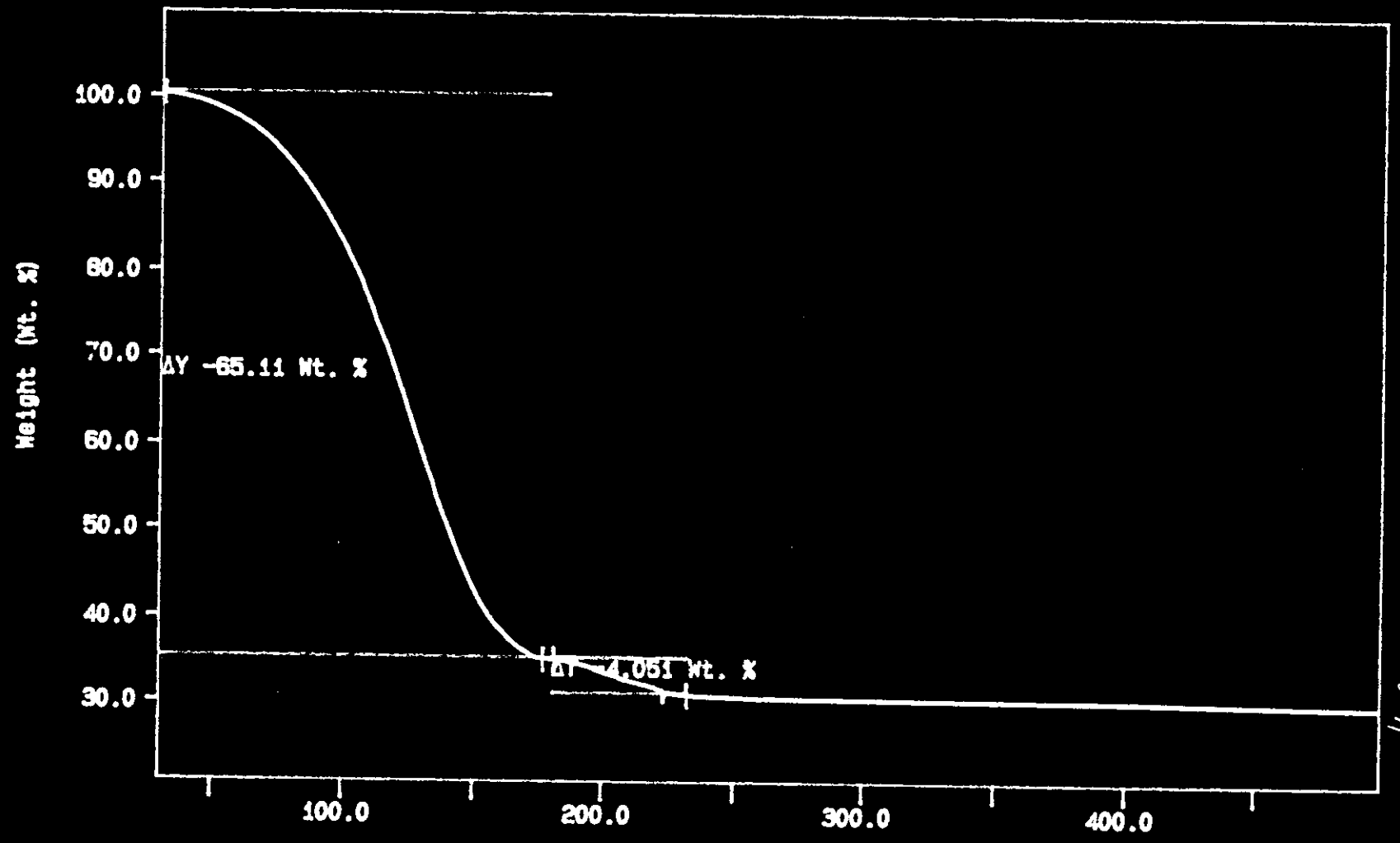


46

WHC-SD-WM-DP-165, REV.0

10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2 600.0 C

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 23 15:41:14 1995

LABCORE Data Entry Template for Worklist# 4462

Analyst: ADP **Instrument:** TGA0 1 **Book #** 65N8A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: Please run AN-101 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	LIQUID	59.74	60.37	N/A	%
95000226	AN-101 GRAB	2 SAMPLE	S95T003915	0		TGA-01	LIQUID	N/A	65.95		%
95000226	AN-101 GRAB	3 DUP	S95T003915	0		TGA-01	LIQUID	65.95	66.03	N/A	%
95000226	AN-101 GRAB	4 SAMPLE	S95T003916	0		TGA-01	LIQUID	N/A	99.95		%
95000226	AN-101 GRAB	5 DUP	S95T003916	0		TGA-01	LIQUID	99.95	99.96	N/A	%

Final page for worklist # 4462

Anthony Purinton 12-23-95
Analyst Signature **Date**

[signature] 12/29/95
Analyst Signature **Date**

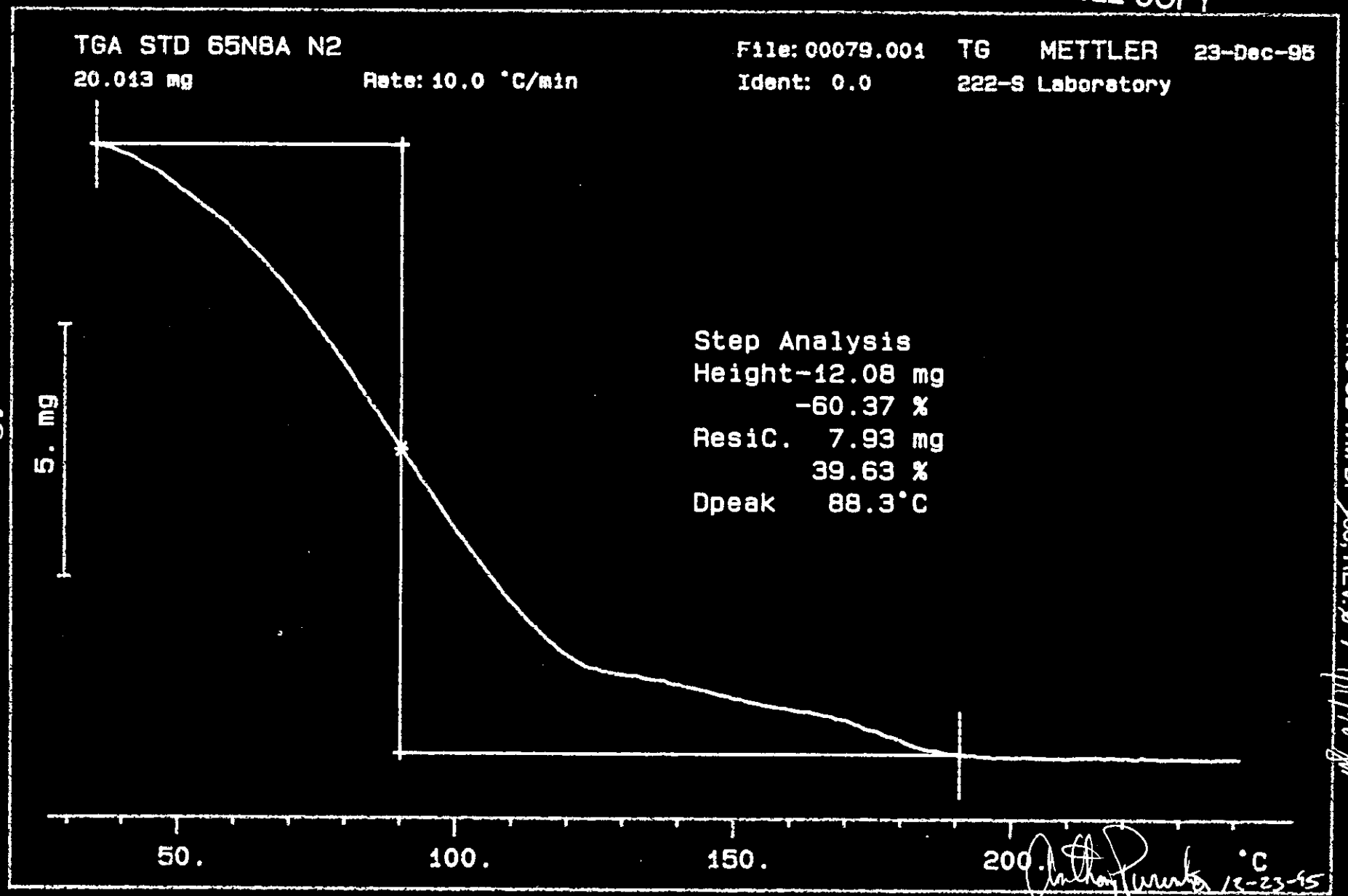
S95T003915 produced an additional weight loss step of 3.47% at approximately 180°C.

Data Entry Comments: ~~S95T003916 produced at~~ 12/28/95 BDV

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 48 TO 52.

BEST AVAILABLE COPY



Anthony Purcell 12-23-95

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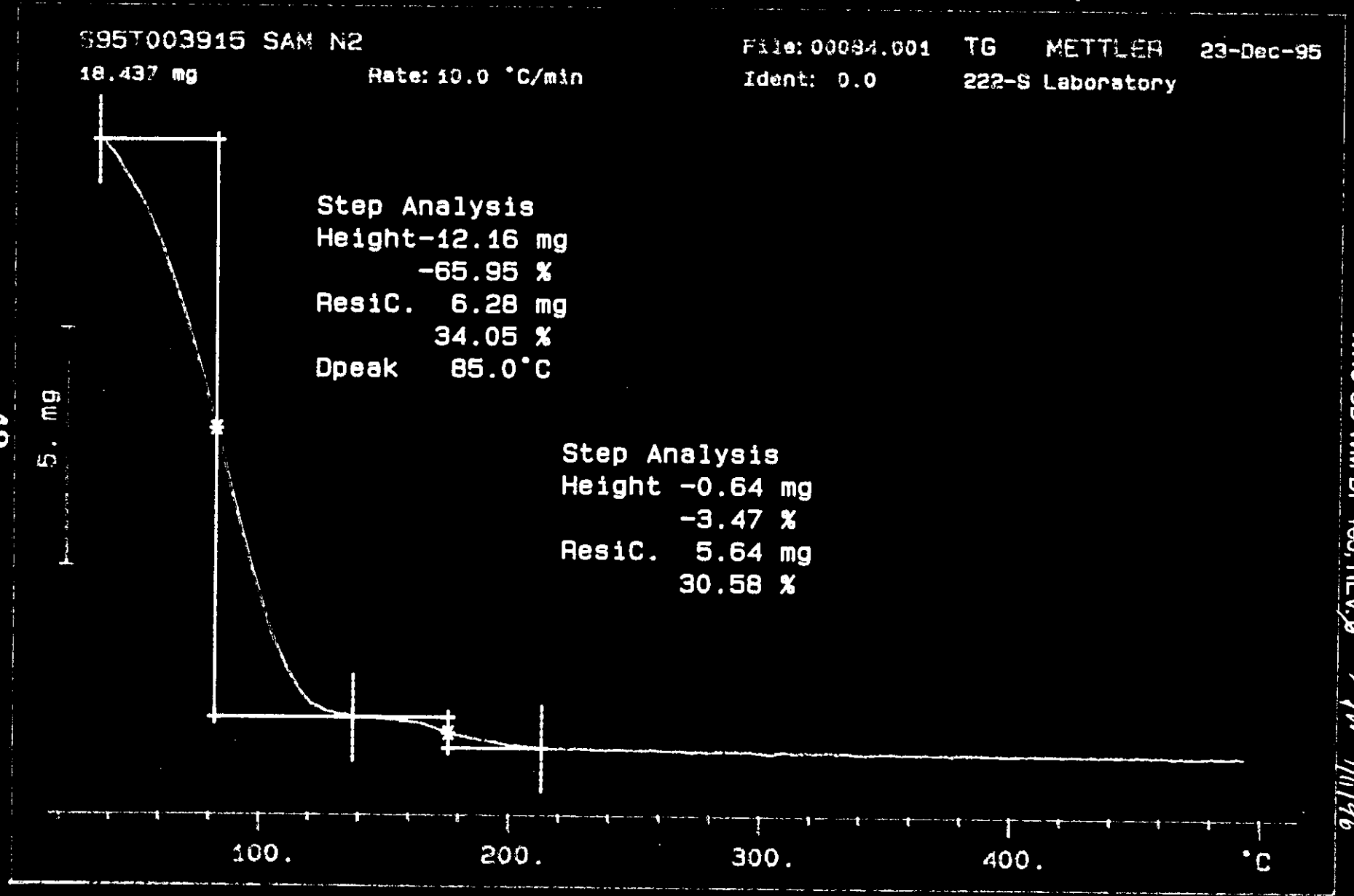

WHC-SD-WM-DP-165, REV.0 / 1/11/96

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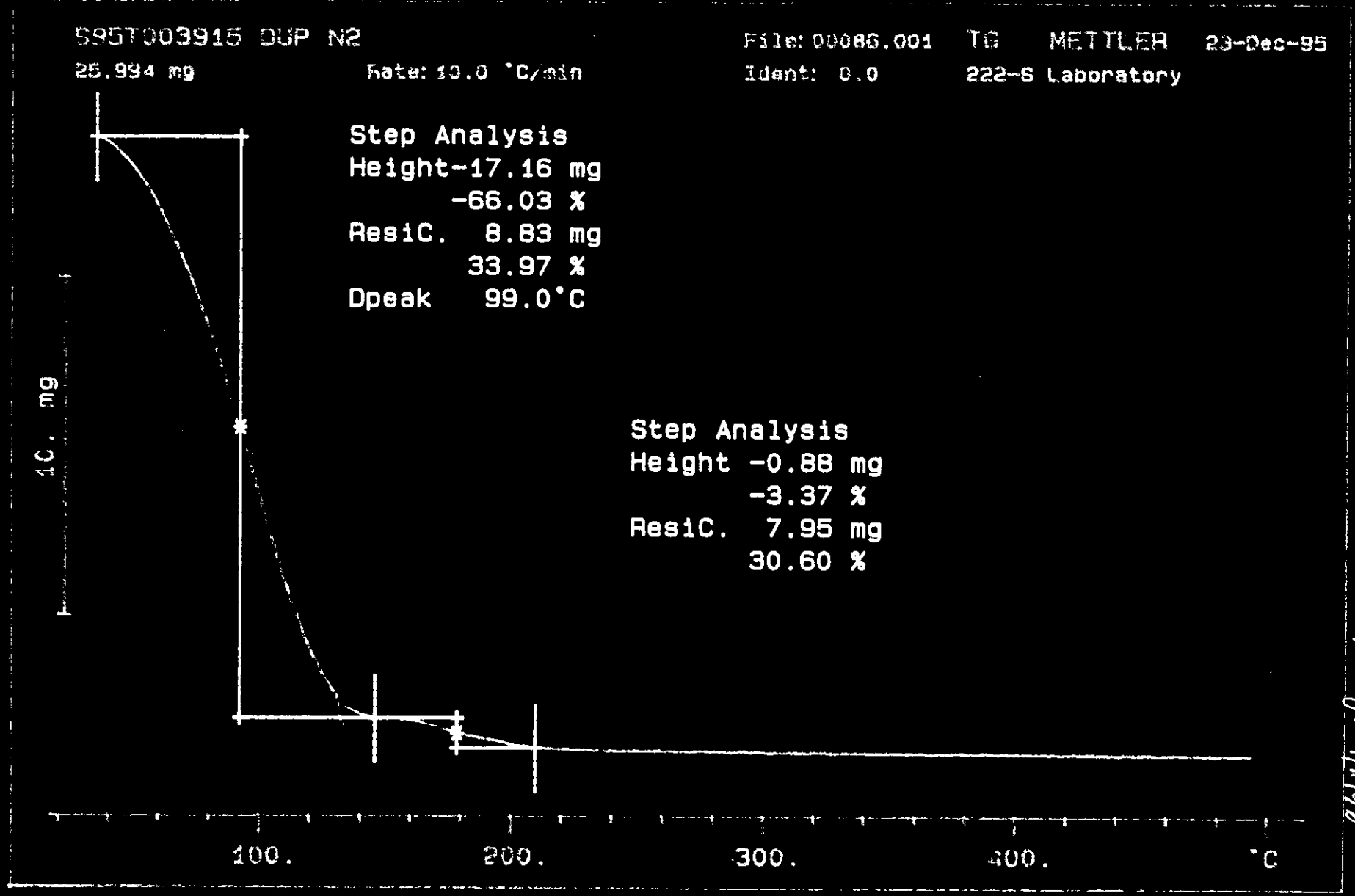

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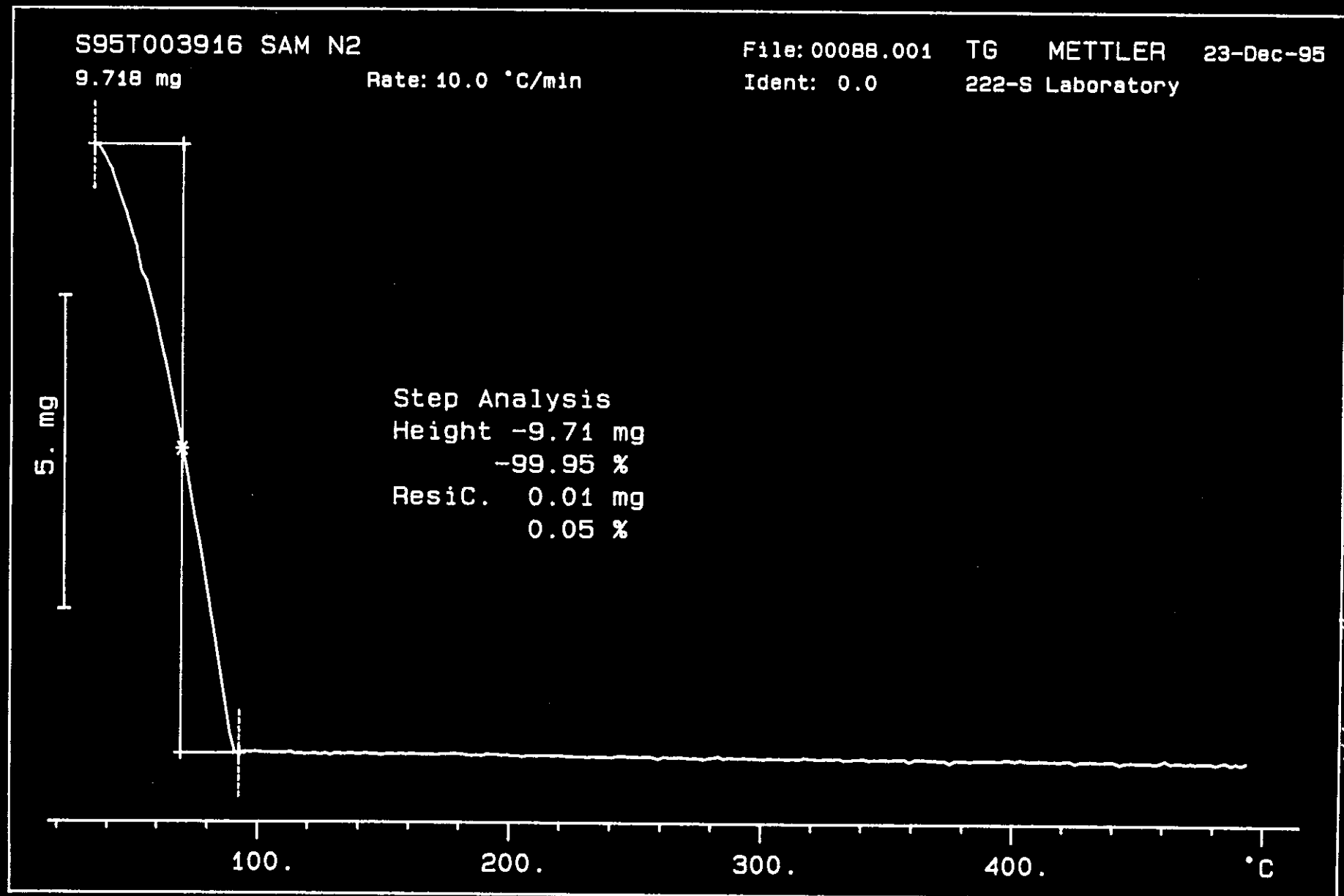

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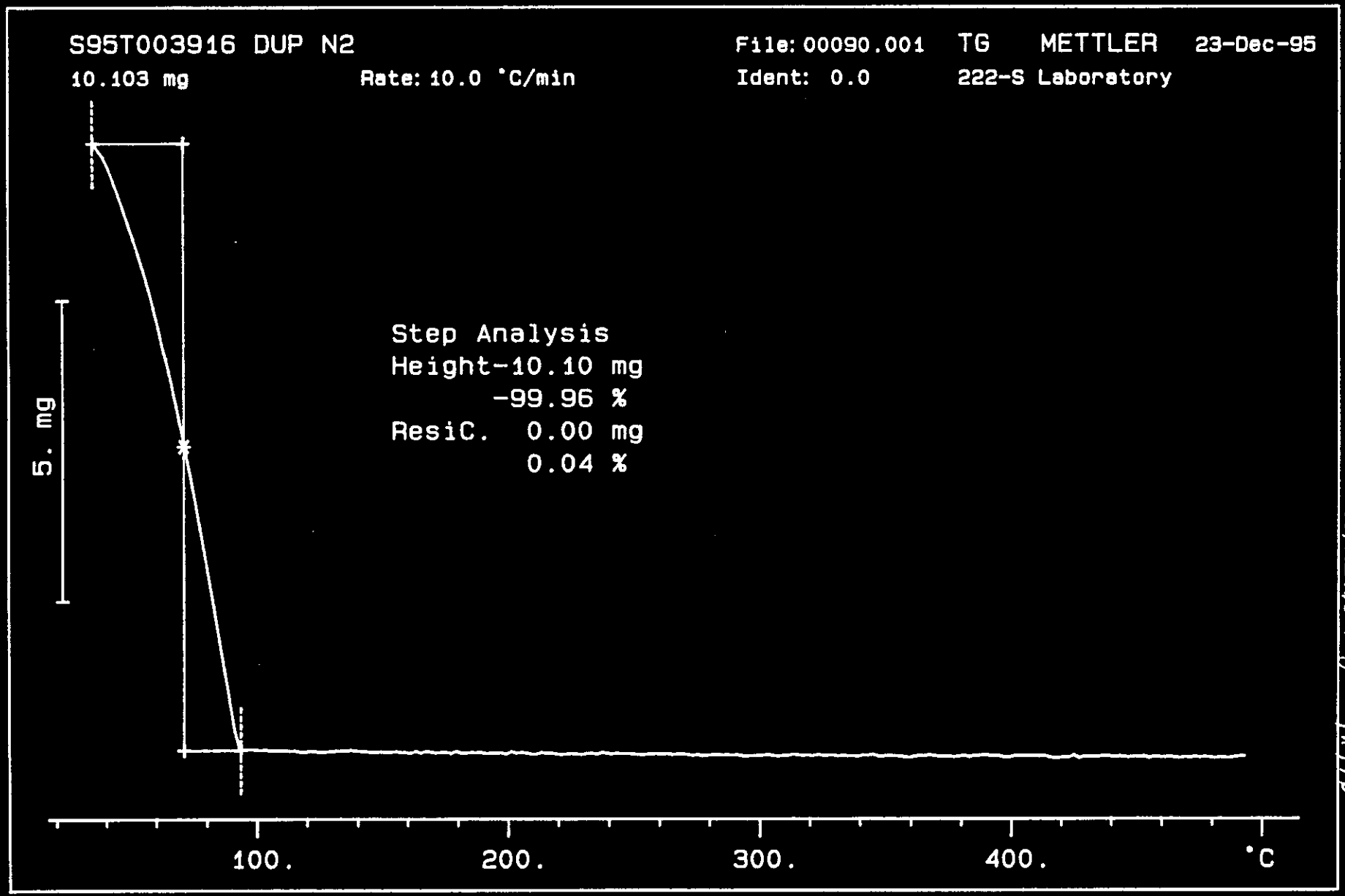

WHC-SD-WM-DP-165, REV.0 / dww 1/4/96

LABCORE Data Entry Template for Worklist# 4693

Analyst: KGH **Instrument:** BA001 _____ **Book #** 133N116 A

Method: LA-510-112 Rev/Mod C-3

Worklist Comment: AN101 SpG (Do not run in replicate)

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				SPG-01	LIQUID	1.40	1.376	N/A	Sp.G.
95000226	AN-101 GRAB	2 SAMPLE	S95T003913	0		SPG-01	LIQUID	N/A	1.226	0.01	Sp.G.
95000226	AN-101 GRAB	3 DUP	S95T003913	0		SPG-01	LIQUID	1.226	1.214	N/A	Sp.G.
95000226	AN-101 GRAB	4 SAMPLE	S95T003914	0		SPG-01	LIQUID	N/A	1.214	0.01	Sp.G.
95000226	AN-101 GRAB	5 DUP	S95T003914	0		SPG-01	LIQUID	1.214	1.216	N/A	Sp.G.
95000226	AN-101 GRAB	6 SAMPLE	S95T003915	0		SPG-01	LIQUID	N/A	1.223	0.01	Sp.G.
95000226	AN-101 GRAB	7 DUP	~~S95T003916~~ S95T003915	0		SPG-01	LIQUID	1.223	1.217	N/A	Sp.G.
95000226	AN-101 GRAB	8 SAMPLE	S95T003916	0		SPG-01	LIQUID	N/A	0.977	0.01	Sp.G.
95000226	AN-101 GRAB	9 DUP	S95T003916	0		SPG-01	LIQUID	0.977	0.989	N/A	Sp.G.

ROE 1/12/96

Final page for worklist # 4693

Analyst Signature Date 1-7-96

Analyst Signature Date 1-8-96

RA Schneider 1/9/96

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.

SPECIFIC GRAVITY: LA-510-112 (C-3)

WORKLIST #	ANALYST SIGNATURE	ANALYSIS DATE	ANALYSIS TIME	INSTRUMENT CODE
4693	Kirsten Higher	1-7-96	1430	

[X] SAMPLE [ ] STANDARD [ ] DUPLICATE

SAMPLE # = STD # = 133N16-A

		REPLICATE
TARE WEIGHT (g)	1.88669	1.86298
GROSS WEIGHT (g)	2.09385	2.06908
VOL. of SOLUTION (mL)	150.17	

[ ] SAMPLE [ ] STANDARD [X] DUPLICATE

SAMPLE # = S95T003914 STD # =

		REPLICATE
TARE WEIGHT (g)	1.85221	
GROSS WEIGHT (g)	2.03480	
VOL. of SOLUTION (mL)	150.17	

[X] SAMPLE [ ] STANDARD [ ] DUPLICATE

SAMPLE # = S95T003913 STD # =

		REPLICATE
TARE WEIGHT (g)	1.83139	
GROSS WEIGHT (g)	2.01556	
VOL. of SOLUTION (mL)	150.17	

[X] SAMPLE [ ] STANDARD [ ] DUPLICATE

SAMPLE # = S95T003915 STD # =

		REPLICATE
TARE WEIGHT (g)	1.87140	
GROSS WEIGHT (g)	2.05500	
VOL. of SOLUTION (mL)	150.17	

[ ] SAMPLE [ ] STANDARD [X] DUPLICATE

SAMPLE # = S95T003913 STD # =

		REPLICATE
TARE WEIGHT (g)	1.83705	
GROSS WEIGHT (g)	2.01935	
VOL. of SOLUTION (mL)	150.17	

[ ] SAMPLE [ ] STANDARD [X] DUPLICATE

SAMPLE # = S95T003915 STD # =

		REPLICATE
TARE WEIGHT (g)	1.85166	
GROSS WEIGHT (g)	2.03449	
VOL. of SOLUTION (mL)	150.17	

[X] SAMPLE [ ] STANDARD [ ] DUPLICATE

SAMPLE # = S95T003914 STD # =

		REPLICATE
TARE WEIGHT (g)	1.92234	
GROSS WEIGHT (g)	2.10457	
VOL. of SOLUTION (mL)	150.17	

[X] SAMPLE [ ] STANDARD [X] DUPLICATE

SAMPLE # = S95T003916 STD # =

		REPLICATE
TARE WEIGHT (g)	1.89162	1.85485
GROSS WEIGHT (g)	2.03832	2.00337
VOL. of SOLUTION (mL)	150.17	150.17

RDE 1/12/96

WHC-SD-WM-DP-148, REV. 1

1.83139 g
2.01556 g
1.83705 g
2.01935 g

1.92234 g
2.10457 g
1.85221 g
2.03480 g

1.87140 g
2.05590 g
1.85166 g
2.03449 g

1.88162 g
2.03832 g
1.85485 g
2.00333 g

STD

----- CALIBRATION ------
01/07/96 11:49:57
CAL BEGIN
STD 10.1.19
TYPE : AT 261
2.00.00
787082
CAL END
---------- END ----------

1.88669 g
2.09385 g

1.86298 g
2.06908 g

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PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		STANDARD	STANDARD
STANDARD	Gross Weight (W2)	2.0939	2.0691
Work List	Tare Weight (W1)	1.8867	1.8630
4693	Weight of Solution (W2-W1)	0.20716	0.2061
Test Code	Volume of Solution µL	150.1700	150.1700
SPG-01	Specific Gravity	1.3795	1.3724
Matrix	Specific Gravity (Average)	1.3760	
LIQUID			
Sample #			
133N16A			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
K HIGBEE	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
01/07/96	v RESULT v		
Time	Specific Gravity Average =	1.376	

Data Entry by:	Linda Conlin	Date:	01/07/96
Approved by:	R.W. Schroeder	Date:	1/9/96

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type
SAMPLE
Work List
4693
Test Code
SPG-01
Matrix
LIQUID
Sample #
S95T003913
Instrument Code
BA001
Analyst
K HIGBEE
Date
01/07/96
Time

	SAMPLE	REPLICATE
Gross Weight (W2)	2.0156	
Tare Weight (W1)	1.8314	
Weight of Solution (W2-W1)	0.18417	0
Volume of Solution µL	150.1700	
Specific Gravity	1.2264	NA

Gross Weight (W2) = Wt. of vial + cap + cotton + solution
Tare Weight (W1) = Wt. of vial + cap + cotton

Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]

v RESULT v

Specific Gravity =	1.226

Data Entry by:	Linda Conklin	Date:	01/07/96
Approved by:	R W Schroeder	Date:	1/9/96

Form 510112L1 Rev. 1.1

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-149, REV. 1

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type
DUP
Work List
4693
Test Code
SPG-01
Matrix
LIQUID
Sample #
S95T003913
Instrument Code
BA001
Analyst
K HIGBEE
Date
01/07/96
Time

	DUP	REPLICATE
Gross Weight (W2)	2.0194	
Tare Weight (W1)	1.8371	
Weight of Solution (W2-W1)	0.1823	0
Volume of Solution µL	150.1700	
Specific Gravity	1.2140	NA

Gross Weight (W2) = Wt. of vial + cap + cotton + solution
Tare Weight (W1) = Wt. of vial + cap + cotton

Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]

v RESULT v

Specific Gravity =	1.214

Data Entry by:	Date: 01/07/96
Approved by:	Date: 1/9/96

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	2.1046	
Work List	Tare Weight (W1)	1.9223	
4693	Weight of Solution (W2-W1)	0.1823	0
Test Code	Volume of Solution µL	150.1700	
SPG-01	Specific Gravity	1.2140	NA
Matrix			
LIQUID			
Sample #			
S95T003914			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
K HIGBEE	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
01/07/96	v RESULT v		
Time	Specific Gravity =	1.214	

Data Entry by:	Sandra Conklin	Date:	01/07/96
Approved by:	R.W. Schroeder	Date:	1/9/96

Form 510112L1 Rev. 1.1

Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		DUP	REPLICATE
DUP	Gross Weight (W2)	2.0348	
Work List	Tare Weight (W1)	1.8522	
4693	Weight of Solution (W2-W1)	0.1826	0
Test Code	Volume of Solution µL	150.1700	
SPG-01	Specific Gravity	1.2160	NA
Matrix			
LIQUID			
Sample #			
S95T003914			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
K HIGBEE	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
01/07/96	v RESULT v		
Time	Specific Gravity =	1.216	

Data Entry by:	Linda Conklin	Date:	01/07/96
Approved by:	R.W. Schroeder	Date:	1/9/96

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-145, REV. 1

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	2.0550	
Work List	Tare Weight (W1)	1.8714	
4693	Weight of Solution (W2-W1)	0.1836	0
Test Code	Volume of Solution µL	150.1700	
SPG-01	Specific Gravity	1.2226	NA
Matrix			
LIQUID			
Sample #			
S95T003915			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
K HIGBEE	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
01/07/96	v RESULT v		
Time	Specific Gravity =	1.223	

Data Entry by:	Frank Corbin	Date:	01/07/96
Approved by:	RW Schreeder	Date:	1/9/96

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-149, REV. 1

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		DUP	REPLICATE
DUP	Gross Weight (W2)	2.0345	
Work List	Tare Weight (W1)	1.8517	
4693	Weight of Solution (W2-W1)	0.1828	0
Test Code	Volume of Solution µL	150.1700	
SPG-01	Specific Gravity	1.2173	NA
Matrix			
LIQUID			
Sample #			
S95T003915			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
K HIGBEE	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
01/07/96	v RESULT v		
Time	Specific Gravity =	1.217	

Data Entry by:	Trish Cook	Date:	01/07/96
Approved by:	R W Schroeder	Date:	1/9/96

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-145, REV. 1

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	2.0383	
Work List	Tare Weight (W1)	1.8916	
4693	Weight of Solution (W2-W1)	0.1467	0
Test Code	Volume of Solution µL	150.1700	
SPG-01	Specific Gravity	0.9769	NA
Matrix			
LIQUID			
Sample #			
S95T003916			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
K HIGBEE	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
01/07/96	v RESULT v		
Time	Specific Gravity =	0.977	

Data Entry by:	Frank Cook	Date:	01/07/96
Approved by:	R.J. Schreiber	Date:	1/9/96

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		DUP	REPLICATE
DUP	Gross Weight (W2)	2.0033	
Work List	Tare Weight (W1)	1.8548	
4693	Weight of Solution (W2-W1)	0.1485	0
Test Code	Volume of Solution µL	150.1700	
SPG-01	Specific Gravity	0.9889	NA
Matrix			
LIQUID			
Sample #			
S95T003916			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
K HIGBEE	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
01/07/96	v RESULT v		
Time	Specific Gravity =	0.989	

Data Entry by:		Date:	01/07/96
Approved by:	RW Schroeder	Date:	1/9/96

Form 510112L1 Rev. 1.1

RADIOCHEMICAL ANALYSES

13

12/18/95 10:40
A-0004-1

WHC-SD-WM-DP-~~165~~ 148, REV ~~0~~ 1 1/11/90 ANIDI

LABCORE Data Entry Template for Worklist# 4366

Analyst: AKL **Instrument:** AB00 16 **Book#** 11B56

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

Worklist Comment: Determine sample size using Ludlum. Use .100 mL A-SPK. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	LIQUID		
2	BLNK-PREP				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S95T003913	0		@ALPHA01	LIQUID	95000226	AN-101 GRAB
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S95T003913	0		@ALPHA01	LIQUID		
6	SPK	S95T003913	0		@ALPHA01	LIQUID		
7	SAMPLE	S95T003914	0		@ALPHA01	LIQUID	95000226	AN-101 GRAB
		Analytes Requested: ALPHA01 , ALPHA01E						
8	DUP	S95T003914	0		@ALPHA01	LIQUID		
9	SAMPLE	S95T003915	0		@ALPHA01	LIQUID	95000226	AN-101 GRAB
		Analytes Requested: ALPHA01 , ALPHA01E						
10	DUP	S95T003915	0		@ALPHA01	LIQUID		
11	SAMPLE	S95T003916	0		@ALPHA01	LIQUID	95000226	AN-101 GRAB
		Analytes Requested: ALPHA01 , ALPHA01E						
12	DUP	S95T003916	0		@ALPHA01	LIQUID		

Final page for worklist # 4366

[signature] 12/18/95
Analyst Signature **Date**

[signature] 12/19/95
Analyst Signature **Date**

[signature] 12/19/95

Data Entry Comments:

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

LABCORE Completed Worklist Report for Worklist# 4366

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

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using Ludlum. Use .100 mL A-SPK. SLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@ALPHA01 ALPHA01	LIQUID	1.92E-05		1.95E-5	101.560	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	LIQUID	1.00		3.78E+00	3.780	% Ct. Error
2	BLNK-PREP		0		@ALPHA01 ALPHA01	LIQUID	1		<1.86E-3		uCi/mL
2	BLNK-PREP		0		@ALPHA01 ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01 ALPHA01	LIQUID	1.00E+00		1.00E+00	1.000	uCi/mL
4	SAMPLE	S95T003913	0		@ALPHA01 ALPHA01	LIQUID	N/A	<	1.01E-03	2.410e-003	uCi/mL
4	SAMPLE	S95T003913	0		@ALPHA01 ALPHA01E	LIQUID	N/A		5.00E+02	0.000	% Ct. Error
5	DUP	S95T003913	0		@ALPHA01 ALPHA01	LIQUID	<1.01E-3		<1.35E-3		RPD
5	DUP	S95T003913	0		@ALPHA01 ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Error
6	SPK	S95T003913	0		@ALPHA01 ALPHA01	LIQUID	3.92E-02		3.80E-02	96.940	% Recovery
7	SAMPLE	S95T003914	0		@ALPHA01 ALPHA01	LIQUID	N/A	<	1.01E-03	2.410e-003	uCi/mL
7	SAMPLE	S95T003914	0		@ALPHA01 ALPHA01E	LIQUID	N/A		5.00E+02	0.000	% Ct. Error
8	DUP	S95T003914	0		@ALPHA01 ALPHA01	LIQUID	<1.01E-3		<1.86E-3		RPD
8	DUP	S95T003914	0		@ALPHA01 ALPHA01E	LIQUID	1.00		2.99E+02	299.000	% Ct. Error
9	SAMPLE	S95T003915	0		@ALPHA01 ALPHA01	LIQUID	N/A	<	2.20E-03	2.410e-003	uCi/mL
9	SAMPLE	S95T003915	0		@ALPHA01 ALPHA01E	LIQUID	N/A		5.00E+02	0.000	% Ct. Error
10	DUP	S95T003915	0		@ALPHA01 ALPHA01	LIQUID	<2.20E-3		<1.35E-3		RPD
10	DUP	S95T003915	0		@ALPHA01 ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Error
11	SAMPLE	S95T003916	0		@ALPHA01 ALPHA01	LIQUID	N/A	<	5.00E-06	1.190e-005	uCi/mL
11	SAMPLE	S95T003916	0		@ALPHA01 ALPHA01E	LIQUID	N/A		5.00E+02	0.000	% Ct. Error
12	DUP	S95T003916	0		@ALPHA01 ALPHA01	LIQUID	<5.00E-6		<6.69E-6		RPD
12	DUP	S95T003916	0		@ALPHA01 ALPHA01E	LIQUID	1.00		4.38E+02	438.000	% Ct. Error

Final page for worklist# 4366

_____ _____ _____ _____

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

_____ 12/20/95

Reviewer Signature **Date**

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

WORKBOOK PAGE: STD1

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

Type	DETECTOR NUMBER		STANDARD	REPLICATE
STD	DISH SIZE (1 , 2 , or 5)	(MS)	16	16
Work List	GROSS COUNTS	(GC)	2	2
4366	COUNT TIME in MINUTES	(CT)	2714	2782
AT or TB ?	BACKGROUND in cpm	(BKG)	30	30
AT	SAMPLE SIZE in mL	(SS)	0.3	0.3
Test Code	DILUTION FACTOR	(DF)	10.000	10.000
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	11B56	11B56
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.2104	0.2104
Batch Number	Standard Value in µCi/mL		90.167	92.433
95004914	Concentration in µCi/L	=	1.92E-05	
Rerun	Replicate Concentration in µCi/L	=	1.93E-02	
0	AVERAGE CONCENTRATION in µCi/L	=	1.98E-02	
Sample Prep			1.9547E-02	
N/A				
Sample #				
WL#4366				
Instrument Code				
WB27806				
Prepared By				
CJO				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
12/19/95				
Analysis Date				
12/18/95				
Analysis Time				
03:30 PM				
Sample Point				
AN-101 GRAB				

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

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

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

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

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

		DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	1.95E-05	
RELATIVE COUNTING ERROR	3.8%	1.19E-07 µCi/mL

Analyst:		CJO	Date: 19-Dec-95
Signature of Chemist:		SLF	Date: 12/20/95

STANDARD.WB1 Rev. 1.0 508101ML

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

Type	DETECTOR NUMBER		BLNK-PREP	REPLICATE
BLNK-PREP	DISH SIZE (1, 2, or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	4	14
4366	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.233	0.430
Batch Number				
95004914	Blank Concentration in µCi/L	<	1.01E+00	
Rerun	Replicate Concentration in µCi/L	<	1.86E+00	
0	Maximum Concentration in µCi/L	<	1.8615E+00	

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
WL#4366	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
CJO	
Chemist	
SLF	
Analyst	
AKL	
Date Complete	
12/19/95	
Analysis Date	
12/18/95	
Analysis Time	
03:30 PM	
Sample Point	
AN-101 GRAB	

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/mL	< 1.86E-03	
LESS Than Value was Determined from Lc. Rac 1/12/96			
RELATIVE COUNTING ERROR		500.0%	2.41E-03 µCi/mL

Analyst:		CJO	Date: 19-Dec-95
Signature of Chemist:		SLF	Date: 12/20/95

BLANK.WB1 Rev. 1.0 508101ML

WHC-SD-WM-DP-~~165~~ 149, REV. 0 / SLW, 1/11/96

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

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		16	16
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
4366	GROSS COUNTS	(GC)	7	9
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.3	0.3
Test Code	SAMPLE SIZE in mL	(SS)	0.050	0.050
@ALPHA01	DILUTION FACTOR	(DF)	101	101
Matrix	DIGEST DILUTION FACTOR	(DDF)	1	1
LIQUID	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.233	0.233
95004914				
Rerun	Blank Concentration in µCi/L	<	1.01E+00	
0	Replicate Concentration in µCi/L	<	1.01E+00	
Sample Prep	Maximum Concentration in µCi/L	<	1.0091E+00	
N/A				
Sample #				
S95T003913				
Instrument Code				
WB27806				
Prepared By				
CJO				
Chemist				
SLF				
Analyst				
AKL				
Date Complete				
12/19/95				
Analysis Date				
12/18/95				
Analysis Time				
03:30 PM				
Sample Point				
AN-101 GRAB				

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

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

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

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

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

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/mL	< 1.01E-03	2.41E-03 µCi/mL
LESS Than Value was Determined from Lc.			
RELATIVE COUNTING ERROR		500.0%	

rcc 1/12/96

Analyst:	CJO		Date: 19-Dec-95
Signature of Chemist:		SLF	Date: 12/20/95

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP5

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

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1, 2, or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	9	11
4366	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.233	0.313
Batch Number				
95004914	Blank Concentration in µCi/L	<	1.01E+00	
Rerun	Replicate Concentration in µCi/L	<	1.35E+00	
0	Maximum Concentration in µCi/L	<	1.3520E+00	

Sample Prep: N/A
Sample #: S95T003913
Instrument Code: WB27806
Prepared By: CJO
Chemist: SLF
Analyst: AKL
Date Complete: 12/19/95
Analysis Date: 12/18/95
Analysis Time: 03:30 PM
Sample Point: AN-101 GRAB

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

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/mL	< 1.35E-03	2.41E-03 µCi/mL
LESS THAN Value was Determined from Rmax. RAE 1/12/96			
RELATIVE COUNTING ERROR		500.0%	

Analyst:	CJO		Date: 19-Dec-95
Signature of Chemist:		SLF	Date: 12/20/95

SAMPLE.WB1 Rev. 1.0 508101ML

WHC-SD-WM-DP-~~165~~ 148, REV. ~~0~~ 1 JMW 1/11/96

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

			SPIKE	REPLICATE
Type	DETECTOR NUMBER		16	16
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	52736	53728
4366	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.050	0.050
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
LIQUID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	119B43	119B43
95004914	SPIKE VALUE in µCi/mL	(SVal)	3.9215E-02	3.9215E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
0	SAMPLE + SPIKE µCi/mL	(S+S)	7.60E+00	7.74E+00
Sample Prep	AVERAGE or MAXIMUM µCi/mL in SAMPLE	<	1.0100E-03	
N/A				
Sample #				
S95T003913	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
WB27806	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))			
CJO	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
AKL				
Date Complete	NOTE: Original Sample result was a LESS THAN value. Zero (0) was subtracted from the spiked value for QC found calculation.			
12/19/95				
Analysis Date				
12/18/95	QC ACTUAL	=	3.92E-02	
Analysis Time	QC FOUND	=	3.80E-02	
03:30 PM	AVG. PERCENT SPIKE RECOVERY	=	96.9%	
Sample Point				
AN-101 GRAB				

Analyst:		CJO	Date: 19-Dec-95
Signature of Chemist:	[signature]	SLF	Date: 12/20/95

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	9	6
4366	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.233	0.233
Batch Number				
95004914	Blank Concentration in µCi/L	<	1.01E+00	
Rerun	Replicate Concentration in µCi/L	<	1.01E+00	
0	Maximum Concentration in µCi/L	<	1.0091E+00	

Sample Prep
N/A

Sample #
S95T003914

Instrument Code
WB27806

Prepared By
CJO

Chemist
SLF

Analyst
AKL

Date Complete
12/19/95

Analysis Date
12/18/95

Analysis Time
03:30 PM

Sample Point
AN-101 GRAB

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

v RESULTS v

ALPHA TOTAL	in µCi/mL	< 1.01E-03	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.			
RELATIVE COUNTING ERROR		500.0%	2.41E-03 µCi/mL

RAC 1/12/96

Analyst:	CJO		Date: 19-Dec-95
Signature of Chemist:		SLF	Date: 12/20/95

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

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

Type	DETECTOR NUMBER		DUP	REPLICATE
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	14	12
4366	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.430	0.352
Batch Number				
95004914	Blank Concentration in µCi/L	<	1.86E+00	
Rerun	Replicate Concentration in µCi/L	<	1.52E+00	
0	Maximum Concentration in µCi/L	<	1.8615E+00	
Sample Prep				
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG			
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
S95T003914	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
Prepared By				
CJO				
Chemist	v RESULTS v			
SLF	ALPHA TOTAL	in µCi/mL	< 1.86E-03	DETECTION LEVEL
Analyst	LESS THAN Value was Determined from Rmax. RAE 1/12/96			
AKL				2.41E-03 µCi/mL
Date Complete	RELATIVE COUNTING ERROR		299.4%	
12/19/95				
Analysis Date				
12/18/95				
Analysis Time				
03:30 PM				
Sample Point				
AN-101 GRAB				

Analyst:		CJO	Date: 19-Dec-95
Signature of Chemist:		SLF	Date: 12/20/95

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM9

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

Type	DETECTOR NUMBER		SAMPLE	REPLICATE
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	8	16
4366	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.233	0.508

Batch Number			
95004914	Blank Concentration in µCi/L	<	1.01E+00
Rerun	Replicate Concentration in µCi/L	<	2.20E+00
0	Maximum Concentration in µCi/L	<	2.1984E+00

Sample Prep
N/A
Sample #
S95T003915
Instrument Code
WB27806
Prepared By
CJO
Chemist
SLF
Analyst
AKL
Date Complete
12/19/95
Analysis Date
12/18/95
Analysis Time
03:30 PM
Sample Point
AN-101 GRAB

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

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

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

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

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

v RESULTS v

ALPHA TOTAL	in µCi/mL	< 2.20E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc. ROE 1/12/96			2.41E-03 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst:	CJO	Date: 19-Dec-95
Signature of Chemist:	SLF	Date: 12/20/95

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP1

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

Type	DETECTOR NUMBER		DUP	REPLICATE
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	8	11
4366	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.050	0.050
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.233	0.313

Batch Number			
95004914	Blank Concentration in µCi/L	<	1.01E+00
Rerun	Replicate Concentration in µCi/L	<	1.35E+00
0	Maximum Concentration in µCi/L	<	1.3520E+00

Sample Prep: N/A

Sample #: S95T003915

Instrument Code: WB27806

Prepared By: CJO

Chemist: SLF

Analyst: AKL

Date Complete: 12/19/95

Analysis Date: 12/18/95

Analysis Time: 03:30 PM

Sample Point: AN-101 GRAB

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

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

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

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

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

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/mL	< 1.35E-03	
LESS Than Value was Determined from Lc. RDE 1/12/96			2.41E-03 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst: CJO Date: 19-Dec-95

Signature of Chemist: SLF Date: 12/20/95

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM1

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

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		16	16
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	8	7
4366	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.233	0.233

Batch Number			
95004914	Blank Concentration in µCi/L	<	5.00E-03
Rerun	Replicate Concentration in µCi/L	<	5.00E-03
0	Maximum Concentration in µCi/L	<	4.9957E-03

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
S95T003916	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [ ](The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
CJO	
Chemist	
SLF	
Analyst	
AKL	
Date Complete	
12/19/95	
Analysis Date	
12/18/95	
Analysis Time	
03:30 PM	
Sample Point	
AN-101 GRAB	

v RESULTS v

ALPHA TOTAL	in µCi/mL	< 5.00E-06	DETECTION LEVEL
LESS Than Value was Determined from Lc. RAF 1/12/96			1.19E-05 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst:		CJO	Date: 19-Dec-95
Signature of Chemist:		SLF	Date: 12/20/95

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP1

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

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		16	16
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
4366	GROSS COUNTS	(GC)	17	11
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.3	0.3
Test Code	SAMPLE SIZE in mL	(SS)	0.100	0.100
@ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST DILUTION FACTOR	(DDF)	1	1
LIQUID	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.267	0.313

95004914	Blank Concentration in µCi/L		5.71E-03
Rerun	Replicate Concentration in µCi/L	<	6.69E-03
0	Maximum Concentration in µCi/L	<	6.6933E-03

Sample Prep: N/A

Sample #: S95T003916

Instrument Code: WB27806

Prepared By: CJO

Chemist: SLF

Analyst: AKL

Date Complete: 12/19/95

Analysis Date: 12/18/95

Analysis Time: 03:30 PM

Sample Point: AN-101 GRAB

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

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

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

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

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

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/mL	< 6.69E-06	
LESS THAN Value was Determined from Rs.			1.19E-05 µCi/mL
RELATIVE COUNTING ERROR		438.3%	

ok 1/12/96

Analyst:	CJO		Date: 19-Dec-95
Signature of Chemist:		SLF	Date: 12/20/95

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Data Entry Template for Worklist# 4765

Analyst: S.C.L **Instrument:** AB00 16 **Book#** 14856

Method: LA-508-101 Rev/Mod 0-2

Worklist Comment: Determine sample size using Ludlum. Use .100 mL A-SPK. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	LIQUID		
2	BLNK				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S95T003903	0		@ALPHA01	LIQUID	95000135	AN-101 GRAB
	Analytes Requested:	ALPHA01 , ALPHA01E						
5	DUP	S95T003903	0		@ALPHA01	LIQUID		
6	SPK	S95T003903	0		@ALPHA01	LIQUID		
7	SAMPLE	S95T003905	0		@ALPHA01	LIQUID	95000135	AN-101 GRAB
	Analytes Requested:	ALPHA01 , ALPHA01E						
8	DUP	S95T003905	0		@ALPHA01	LIQUID		
9	SAMPLE	S95T003906	0		@ALPHA01	LIQUID	95000135	AN-101 GRAB
	Analytes Requested:	ALPHA01 , ALPHA01E						
10	DUP	S95T003906	0		@ALPHA01	LIQUID		

Final page for worklist # 4765

Sue C Lai 1-9-96
Analyst Signature **Date**

Analyst Signature 1/12/96 **Date**

Data Entry Comments:

spike: 119843

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

LABCORE Completed Worklist Report for Worklist# 4765

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

Method: _____ Rev/Mod _____

Worklist Comment: Determine sample size using Ludlum. Use .100 mL A-SPK. SLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@ALPHA01 ALPHA01	LIQUID	1.54E-05		1.64E-5	106.490	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	LIQUID	1.00		4.10E+00	4.100	% Ct. Error
2	BLNK		0		@ALPHA01 ALPHA01	LIQUID	1		<3.92E-4		uCi/mL
2	BLNK		0		@ALPHA01 ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Error
3	BLNK/BKG		0		@ALPHA01 ALPHA01	LIQUID	1.00E+00		6.67E-01	0.670	uCi/mL
4	SAMPLE	S95T003903	0		@ALPHA01 ALPHA01	LIQUID	N/A	<	4.43E-04	1.000e-003	uCi/mL
4	SAMPLE	S95T003903	0		@ALPHA01 ALPHA01E	LIQUID	N/A		5.00E+02	0.000	% Ct. Error
5	DUP	S95T003903	0		@ALPHA01 ALPHA01	LIQUID	<4.43E-4		<5.95E-4		RPD
5	DUP	S95T003903	0		@ALPHA01 ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Error
6	SPK	S95T003903	0		@ALPHA01 ALPHA01	LIQUID	3.92E-02		3.71E-02	94.640	% Recovery
7	SAMPLE	S95T003905	0		@ALPHA01 ALPHA01	LIQUID	N/A	<	5.43E-04	1.000e-003	uCi/mL
7	SAMPLE	S95T003905	0		@ALPHA01 ALPHA01E	LIQUID	N/A		5.00E+02	0.000	% Ct. Error
8	DUP	S95T003905	0		@ALPHA01 ALPHA01	LIQUID	<5.43E-4		<3.92E-4		RPD
8	DUP	S95T003905	0		@ALPHA01 ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Error
9	SAMPLE	S95T003906	0		@ALPHA01 ALPHA01	LIQUID	N/A	<	7.40E-04	1.000e-003	uCi/mL
9	SAMPLE	S95T003906	0		@ALPHA01 ALPHA01E	LIQUID	N/A		5.00E+02	0.000	% Ct. Error
10	DUP	S95T003906	0		@ALPHA01 ALPHA01	LIQUID	<7.40E-4		<8.37E-4		RPD
10	DUP	S95T003906	0		@ALPHA01 ALPHA01E	LIQUID	1.00		2.66E+02	266.000	% Ct. Error

Final page for worklist# 4765

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

1/12/96

Reviewer Signature **Date**

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

WHC-SD-WM-DP-168, REV.1

WORKBOOK PAGE: STD1

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

Type	Work List	AT or TB ?	Test Code	Matrix	Batch Number	Rerun	Sample Prep	Sample #	Instrument Code	Prepared By	Chemist	Analyst	Date Complete	Analysis Date	Analysis Time	Sample Point
STD	4765	AT	@ALPHA01	LIQUID	96000200	0	N/A		WB27806	SLF	SLF	SCL	01/10/96	01/09/96	10:00 AM	AN-101

		STANDARD	REPLICATE
DETECTOR NUMBER		16	16
DISH SIZE (1 , 2 , or 5)	(MS)	2	2
GROSS COUNTS	(GC)	2299	2300
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cpm	(BKG)	0.16	0.16
SAMPLE SIZE in mL	(SS)	10.000	10.000
DILUTION FACTOR	(DF)	1	1
STANDARD BOOK NUMBER	(Std BN)	14B56	14B56
EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		76.483	76.517
Standard Value in µCi/mL		1.54E-05	
Concentration in µCi/L	=	1.64E-02	
Replicate Concentration in µCi/L	=	1.64E-02	
AVERAGE CONCENTRATION in µCi/L	=	1.6378E-02	

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

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

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

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

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

		DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	1.64E-05	
RELATIVE COUNTING ERROR	4.1%	9.01E-08 µCi/mL

Analyst:		SLF	Date: 10-Jan-96
Signature of Chemist:		SLF	Date: 1/12/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

WHC-SD-WM-DP-149, REV.1

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

Type	BLNK
Work List	4765
AT or TB ?	AT
Test Code	@ALPHA01
Matrix	LIQUID
Batch Number	96000200
Rerun	0
Sample Prep	N/A
Sample #	
Instrument Code	WB27806
Prepared By	SLF
Chemist	SLF
Analyst	SCL
Date Complete	01/10/96
Analysis Date	01/09/96
Analysis Time	10:00 AM
Sample Point	AN-101

		BLNK	REPLICATE
DETECTOR NUMBER		16	16
DISH SIZE (1 , 2 , or 5)	(MS)	2	2
GROSS COUNTS	(GC)	3	3
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cpm	(BKG)	0.15	0.15
SAMPLE SIZE in mL	(SS)	1.000	1.000
DILUTION FACTOR	(DF)	1111	1111
DIGEST DILUTION FACTOR	(DDF)	1	1
EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.165	0.165

Blank Concentration in µCi/L	<	3.92E-01
Replicate Concentration in µCi/L	<	3.92E-01
Maximum Concentration in µCi/L	<	3.9246E-01

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

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

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

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

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

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/mL	< 3.92E-04	1.00E-03 µCi/mL
LESS Than Value was Determined from Lc.			
RELATIVE COUNTING ERROR		500.0%	

1/12/96

Analyst:		SLF	Date: 10-Jan-96
Signature of Chemist:		SLF	Date: 1/12/96

BLANK.WB1 Rev. 1.0 508101ML

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WORKBOOK PAGE: SAM4

WHC-SD-WM-DP- 149, REV. 1

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

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		16	16
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
4765	GROSS COUNTS	(GC)	5	4
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.15	0.15
Test Code	SAMPLE SIZE in mL	(SS)	1.000	1.000
@ALPHA01	DILUTION FACTOR	(DF)	1111	1111
Matrix	DIGEST DILUTION FACTOR	(DDF)	1	1
LIQUID	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.186	0.165
96000200				
Rerun	Blank Concentration in µCi/L	<	4.43E-01	
0	Replicate Concentration in µCi/L	<	3.92E-01	
Sample Prep	Maximum Concentration in µCi/L	<	4.4286E-01	

N/A

Sample #
S95T003903

Instrument Code
WB27806

Prepared By
SLF

Chemist
SLF

Analyst
SCL

Date Complete
01/10/96

Analysis Date
01/09/96

Analysis Time
10:00 AM

Sample Point
AN-101

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

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/mL	< 4.43E-04	1.00E-03 µCi/mL
LESS THAN Value was Determined from Rmax. rae 1/12/96			
RELATIVE COUNTING ERROR		500.0%	

Analyst: SLF Date: 10-Jan-96

Signature of Chemist: SLF Date: 1/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

WHC-SD-WM-D[illegible] 11/9, REV. 1

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

Type	DETECTOR NUMBER	DUP	REPLICATE
DUP	DISH SIZE (1, 2, or 5) (MS)	16	16
Work List	GROSS COUNTS (GC)	2	2
4765	COUNT TIME in MINUTES (CT)	6	12
AT or TB ?	BACKGROUND in cpm (BKG)	30	30
AT	SAMPLE SIZE in mL (SS)	0.15	0.15
Test Code	DILUTION FACTOR (DF)	1.000	1.000
@ALPHA01	DIGEST DILUTION FACTOR (DDF)	1111	1111
Matrix	EFFICIENCY FACTOR (EFF)	1	1
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	0.2104	0.2104
Batch Number		0.228	0.250
96000200	Blank Concentration in µCi/L	< 5.43E-01	
Rerun	Replicate Concentration in µCi/L	5.95E-01	
0	Maximum Concentration in µCi/L	< 5.9464E-01	
Sample Prep			
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)		
S95T003903	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L		
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SLF			
Chemist	v RESULTS v		
SLF	ALPHA TOTAL in µCi/mL	< 5.95E-04	DETECTION LEVEL
Analyst	LESS THAN Value was Determined from Rmax. EDE 1/12/96		1.00E-03 µCi/mL
SCL			
Date Complete	RELATIVE COUNTING ERROR	500.0%	
01/10/96			
Analysis Date			
01/09/96			
Analysis Time			
10:00 AM			
Sample Point			
AN-101			

Analyst:		SLF	Date: 10-Jan-96
Signature of Chemist:		SLF	Date: 1/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPIKE6

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

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

Type			SPIKE	REPLICATE
SPK	DETECTOR NUMBER		16	16
Work List	DISH SIZE 1 , 2 , or 5	(MS)	2	2
4765	TOTAL COUNTS	(TC)	50848	53180
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.15	0.15
Test Code	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	1.000	1.000
@ALPHA01	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	1111	1111
Matrix	DIGEST DILUTION FACTOR	(DDF)	1	1
LIQUID	SPIKE VOLUME in mL	(SVol)	0.100	0.100
Batch Number	SPIKE DILUTION FACTOR	(SDF)	1	1
96000200	SPIKE BOOK NUMBER	(Spk BN)	119B43	119B43
Rerun	SPIKE VALUE in µCi/mL	(SVal)	3.9212E-02	3.9212E-02
0	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Sample Prep	SAMPLE + SPIKE µCi/mL	(S+S)	4.03E+00	4.22E+00
N/A	AVERAGE or MAXIMUM µCi/mL in SAMPLE	<	4.4286E-04	

Sample #
S95T003903

Instrument Code
WB27806

Prepared By
SLF

Chemist
SLF

Analyst
SCL

Date Complete
01/10/96

Analysis Date
01/09/96

Analysis Time
10:00 AM

Sample Point
AN-101

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

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

QC ACTUAL = SVal

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

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

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

QC ACTUAL	=	3.92E-02
QC FOUND	=	3.71E-02
AVG. PERCENT SPIKE RECOVERY	=	94.7%

Analyst: SLF Date: 10-Jan-96

Signature of Chemist: SLF Date: 1/12/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

WHC-SD-WM-DP-148, REV. 1

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

Type	SAMPLE	REPLICATE
SAMPLE		
Work List		
4765		
AT or TB ?		
AT		
Test Code		
@ALPHA01		
Matrix		
LIQUID		
Batch Number		
96000200		
Rerun		
0		
Sample Prep		
N/A		
Sample #		
S95T003905		
Instrument Code		
WB27806		
Prepared By		
SLF		
Chemist		
SLF		
Analyst		
SCL		
Date Complete		
01/10/96		
Analysis Date		
01/09/96		
Analysis Time		
10:00 AM		
Sample Point		
AN-101		
DETECTOR NUMBER	16	16
DISH SIZE (1 , 2 , or 5) (MS)	2	2
GROSS COUNTS (GC)	6	10
COUNT TIME in MINUTES (CT)	30	30
BACKGROUND in cpm (BKG)	0.15	0.15
SAMPLE SIZE in mL (SS)	1.000	1.000
DILUTION FACTOR (DF)	1111	1111
DIGEST DILUTION FACTOR (DDF)	1	1
EFFICIENCY FACTOR (EFF)	0.2104	0.2104
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	0.228	0.183

Blank Concentration in µCi/L	<	5.43E-01
Replicate Concentration in µCi/L		4.36E-01
Maximum Concentration in µCi/L	<	5.4284E-01

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

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

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

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

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

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/mL	< 5.43E-04	1.00E-03 µCi/mL
LESS THAN Value was Determined from Rmax. RDL 1/12/96			
RELATIVE COUNTING ERROR		500.0%	

Analyst:		SLF	Date: 10-Jan-96
Signature of Chemist:		SLF	Date: 1/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

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

WORKBOOK PAGE: DUP8

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

Type	DETECTOR NUMBER		DUP	REPLICATE
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	1	4
4765	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.15	0.15
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1111	1111
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.165	0.165
Batch Number				
96000200	Blank Concentration in µCi/L	<	3.92E-01	
Rerun	Replicate Concentration in µCi/L	<	3.92E-01	
0	Maximum Concentration in µCi/L	<	3.9246E-01	
Sample Prep				
N/A				
Sample #				
S95T003905				
Instrument Code				
WB27806				
Prepared By				
SLF				
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
01/10/96				
Analysis Date				
01/09/96				
Analysis Time				
10:00 AM				
Sample Point				
AN-101				

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

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

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

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

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

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/mL	< 3.92E-04	
LESS Than Value was Determined from Lc.			1.00E-03 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

RPC 1/12/96

Analyst:		SLF	Date: 10-Jan-96
Signature of Chemist:		SLF	Date: 1/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM9

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

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

Type	SAMPLE
SAMPLE	
Work List	
4765	
AT or TB ?	
AT	
Test Code	
@ALPHA01	
Matrix	
LIQUID	
Batch Number	
96000200	
Rerun	
0	
Sample Prep	
N/A	
Sample #	
S95T003906	
Instrument Code	
WB27806	
Prepared By	
SLF	
Chemist	
SLF	
Analyst	
SCL	
Date Complete	
01/10/96	
Analysis Date	
01/09/96	
Analysis Time	
10:00 AM	
Sample Point	
AN-101	

		SAMPLE	REPLICATE
DETECTOR NUMBER		16	16
DISH SIZE (1 , 2 , or 5)	(MS)	2	2
GROSS COUNTS	(GC)	7	8
COUNT TIME in MINUTES	(CT)	30	30
BACKGROUND in cpm	(BKG)	0.15	0.15
SAMPLE SIZE in mL	(SS)	1.000	1.000
DILUTION FACTOR	(DF)	1111	1111
DIGEST DILUTION FACTOR	(DDF)	1	1
EFFICIENCY FACTOR	(EFF)	0.2104	0.2104
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.270	0.311

Blank Concentration in µCi/L	<	8.42E-01
Replicate Concentration in µCi/L	<	7.40E-01
Maximum Concentration in µCi/L	<	7.4002E-01

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

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/mL	< 7.40E-04	1.00E-03 µCi/mL
LESS THAN Value was Determined from Rmax. RM 1/12/96			
RELATIVE COUNTING ERROR		500.0%	

Analyst:		SLF	Date: 10-Jan-96
Signature of Chemist:		SLF	Date: 1/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP10

WHC-SD-WM-DP-148, REV. 1

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

Type	DETECTOR NUMBER	DUP	REPLICATE
DUP	DISH SIZE (1 , 2 , or 5) (MS)	16	16
Work List	GROSS COUNTS (GC)	2	2
4765	COUNT TIME In MINUTES (CT)	9	7
AT or TB ?	BACKGROUND in cpm (BKG)	30	30
AT	SAMPLE SIZE in mL (SS)	0.15	0.15
Test Code	DILUTION FACTOR (DF)	1.000	1.000
@ALPHA01	DIGEST DILUTION FACTOR (DDF)	1111	1111
Matrix	EFFICIENCY FACTOR (EFF)	1	1
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	0.2104	0.2104
Batch Number		0.352	0.270
96000200	Blank Concentration in µCi/L <	8.37E-01	
Rerun	Replicate Concentration in µCi/L <	6.42E-01	
0	Maximum Concentration in µCi/L <	8.3745E-01	
Sample Prep			
N/A			
Sample #			
S95T003906			
Instrument Code			
WB27806			
Prepared By			
SLF			
Chemist			
SLF			
Analyst			
SCL			
Date Complete			
01/10/96			
Analysis Date			
01/09/96			
Analysis Time			
10:00 AM			
Sample Point			
AN-101			

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

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

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

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

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

v RESULTS v

			DETECTION LEVEL
ALPHA TOTAL	in µCi/mL	< 8.37E-04	
LESS THAN Value was Determined from Rmax.			1.00E-03 µCi/mL
RELATIVE COUNTING ERROR		265.9%	

pat 1/12/96

Analyst:		SLF	Date: 10-Jan-96
Signature of Chemist:		SLF	Date: 1/12/96

SAMPLE.WB1 Rev. 1.0 508101ML

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

PART II

WHC-SD-WM-DP-148, REV. 0

ANALYTICAL SERVICES

60-DAY COMPATIBILITY SAFETY ISSUE AND FINAL RESULTS FOR TANK 241-AN-101, GRAB SAMPLES 1AN-95-1, 1AN-95-2 AND 1AN-95-3

Date Printed: OCTOBER 30, 1995

WHC-SD-WM-DP-148, REV. 0
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This Document consists of pages 1 through 290, plus pages 75.1 through 75.27, 188.1 through 188.6, and page 289.1.

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

NARRATIVE

60 DAY WASTE COMPATIBILITY SAFETY ISSUE AND FINAL RESULTS FOR TANK 241-AN-101 GRAB SAMPLES 1AN-95-1, 1AN-95-2 AND 1AN-95-3

Summary

Three grab samples (1AN-95-1, 1AN-95-2, and 1AN-95-3) were taken from tank 241-AN-101 riser 22A. Sample 1AN-95-1 was collected on August 31, 1995, and received by the 222-S laboratories on September 1, 1995. The remaining two samples (1AN-95-2 and 1AN-95-3) were collected on September 6, 1995, and received by the 222-S laboratories on September 7, 1995. All three samples were designated as supernate liquid samples. These samples were analyzed to support the waste compatibility safety program. Accuracy and precision criteria were met for all analyses. No notifications were required based on sample results.

Appearance, OTR and Sample Breakdown

Attachment 1 is provided as a cross-reference for relating the tank farm customer ID numbers with the 222-S laboratory LABCORE sample numbers, and the portion of the sample that was analyzed.

1AN-95-1

Visual observation indicated that sample 1AN-95-1 was a clear yellow liquid with no settled solids. The dose rate was 3500 mrad/hr. There was no organic layer present.

Two subsamples, approximately 20 mL each, were created for analysis of inorganic analytes and radionuclides.

The remainder of the liquids, with the trace solids, was archived for possible future analysis.

1AN-95-2

Visual observation indicated that sample 1AN-95-2 was a clear yellow liquid with no settled solids. The dose rate was 4500 mrad/hr. There was no organic layer present.

Two subsamples, approximately 20 mL each, were created for analysis of inorganic analytes and radionuclides.

The remainder of the liquids, with the trace solids, was archived for possible future analysis.

1AN-95-3

Visual observation indicated that sample 1AN-95-3 was a clear yellow liquid with no settled solids. The dose rate was 4500 mrad/hr. There was no organic layer present.

Two subsamples, approximately 20 mL each, were created for analysis of inorganic analytes and radionuclides.

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The remainder of the liquids, with the trace solids, was archived for possible future analysis.

Analytical Results

Attachments

Two result tables are attached. Table 1 is the summary report from the Laboratory Information Management System (LIMS). Table 2 provides the inductively coupled plasma (ICP) serial dilution results. The serial dilution values were obtained from the raw data. The accuracy of the ICP results was assessed using these results in addition to matrix spikes. The sample was analyzed both undiluted and with a 5-fold serial dilution. For acceptable performance, the relative percent difference (RPD) between the serial dilution and the undiluted results must be ≤10%.

Analytical Deviations

1AN-95-1
The parent sample, S95T002405 was subsampled for analysis. The subsamples were not filtered. Sample number S95T002408 was analyzed for inorganic analytes, and S95T002411 was analyzed for radionuclides.

The average pH for this sample was reported as 12.96. Results for pH that are greater than 12.5 are suspect and should be considered estimates because the highest calibration buffer available is 12.5 and pH electrode performance degrades at high pH.

The only requested analyte for GEA for this sample was ^{137}Cs. However, during the analysis a ^{134}Cs peak was detected and measured at 5.25e-03 $\mu Ci/mL$. ^{60}Co results are given in Table 1 with the ^{137}Cs results.

The percent recoveries for the spiked sample analysis for F^- and Cl^- for this sample were low, 46.2% for F^- and 24.6% for Cl^-. The responsible chemist noted an interference on the chromatogram in the region that the F^- and Cl^- elute. The sample was not reanalyzed, since there is no spike recovery criteria listed in the TSAP.

1AN-95-2
The parent sample, S95T002406 was subsampled for analysis. The subsamples were not filtered. Sample number S95T002409 was analyzed for inorganic analytes, and S95T002412 was analyzed for radionuclides.

The average pH for this sample was reported as 13.95. Results for pH that are greater than 12.5 are suspect and should be considered estimates because the highest calibration buffer available is 12.5 and pH electrode performance degrades at high pH.

The only requested analyte for GEA for this sample was ^{137}Cs. However, during the analysis a ^{134}Cs peak was noted and reported as 5.74e-03 $\mu Ci/mL$. ^{60}Co results are given in Table 1 with the ^{137}Cs results.

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The RPD between the sample duplicate for the F^- and Cl^- analyses were outside of the required limits of ±20%. No rerun was performed because of an interfering peak observed on the chromatogram in the area of the F^- and Cl^- peak.

1AN-95-3

The parent sample, S95T002407 was subsampled for analysis. The subsamples were not filtered. Sample number S95T002410 was analyzed for inorganic analytes, and S95T002413 was analyzed for radionuclides.

The average pH for this sample was reported as 13.66. Results for pH that are greater than 12.5 are suspect and should be considered estimates because the highest calibration buffer available is 12.5 and pH electrode performance degrades at high pH.

The only requested analyte for GEA for this sample was ^{137}Cs. However, during the analysis a ^{134}Cs peak was noted and reported as 1.89e-02 $\mu Ci/mL$. ^{60}Co results are given in Table 1 with the ^{137}Cs results.

Procedures

The volume percent solids by centrifugation test was not performed on any of the samples due to an insufficient amount of solids present to perform the test.

Procedure LA-514-113 Rev. C-0 was used to perform the differential scanning calorimetry (DSC) analysis. All analyses were run on direct samples. No analytical problems were noted.

Procedure LA-560-112 Rev. B-0 was used to perform the thermogravimetric analysis (TGA) for percent moisture. All analyses were run on direct samples. No analytical problems were noted.

Procedure LA-560-112 Rev. B-0 was used to perform the thermogravimetric analysis (TGA) for percent moisture. All analyses were run on direct samples. No analytical problems were noted.

Procedure LA-548-121 Rev. D-1 was used for the gamma energy analysis (GEA) for ^{60}Co and ^{137}Cs. The samples were analyzed directly. No analytical problems were noted.

Procedure LA-220-101 Rev. D-1 was used for the analysis of ^{90}Sr. The samples were analyzed directly. No analytical problems were noted.

Procedure LA-505-161 Rev. B-0 was used to perform the inductively coupled plasma (ICP) analysis for Al, Fe, and Na. This procedure is for ICP analysis using the Thermo Jarrell Ash (TJA) ICP instrument. Procedure LA-505-151, referenced in the TSAP, is the procedure for ICP analysis using the Analytical Research Laboratory (ARL) instrument. No analytical problems were noted.

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Procedure LA-211-102 Rev. C-0 was used to perform the hydroxide (OH^-) analysis. The analysis was performed on direct samples. No analytical problems were noted.

Procedure LA-533-105 Rev. D-1 was used to perform the ion chromatography (IC) analysis for Cl^-, F^-, PO_4^{3-}, SO_4^{2-}, NO_3^-, and NO_2^-. The analysis was performed on the direct sample.

Procedure LA-212-106 Rev. A-0 was used to perform the pH analysis on the supernate sample. No analytical problems were noted.

Procedure LA-622-102 Rev. C-0 was used to perform the total inorganic carbon (TIC) analysis. The procedure referenced in the TSAP (LA-344-105) is incorrect for this analysis. All analyses were performed on direct samples. No analytical problems were noted.

Procedure LA-943-127 Rev. B-0 was used to perform the $^{239/240}Pu$ analysis. The procedure specified in the TSAP (LA-503-156) was superseded by the above procedure. The analysis was performed on direct samples. No analytical problems were noted.

Procedure LA-953-103 Rev. A-4 was used for the analysis of ^{241}Am. The samples were analyzed directly. No analytical problems were noted.

Procedure LA-510-112 Rev. C-3 was used to perform the specific gravity (SpG) analysis. The analysis was performed on direct samples. No analytical problems were noted.

Reference

WHC-SD-WM-TSAP-037, REV. 1, "Compatibility Grab Sampling and Analysis Plan", dated September 1, 1995, Westinghouse Hanford Company, Richland, WA 99352

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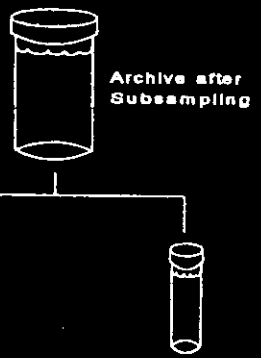
ATTACHMENT 1

Attachment 1

AN-101 GRAB SAMPLE BREAKDOWN

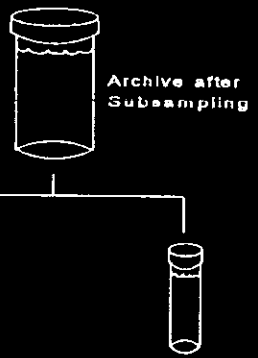
1AN-95-1
S95T002405



S95T002408
DSC
TGA
TOC
TIC
ICP: Al, Fe, Na
IC: anions
pH
OH
Sp.G

S95T002411
GEA: Cs-137
Pu-239/240
Sr-90
Am-241

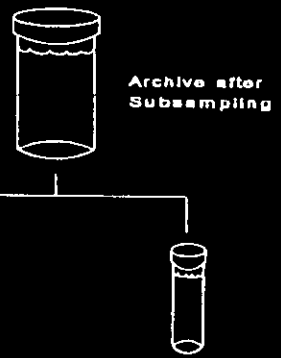
1AN-95-2
S95T002406



S95T002409
DSC
TGA
TOC
TIC
ICP: Al, Fe, Na
IC: anions
pH
OH
Sp.G

S95T002412
GEA: Cs-137
Pu-239/240
Sr-90
Am-241

1AN-95-3
S95T002407



S95T002410
DSC
TGA
TOC
TIC
ICP: Al, Fe, Na
IC: anions
pH
OH
Sp.G

S95T002413
GEA: Cs-137
Pu-239/240
Sr-90
Am-241.

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

SAMPLE DATA SUMMARY

31-oct-1995 14:21:09
A-0002-1

Table 1: Results for Compatibility Study
AN-101 GRAB

RISER: 22A
SEGMENT #: 1AN-95-1

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T002408			Tot. Organic Carbon by Coul.	ug/mL	101.3	6.000	3.67e+03	3.50e+03	3.58e+03	4.74	n/a	55.00	n/a
S95T002408			Tot. Inorg. Carbon by Coul.	ug/mL	97.17	<5.000	2.54e+03	2.61e+03	2.58e+03	2.72	103.3	20.00	n/a
S95T002408			% Water by TGA using Mettler	%	100.8	n/a	66.28	66.11	66.19	0.26	n/a	n/a	n/a
S95T002408			Specific Gravity	Sp.G.	98.20	n/a	1.230	1.240	1.235	0.81	n/a	1.00e-02	n/a
S95T002408			pH Direct	pH	99.86	n/a	12.95	12.96	12.96	0.08	n/a	1.00e-02	n/a
S95T002408			OH- by Pot. Titration	ug/mL	96.15	<42.00	3.08e+04	3.00e+04	3.04e+04	2.63	n/a	5.00e+03	n/a
S95T002408			DSC Exotherm using Mettler	Joules/g	106.9	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T002408		D	Aluminium-ICP-Acid Dil.	ug/mL	98.16	-1.30e-03	2.22e+04	2.19e+04	2.20e+04	1.12	n/a	20.10	n/a
S95T002408		D	Iron-ICP-Acid Dil.	ug/mL	101.5	-6.00e-04	< 20.0500	<20.0500	n/a	n/a	99.54	20.10	n/a
S95T002408		D	Sodium-ICP-Acid Dil.	ug/mL	97.99	3.90e-03	1.24e+05	1.23e+05	1.23e+05	0.65	n/a	40.10	n/a
S95T002408			Sulfate by IC - Dionex 4000i	ug/mL	103.4	<6.78e-01	1.58e+03	1.61e+03	1.60e+03	1.88	94.90	753.0	n/a
S95T002408			Phosphate by IC - Dionex 4000i	ug/mL	107.3	<5.96e-01	1.39e+03	1.40e+03	1.40e+03	0.72	96.20	662.0	n/a
S95T002408			Nitrate by IC - Dionex 4000i	ug/mL	102.1	<6.99e-01	9.65e+04	9.77e+04	9.71e+04	1.24	110.3	7.13e+03	n/a
S95T002408			Nitrite by IC - Dionex 4000i	ug/mL	102.1	<5.47e-01	4.84e+04	4.93e+04	4.88e+04	1.84	112.1	5.58e+03	n/a
S95T002408			Fluoride by IC - Dionex 4000i	ug/mL	109.5	<6.20e-02	< 6.89e01	817.0	n/a	n/a	46.20	68.90	n/a
S95T002408			Chloride by IC - Dionex 4000i	ug/mL	101.5	<8.30e-02	3.30e+03	3.26e+03	3.28e+03	1.22	24.60	92.20	n/a
S95T002411			Strontium-89/90 High Level	uCi/mL	102.8	2.11e-04	5.90e-01	5.93e-01	5.91e-01	0.51	n/a	1.85e-04	8.63E-01
S95T002411			Pu-239/240 by Ion Exchange	uCi/mL	102.3	<1.59e-05	8.16e-05	8.25e-05	8.21e-05	1.10	n/a	1.17e-05	3.17E+00
S95T002411			Cesium-137 by GEA	uCi/mL	102.9	8.52e-03	121.5	121.2	121.3	0.25	n/a	9.00e-03	0.2
S95T002411			Cobalt-60 by GEA	uCi/mL	98.94	<3.18e-03	< 4.10e-3	<3.74e-3	n/a	n/a	n/a	3.00e-03	n/a
S95T002411			Am-241 by Extraction	uCi/mL	89.90	<1.24e-05	<1.31E-05	2.28e-05	n/a	n/a	n/a	1.31e-05	4.84E+00

101

WHC-SD-WM-DP-148, REV. 0

Table 1: Results for Compatibility Study
AN-101 GRAB

RISER: 22A
SEGMENT #: 1AN-95-2

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Standard·%	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T002409			Tot. Organic Carbon by Coul.	ug/mL	101.3	6.000	2.15e+03	2.18e+03	2.16e+03	1.39	99.50	55.00	n/a
S95T002409			Tot. Inorg. Carbon by Coul.	ug/mL	97.17	<5.000	2.41e+03	2.39e+03	2.40e+03	0.83	n/a	20.00	n/a
S95T002409			% Water by TGA using Mettler	%	100.8	n/a	66.27	65.72	66.00	0.83	n/a	n/a	n/a
S95T002409			Specific Gravity	Sp.G.	98.20	n/a	1.270	1.250	1.260	1.59	n/a	1.00e-02	n/a
S95T002409			pH Direct	pH	99.86	n/a	13.95	13.94	13.95	0.07	n/a	1.00e-02	n/a
S95T002409			OH- by Pot. Titration	ug/mL	96.15	<42.00	3.22e+04	3.37e+04	3.30e+04	4.55	n/a	5.00e+03	n/a
S95T002409			DSC Exotherm using Mettler	Joules/g	106.9	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T002409		D	Aluminium-ICP-Acid Dil.	ug/mL	98.16	-1.30e-03	1.96e+04	1.95e+04	1.95e+04	0.61	n/a	20.10	n/a
S95T002409		D	Iron-ICP-Acid Dil.	ug/mL	101.5	-6.00e-04	< 20.0500	<20.0500	n/a	n/a	99.00	20.10	n/a
S95T002409		D	Sodium-ICP-Acid Dil.	ug/mL	97.99	3.90e-03	1.26e+05	1.25e+05	1.25e+05	0.62	n/a	40.10	n/a
S95T002409			Sulfate by IC - Dionex 4000i	ug/mL	94.33	<1.36e-01	4.25e+03	3.91e+03	4.08e+03	8.33	n/a	701.0	n/a
S95T002409			Phosphate by IC - Dionex 4000i	ug/mL	95.29	<2.96e-01	2.88e+03	2.72e+03	2.80e+03	5.71	n/a	1.52e+03	n/a
S95T002409			Nitrate by IC - Dionex 4000i	ug/mL	93.60	<1.40e-01	1.00e+05	1.00e+05	1.00e+05	0.00	n/a	1.43e+03	n/a
S95T002409			Nitrite by IC - Dionex 4000i	ug/mL	94.37	<1.07e-01	5.10e+04	4.93e+04	5.02e+04	3.39	n/a	1.09e+03	n/a
S95T002409			Fluoride by IC - Dionex 4000i	ug/mL	100.8	<1.30e-02	604.0	510.0	557.0	16.9	n/a	67.00	n/a
S95T002409			Chloride by IC - Dionex 4000i	ug/mL	97.22	<1.70e-02	3.30e+03	3.23e+03	3.26e+03	2.14	n/a	173.0	n/a
S95T002412			Strontium-89/90 High Level	uCi/mL	102.8	2.11e-04	2.68e-01	2.59e-01	2.64e-01	3.42	n/a	1.85e-04	1.28E+00
S95T002412			Pu-239/240 by Ion Exchange	uCi/mL	102.3	<1.59e-05	4.96e-05	4.80e-05	4.88e-05	3.28	n/a	8.67e-06	3.44E+00
S95T002412			Cesium-137 by GEA	uCi/mL	102.9	8.52e-03	123.0	123.9	123.5	0.73	n/a	9.00e-03	0.20
S95T002412			Cobalt-60 by GEA	uCi/mL	98.94	<3.18e-03	< 4.18e-3	<4.31e-3	n/a	n/a	n/a	3.00e-03	n/a
S95T002412			Am-241 by Extraction	uCi/mL	89.90	<1.24e-05	6.90e-05	7.28e-05	7.09e-05	5.36	n/a	2.24e-05	1.77E+00

WHC-SD-WM-DP-148, REV. 0

Table 1: Results for Compatibility Study
AN-101 GRAB

RISER: 22A
SEGMENT #: 1AN-95-3

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T002410			Tot. Organic Carbon by Coul.	ug/mL	101.3	6.000	2.15e+03	2.17e+03	2.16e+03	0.93	n/a	55.00	n/a
S95T002410			Tot. Inorg. Carbon by Coul.	ug/mL	97.17	<5.000	2.38e+03	2.35e+03	2.36e+03	1.27	n/a	20.00	n/a
S95T002410			% Water by TGA using Mettler	%	101.3	n/a	65.96	65.81	65.88	0.23	n/a	n/a	n/a
S95T002410			Specific Gravity	Sp.G.	98.20	n/a	1.220	1.250	1.235	2.43	n/a	1.00e-02	n/a
S95T002410			pH Direct	pH	99.86	n/a	13.88	13.87	13.88	0.07	n/a	1.00e-02	n/a
S95T002410			OH- by Pot. Titration	ug/mL	96.15	<42.00	3.01e+04	3.15e+04	3.08e+04	4.55	n/a	5.00e+03	n/a
S95T002410			DSC Exotherm using Mettler	Joules/g	110.4	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S95T002410		D	Aluminium-ICP-Acid Dil.	ug/mL	98.16	-1.30e-03	2.08e+04	2.15e+04	2.12e+04	3.30	n/a	20.10	n/a
S95T002410		D	Iron-ICP-Acid Dil.	ug/mL	101.5	-6.00e-04	< 20.0500	<20.0500	n/a	n/a	100.2	20.10	n/a
S95T002410		D	Sodium-ICP-Acid Dil.	ug/mL	97.99	3.90e-03	1.34e+05	1.38e+05	1.36e+05	3.22	n/a	40.10	n/a
S95T002410			Sulfate by IC - Dionex 4000i	ug/mL	94.88	<0.136	3.46e+03	3.43e+03	3.44e+03	0.87	n/a	701.0	n/a
S95T002410			Phosphate by IC - Dionex 4000i	ug/mL	96.01	<0.296	2.17e+03	2.17e+03	2.17e+03	0.00	n/a	1.52e+03	n/a
S95T002410			Nitrate by IC - Dionex 4000i	ug/mL	95.20	<0.140	9.42e+04	9.40e+04	9.41e+04	0.21	n/a	1.43e+03	n/a
S95T002410			Nitrite by IC - Dionex 4000i	ug/mL	93.83	<0.107	4.60e+04	4.54e+04	4.57e+04	1.31	n/a	1.09e+03	n/a
S95T002410			Fluoride by IC - Dionex 4000i	ug/mL	99.15	<0.013	425.0	423.0	424.0	0.47	n/a	67.00	n/a
S95T002410			Chloride by IC - Dionex 4000i	ug/mL	96.84	<0.017	3.04e+03	3.70e+03	3.37e+03	19.6	n/a	173.0	n/a
S95T002413			Strontium-89/90 High Level	uCi/mL	106.4	2.26e-04	2.89e-01	2.68e-01	2.78e-01	7.54	n/a	4.58e-04	1.28E+00
S95T002413			Pu-239/240 by Ion Exchange	uCi/mL	102.3	<1.59e-05	4.86e-05	4.82e-05	4.84e-05	0.83	n/a	1.41e-05	4.47E+00
S95T002413			Cesium-137 by GEA	uCi/mL	100.4	1.02e-02	122.0	125.0	123.5	2.43	n/a	1.00e-02	0.20
S95T002413			Cobalt-60 by GEA	uCi/mL	97.22	<2.40e-03	< 3.86e-3	<4.56e-3	n/a	n/a	n/a	2.00e-03	n/a
S95T002413			Am-241 by Extraction	uCi/mL	89.90	<1.24e-05	6.52e-05	6.59e-05	6.55e-05	1.07	n/a	1.57e-05	1.95E+00

WHC-SD-WM-DP-148, REV. 1
WHC-SD-WM-DP-148, REV. 0

Table 2 WHC-SD-WM-DP-148, REV. 1

ICP Serial Dilution Results for Tank 241-AN-101
Waste Compatibility Study

Riser 22A

Sample ID	Analyte	Sample Result (µg/mL) Undiluted	Serial Dilution Result (µg/mL)	RPD
S95T002408				
(AN-101-1)	Al	22200	23400	5.3
	Fe	<20.05	<20.05	n/a
	Na	124000	127200	2.5
S95T002409				
(AN-101-2)	Al	19600	20720	5.6
	Fe	<20.05	<20.05	n/a
	Na	126000	130100	3.2
S95T002410				
(AN-101-3)	Al	20800	21130	1.6
	Fe	<20.05	<20.05	n/a
	Na	134000	137500	2.6

RPD (Relative Percent Difference) = (ABS(Sample - Serial Dilution))/[(Sample +Serial Dilution)/2] X 10

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

WHC-SD-WM-DP-148, REV. 0

CHAIN OF CUSTODY FORMS

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

COPY

Page 1 of 1

Data Turnaround: ☐ Priorty ☒ Normal

Collector: James Sickels	Company Contact: Joe Jones	Telephone No.: 373-3578
Project Designation: N/A	Sampling Location: 241-AN-101 Riser 22A	SAF No.: N/A
Ice Chest No.: N/A	Field Logbook No.: N/A	Method of Shipment: WHC Transportation
Shipped To: 222S Labs	Offsite Property No.: N/A	Bill of Lading/Air Bill No.:
Possible Sample Hazards/Remarks: Radioactive	Preservative: N/A	
	Type of Container: Glass	
	No. of Container(s): 1	
Special Handling and/or Storage: N/A	Volume: (125mL)	

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SAMPLE ANALYSIS

Seal # 2515

Sample No.	Matrix*	Date Sampled	Time Sampled	
1AN-95-1	L	8-31-95	1400	Dose on Contact 300 mR/hr

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
James Sickels (signature) James Sickels	13:05 9-1-95	Christine S Parker	13:05 9-1-95
Christine S Parker	13:50 9-1-95	[signature] EE Dubos	1350 9-1-95

SPECIAL INSTRUCTIONS

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

Matrix*

- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solids
- DL = Drum Liquids
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetation
- X = Other

LABORATORY SECTION	Received By	Title	Date/Time

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

COPY

Page 1 of 1

Data Turnaround: ☐ Priorty ☒ Normal

Collector: James Sickels	Company Contact: Joe Jones 22A HB	Telephone No.: 373-3578
Project Designation: N/A	Sampling Location: 241-AN-101 R# 22A	SAF No.: N/A
Ice Chest No.: N/A	Field Logbook No.: N/A TB 8-31-95	Method of Shipment: WHC Transportation
Shipped To: 222s Labs	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks: Radioactive

Special Handling and/or Storage: N/A

Preservative	N/A
Type of Container	Glass
No. of Container(s)	1
Volume	125 mL

SAMPLE ANALYSIS

Seal #2 (2513) #3 (2514)

Sample No.	Matrix*	Date Sampled	Time Sampled	
1AN-95-3	L	9-6-95	11:22 am	Dose Rate on Contact 150 mR/hr
1AN-95-2	L	9-6-95	11:10 am	Dose Rate on Contact 100 mR/hr

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
James Sickels	9-7-95 0945 am	Janie Hensley	9-7-95 745 am
Janie Hensley	9-7-95	EE Dubois	9-7-95 1110

SPECIAL INSTRUCTIONS

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

Matrix*
- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solids
- DL = Drum Liquids
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetation
- X = Other

LABORATORY SECTION — Received By — Title — Date/Time

FINAL SAMPLE DISPOSITION — Disposal Method — Disposed By — Date/Time

WHC-SD-WM-DP-142, REV. 1

WHC-SD-WM-DP-148, REV. 0

SAMPLE PREPARATIONS

WHC-SD-WM-DP-148, REV. 0

LABCORE Data Entry Template for Worklist# 2452

Analyst: JHW **Instrument:** NONE **Book #** N/A

Method: LA-519-151 Rev/Mod E-2 WHC-SD-WM-DP-148, REV. 1

Worklist Comment: AN101, DOSE RATE, APPEARANCE, SAMPLE AMOUNT SKM

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
95000135	AN-101 GRAB	1 SAMPLE	S95T002405	0		@BRKDWN1 DOSERATE	LIQUID	N/A	3500		by B. Clements mrad/hour
95000135	AN-101 GRAB	1 SAMPLE	S95T002405	0		@BRKDWN1 APPEAR01	LIQUID	N/A	Complete		
95000135	AN-101 GRAB	1 SAMPLE	S95T002405	0		@BRKDWN1 SAMPAMT2	LIQUID	N/A	125		g mL RAE 9/19/95
95000135	AN-101 GRAB	2 SAMPLE	S95T002406	0		@BRKDWN1 DOSERATE	LIQUID	N/A	4500		by S. Corbaly mrad/hour
95000135	AN-101 GRAB	2 SAMPLE	S95T002406	0		@BRKDWN1 APPEAR01	LIQUID	N/A	Complete		
95000135	AN-101 GRAB	2 SAMPLE	S95T002406	0		@BRKDWN1 SAMPAMT2	LIQUID	N/A	125		g mL RAE 9/19/95
95000135	AN-101 GRAB	3 SAMPLE	S95T002407	0		@BRKDWN1 DOSERATE	LIQUID	N/A	4500		mrad/hour by S. Corbaly
95000135	AN-101 GRAB	3 SAMPLE	S95T002407	0		@BRKDWN1 APPEAR01	LIQUID	N/A	Complete		
95000135	AN-101 GRAB	3 SAMPLE	S95T002407	0		@BRKDWN1 SAMPAMT2	LIQUID	N/A	125		g mL RAE 9/19/95

Final page for worklist # 2452

JHW 9-19-95
Analyst Signature Date

9-20-95
Analyst Signature Date

SAMPLE ID#	Color	Clarity	Solids?	Org. Layer?
S95T002405	YELLOW	CLEAR	NO	NO
S95T002406	YELLOW	CLEAR	NO	NO
S95T002407	YELLOW	CLEAR	NO	NO

Data Entry Comments:
Est. 9/21/95 ~30-40mL ~20mL subsampled from each for Inorg. & Radchem analyses.
Sample amount is volume before subsampling
Dose rate is taken after subsampling

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.

Verified (approved) by [signature] 9/20/95

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

INORGANIC ANALYSES

LABCORE Data Entry Template for Worklist# 2476

Analyst: SMF **Instrument:** DSC0 1 **Book #** 12N14A

Method: LA-514-113 Rev/Mod C-0 WHC-SD-WM-DP-148, REV. 0

Worklist Comment: Please run AN-101 DSCs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-01	LIQUID	28.45	30.4	N/A	Joules/g
95000135	AN-101 GRAB	2 SAMPLE	S95T002408	0		DSC-01	LIQUID	N/A	Ø		Joules/g
95000135	AN-101 GRAB	3 DUP	S95T002408	0		DSC-01	LIQUID	Ø	Ø	N/A	Joules/g
95000135	AN-101 GRAB	4 SAMPLE	S95T002409	0		DSC-01	LIQUID	N/A	Ø		Joules/g
95000135	AN-101 GRAB	5 DUP	S95T002409	0		DSC-01	LIQUID	Ø	Ø	N/A	Joules/g

Final page for worklist # 2476

Susie M. Sulton 9-25-95
Analyst Signature Date 2330

[illegible] 9-27-95
Analyst Signature Date

Verified by Blandina Valenzuela 9-28-95 BDV

S95T002408 produced one endotherm at 115.9°C with a delta H of 1265.4 J/g

Data Entry Comments: S95T002409 produced one endotherm at 116.0°C with a delta H of 1605.7 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.

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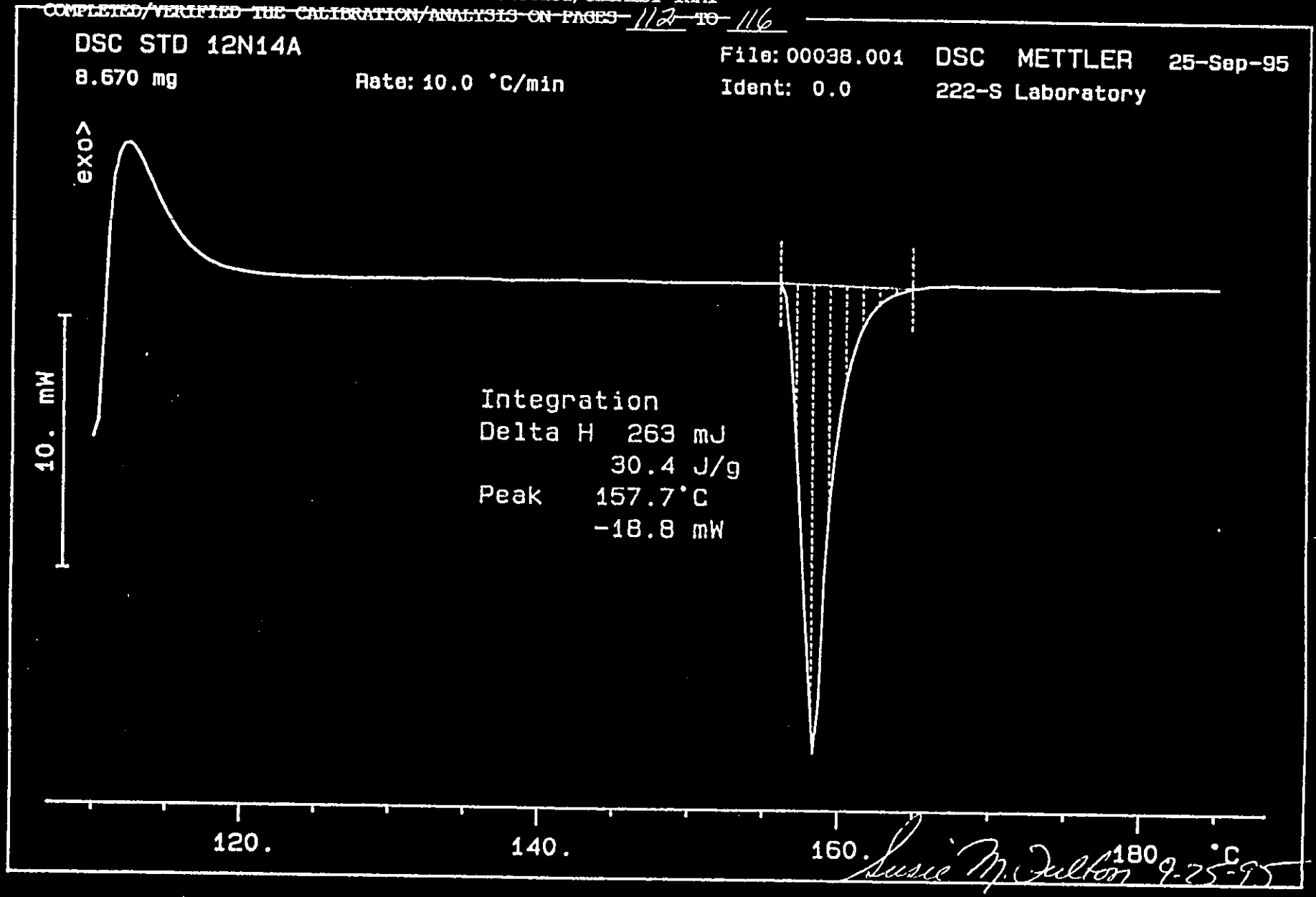
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 112 TO 116



Susie M. Fulton 9-25-95

112

WHC-SD-WM-DP-142, REV. 1

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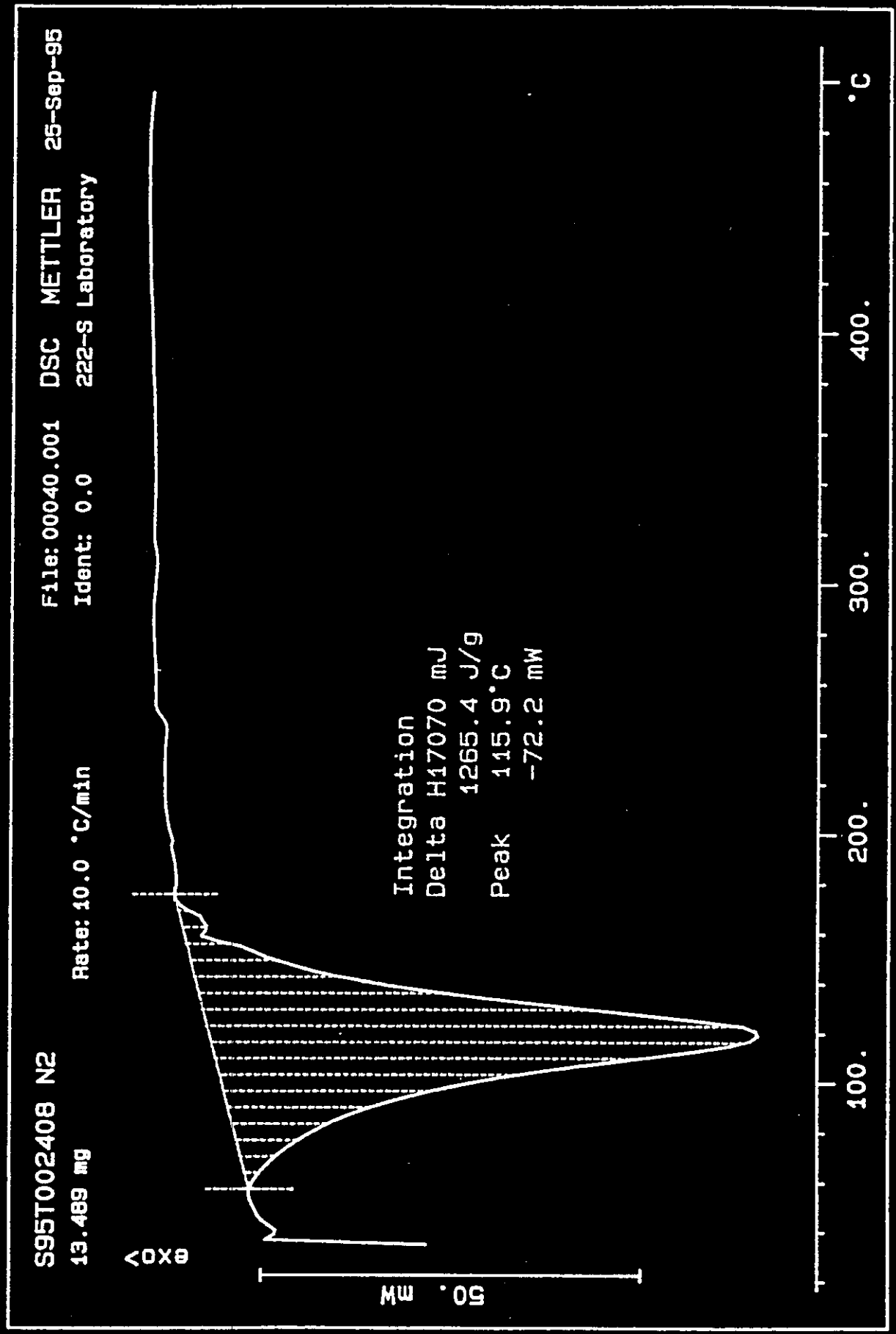

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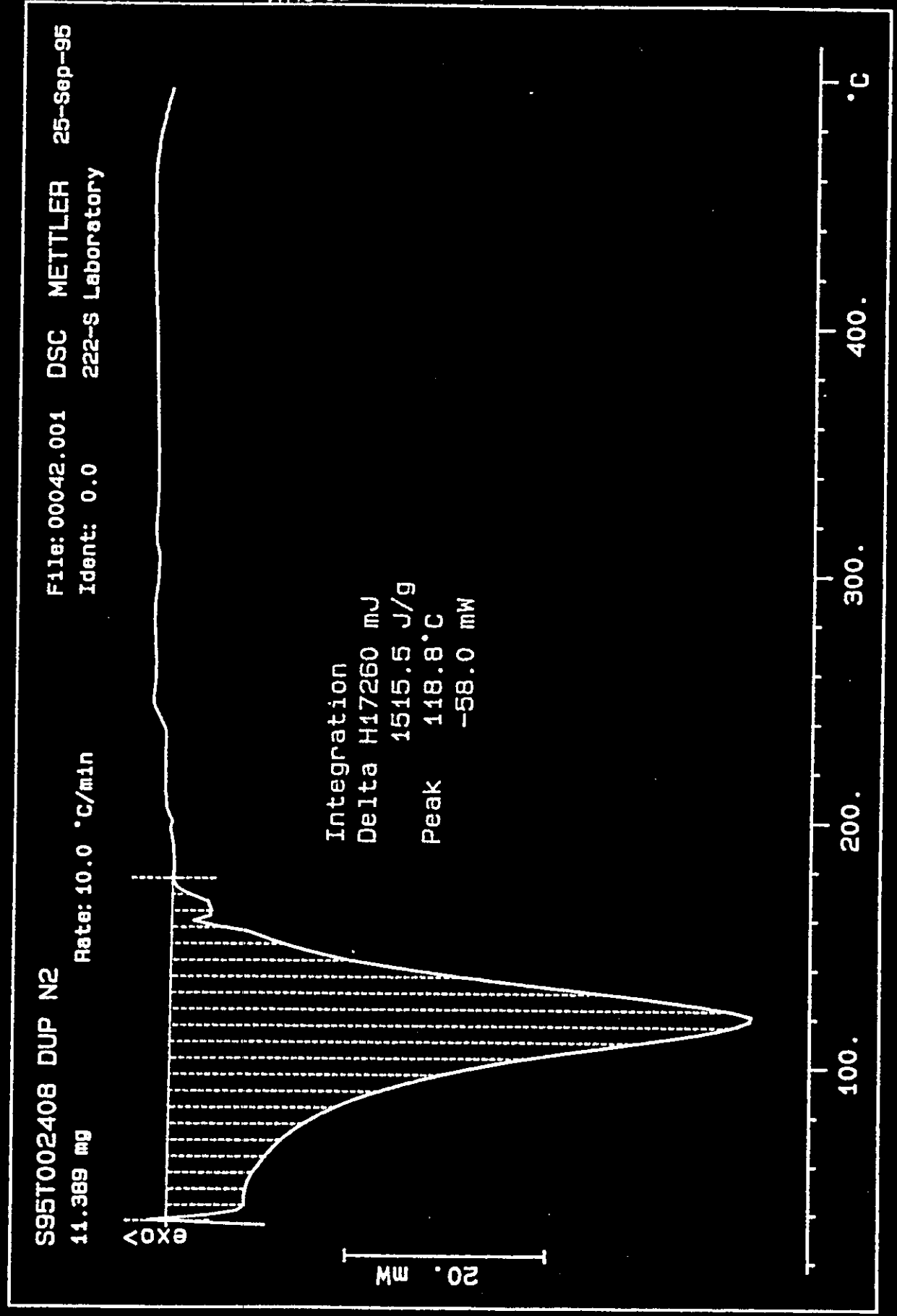

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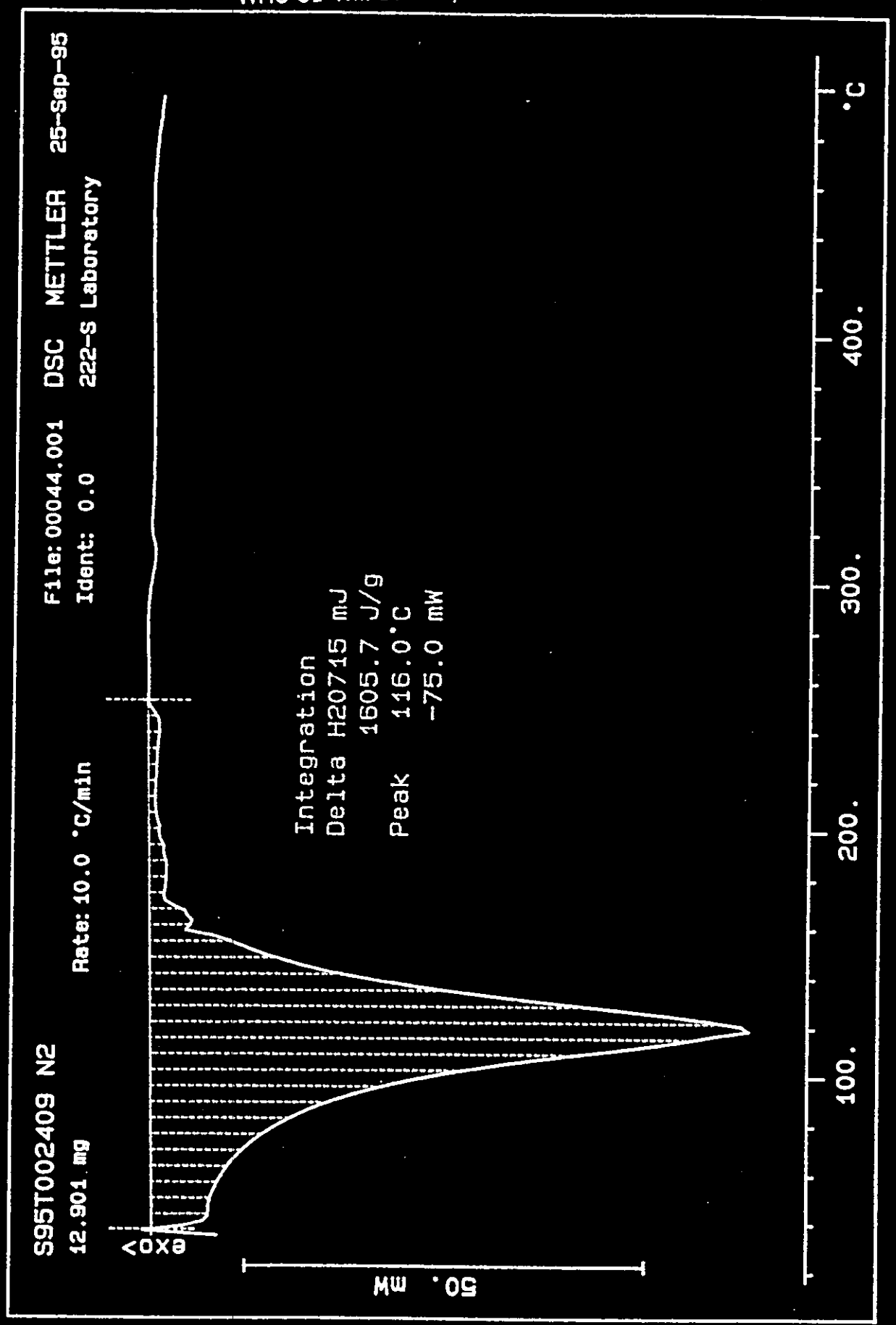

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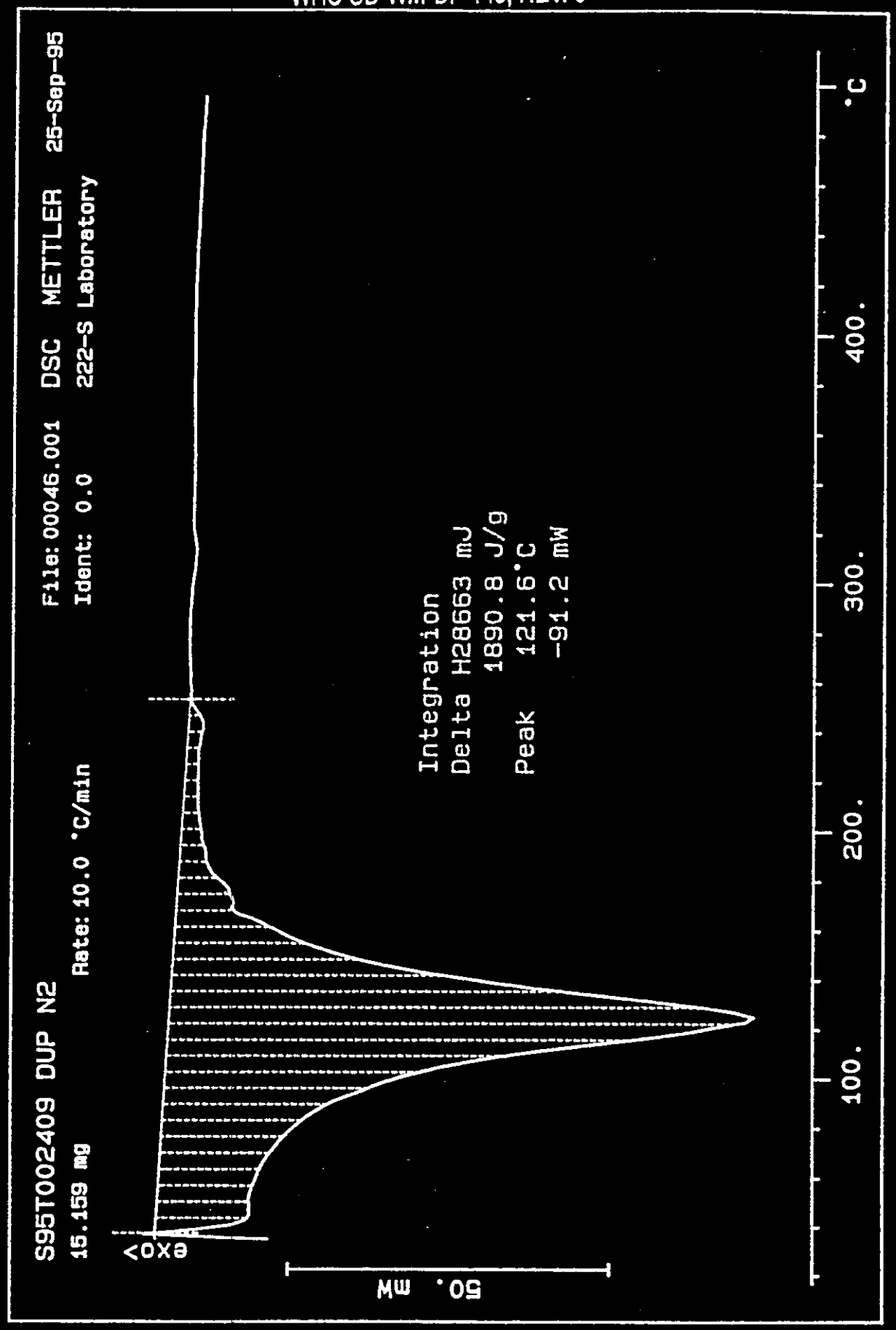

LABCORE Data Entry Template for Worklist# 2477

Analyst: SMF **Instrument:** DSC0 1 **Book #** 12W14A

Method: LA-514-113 Rev/Mod CO

Worklist Comment: Please run AN-101 DSCs under N2. bdv

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	LIQUID	28.45	31.4	N/A	Joules/g
95000135	AN-101 GRAB	2	SAMPLE	S95T002410	0		DSC-01	LIQUID	N/A	Ø		Joules/g
95000135	AN-101 GRAB	3	DUP	S95T002410	0		DSC-01	LIQUID	Ø	Ø	N/A	Joules/g

Final page for worklist # 2477

Susie M Fulton 9-22-95
Analyst Signature Date 2245

[signature] 9-25-95
Analyst Signature Date

Verified by Blandina Valenzuela 9-26-95

Data Entry Comments: Sample had two endothermic regions one at 115.3°C with a delta H of 1303.0 J/g and second at 243.3°C with a delta H of 6.0 J/g. RDV 9-25-95

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

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 118. TO 120.

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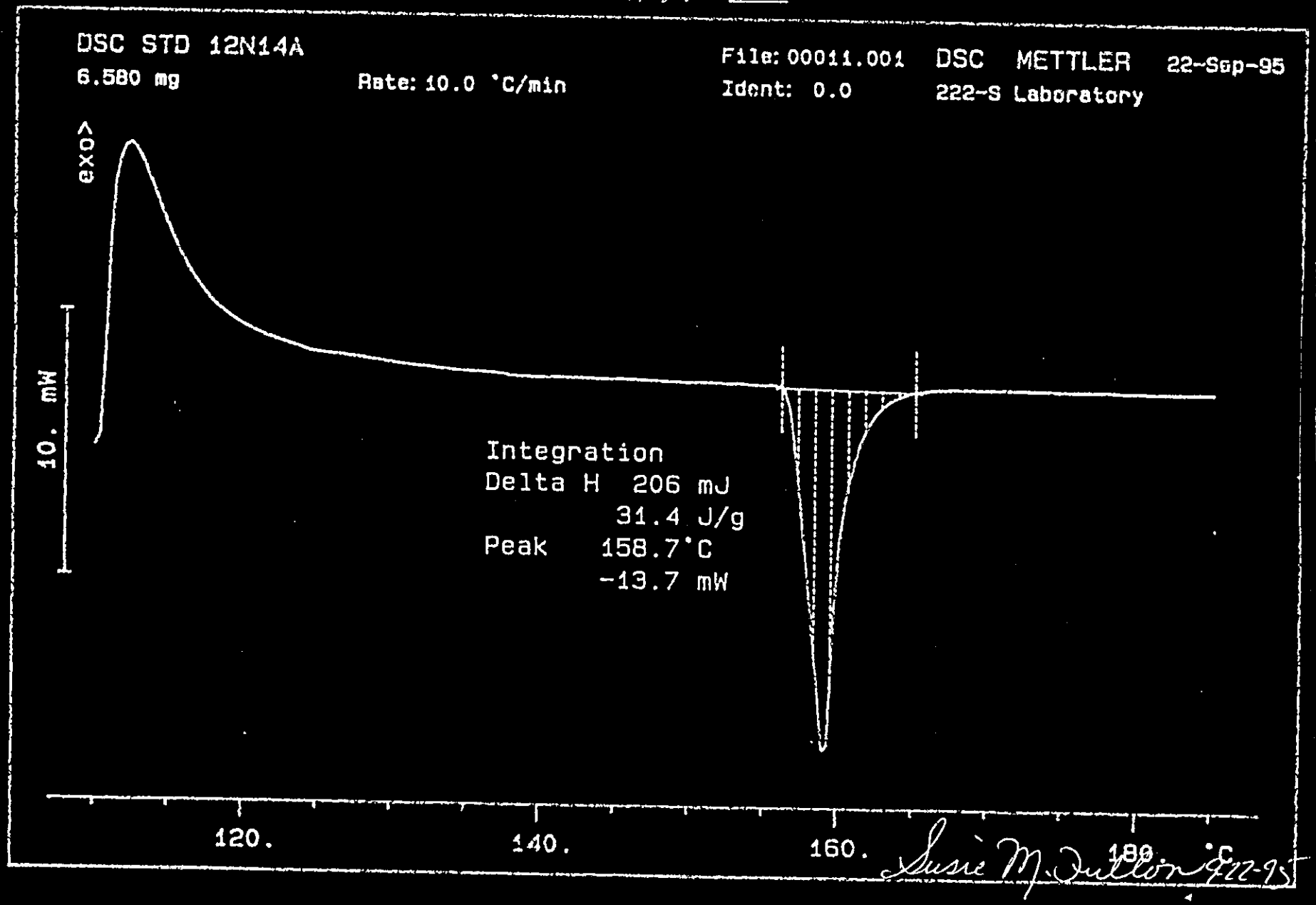

Susie M. Sutton 9-22-95

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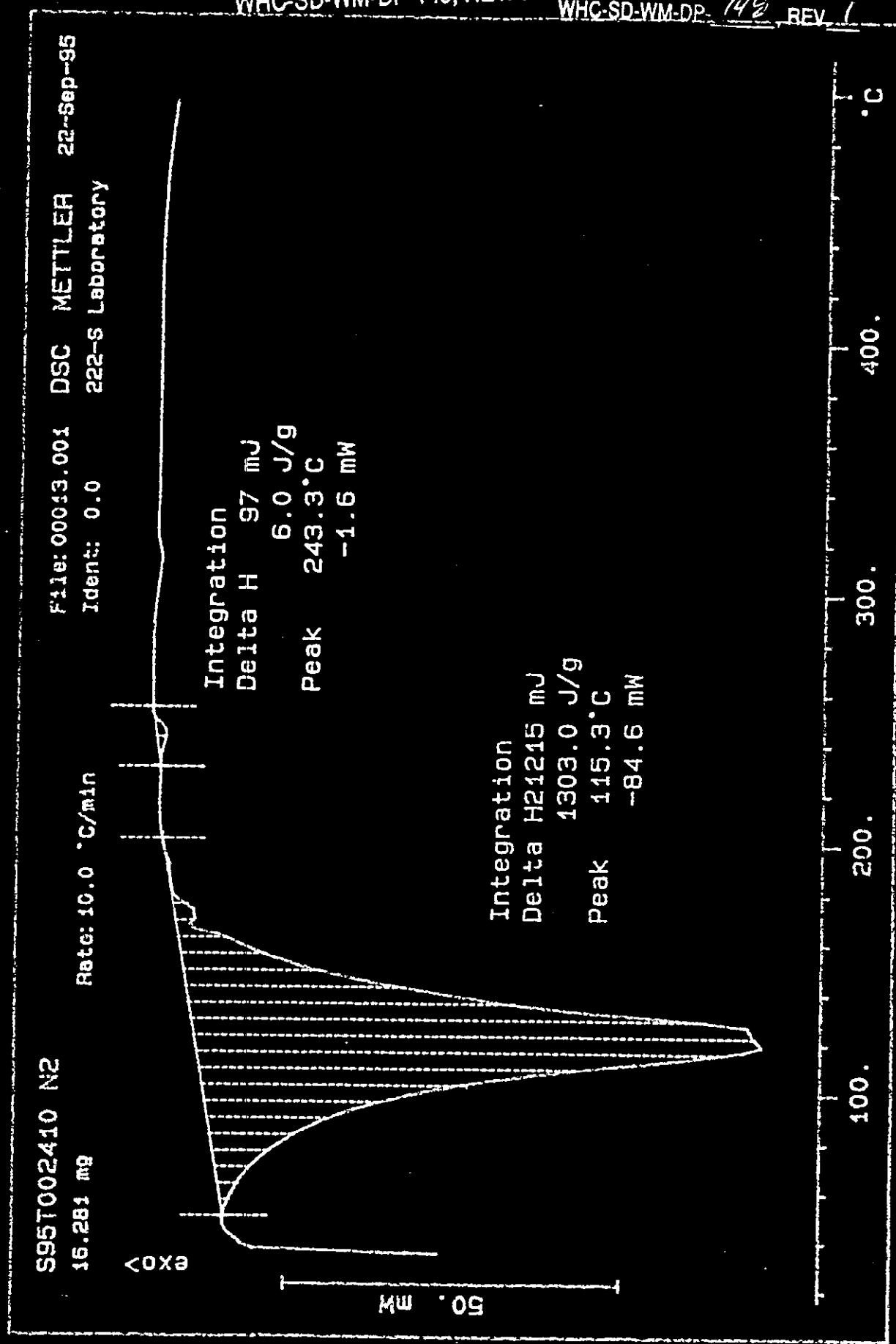

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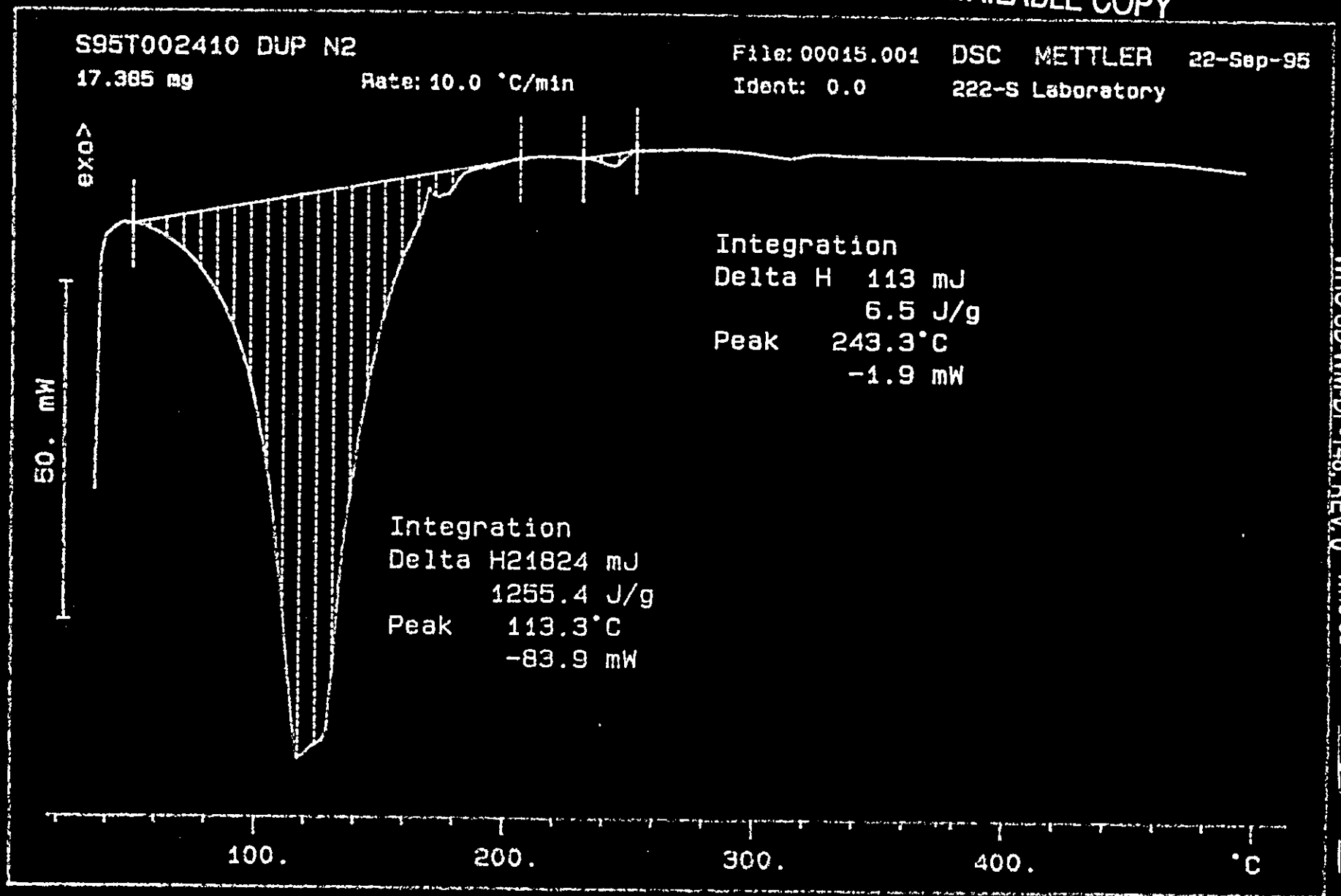

LABCORE Data Entry Template for Worklist# 2480

Analyst: SMF **Instrument:** TGA0 1 **Book #** GSN8-1

Method: LA-560-112 Rev/Mod B-0 WHC-SD-WM-DP- 148, REV. 1

Worklist Comment: Please run AN-101 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	LIQUID	59.74	60.21	N/A	%
95000135	AN-101 GRAB	2 SAMPLE	S95T002408	0		TGA-01	LIQUID	N/A	66.28		%
95000135	AN-101 GRAB	3 DUP	S95T002408	0		TGA-01	LIQUID	66.28	66.11	N/A	%
95000135	AN-101 GRAB	4 SAMPLE	S95T002409	0		TGA-01	LIQUID	N/A	66.27		%
95000135	AN-101 GRAB	5 DUP	S95T002409	0		TGA-01	LIQUID	66.27	65.72	N/A	%

Final page for worklist # 2480

Susie M. Dalton 9-25-95 2330
Analyst Signature Date

Verified by Blandina Valenzuela 9-28-95

L. Jones 9-27-95
Analyst Signature Date

Data Entry Comments: S95T002408 produced another weight loss step of 2.06% at 190°C

S95T002409 produced another weight loss step of 1.96% at 190°C

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 122 TO 126

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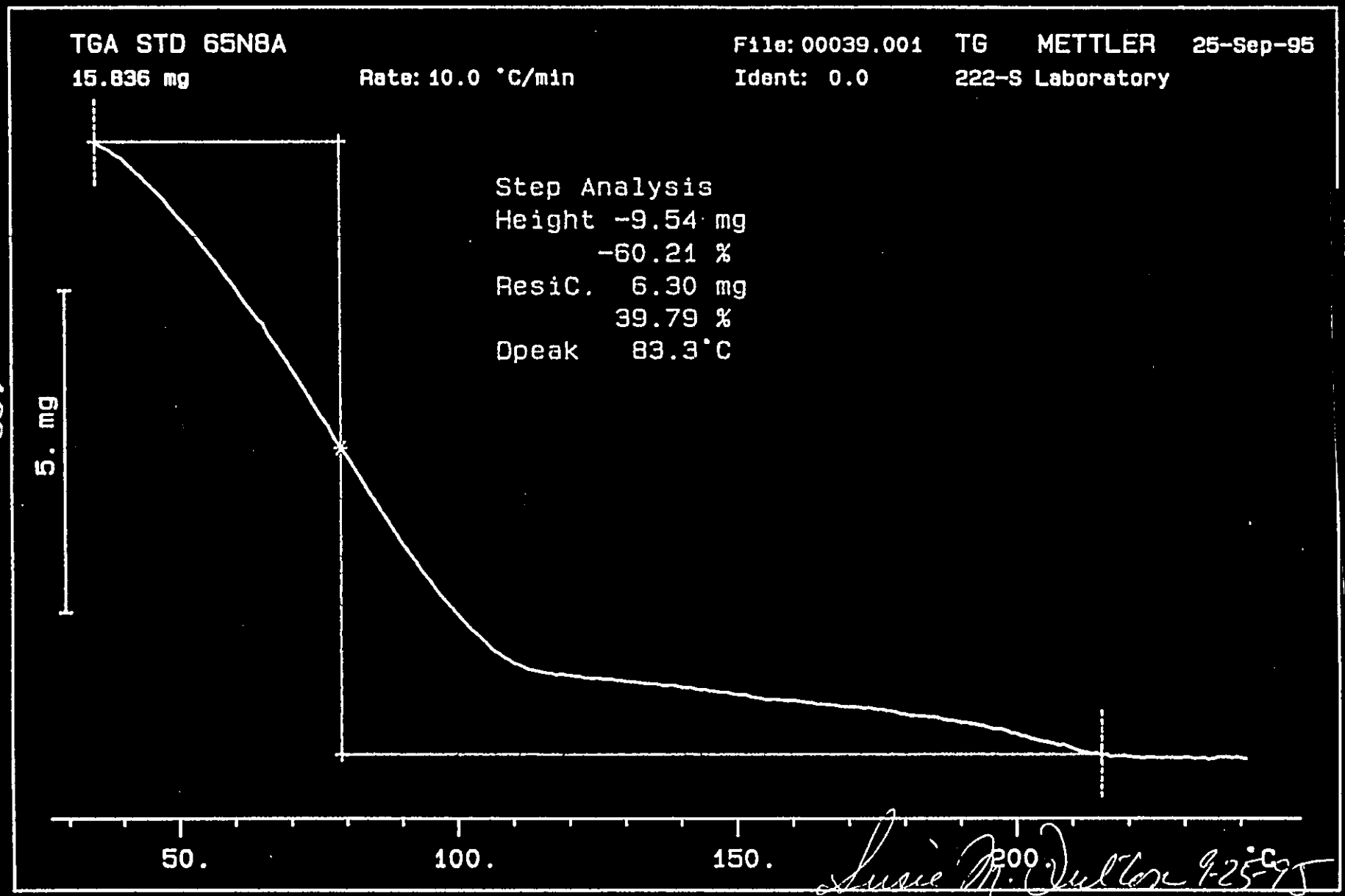

Louise M. Dalton 9-25-95

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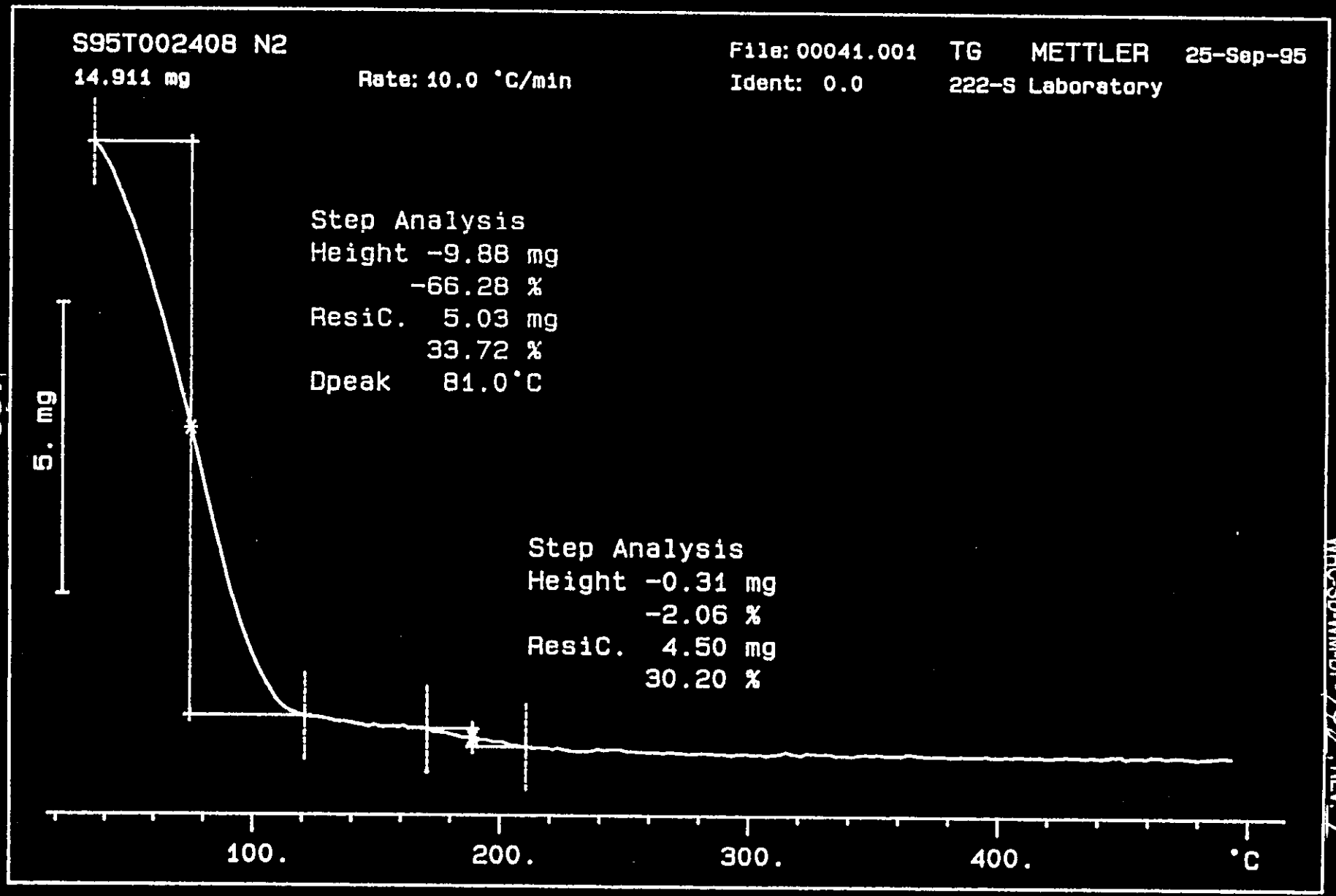

WHC-SD-WM-DP-148, REV. 0 WHC-SD-WM-DP-148, REV. 1

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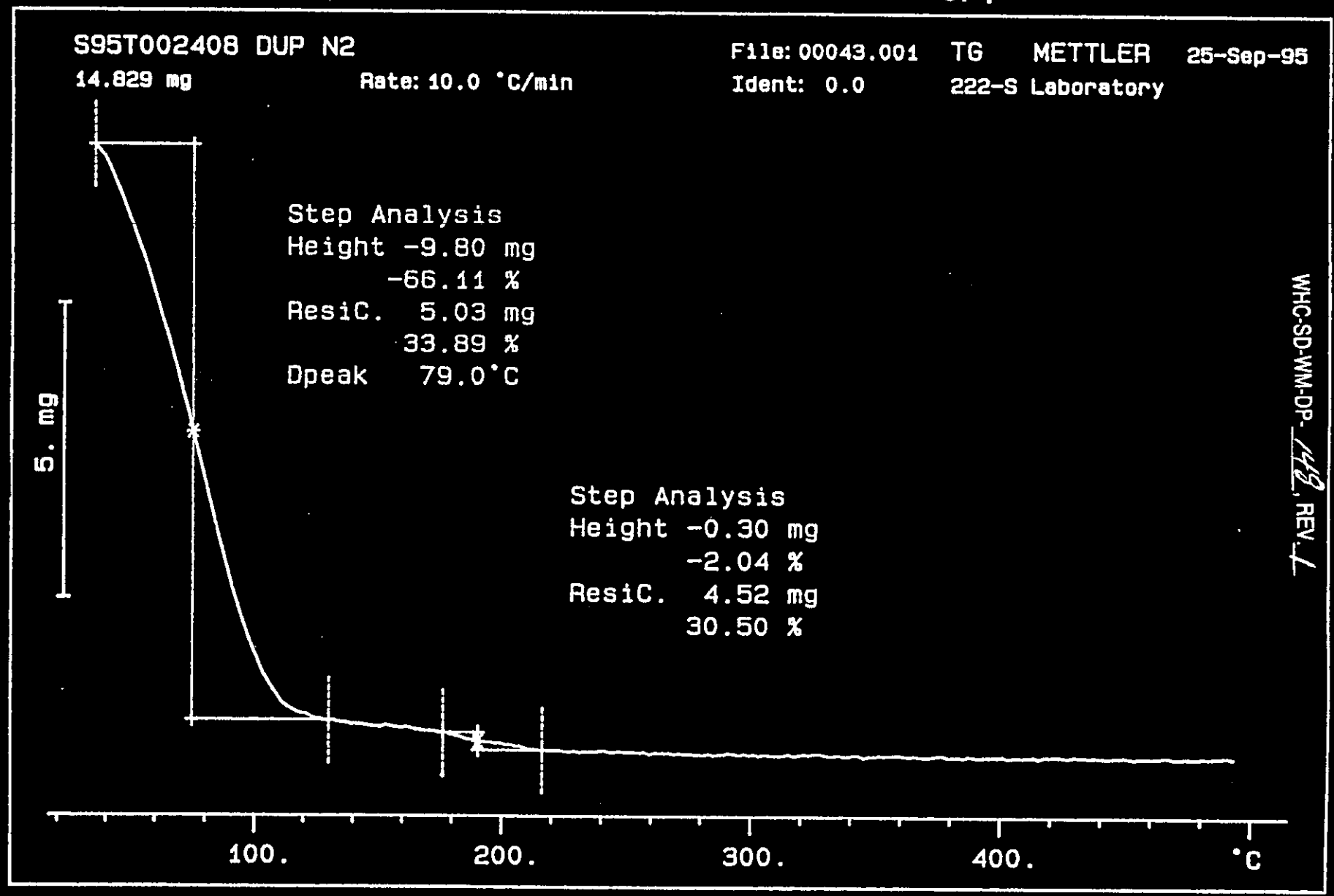

WHC-SD-WM-DP-148, REV.0
WHC-SD-WM-DP-142, REV.1

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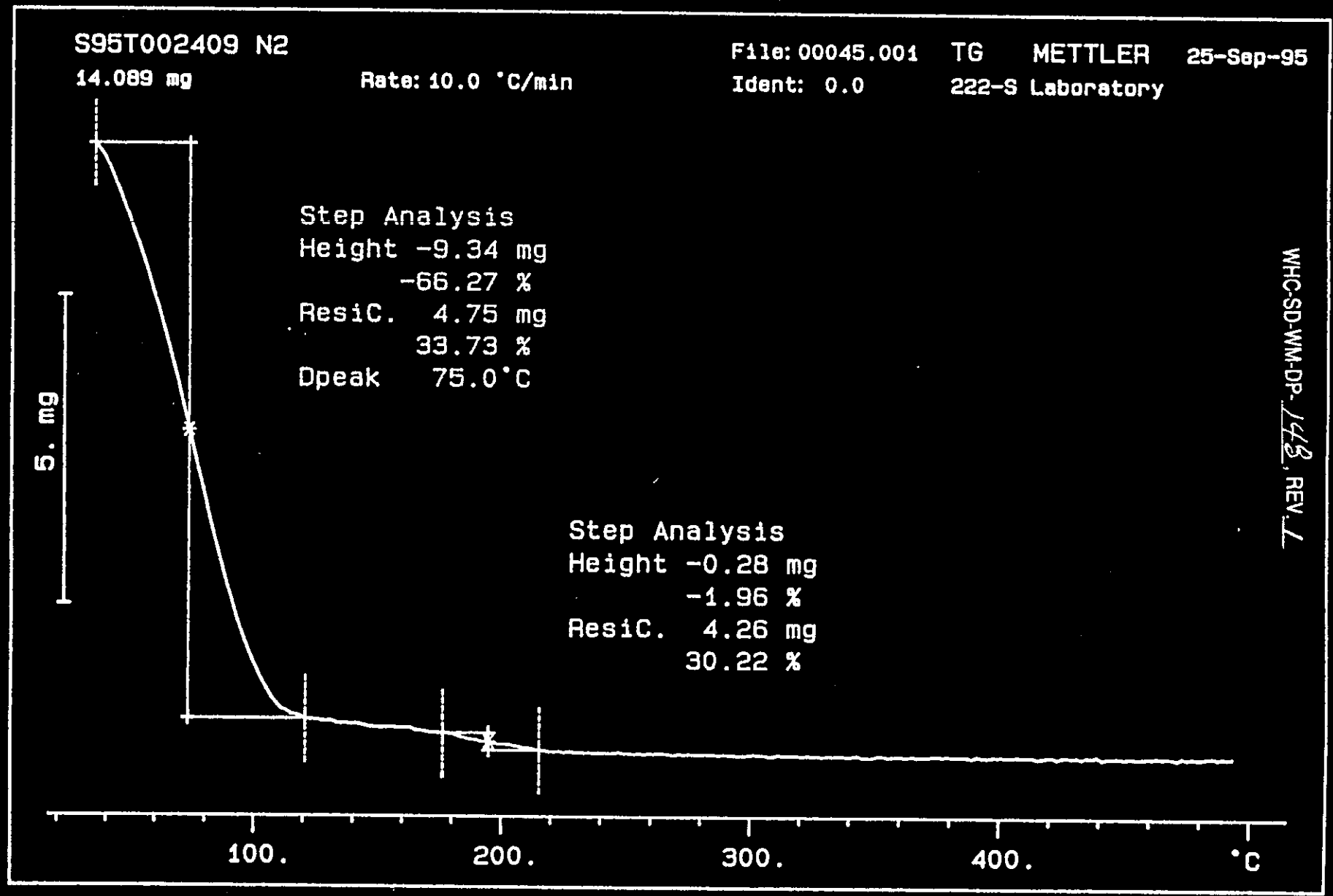

WHC-SD-WM-DP-148, REV. 0

WHC-SD-WM-DP-148, REV. 1

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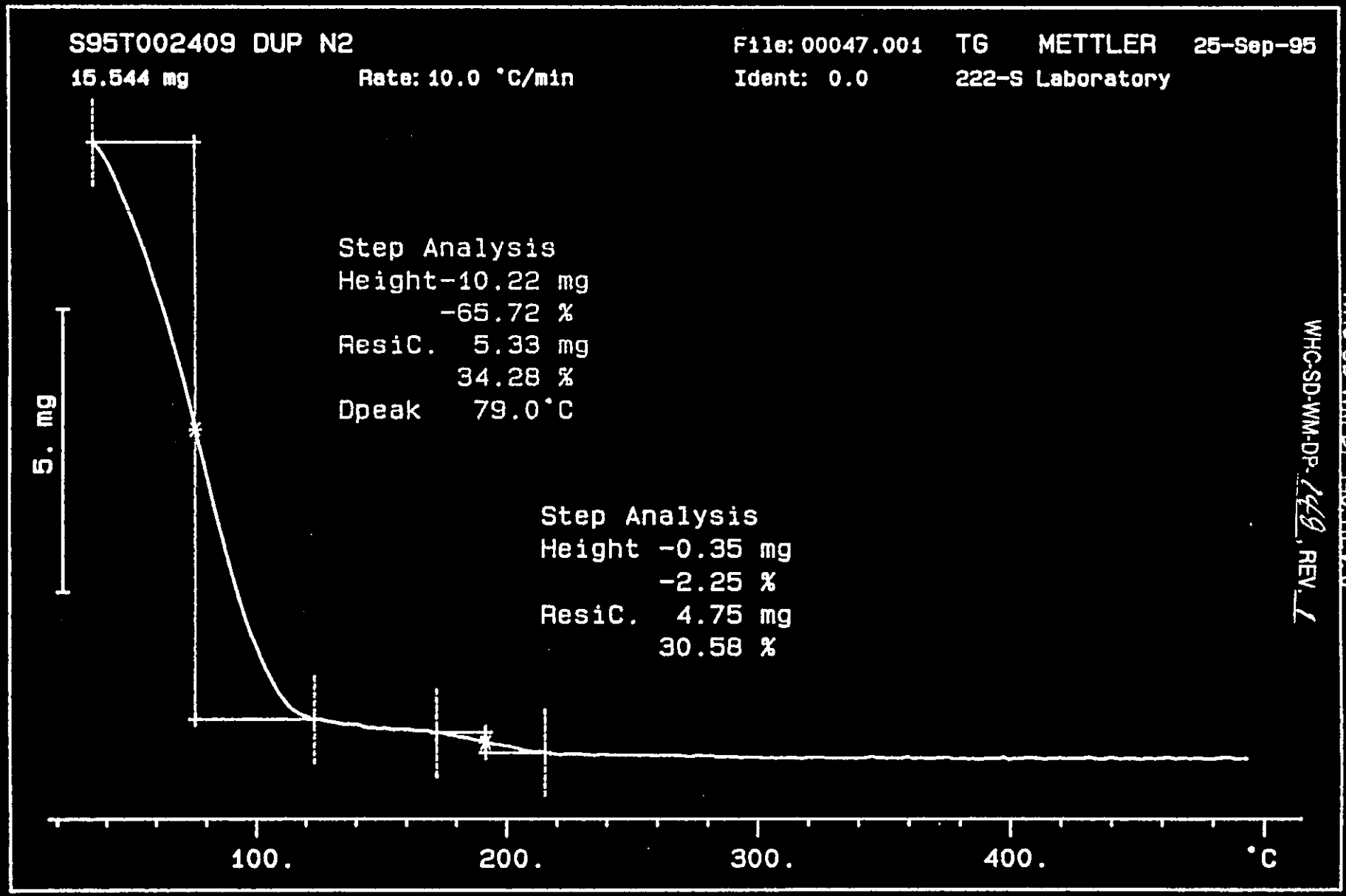

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WHC-SD-WM-DP-148, REV. 0

WHC-SD-WM-DP-149, REV. 1

WHC-SD-WM-DP-148, REV. 0

LABCORE Data Entry Template for Worklist# 2481

Analyst: SMF **Instrument:** TGA0 1 **Book #** 65N8/A

Method: LA-560-112 Rev/Mod B-0

WHC-SD-WM-DP-148, REV. 1

Worklist Comment: Please run AN-101 TGAs under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	LIQUID	~~28.45~~ 59.74 BD 9-25-95	60.53	N/A	%
95000135	AN-101 GRAB	2 SAMPLE	S95T002410	0		TGA-01	LIQUID	N/A	65.96		%
95000135	AN-101 GRAB	3 DUP	S95T002410	0		TGA-01	LIQUID	65.96	65.81	N/A	%

Final page for worklist # 2481

Susie M Fulton 9-22-95 2245
Analyst Signature Date

[signature] 09/24/95
Analyst Signature Date

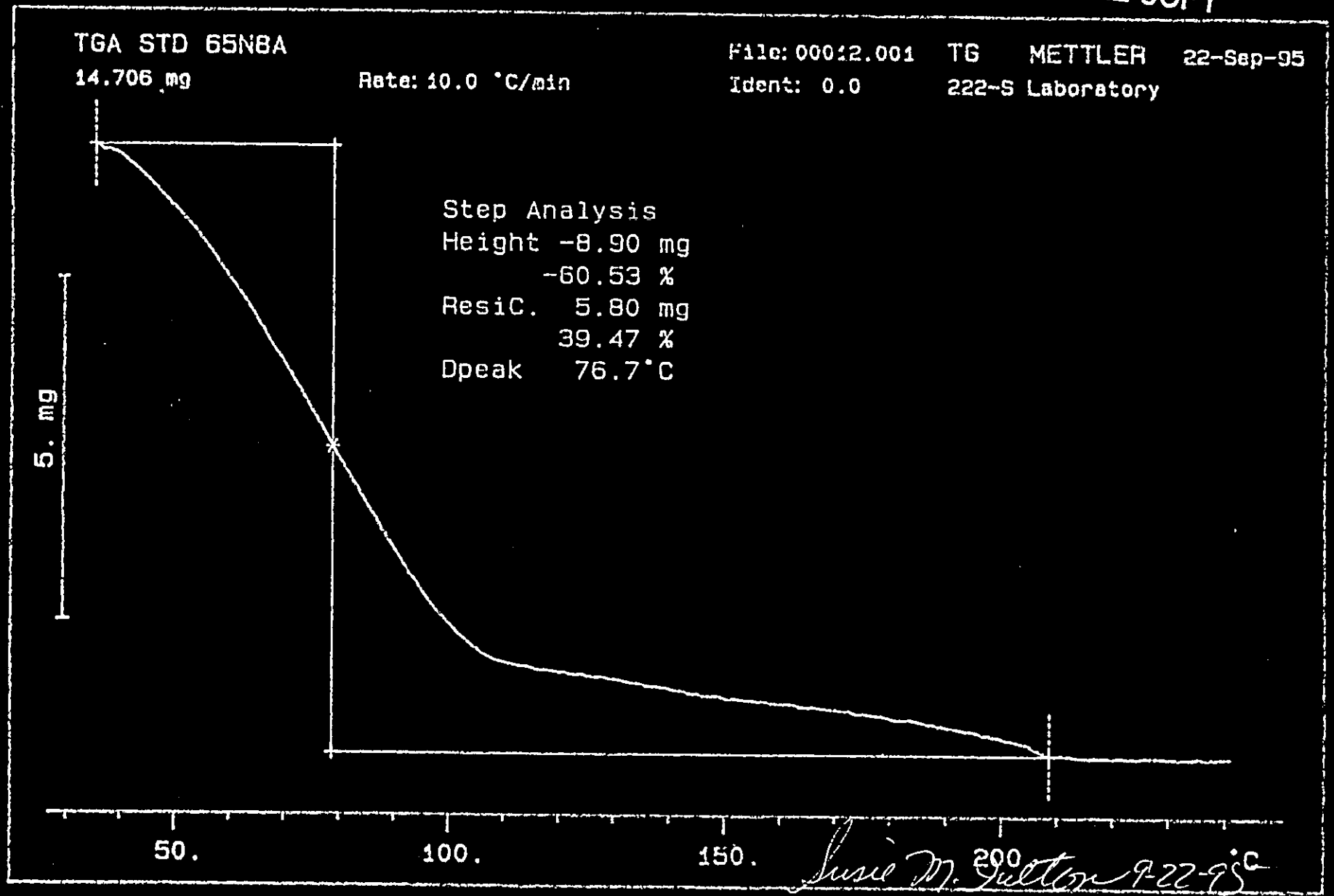
Verified by Blandina Valenzuela (9-26-95)

Data Entry Comments: Sample produced a second weight loss step of 2.63% at 180°C.

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 128 TO 130

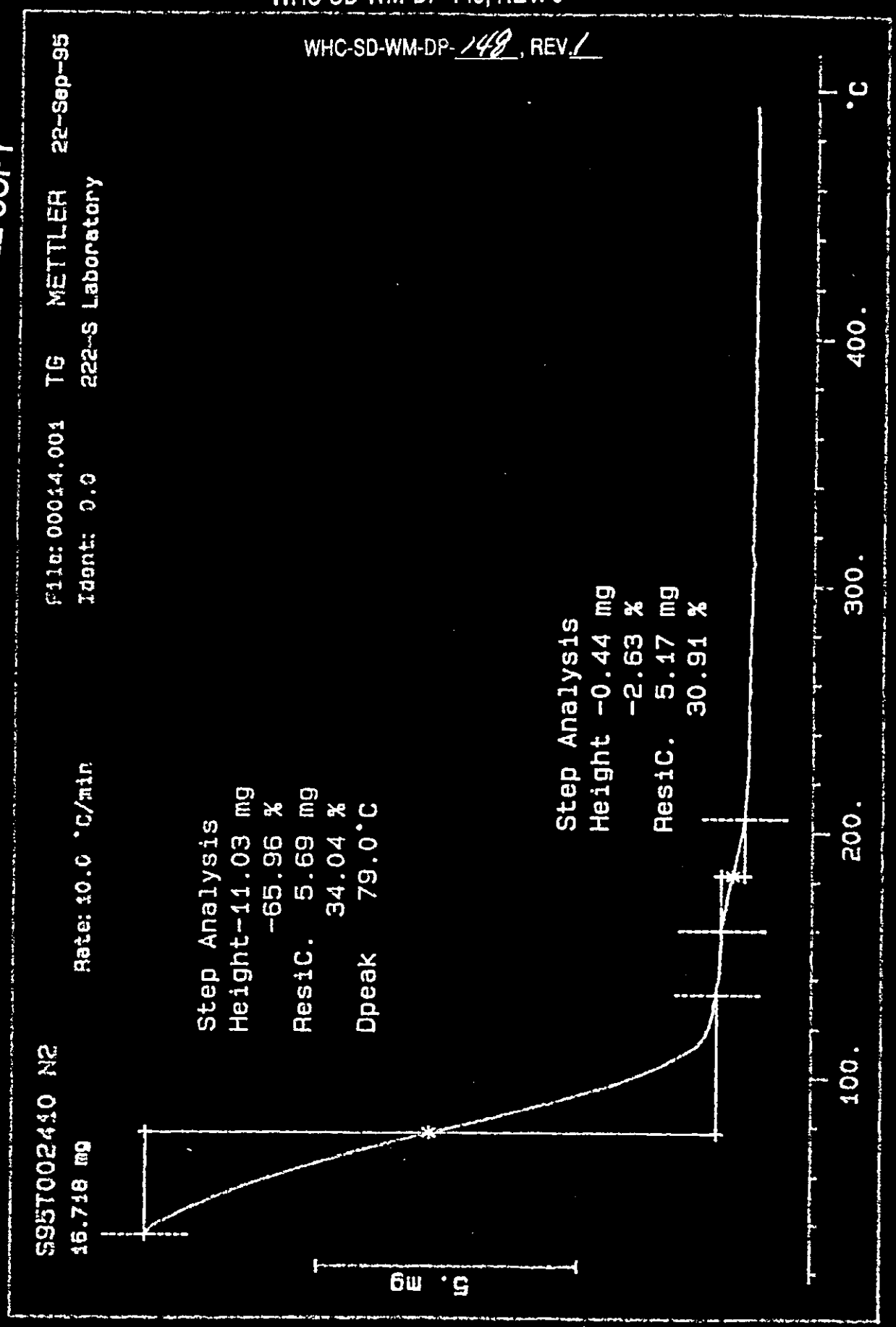
BEST AVAILABLE COPY



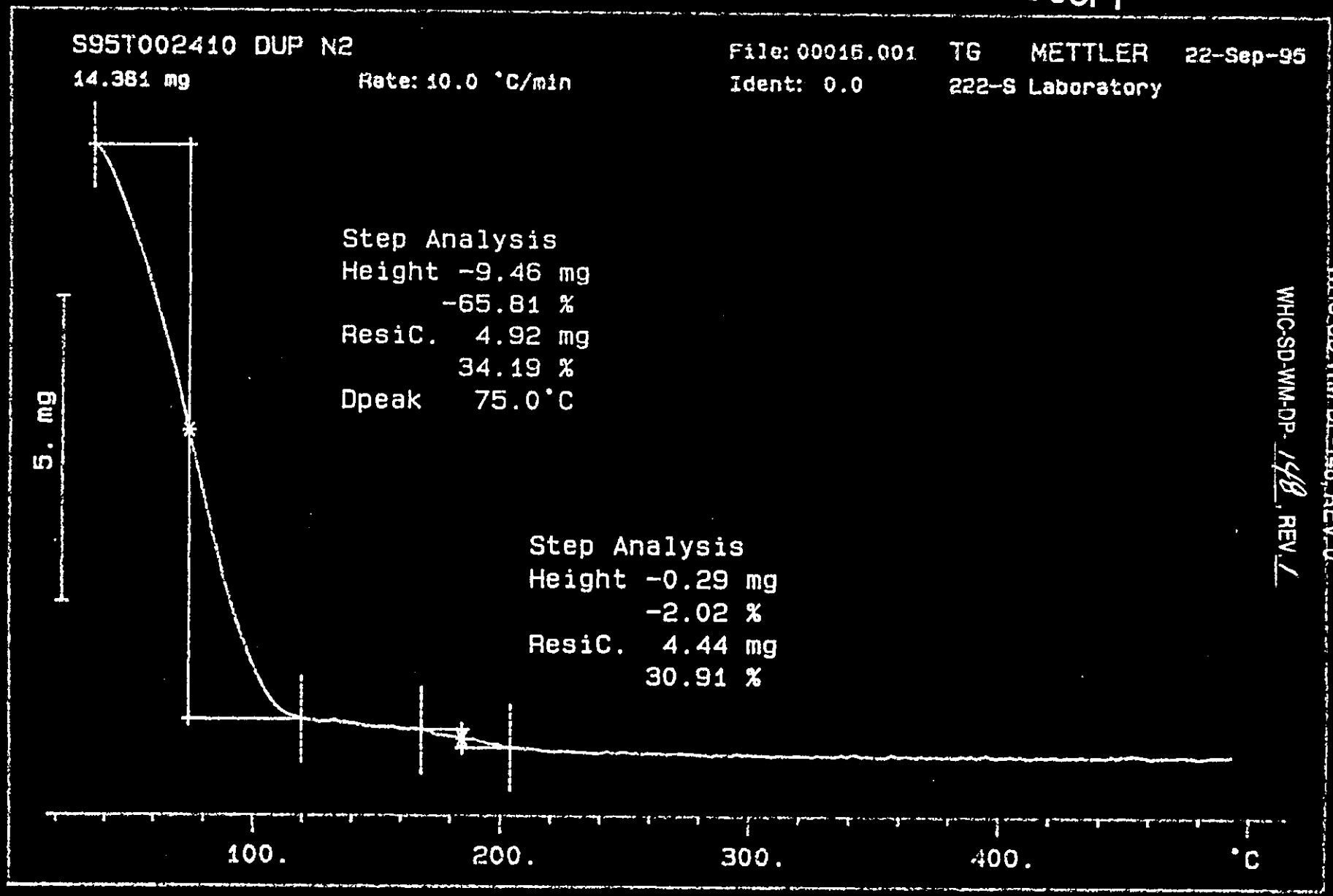
Susie M. Sutton 9-22-95

BEST AVAILABLE COPY

WHC-SD-WM-DP-148, REV. 1



BEST AVAILABLE COPY



1.30

WHC-SD-WM-DP-148, REV.0
WHC-SD-WM-DP-148, REV. L

worklistrpt Version 2.1 05/15/95
10/09/95 15:22

LABCORE Data Entry Template for Worklist# 2522

Analyst: DPB **Instrument:** BA001 **Book #** 134N16-A

Method: LA-510-112 Rev/Mod C-3 C-3 RWS 10/9/95

WHC-SD-WM-DP-148, REV. 1

Worklist Comment: SpG AN-101 - Do not have to run replicates.

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				SPG-01	LIQUID		1.10	N/A	Sp.G.
95000135	AN-101 GRAB	2	SAMPLE	S95T002408	0		SPG-01	LIQUID	N/A	1.23		Sp.G.
95000135	AN-101 GRAB	3	DUP	S95T002408	0		SPG-01	LIQUID	1.23	1.24	N/A	Sp.G.
95000135	AN-101 GRAB	4	SAMPLE	S95T002409	0		SPG-01	LIQUID	N/A	1.27		Sp.G.
95000135	AN-101 GRAB	5	DUP	S95T002409	0		SPG-01	LIQUID	1.27	1.25	N/A	Sp.G.
95000135	AN-101 GRAB	6	SAMPLE	S95T002410	0		SPG-01	LIQUID	N/A	1.22		Sp.G.
95000135	AN-101 GRAB	7	DUP	S95T002410	0		SPG-01	LIQUID	1.22	1.25	N/A	Sp.G.
		8	STD				SPG-01	LIQUID		1.09	N/A	Sp.G.

Final page for worklist # 2522

Analyst Signature 10/23/95 Date 20:00

STD#1 G 1.86189 1.97202 (DPB 10/23)
T 1.86189
N .11013

2408 SAm G 1.93764
T 1.81473
N .12291

2408 Dup G 2.04083
T 1.91726
N .12357

2409 SAm G 1.97113
T 1.84370
N .12743

2409 Dup G 1.97013
T 1.84561
N .12452

2410 SAm G 1.93660
T 1.81492
N .12168

Analyst Signature 10-24-95 Date

2410 Dup G 1.99019
T 1.86502
N .12517

STD#2 G 1.98679
T 1.87770
N .10909

Data Entry Comments: Sample size for all: 0.10002 mL

Heather Quarton 10-25-95

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

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 0

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		STANDARD	STANDARD
STANDARD	Gross Weight (W2)	1.9720	
Work List	Tare Weight (W1)	1.8619	
2522	Weight of Solution (W2-W1)	0.11013	0
Test Code	Volume of Solution µL	100.0200	
SPG-01	Specific Gravity	1.1011	NA
Matrix			
LIQUID			
Sample #			
134N16A			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
N\A	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DP BROMLEY	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
10/23/95	v RESULT v		
Time	Specific Gravity =	1.101	
08:00 PM			

Data Entry by:	[signature]	Date:	10/24/95
Approved by:	[signature]	Date:	10-25-95

Form 510112L1 Rev. 1.1

WHC-SD-WM-DP-142, REV. 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 0

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.9376	
Work List	Tare Weight (W1)	1.8147	
2522	Weight of Solution (W2-W1)	0.12291	0
Test Code	Volume of Solution µL	100.0200	
SPG-01	Specific Gravity	1.2289	NA
Matrix			
LIQUID			
Sample #			
S95T002408			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
N\A	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DP BROMLEY	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
10/23/95	v RESULT v		
Time	Specific Gravity =	1.229	
08:00 PM			

Data Entry by: [signature] Date: 10/24/95

Approved by: [signature] Date: 10-25-95

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		DUPLICATE	REPLICATE
DUPLICATE	Gross Weight (W2)	2.0408	
Work List	Tare Weight (W1)	1.9173	
2522	Weight of Solution (W2-W1)	0.12357	0
Test Code	Volume of Solution µL	100.0200	
SPG-01	Specific Gravity	1.2355	NA
Matrix			
LIQUID			
Sample #			
S95T002408DUP			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
N\A	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DP BROMLEY	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
10/23/95	v RESULT v		
Time	Specific Gravity =	1.235	
08:00 PM			

Data Entry by: [signature] Date: 10/24/95

Approved by: [signature] Date: 10-25-95

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.9711	
Work List	Tare Weight (W1)	1.8437	
2522	Weight of Solution (W2-W1)	0.12743	0
Test Code	Volume of Solution µL	100.0200	
SPG-01	Specific Gravity	1.2740	NA
Matrix			
LIQUID			
Sample #			
S95T002409			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
N\A	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DP BROMLEY	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
10/23/95	v RESULT v		
Time	Specific Gravity =	1.274	
08:00 PM			

Data Entry by: [signature] Date: 10/24/95

Approved by: [signature] Date: 10-25-95

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-14E, REV. 1

WHC-SD-WM-DP-148, REV. 0

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		DUPLICATE	REPLICATE
DUPLICATE	Gross Weight (W2)	1.9701	
Work List	Tare Weight (W1)	1.8456	
2522	Weight of Solution (W2-W1)	0.12452	0
Test Code	Volume of Solution µL	100.0200	
SPG-01	Specific Gravity	1.2450	NA
Matrix			
LIQUID			
Sample #			
S95T002409DUP			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
N\A	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DP BROMLEY	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
10/23/95	v RESULT v		
Time	Specific Gravity =	1.245	
08:00 PM			

Data Entry by:	[signature]	Date:	10/24/95
Approved by:	[signature]	Date:	10-25-95

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.9366	
Work List	Tare Weight (W1)	1.8149	
2522	Weight of Solution (W2-W1)	0.12168	0
Test Code	Volume of Solution µL	100.0200	
SPG-01	Specific Gravity	1.2166	NA
Matrix			
LIQUID			
Sample #			
S95T002410			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
N\A	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DP BROMLEY	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
10/23/95	v RESULT v		
Time	Specific Gravity =	1.217	
08:00 PM			

Data Entry by:	[signature]	Date:	10/24/95
Approved by:	[signature]	Date:	10/25/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

WHC-SD-WM-DP-148, REV. 0

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		DUPLICATE	REPLICATE
DUPLICATE	Gross Weight (W2)	1.9902	
Work List	Tare Weight (W1)	1.8650	
2522	Weight of Solution (W2-W1)	0.12517	0
Test Code	Volume of Solution µL	100.0200	
SPG-01	Specific Gravity	1.2514	NA
Matrix			
LIQUID			
Sample #			
S95T002410DUP			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
N\A	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DP BROMLEY	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
10/23/95	v RESULT v		
Time	Specific Gravity =	1.251	
08:00 PM			

Data Entry by: [signature] Date: 10/24/95

Approved by: [signature] Date: 10-25-95

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

WHC-SD-WM-DP-148, REV. 0

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		STANDARD	STANDARD
STANDARD	Gross Weight (W2)	1.9868	
Work List	Tare Weight (W1)	1.8777	
2522	Weight of Solution (W2-W1)	0.10909	0
Test Code	Volume of Solution µL	100.0200	
SPG-01	Specific Gravity	1.0907	NA
Matrix			
LIQUID			
Sample #			
134N16A			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
N\A	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
DP BROMLEY	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
10/23/95	v RESULT v		
Time	Specific Gravity =	1.091	
08:00 PM			

Data Entry by:	[signature]	Date:	10/24/95
Approved by:	[signature]	Date:	10-25-95

Form 510112L1 Rev. 1.1 Page 1 of 1

LABCORE Data Entry Template for Worklist# 2523

Analyst: RS **Instrument:** PH01 **Book #** 110N16-G

Method: LA-212-106 A-0 WHC-SD-WM-DP-145, REV. 1
WHC-SD-WM-DP-148, REV. 0

Worklist Comment: pH AN-101

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STDPH				PH-QC	QC	7.38	7.37	N/A	~~7.37pH~~ RJ 9-25-95
95000135	AN-101 GRAB	2	SAMPLE	S95T002408	0		PH-01	LIQUID	N/A	12.95	~~12.95~~ 9-25-95 7.37	pH
95000135	AN-101 GRAB	3	DUP	S95T002408	0		PH-01	LIQUID	12.95	12.96	~~12.96~~ RJ 9-25-95 N/A	pH
95000135	AN-101 GRAB	4	SAMPLE	S95T002409	0		PH-01	LIQUID	N/A	13.95	~~13.95~~ RJ 9-25-95	pH
95000135	AN-101 GRAB	5	DUP	S95T002409	0		PH-01	LIQUID	13.95	13.94	~~13.94~~ RJ 9-25-95 N/A	pH
95000135	AN-101 GRAB	6	SAMPLE	S95T002410	0		PH-01	LIQUID	N/A	13.88	~~13.88~~ RJ 9-25-95	pH
95000135	AN-101 GRAB	7	DUP	S95T002410	0		PH-01	LIQUID	13.88	13.87	~~13.87~~ RJ 9-25-95 N/A	pH

Final page for worklist # 2523

Rae Lynn Green 9-25-95
Analyst Signature Date

Analyst Signature Date

Reviewed RW Schroeder 9/25/95

Buffered at ~~4~~ 7.00 pH + 10.00 pH for STD
Buffered at 10.00 pH + 10.45 pH for Samples

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# 2524

Analyst: RAW **Instrument:** PH01 WC06695 **Book #** 57N8

Method: LA-211-102 Rev/Mod C-0

Worklist Comment: OH- AN-101 WHC-SD-WM-DP-148, REV.1

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK				OH-01	LIQUID	1	<42	N/A	ug/mL
		2	STD				OH-01	LIQUID	1.66e04	~~9.42E-1~~ 1.60e4 RWS 10/2/95	N/A	~~ug/mL~~ ug/mL RWS 10-2-95
95000135	AN-101 GRAB	3	SAMPLE	S95T002408	0		OH-01	LIQUID	N/A	3.08E4	5.00e3	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002408	0		OH-01	LIQUID	3.08e4	3.00e4	N/A	ug/mL
95000135	AN-101 GRAB	5	SAMPLE	S95T002409	0		OH-01	LIQUID	N/A	3.22e4	5.00e3	ug/mL
95000135	AN-101 GRAB	6	DUP	S95T002409	0		OH-01	LIQUID	3.22e4	3.37e4	N/A	ug/mL
95000135	AN-101 GRAB	7	SAMPLE	S95T002410	0		OH-01	LIQUID	N/A	3.01e4	5.00e3	ug/mL
95000135	AN-101 GRAB	8	DUP	S95T002410	0		OH-01	LIQUID	3.01e4	3.15e4	N/A	ug/mL
		9	STD				OH-01	LIQUID	1.66e04	~~9.38e-1~~ 1.60E4 RWS 10/2/95	N/A	ug/mL

Final page for worklist # 2524

R. WENDLAND 9-29-95
Analyst Signature Date

Tom D. [illegible] 10/2/95
Analyst Signature Date
10/3/95

Data Entry Comments: .025 - 2408, 9, 10

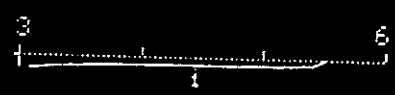
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

```
date 95-09-29 time 08:49
GET pH          12  #   26
Id.#1            0
Id.#2        .2005
pH(init)      5.49
            V/ml          pH
EP1         .011        4.46
manual stop
        ========
```

```
date 95-09-29 time 08:49
GET pH          12  #   26
.10ml/div       ΔpH=1/div
start V    .000 ml
```



BEST AVAILABLE COPY

OH (AUTO) : LA-211-102 (C-0)

		BLANK
Type	Sample Size (mL) SS	3.000
BLANK	Concentration of HNO3 (Molarity)	0.2005
Work List	HNO3 Titrant at OH end-point in mL	0.000
2524	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	0.00E+00
OH-01	OH in Sample in µg/mL (PPM)	0.00E+00
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
BLK		
Instrument Code	Detection Limit (µg/mL)	4.17E+01
WC06695		
Analyst	OH Molarity =((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
R.WENDLAND		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
09/29/95		
Time		BLANK
	Concentration of OH in Sample (Molarity)	0.00E+00
	OH in Sample in µg/mL (PPM)	<42

The Result is < Detection Limit

Data Entry by:	R.W. Edwards	Date:	10/02/95
Approved by:	[signature]	Date:	10/3/95

Form 211102_1 Rev. 1.3

142

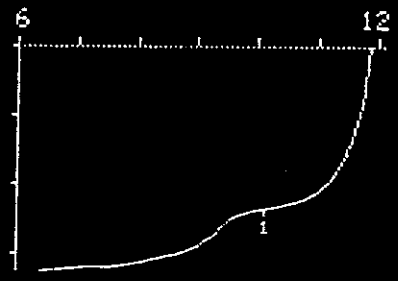
PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

```
GET pH          12
GET pH          12
GET pH          12

date 95-09-29 time 08:47
GET pH          12   #    25
Id.#1            1
Id.#2        .2005
pH(init)    11.84
             V/ml          pH
EP1          .235       10.12
manual stop
          ========
```

```
date 95-09-29 time 08:48
GET pH          12   #    25
.10ml/div        dpH=1/div
start V    .000 ml
```



BEST AVAILABLE COPY

OH (AUTO) : LA-211-102 (C-0)

Type	Sample Size (mL) SS	STD
STD	Concentration of HNO3 (Molarity)	0.2005
Work List	HNO3 Titrant at OH end-point in mL	0.235
2524	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	9.42E-01
OH-01	OH in Sample in µg/mL (PPM)	1.60E+04
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S95T002408		
Instrument Code	Detection Limit (µg/mL)	2.50E+03
WC06695		
Analyst	OH Molarity =((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
R.WENDLAND		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
09/29/95		
Time		

	STD
Concentration of OH in Sample (Molarity)	9.42E-01
OH in Sample in µg/mL (PPM)	1.60E+04

Data Entry by:	RW Bernstein	Date:	10/02/95
Approved by:	[illegible]	Date:	10/3/95

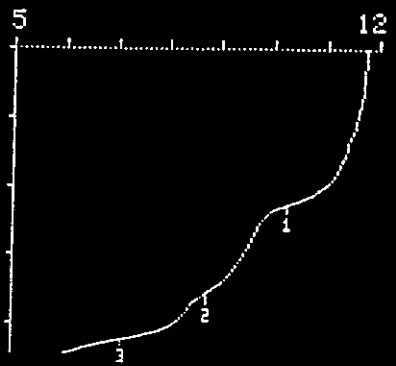
PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

.025

```
date 95-09-29 time 09:07
GET pH          12  #   28
Id.#1            8
Id.#2        .2005
pH(init)    11.75
             V/ml          pH
EP1          .226       10.25
EP2          .355        8.77
EP3          .424        7.12
stop volt.reached
========
```

```
date 95-09-29 time 09:08
GET pH          12  #   28
.10ml/div       dpH=1/div
start V    .000 ml
```



BEST AVAILABLE COPY

OH (AUTO) : LA-211-102 (C-0)

Type	Sample Size (mL) SS	SAMPLE
SAMPLE	Concentration of HNO3 (Molarity)	0.2005
Work List	HNO3 Titrant at OH end-point in mL	0.226
2524	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.81E+00
OH-01	OH in Sample in µg/mL (PPM)	3.08E+04

Matrix
LIQUID
Sample #
S95T002408
Instrument Code
WC06695
Analyst
R.WENDLAND
Date
09/29/95
Time

Detection Limit = 125µg / SS * DF

Detection Limit (µg/mL)	5.00E+03

OH Molarity =((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor

OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))

	SAMPLE
Concentration of OH in Sample (Molarity)	1.81E+00
OH in Sample in µg/mL (PPM)	3.08E+04

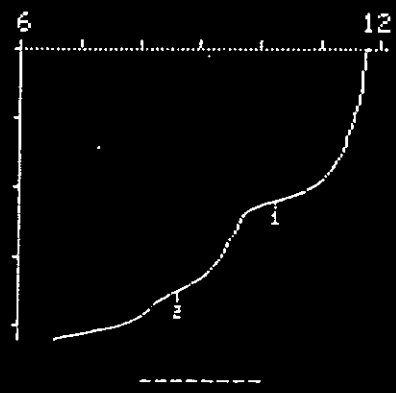
Data Entry by:	RJ Schroeder	Date:	10/02/95
Approved by:		Date:	10/3/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-149, REV. 1

```
date 95-09-29 time 09:14
GET pH          12  #   29
Id.#1          8-2
Id.#2        .2005
pH(init)    11.74
             V/ml          pH
EP1          .220       10.25
EP2          .351        8.63
stop volt.reached
        ========
```

```
date 95-09-29 time 09:29
GET pH          12  #   29
.10ml/div       dpH=1/div
start V    .000 ml
```



BEST AVAILABLE COPY

OH (AUTO) : LA-211-102 (C-0)

		DUPLICATE
Type	Sample Size (mL) SS	0.025
DUPLICATE	Concentration of HNO3 (Molarity)	0.2005
Work List	HNO3 Titrant at OH end-point in mL	0.220
2524	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.76E+00
OH-01	OH in Sample in µg/mL (FPM)	3.00E+04
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S95T002408		
Instrument Code	Detection Limit (µg/mL)	5.00E+03
WC06695		
Analyst	OH Molarity =((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
R.WENDLAND		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
09/29/95		
Time		DUPLICATE
	Concentration of OH in Sample (Molarity)	1.76E+00
	OH in Sample in µg/mL (PPM)	3.00E+04

Data Entry by:	for RWS	Date:	10/02/95
Approved by:		Date:	10/3/95

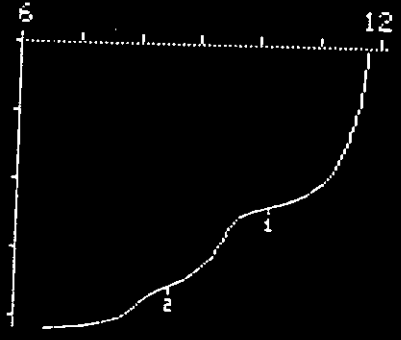
Form 211102_1 Rev. 1.3

WHC-SD-WM-DP-148, REV. 1

```
date 95-09-29 time 09:36
GET pH        12  #   30
Id.#1         09
Id.#2       .2005
pH(init)   11.78
            V/ml        pH
EP1         .236     10.22
EP2         .353      8.58
stop volt.reached
========
```

.025

```
date 95-09-29 time 09:36
GET pH        12  #   30
.10ml/div      ΔpH=1/div
start V    .000 ml
```



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OH (AUTO) : LA-211-102 (C-0)

Type	Work List	Test Code	Matrix	Sample #	Instrument Code	Analyst	Date	Time
SAMPLE	2524	OH-01	LIQUID	S95T002409	WC06695	R.WENDLAND	09/29/95	

	SAMPLE
Sample Size (mL) SS	0.025
Concentration of HNO3 (Molarity)	0.2005
HNO3 Titrant at OH end-point in mL	0.236
Dilution Factor DF	1
Concentration of OH in Sample (Molarity)	1.89E+00
OH in Sample in µg/mL (PPM)	3.22E+04

Detection Limit = 125µg / SS * DF

Detection Limit (µg/mL)	5.00E+03

OH Molarity =((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor

OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))

	SAMPLE
Concentration of OH in Sample (Molarity)	1.89E+00
OH in Sample in µg/mL (PPM)	3.22E+04

Data Entry by:	Ron Schneider	Date:	10/02/95
Approved by:	J Johnson	Date:	10/3/95

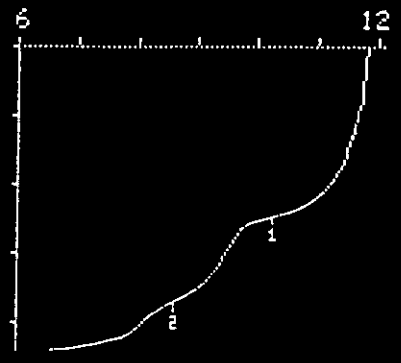
PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 0

WHC-SD-WM-DP-148, REV. 1

```
date 95-09-29 time 09:42
GET pH          12  #   31
Id.#1          9-2
Id.#2        .2005
pH(init)    11.79
             V/ml          pH
EP1          .247       10.24
EP2          .370        8.61
stop volt.reached
========
```

```
date 95-09-29 time 09:42
GET pH          12  #   31
.10ml/div      dpH=1/div
start V    .000 ml
```



BEST AVAILABLE COPY

OH (AUTO) : LA-211-102 (C-0)

Type	Sample Size (mL) SS	DUPLICATE
DUPLICATE	Concentration of HNO3 (Molarity)	0.2005
Work List	HNO3 Titrant at OH end-point in mL	0.247
2524	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.98E+00
OH-01	OH in Sample in µg/mL (PPM)	3.37E+04
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S95T002409		
Instrument Code	Detection Limit (µg/mL)	5.00E+03
WC06695		
Analyst	OH Molarity =((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
R.WENDLAND		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
09/29/95		
Time		DUPLICATE
	Concentration of OH in Sample (Molarity)	1.98E+00
	OH in Sample in µg/mL (PPM)	3.37E+04

Data Entry by:	RW Schroeder	Date:	10/02/95
Approved by:	[signature]	Date:	10/3/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

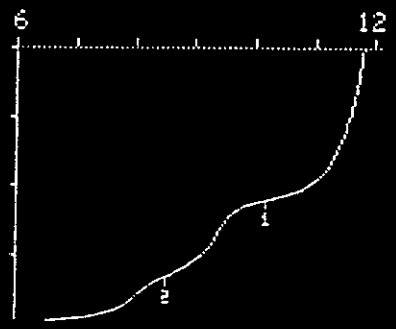
WHC-SD-WM-DP-148, REV. 0

WHC-SD-WM-DP-148, REV. 1

.025

```
date 95-09-29 time 09:47
GET pH          12  #   32
Id.#1           10
Id.#2        .2005
pH(init)    11.79
             V/ml          pH
EP1          .221       10.18
EP2          .332        8.52
stop volt.reached
        ========
```

```
date 95-09-29 time 09:48
GET pH          12  #   32
.10ml/div       dpH=1/div
start V    .000 ml
```



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OH (AUTO) : LA-211-102 (C-0)

Type	Sample Size (mL) SS	SAMPLE
SAMPLE	Concentration of HNO3 (Molarity)	0.2005
Work List	HNO3 Titrant at OH end-point in mL	0.221
2524	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.77E+00
OH-01	OH in Sample in µg/mL (PPM)	3.01E+04
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S95T002410		
Instrument Code	Detection Limit (µg/mL)	5.00E+03
WC06695		
Analyst	OH Molarity =((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
R.WENDLAND		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
09/29/95		
Time		SAMPLE
	Concentration of OH in Sample (Molarity)	1.77E+00
	OH in Sample in µg/mL (PPM)	3.01E+04

Data Entry by:	RW Schroder	Date:	10/02/95
Approved by:	[signature]	Date:	10/3/95

Form 211102_1 Rev. 1.3

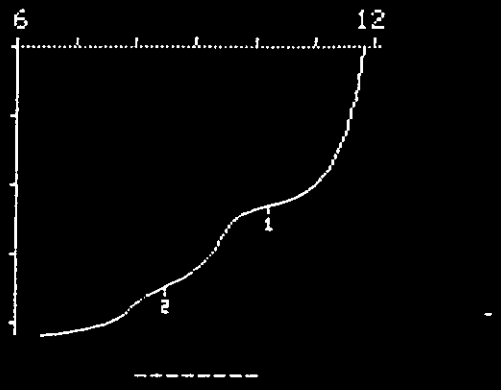
PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 0

```
date 95-09-29 time 09:53
GET pH          12  #   33
Id.#1          10-2
Id.#2          .2005
pH(init)      11.79
              V/ml          pH
EP1           .231       10.21
EP2           .348        8.52
stop volt.reached
========
```

WHC-SD-WM-DP-148, REV. 1

```
date 95-09-29 time 09:54
GET pH          12  #   33
.10ml/div       ΔpH=1/div
start V     .000 ml
```



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OH (AUTO) : LA-211-102 (C-0)

Type	Sample Size (mL) SS	DUPLICATE
DUPLICATE	Concentration of HNO3 (Molarity)	0.2005
Work List	HNO3 Titrant at OH end-point in mL	0.231
2524	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.85E+00
OH-01	OH in Sample in µg/mL (PPM)	3.15E+04
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
S95T002410		
Instrument Code	Detection Limit (µg/mL)	5.00E+03
WC06695		
Analyst	OH Molarity =((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
R.WENDLAND		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
09/29/95		
Time		DUPLICATE
	Concentration of OH in Sample (Molarity)	1.85E+00
	OH in Sample in µg/mL (PPM)	3.15E+04

Data Entry by:	Kw Schroeder	Date:	10/02/95
Approved by:	[signature]	Date:	10/3/95

Form 211102_1 Rev. 1.3

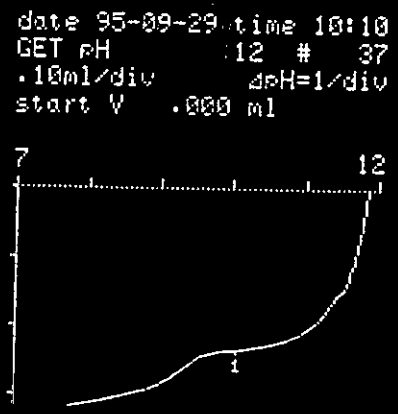
PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

WHC-SD-WM-DP-148, REV. 0

LMCS

```
date 95-09-29 time 10:10
GET pH          12  #   37
Id.#1            1
Id.#2        .2005
pH(init)     11.83
             V/ml        pH
EP1          .234     10.08
manual stop
=========
```



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OH (AUTO) : LA-211-102 (C-0)

Type	Sample Size (mL) SS	STD
STD	Concentration of HNO3 (Molarity)	0.2005
Work List	HNO3 Titrant at OH end-point in mL	0.234
2524	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	9.38E-01
OH-01	OH in Sample in µg/mL (PPM)	1.60E+04
Matrix		
LIQUID		
Sample #	Detection Limit = 125µg / SS * DF	
CCV		
Instrument Code	Detection Limit (µg/mL)	2.50E+03
WC06695		
Analyst	OH Molarity =((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
R.WENDLAND		
Date	OH in µg/mL = (OH MOLARITY)*(17.0g/mole)*((1000000µg/g)/(1000mL/L))	
09/29/95		
Time		

	STD
Concentration of OH in Sample (Molarity)	9.38E-01
OH in Sample in µg/mL (PPM)	1.60E+04

Data Entry by:	Ru Schroeder	Date:	10/02/95
Approved by:		Date:	10/3/95

Form 211102_1 Rev. 1.3

LABCORE Data Entry Template for Worklist# 2572

Analyst: KGH **Instrument:** IC01 IC01 **Book #** 10610 9D

Method: LA-533-105 Rev/Mod D-1 WHC-SD-WM-DP-148, REV. 1

Worklist Comment: IC AN-101, liquid. Please write sample size for spike. JMF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK				@IC-01 F-02	LIQUID	NA	NA	N/A	ug/mL
		1	BLNK				@IC-01 CL-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 NO2-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 BR-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 NO3-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 PO4-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 SO4-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 OXALATE2	LIQUID			N/A	ug/mL
		2	STD				@IC-01 F-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 CL-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 NO2-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 BR-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 NO3-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 PO4-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 SO4-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 OXALATE2	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002408	0		@IC-01 F-02	LIQUID	N/A	<6.89e	6.89e	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002408	0		@IC-01 CL-02	LIQUID	N/A	3,303	9.22e	ug/mL

Data Entry Comments:

Enter BLNK & STD under CCB and CCV.

Spike Volume .100 mL

DF 10201 T.Vol = 10.1, DF 1111 T. Vol. = 11

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# 2572

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
95000135	AN-101 GRAB	3 SAMPLE	S95T002408	0	@IC-01	NO2-02	LIQUID	N/A	4.84e4	5.58e3	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002408	0	@IC-01	NO3-02	LIQUID	N/A	9.65e4	7.13e3	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002408	0	@IC-01	PO4-02	LIQUID	N/A	1.39e3	6.62e2	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002408	0	@IC-01	SO4-02	LIQUID	N/A	1.58e3	7.53e2	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	F-02	LIQUID	<6.89e1	8.17e2	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	CL-02	LIQUID	3.30e3	3.26e3	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	NO2-02	LIQUID	4.84e4	4.83e4	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	BR-02	LIQUID	NA	NA	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	NO3-02	LIQUID	9.65e4	9.77e4	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	PO4-02	LIQUID	1.39e3	1.40e3	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	SO4-02	LIQUID	1.58e3	1.61e3	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	OXALATE2	LIQUID	NA	NA	N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	F-02	LIQUID		46.2	N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	CL-02	LIQUID		24.6	N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	NO2-02	LIQUID		112.1	N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	BR-02	LIQUID	NA	NA	N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	NO3-02	LIQUID		110.3	N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	PO4-02	LIQUID		96.2	N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	SO4-02	LIQUID		94.9	N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	OXALATE2	LIQUID	NA	NA	N/A	ug/mL
		6 CCB			@IC-01	F-02	LIQUID		<1.06	N/A	ug/mL

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.

worklistrpt Version 2.1 05/15/95
10/04/95 15:29

LABCORE Data Entry Template for Worklist# 2572

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST		MATRIX	ACTUAL	FOUND	DL	UNIT
		6	CCB				@IC-01	CL-02	LIQUID		<.083	N/A	ug/mL
		6	CCB				@IC-01	NO2-02	LIQUID		<.547	N/A	ug/mL
		6	CCB				@IC-01	BR-02	LIQUID	NA	NA	N/A	ug/mL
		6	CCB				@IC-01	NO3-02	LIQUID		<.699	N/A	ug/mL
		6	CCB				@IC-01	PO4-02	LIQUID		<.596	N/A	ug/mL
		6	CCB				@IC-01	SO4-02	LIQUID		<.678	N/A	ug/mL
		6	CCB				@IC-01	OXALATE2	LIQUID	NA	NA	N/A	ug/mL
		7	CCV				@IC-01	F-02	LIQUID		64.6	N/A	ug/mL
		7	CCV				@IC-01	CL-02	LIQUID		80.2	N/A	ug/mL
		7	CCV				@IC-01	NO2-02	LIQUID		545.1	N/A	ug/mL
		7	CCV				@IC-01	BR-02	LIQUID	NA	NA	N/A	ug/mL
		7	CCV				@IC-01	NO3-02	LIQUID		627	N/A	ug/mL
		7	CCV				@IC-01	PO4-02	LIQUID		586.1	N/A	ug/mL
		7	CCV				@IC-01	SO4-02	LIQUID		652.3	N/A	ug/mL
		7	CCV				@IC-01	OXALATE2	LIQUID	NA	NA	N/A	ug/mL

Final page for worklist # 2572

Jann Luye for Kristin Higbee
Analyst Signature Date
10/4/95 - See original 2572 for original signature.
Verified 10/13/95. J.M. Luye

[signature] 10-11-95
Analyst Signature Date

Data Entry Comments: There appears to be matrix interference with F and Cl causing poor spike recoveries on both and poor RPD on F. JMF 10/10/95

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

LABCORE Data Entry Template for Worklist# 2572

Analyst: KGH **Instrument:** IC01 IC01 **Book #** WOW9-0

Method: LA-533-105 Rev/Mod D-1 WHC-SD-WM-DP-146, REV. 1

Worklist Comment: IC AN-101, liquid. Please write sample size for spike. JMF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK				@IC-01 F-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 CL-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 NO2-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 BR-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 NO3-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 PO4-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 SO4-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 OXALATE2	LIQUID			N/A	ug/mL
		2	STD				@IC-01 F-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 CL-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 NO2-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 BR-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 NO3-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 PO4-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 SO4-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 OXALATE2	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002408	0		@IC-01 F-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002408	0		@IC-01 CL-02	LIQUID	N/A			ug/mL

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.

worklistrpt Version 2.1 05/15/95
09/25/95 09:51

LABCORE Data Entry Template for Worklist# 2572

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
95000135	AN-101 GRAB	3 SAMPLE	S95T002408	0	@IC-01	NO2-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002408	0	@IC-01	NO3-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002408	0	@IC-01	PO4-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002408	0	@IC-01	SO4-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	F-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	CL-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	NO2-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	BR-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	NO3-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	PO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	SO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	@IC-01	OXALATE2	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	F-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	CL-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	NO2-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	BR-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	NO3-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	PO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	SO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	@IC-01	OXALATE2	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	6 SAMPLE	S95T002409	0	@IC-01	F-02	LIQUID	N/A			ug/mL

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# 2572

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
95000135	AN-101 GRAB	6	SAMPLE	S95T002409	0	@IC-01	CL-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	6	SAMPLE	S95T002409	0	@IC-01	NO2-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	6	SAMPLE	S95T002409	0	@IC-01	NO3-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	6	SAMPLE	S95T002409	0	@IC-01	PO4-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	6	SAMPLE	S95T002409	0	@IC-01	SO4-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	7	DUP	S95T002409	0	@IC-01	F-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	7	DUP	S95T002409	0	@IC-01	CL-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	7	DUP	S95T002409	0	@IC-01	NO2-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	7	DUP	S95T002409	0	@IC-01	BR-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	7	DUP	S95T002409	0	@IC-01	NO3-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	7	DUP	S95T002409	0	@IC-01	PO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	7	DUP	S95T002409	0	@IC-01	SO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	7	DUP	S95T002409	0	@IC-01	OXALATE2	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	8	SAMPLE	S95T002410	0	@IC-01	F-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	8	SAMPLE	S95T002410	0	@IC-01	CL-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	8	SAMPLE	S95T002410	0	@IC-01	NO2-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	8	SAMPLE	S95T002410	0	@IC-01	NO3-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	8	SAMPLE	S95T002410	0	@IC-01	PO4-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	8	SAMPLE	S95T002410	0	@IC-01	SO4-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	9	DUP	S95T002410	0	@IC-01	F-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	9	DUP	S95T002410	0	@IC-01	CL-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	9	DUP	S95T002410	0	@IC-01	NO2-02	LIQUID			N/A	ug/mL

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.

worklistrpt Version 2.1 05/15/95
09/25/95 09:51

LABCORE Data Entry Template for Worklist# 2572

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
95000135	AN-101 GRAB	9 DUP	S95T002410	0		@IC-01 BR-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	9 DUP	S95T002410	0		@IC-01 NO3-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	9 DUP	S95T002410	0		@IC-01 PO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	9 DUP	S95T002410	0		@IC-01 SO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	9 DUP	S95T002410	0		@IC-01 OXALATE2	LIQUID			N/A	ug/mL

Final page for worklist # 2572

Analyst Signature Date 9-30-95

Analyst Signature Date

Data Entry Comments:

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

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
INORGANIC ANALYTICAL BATCH AND SUMMARY SHEET

ANION ANALYSIS ON DIONEX

SAMPLE #:	S95T002408 &		
TEST CODE:	@ic-01	ANALYST:	Kristin Higbee
INSTRUMENT:	ic-01	ANALYSIS DATE:	09/29/95
WORK LIST #:	2572	SAMPLE POINT:	AN-101
BATCH ID:		SAMPLE PREP:	direct

Result Units µg/mL	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
106N9D	109.5%	101.5%	102.1%	102.1%	107.3%	103.4%	102.4%	103.9%
S95T002408	<68.88	3.30E+03	4.84E+04	9.65E+04	1.39E+03	1.58E+03	<702.15	<551.06
S95T002408dup	8.17E+02	3.26E+03	4.93E+04	9.77E+04	1.40E+03	1.61E+03	<702.15	<551.06
Duplicate 1 RPD	N/A	1.2%	1.7%	1.2%	0.9%	2.4%	N/A	N/A
	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00
	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00
Duplicate 2 RPD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S95T002408	46.2%	24.6%	112.1%	110.3%	96.2%	94.9%	90.1%	104.3%

NARRATIVE: Analyst Comments:

Chemist Comments:

Form Completed By:	Jessica Hayes	Date:	10/10/95
Chemist Approval:	Jessica Hayes	Date:	10/10/95

LAB LEADER INFO	
Method:	La-533-105 d-1
Matrix:	liquid
Test Code:	@ic-01
Work List #:	2572
Batch #:	
Result Units	
(µg/g or µg/mL):	µg/mL
Spike Book Number:	106N9D
Spike Sample #:	1
Prepared By:	Jann Frye
Prepared Date:	10/10/95
Chemist:	Jann Frye
Analyst:	Kristin Higbee
Analysis Date:	09/29/95
Time Complete:	
Instrument Code:	ic-01
Rerun:	0
Sample Prep:	direct
Sample Point:	AN-101
Sample Type	
STANDARD	106N9D
SAMPLE 1	S95T002408
DUPLICATE 1	S95T002408dup
SAMPLE 2	
DUPLICATE 2	
SAMPLE 3	
DUPLICATE 3	
SAMPLE 4	
DUPLICATE 4	
SPIKE	S95T002408
SPIKE DUPLICATE	

PRINT

TECH INFO	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
Blank Data (µg/mL)	<.062	<.083	<.547	<.699	<.596	<.678	<.632	<.496
Standard Data (µg/mL)	64.6	80.2	545.1	627	586.1	652.3	688.6	546.5
Sample 1 Data (µg/mL)	<.062	3.30E+03	4.84E+04	9.65E+04	1.39E+03	1.58E+03	<.632	<.496
Sample 1 Dilution Factor	1111	1111	10201	10201	1111	1111	1111	1111
Sample 1 Prep DF	1	1	1	1	1	1	1	1
Duplicate 1 Data (µg/mL)	8.17E+02	3.26E+03	4.93E+04	9.77E+04	1.40E+03	1.61E+03	<.632	<.496
Duplicate 1 Dilution Factor	1111	1111	10201	10201	1111	1111	1111	1111
Duplicate 1 Prep DF	1	1	1	1	1	1	1	1
Sample 2 Data (µg/mL)								
Sample 2 Dilution Factor								
Sample 2 Prep DF								
Duplicate 2 Data (µg/mL)								
Duplicate 2 Dilution Factor								
Duplicate 2 Prep DF								
Sample 3 Data (µg/mL)								
Sample 3 Dilution Factor								
Sample 3 Prep DF								
Duplicate 3 Data (µg/mL)								
Duplicate 3 Dilution Factor								
Duplicate 3 Prep DF								
Sample 4 Data (µg/mL)								
Sample 4 Dilution Factor								
Sample 4 Prep DF								
Duplicate 4 Data (µg/mL)								
Duplicate 4 Dilution Factor								
Duplicate 4 Prep DF								
Spike + Sample 1 (µg/mL)	2.76E+02	3.49E+03	1.09E+05	1.65E+05	6.69E+03	7.62E+03	5.24E+03	5.54E+03
Spike + Dup 1 (µg/mL)								
Spike Volume (mL)	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Total Volume (mL)	11.00	11.00	10.10	10.10	11.00	11.00	11.00	11.00
Std. Conc. (µg/mL)	59	79	534	614	546	631	675	526
Detection Limit	0.062	0.083	0.547	0.699	0.596	0.678	0.632	0.496
Matrix Detection Limit 1	6.89E+01	9.22E+01	5.58E+03	7.13E+03	6.62E+02	7.53E+02	7.02E+02	5.51E+02
Matrix Detection Limit 2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Matrix Detection Limit 3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Matrix Detection Limit 4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Spike Recovery = [((Spike+Sample)-(Sample)*(Total Volume))/((Spike Vol.)*(Spike Std.)*(Sample DF))]*100%
Note: (For spike recovery when the sample conc. is less than detection limit you do NOT subtract sample conc.)
Duplicate Relative % Difference = ((Sample - Duplicate) / ((Sample + Duplicate) / 2) * 100%)
Less than Values are Calculated from the Detection Limit*Dilution Factor

v RESULTS v	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
Standard % Recovery	109.5%	101.5%	102.1%	102.1%	107.3%	103.4%	102.4%	103.9%
Sample 1 in µg/mL	<68.88	3.30E+03	4.84E+04	9.65E+04	1.39E+03	1.58E+03	<702.15	<551.06
Duplicate 1 in µg/mL	8.17E+02	3.26E+03	4.93E+04	9.77E+04	1.40E+03	1.61E+03	<702.15	<551.06
Duplicate 1 RPD	N/A	1.2%	1.7%	1.2%	0.9%	2.4%	N/A	N/A
Sample 2 in µg/mL	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00
Duplicate 2 in µg/mL	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00
Duplicate 2 RPD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spike % Recovery	46.2%	24.6%	112.1%	110.3%	96.2%	94.9%	90.1%	104.3%

Data Entry by: Jann Frye Date: 10/10/95

Approved by: Jann Frye Date: 10/10/95

Form DIONEX.WB1 Rev. 1.3

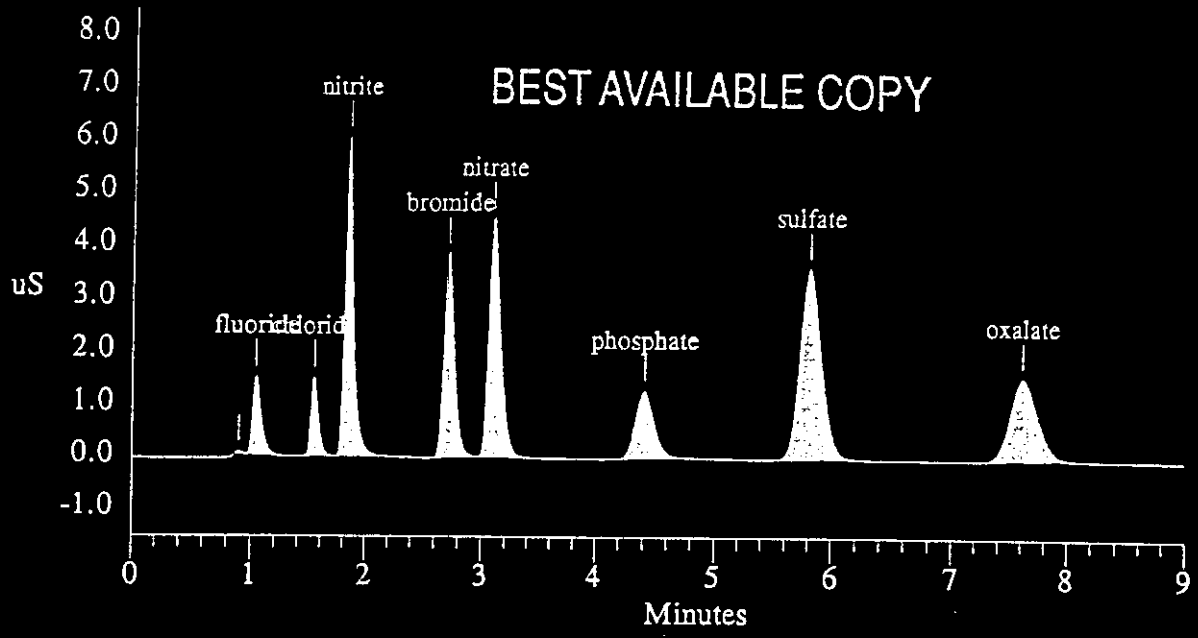
Sample Name: STD-106N9-D Date: 09/29/1995 11:27:31
Data File : C:\DX\DATA\95092921.D02
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 2 Detector:CDM-1
Analyst : [signature] 9/29/95 Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
2	1.04	fluoride	64.622	1488	8140	2	-1.89
3	1.54	chloride	80.225	1507	7639	1	1.32
4	1.84	nitrite	545.187	6041	34846	1	1.10
5	2.71	bromide	588.698	3867	25195	1	0.37
6	3.09	nitrate	627.020	4522	34646	1	0.32
7	4.41	phosphate	586.169	1295	14694	1	-1.56
8	5.81	sulfate	652.331	3625	46700	1	-1.69
9	7.61	oxalate	546.595	1569	26575	1	-2.19
		Totals	3690.846	23913	198436		

File: 95092921.D02 Sample: STD-106N9-D



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 160 TO 167.

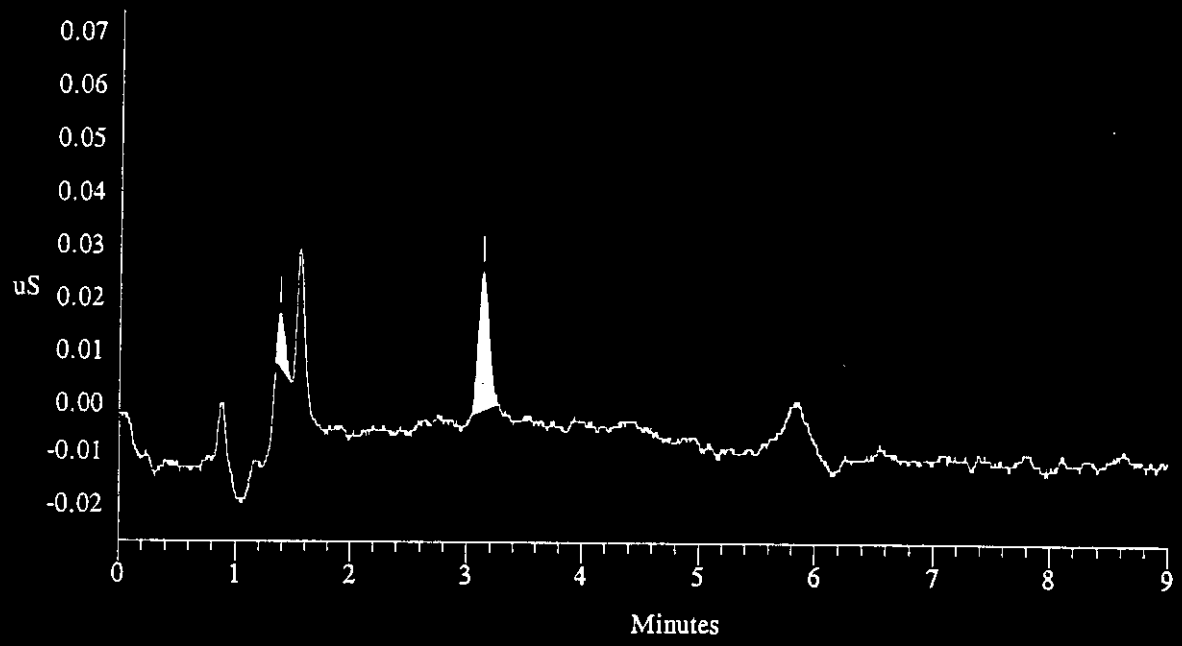
Sample Name: BLK	Date: 09/29/1995 11:08:52
Data File : C:\DX\DATA\95092921.D01	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 1	Detector:CDM-1
Analyst :	Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
		Totals	0.000	0	0		

File: 95092921.D01 Sample: BLK



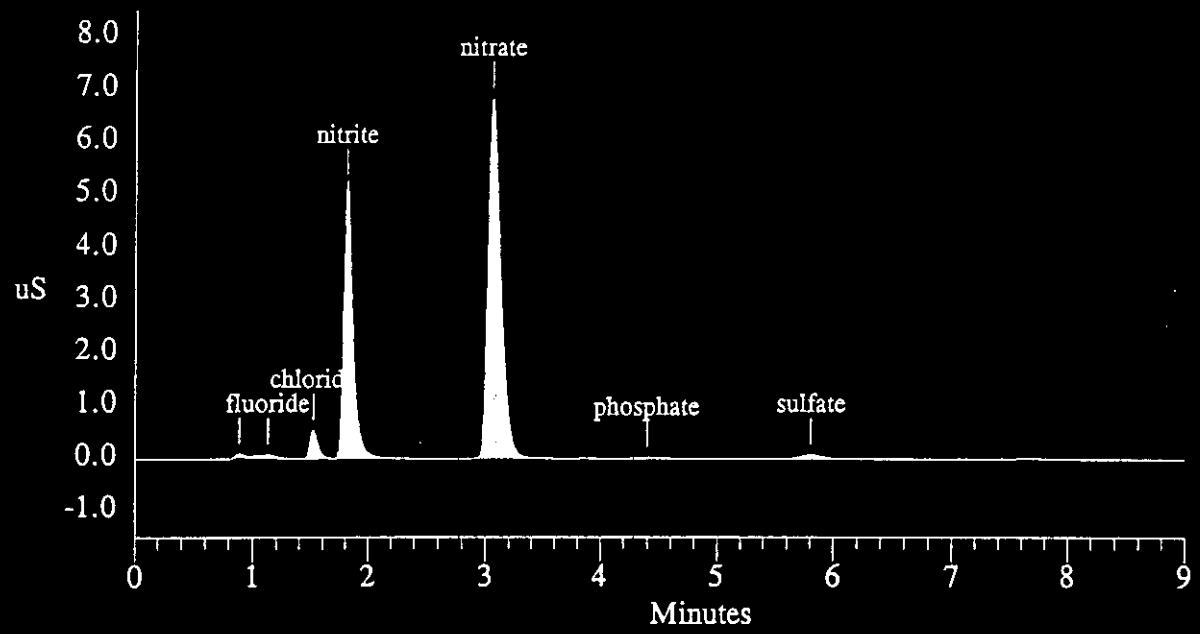
Sample Name: S95T002408 Date: 09/29/1995 11:57:40
Data File : C:\DX\DATA\95092921.D03
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 3 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	10201	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.89		0.000	66	321	2	
2	1.13	fluoride	626.764	70	718	2	6.60
3	1.52	chloride	2732.874	545	2789	1	0.00
4	1.81	nitrite	48436.748	5174	30547	1	-0.55
5	3.06	nitrate	96547.721	6825	53380	1	-0.65
6	4.40	phosphate	2648.584	23	220	1	-1.79
7	5.81	sulfate	1951.199	80	1019	1	-1.69
		Totals	152943.891	12783	88995		

File: 95092921.D03 Sample: S95T002408



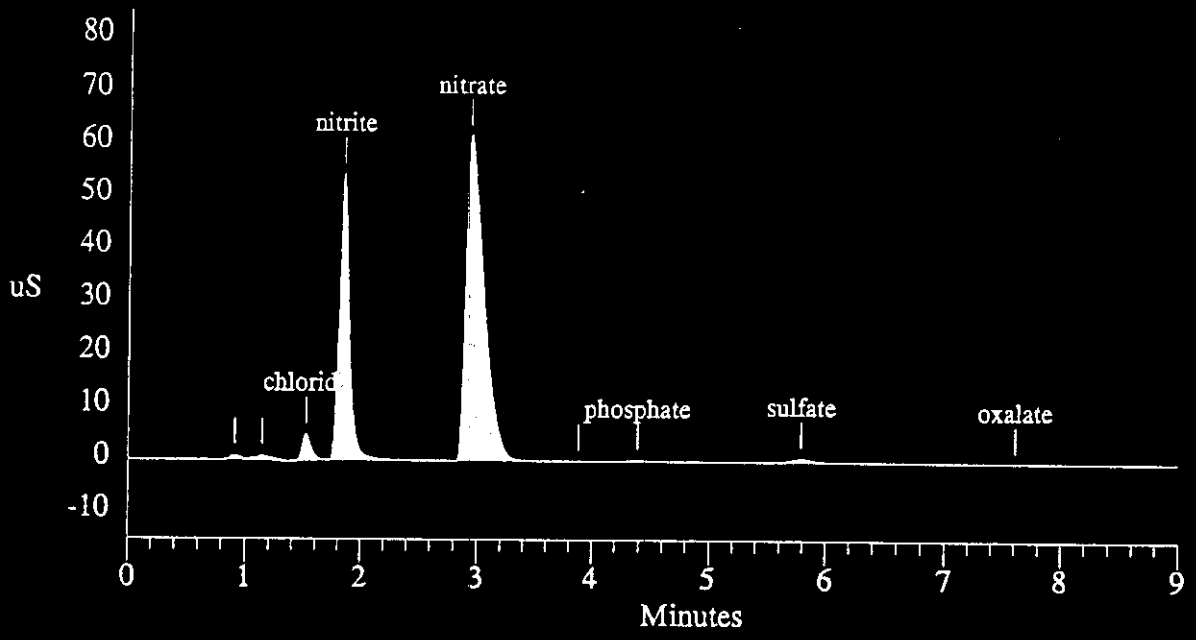
Sample Name: S95T002408 SAM Date: 09/29/1995 14:05:19
Data File : C:\DX\DATA\95092921.D06
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 6 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1111	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.91		0.000	776	4514	2	
2	1.14		0.000	946	9338	2	
3	1.52	chloride	3298.491	5037	28923	1	0.00
4	1.84	nitrite	50571.336	54264	345757	1	1.10
5	2.93	nitrate	88069.190	61502	677863	1	-4.87
6	3.88		0.000	53	485	1	
7	4.39	phosphate	1385.870	245	2755	1	-2.01
8	5.79	sulfate	1576.044	733	9821	1	-2.03
9	7.61	oxalate	450.293	74	1134	1	-2.19
		Totals	145351.225	123630	1080590		

File: 95092921.D06 Sample: S95T002408 SAM



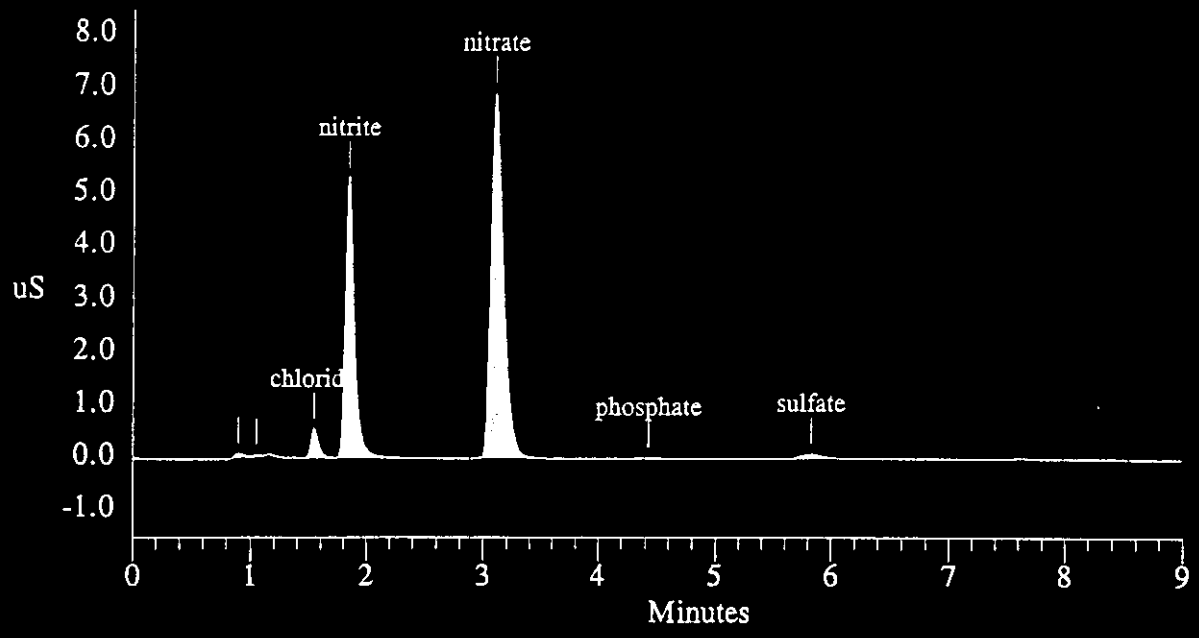
Sample Name:	S95T002408 DUP
Data File :	C:\DX\DATA\95092921.D04
Method :	C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 4	Detector:CDM-1
Analyst :	Column: AG4A/AS4A anion column/SRS
Date:	09/29/1995 13:35:45

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	10201	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.90		0.000	76	365	1	
3	1.54	chloride	2790.165	554	2840	1	1.32
4	1.84	nitrite	49252.569	5297	31076	1	1.10
5	3.10	nitrate	97704.203	6904	54040	1	0.65
6	4.43	phosphate	2738.339	23	242	1	-1.12
7	5.83	sulfate	2118.671	91	1136	1	-1.35
		Totals	154603.946	12945	89699		

File: 95092921.D04 Sample: S95T002408 DUP



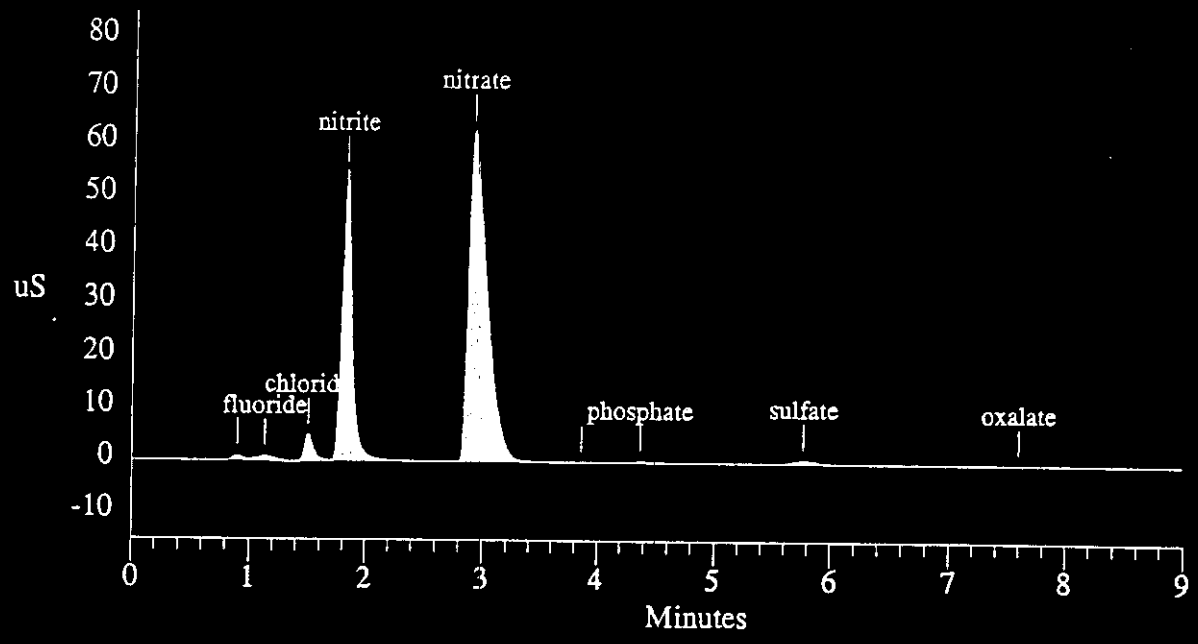
Sample Name: S95T002408 DUP
Data File : C:\DX\DATA\95092921.D07
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 7
Analyst :
Date: 09/29/1995 14:23:01
Detector:CDM-1
Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1111	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.90		0.000	820	4626	2	
2	1.13	fluoride	817.027	980	9393	2	6.60
3	1.50	chloride	3259.194	5085	28558	1	-1.32
4	1.82	nitrite	50568.881	54430	345736	1	0.00
5	2.91	nitrate	88771.174	62615	690416	1	-5.52
6	3.86		0.000	54	523	1	
7	4.37	phosphate	1398.594	247	2784	1	-2.46
8	5.77	sulfate	1614.635	750	10071	1	-2.37
9	7.60	oxalate	476.866	78	1254	1	-2.31
		Totals	146906.371	125060	1093363		

File: 95092921.D07 Sample: S95T002408 DUP



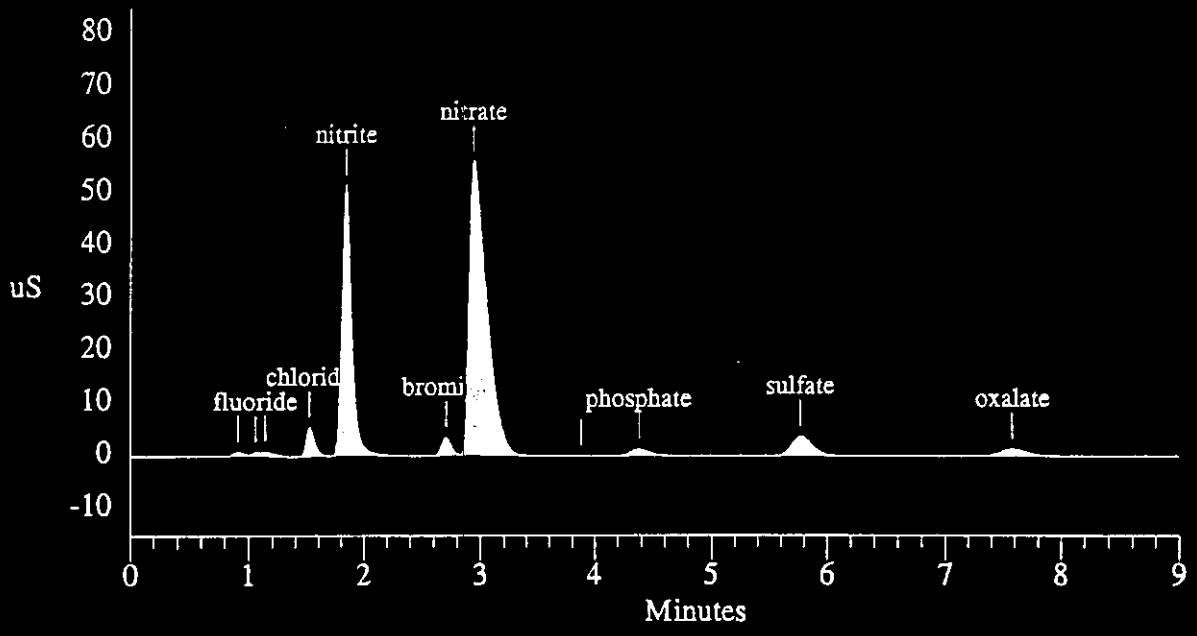
Sample Name: S95T002408 SPK	Date: 09/29/1995 14:36:16
Data File : C:\DX\DATA\95092921.D08	
Method : C:\DX\METHOD\KIT.MET	
ACI Address: 1 System: 1 Inject#: 8	Detector:CDM-1
Analyst :	Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1111	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.91		0.000	660	3520	2	
2	1.06	fluoride	275.674	728	3085	2	0.00
3	1.14		0.000	880	6496	2	
4	1.52	chloride	3494.105	5542	30746	1	0.00
5	1.84	nitrite	47830.623	51381	323095	1	1.10
6	2.71	bromide	5235.660	3416	20173	1	0.37
7	2.94	nitrate	82617.831	55571	595397	1	-4.55
8	3.88		0.000	46	421	1	
9	4.38	phosphate	6690.900	1328	15278	1	-2.23
10	5.77	sulfate	7621.288	3770	49687	1	-2.37
11	7.58	oxalate	5539.111	1417	24377	1	-2.57
		Totals	159305.193	124738	1072274		

File: 95092921.D08 Sample: S95T002408 SPK



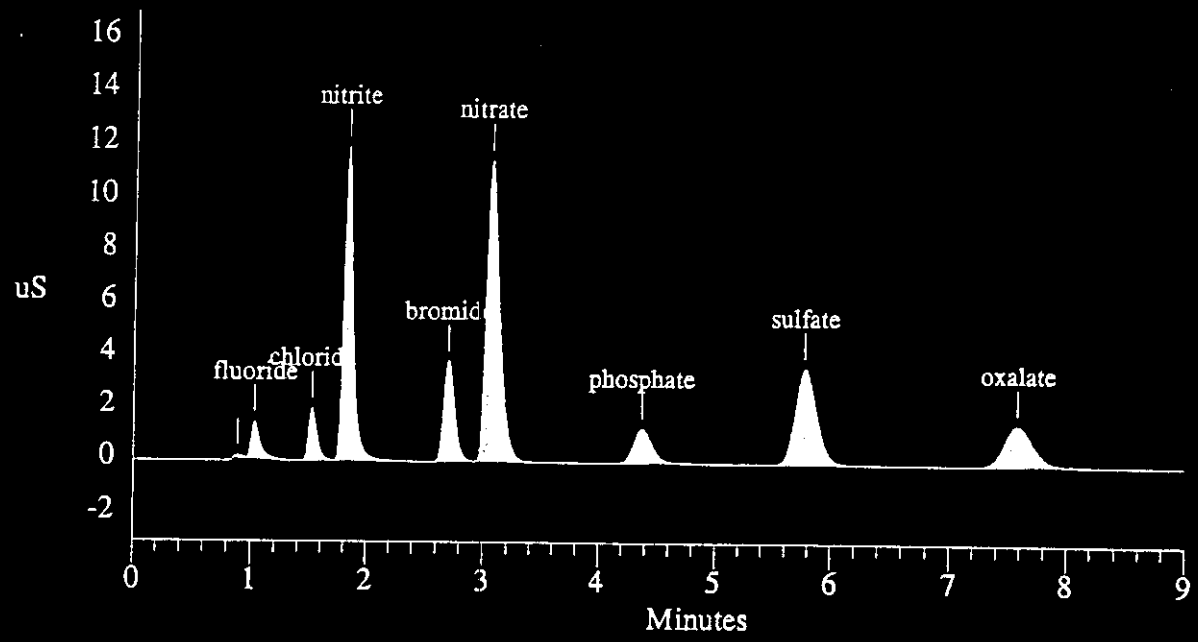
Sample Name: S95T002408 SPK Date: 09/29/1995 13:50:49
Data File : C:\DX\DATA\95092921.D05
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 5 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	10201	2700	5Hz	0.00	9.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.89		0.000	112	484	2	
2	1.03	fluoride	6241.128	1418	7775	2	-2.83
3	1.52	chloride	11311.608	2009	10589	1	0.00
4	1.82	nitrite	108871.157	11920	70408	1	0.00
5	2.70	bromide	60078.114	3832	25470	1	0.00
6	3.05	nitrate	164938.113	11441	93246	1	-0.97
7	4.37	phosphate	60145.610	1322	14941	1	-2.46
8	5.77	sulfate	66774.843	3664	47348	1	-2.37
9	7.58	oxalate	55498.678	1576	26723	1	-2.57
		Totals	533859.251	37295	296983		

File: 95092921.D05 Sample: S95T002408 SPK



LABCORE Completed Worklist Report for Worklist# 2743

Analyst: eal **Instrument:** IC01 **Book#** 109197

Method: A4533-105 Rev/Mod D-1

Worklist Comment: Was originally part of WKL 2572. JMF

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	CCB			0	@IC-01 F-02	LIQUID	1	<.013		ug/mL
1	CCB			0	@IC-01 CL-02	LIQUID	1	<.017		ug/mL
1	CCB			0	@IC-01 NO2-02	LIQUID	1	<.107		ug/mL
1	CCB			0	@IC-01 BR-02	LIQUID	n\a	n\a		ug/mL
1	CCB			0	@IC-01 NO3-02	LIQUID	1	<.140		ug/mL
1	CCB			0	@IC-01 PO4-02	LIQUID	1	<.296		ug/mL
1	CCB			0	@IC-01 SO4-02	LIQUID	1	<.136		ug/mL
1	CCB			0	@IC-01 OXALATE2	LIQUID	n\a	n\a		ug/mL
2	CCV			0	@IC-01 F-02	LIQUID	59	59.5	100.850	% Recovery
2	CCV			0	@IC-01 CL-02	LIQUID	79	76.8	97.220	% Recovery
2	CCV			0	@IC-01 NO2-02	LIQUID	533	503	94.370	% Recovery
2	CCV			0	@IC-01 BR-02	LIQUID	n\a	n\a		% Recovery
2	CCV			0	@IC-01 NO3-02	LIQUID	614	574.7	93.600	% Recovery
2	CCV			0	@IC-01 PO4-02	LIQUID	546	520.3	95.290	% Recovery
2	CCV			0	@IC-01 SO4-02	LIQUID	631	595.2	94.330	% Recovery
2	CCV			0	@IC-01 OXALATE2	LIQUID	n\a	n\a		% Recovery
3	SAMPLE	S95T002409		0	@IC-01 F-02	LIQUID	N/A	6.04e2	67.000	ug/mL
3	SAMPLE	S95T002409		0	@IC-01 CL-02	LIQUID	N/A	3.30e3	173.000	ug/mL
3	SAMPLE	S95T002409		0	@IC-01 NO2-02	LIQUID	N/A	5.10e4	1.090e+003	ug/mL
3	SAMPLE	S95T002409		0	@IC-01 NO3-02	LIQUID	N/A	1.00e5	1.430e+003	ug/mL
3	SAMPLE	S95T002409		0	@IC-01 PO4-02	LIQUID	N/A	2.88e3	1.520e+003	ug/mL
3	SAMPLE	S95T002409		0	@IC-01 SO4-02	LIQUID	N/A	4.25e3	701.000	ug/mL
4	DUP	S95T002409		0	@IC-01 F-02	LIQUID	6.04e2	5.10e2	16.880	RPD
4	DUP	S95T002409		0	@IC-01 CL-02	LIQUID	3.30e3	3.23e3	2.140	RPD
4	DUP	S95T002409		0	@IC-01 NO2-02	LIQUID	5.10e4	4.93e4	3.390	RPD
4	DUP	S95T002409		0	@IC-01 BR-02	LIQUID	n\a	n\a		RPD
4	DUP	S95T002409		0	@IC-01 NO3-02	LIQUID	1.00e5	1.00e5	0.000	RPD
4	DUP	S95T002409		0	@IC-01 PO4-02	LIQUID	2.88e3	2.72e3	5.710	RPD
4	DUP	S95T002409		0	@IC-01 SO4-02	LIQUID	4.25e3	3.91e3	8.330	RPD
4	DUP	S95T002409		0	@IC-01 OXALATE2	LIQUID	n\a	n\a		RPD

Comments Section:

Comments for sample# S95T002409 **and test** @IC-01 .

The duplicate of this sample was run on 10/17. Its standard is with wkl.2974, and sample s95t002410. jmf. rcj

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

LABCORE Completed Worklist Report for Worklist# 2743

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit

Final page for worklist# 2743

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date 10/25/95

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

worklistrpt Version 2.1 05/15/95
10/19/95 11:21

WHC-SD-WM-DP-148, REV. 1

LABCORE Data Entry Template for Worklist# 2743

Enter AND she did not get

Analyst: EAL, KGH **Instrument:** IC01 IC01 **Book #** 109N9A

Method: LA-533-105 Rev/Mod D-1

WHC-SD-WM-DP-148, REV. 0

Worklist Comment: Was originally part of WKL 2572. JMF

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------		MATRIX	ACTUAL	FOUND	DL	UNIT
		1 CCB			@IC-01	F-02	LIQUID	1	<.013	N/A	ug/mL
		1 CCB			@IC-01	CL-02	LIQUID	1	<.017	N/A	ug/mL
		1 CCB			@IC-01	NO2-02	LIQUID	1	<.107	N/A	ug/mL
		1 CCB			@IC-01	BR-02	LIQUID	NA	NA	N/A	ug/mL
		1 CCB			@IC-01	NO3-02	LIQUID	1	<.140	N/A	ug/mL
		1 CCB			@IC-01	PO4-02	LIQUID	1	<.296	N/A	ug/mL
		1 CCB			@IC-01	SO4-02	LIQUID	1	<.136	N/A	ug/mL
		1 CCB			@IC-01	OXALATE2	LIQUID	NA	NA	N/A	ug/mL
		2 CCV			@IC-01	F-02	LIQUID	59	59.5	N/A	ug/mL
		2 CCV			@IC-01	CL-02	LIQUID	79	76.8	N/A	ug/mL
		2 CCV			@IC-01	NO2-02	LIQUID	533	503	N/A	ug/mL
		2 CCV			@IC-01	BR-02	LIQUID	NA	NA	N/A	ug/mL
		2 CCV			@IC-01	NO3-02	LIQUID	614	574.7	N/A	ug/mL
		2 CCV			@IC-01	PO4-02	LIQUID	546	520.3	N/A	ug/mL
		2 CCV			@IC-01	SO4-02	LIQUID	631	595.2	N/A	ug/mL
		2 CCV			@IC-01	OXALATE2	LIQUID	NA	NA	N/A	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0	@IC-01	F-02	LIQUID	N/A	6.04 +2	6.70 +1	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0	@IC-01	CL-02	LIQUID	N/A	3.30 +3	1.73 +2	ug/mL

Data Entry Comments:
The duplicate of this sample was run on 10/17. Its standard is with WKL 2974, and sample S95T002410. JMF
Brs not needed on this WKL, however the BR recovery is low, because I miss entered the values in the calibration table. It has been corrected. JMF

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# 2743

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
95000135	AN-101 GRAB	3	SAMPLE	S95T002409	0	@IC-01	NO2-02	LIQUID	N/A	5.10+4	1.09+3	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002409	0	@IC-01	NO3-02	LIQUID	N/A	1.00+5	1.43+3	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002409	0	@IC-01	PO4-02	LIQUID	N/A	2.88+3	1.52+3	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002409	0	@IC-01	SO4-02	LIQUID	N/A	4.25+3	7.01+2	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002409	0	@IC-01	F-02	LIQUID	6.04+2	5.10+2	N/A	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002409	0	@IC-01	CL-02	LIQUID	3.30+3	3.23+3	N/A	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002409	0	@IC-01	NO2-02	LIQUID	5.10+4	4.93+4	N/A	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002409	0	@IC-01	BR-02	LIQUID	N/A	N/A	N/A	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002409	0	@IC-01	NO3-02	LIQUID	1.00+5	1.00+5	N/A	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002409	0	@IC-01	PO4-02	LIQUID	2.88+3	2.72+3	N/A	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002409	0	@IC-01	SO4-02	LIQUID	4.25+3	3.91+3	N/A	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002409	0	@IC-01	OXALATE2	LIQUID	N/A	N/A	N/A	ug/mL

Final page for worklist # 2743

See original WKL 2743 for signatures of Ann Lambel & Kristin Higber 10/17/95
Analyst Signature Date

[signature] 10-22-95
Analyst Signature Date

Verified 10/25/95 [signature]

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# 2743

Analyst: JMF, KGH **Instrument:** IC01 _____ **Book #** 10902-A

Method: LA-533-105 Rev/Mod D-1

WHC-SD-WM-DP-148, REV. 0

Worklist Comment: Was originally part of WKL 2572. JMF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK				@IC-01 F-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 CL-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 NO2-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 BR-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 NO3-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 PO4-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 SO4-02	LIQUID			N/A	ug/mL
		1	BLNK				@IC-01 OXALATE2	LIQUID			N/A	ug/mL
		2	STD				@IC-01 F-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 CL-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 NO2-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 BR-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 NO3-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 PO4-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 SO4-02	LIQUID			N/A	ug/mL
		2	STD				@IC-01 OXALATE2	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002409	0		@IC-01 F-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002409	0		@IC-01 CL-02	LIQUID	N/A			ug/mL

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# 2743

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0	@IC-01	NO2-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0	@IC-01	NO3-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0	@IC-01	PO4-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0	@IC-01	SO4-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	@IC-01	F-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	@IC-01	CL-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	@IC-01	NO2-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	@IC-01	BR-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	@IC-01	NO3-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	@IC-01	PO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	@IC-01	SO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	@IC-01	OXALATE2	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	5 SAMPLE	S95T002410	0	@IC-01	F-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	5 SAMPLE	S95T002410	0	@IC-01	CL-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	5 SAMPLE	S95T002410	0	@IC-01	NO2-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	5 SAMPLE	S95T002410	0	@IC-01	NO3-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	5 SAMPLE	S95T002410	0	@IC-01	PO4-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	5 SAMPLE	S95T002410	0	@IC-01	SO4-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	6 DUP	S95T002410	0	@IC-01	F-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	6 DUP	S95T002410	0	@IC-01	CL-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	6 DUP	S95T002410	0	@IC-01	NO2-02	LIQUID			N/A	ug/mL

Data Entry Comments: WHC-SD-WM-DP-148, REV. 1

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# 2743

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
95000135	AN-101 GRAB	6	DUP	S95T002410	0		@IC-01 BR-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	6	DUP	S95T002410	0		@IC-01 NO3-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	6	DUP	S95T002410	0		@IC-01 PO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	6	DUP	S95T002410	0		@IC-01 SO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	6	DUP	S95T002410	0		@IC-01 OXALATE2	LIQUID			N/A	ug/mL
		7	CCB				@IC-01 F-02	LIQUID			N/A	ug/mL
		7	CCB				@IC-01 CL-02	LIQUID			N/A	ug/mL
		7	CCB				@IC-01 NO2-02	LIQUID			N/A	ug/mL
		7	CCB				@IC-01 BR-02	LIQUID			N/A	ug/mL
		7	CCB				@IC-01 NO3-02	LIQUID			N/A	ug/mL
		7	CCB				@IC-01 PO4-02	LIQUID			N/A	ug/mL
		7	CCB				@IC-01 SO4-02	LIQUID			N/A	ug/mL
		7	CCB				@IC-01 OXALATE2	LIQUID			N/A	ug/mL
		8	CCV				@IC-01 F-02	LIQUID			N/A	ug/mL
		8	CCV				@IC-01 CL-02	LIQUID			N/A	ug/mL
		8	CCV				@IC-01 NO2-02	LIQUID			N/A	ug/mL
		8	CCV				@IC-01 BR-02	LIQUID			N/A	ug/mL
		8	CCV				@IC-01 NO3-02	LIQUID			N/A	ug/mL
		8	CCV				@IC-01 PO4-02	LIQUID			N/A	ug/mL
		8	CCV				@IC-01 SO4-02	LIQUID			N/A	ug/mL
		8	CCV				@IC-01 OXALATE2	LIQUID			N/A	ug/mL

Data Entry Comments:

WHC-SD-WM-DP-149, REV. 1

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# 2743

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT

Final page for worklist # 2743

Analyst Signature Date 10-17-95

Analyst Signature Date 10/16-17-95

Data Entry Comments: Second set of Standards ran for second day of analyses. EWL 10/17/95

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

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
INORGANIC ANALYTICAL BATCH AND SUMMARY SHEET

ANION ANALYSIS ON DIONEX

SAMPLE #:	S95T002409		
TEST CODE:	@IC-01	ANALYST:	EAL/KGH
INSTRUMENT:	IC01	ANALYSIS DATE:	10/17/95
WORK LIST #:	2743	SAMPLE POINT:	AN-101
BATCH ID:	N\A	SAMPLE PREP:	DIRECT

rce 11/1/95

Result Units µg/mL	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
109N9A	100.8%	97.2%	94.4%	93.6%	95.3%	~~109.0%~~	94% 33.9%	105.7%
S95T002409	6.04E+02	3.30E+03	5.10E+04	1.00E+05	2.88E+03	4.25E+03	<649.03	<540.86
S95T002409DUP	5.10E+02	3.23E+03	4.93E+04	1.00E+05	2.72E+03	3.91E+03	<649.03	<540.86
Duplicate 1 RPD	16.9%	2.1%	3.4%	0.2%	5.7%	8.3%	N/A	N/A
	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00
	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00
Duplicate 2 RPD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NARRATIVE: Analyst Comments:

Chemist Comments:

Form Completed By: [signature] Date: 10-22-95

Chemist Approval: [signature] Date: 10/23/95

LAB LEADER INFO	
Method:	LA-533-105
Matrix:	LIQUID
Test Code:	@IC-01
Work List #:	2743
Batch #:	N/A
Result Units (µg/g or µg/mL):	µg/mL
Spike Book Number:	N/A
Enter Spike Sample # (1-4):	N/A
Prepared By:	RCJ
Prepared Date:	10/22/95
Chemist:	JMF
Analyst:	EAL/KGH
Analysis Date:	10/17/95
Time Complete:	09:40 PM
Instrument Code:	IC01
Rerun:	0
Sample Prep:	DIRECT
Sample Point:	AN-101
Sample Type	
STANDARD	109N8A
SAMPLE 1	S95T002409
DUPLICATE 1	S95T002409DUP
SAMPLE 2	
DUPLICATE 2	
SAMPLE 3	
DUPLICATE 3	
SAMPLE 4	
DUPLICATE 4	
SPIKE	
SPIKE DUPLICATE	

PRINT

TECH INFO	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
Blank Data (µg/mL)	<.013	<.017	<.107	<.140	<.296	<.136	<.126	<.105
Standard Data (µg/mL)	59.5	76.8	503	574.7	520.3	595.2	195.2	555.8
Sample 1 Data (µg/mL)	6.04E+02	3.30E+03	5.10E+04	1.00E+05	2.88E+03	4.25E+03	<.126	<.105
Sample 1 Dilution Factor	5151	10201	10201	10201	5151	5151	5151	5151
Sample 1 Prep DF	1	1	1	1	1	1	1	1
Duplicate 1 Data (µg/mL)	5.10E+02	3.23E+03	4.93E+04	1.00E+05	2.72E+03	3.91E+03	<.126	<.105
Duplicate 1 Dilution Factor	5151	10201	10201	10201	5151	5151	5151	5151
Duplicate 1 Prep DF	1	1	1	1	1	1	1	1
Sample 2 Data (µg/mL)								
Sample 2 Dilution Factor								
Sample 2 Prep DF								
Duplicate 2 Data (µg/mL)								
Duplicate 2 Dilution Factor								
Duplicate 2 Prep DF								
Sample 3 Data (µg/mL)								
Sample 3 Dilution Factor								
Sample 3 Prep DF								
Duplicate 3 Data (µg/mL)								
Duplicate 3 Dilution Factor								
Duplicate 3 Prep DF								
Sample 4 Data (µg/mL)								
Sample 4 Dilution Factor								
Sample 4 Prep DF								
Duplicate 4 Data (µg/mL)								
Duplicate 4 Dilution Factor								
Duplicate 4 Prep DF								
Spike + Sample (µg/mL)								
Spike + Dup (µg/mL)								
Spike Volume (mL)								
Total Volume (mL)								
Std. Conc. (µg/mL)	59	79	533	614	546	631 ~~546~~	575	526
Detection Limit	0.013	0.017	0.107	0.140	0.296	0.136	0.126	0.105
Matrix Detection Limit 1	6.70E+01	1.73E+02	1.09E+03	1.43E+03	1.52E+03	7.01E+02	6.49E+02	5.41E+02
Matrix Detection Limit 2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Matrix Detection Limit 3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Matrix Detection Limit 4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

RCJ 11/1/95

Spike Recovery = [((Spike+Sample)-(Sample)*(Total Volume))/((Spike Vol.)*(Spike Std.)*(Sample DF))]*100%

Note: (For spike recovery when the sample conc. is less than detection limit you do NOT subtract sample conc.)

Duplicate Relative % Difference = ((Sample - Duplicate) / ((Sample + Duplicate) / 2) * 100%)

Less than Values are Calculated from the Detection Limit* Dilution Factor

94.3% RCJ 11/1/95

v RESULTS v	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
Standard % Recovery	100.8%	97.2%	94.4%	93.6%	98.3%	~~409.3%~~	33.9%	105.7%
Sample 1 in µg/mL	6.04E+02	3.30E+03	5.10E+04	1.00E+05	2.88E+03	4.25E+03	<649.03	<540.86
Duplicate 1 in µg/mL	5.10E+02	3.23E+03	4.93E+04	1.00E+05	2.72E+03	3.91E+03	<649.03	<540.86
Duplicate 1 RPD	16.9%	2.1%	3.4%	0.2%	5.7%	8.3%	N/A	N/A
Sample 2 in µg/mL	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00
Duplicate 2 in µg/mL	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00
Duplicate 2 RPD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Data Entry by: [signature] Date: 10/22/95

Approved by: [signature] Date: 10/27/95

Form DIONEX.WB1 Rev. 1.3

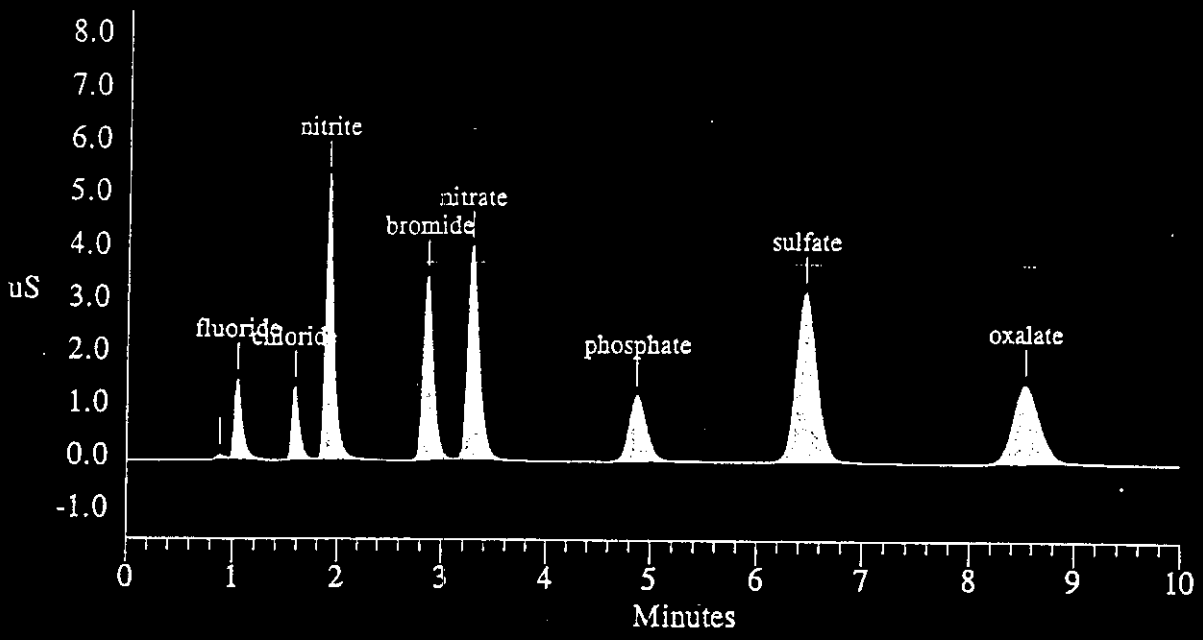
Sample Name: 109N9-A Std. Date: 10/16/1995 22:20:26
Data File : C:\DX\DATA\95101511.D10
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 10 Detector:CDM-1
Analyst : [signature] 10-17-95 Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	3000	5Hz	0.00	10.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.88		0.000	57	270	2	
2	1.04	fluoride	59.486	1502	8213	2	0.97
3	1.58	chloride	76.768	1370	7305	1	0.00
4	1.90	nitrite	503.044	5344	33005	1	-1.04
5	2.86	bromide	195.173	3480	24346	1	1.78
6	3.27	nitrate	574.678	4005	32659	1	3.81
7	4.87	phosphate	520.255	1249	14641	1	1.67
8	6.46	sulfate	595.225	3230	44810	1	1.57
9	8.53	oxalate	555.838	1504	27499	1	2.03
		Totals	3080.466	21741	192750		

File: 95101511.D10 Sample: 109N9-A



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 178 TO 183

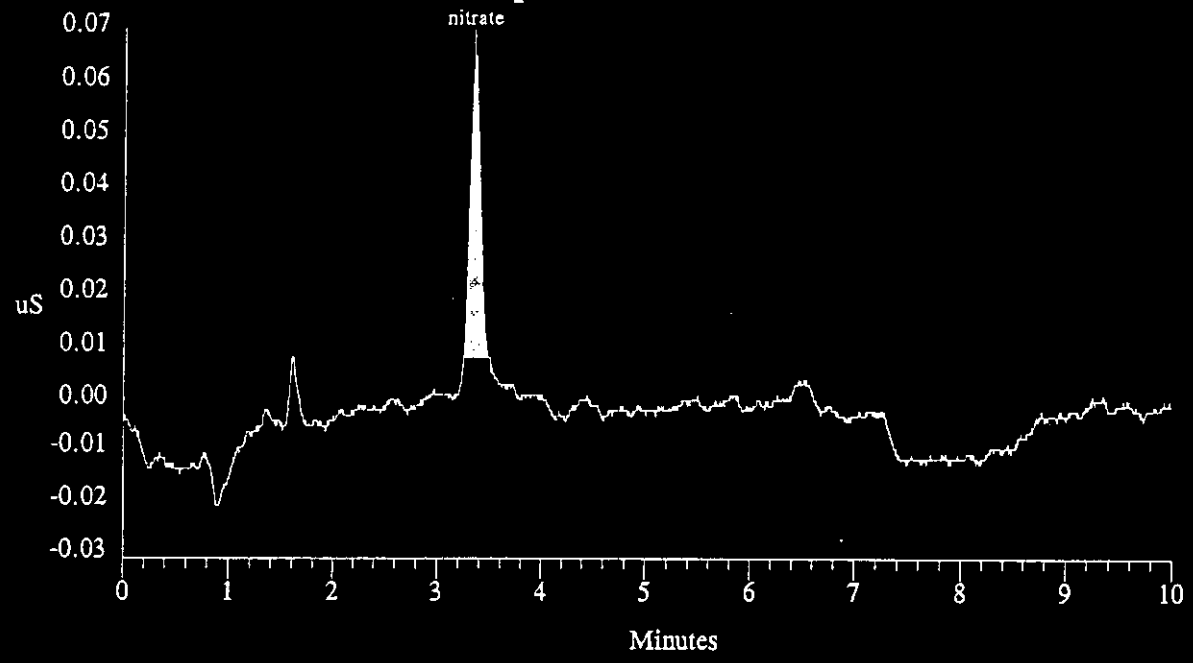
```
Sample Name: BLANK                          Date: 10/16/1995 22:44:11
Data File  : C:\DX\DATA\95101511.D12
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 12              Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column/SRS
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	3.33	nitrate	0.375	55	395	1	5.71
		Totals	0.375	55	395		

File: 95101511.D12 Sample: BLANK



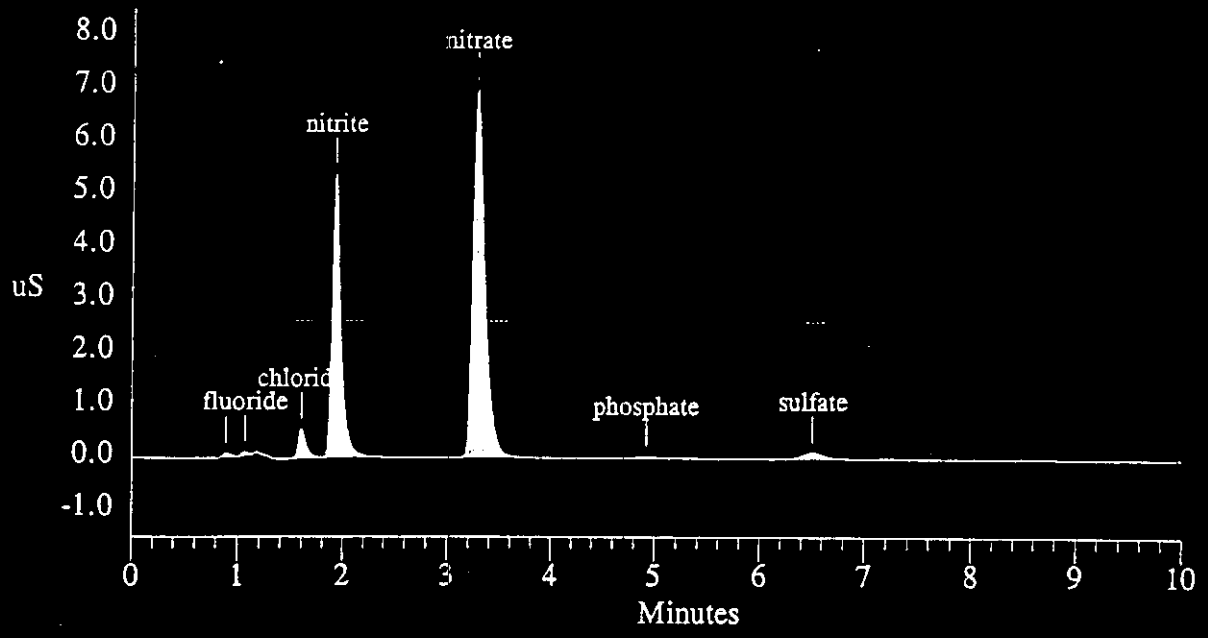
Sample Name: S95T002409 .100-10, 100-10 Date: 10/16/1995 22:58:20
Data File : C:\DX\DATA\95101511.D13
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 13 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	10201	3000	5Hz	0.00	10.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.89		0.000	72	375	1	
2	1.07	fluoride	397.958	66	262	1	3.88
3	1.60	chloride	3301.004	555	3042	1	1.27
4	1.92	nitrite	50977.368	5361	33121	1	0.00
5	3.27	nitrate	100331.598	6945	58357	1	3.81
6	4.92	phosphate	3050.571	32	350	1	2.71
7	6.51	sulfate	4677.701	119	1576	1	2.36
		Totals	162736.201	13149	97084		

File: 95101511.D13 Sample: S95T002409



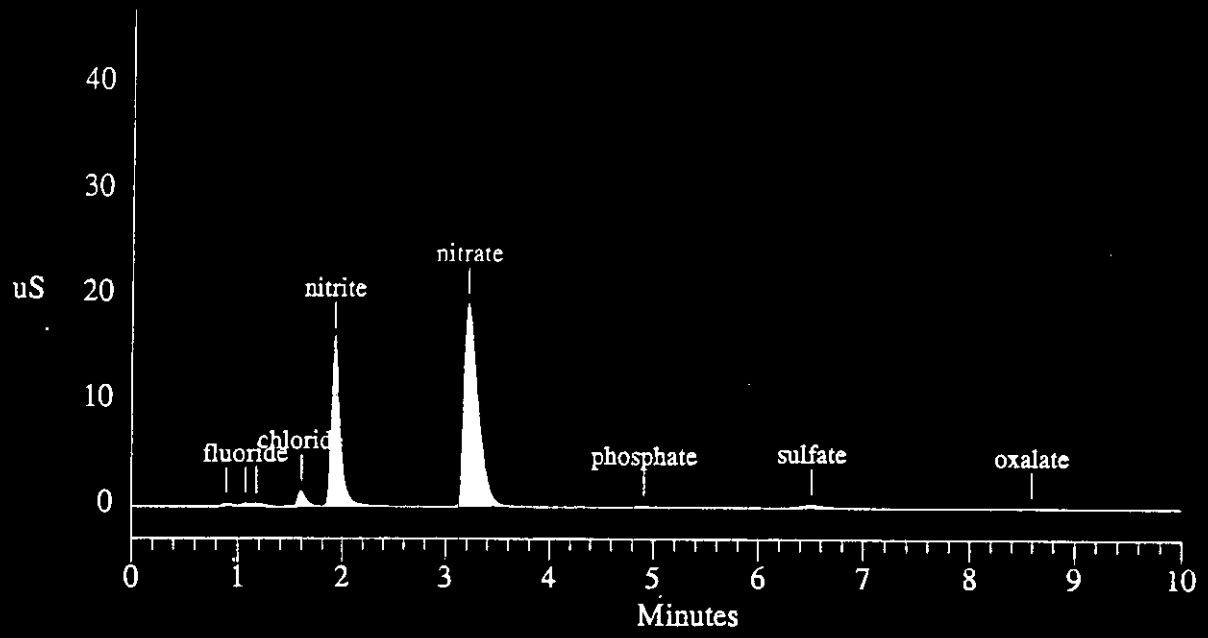
Sample Name: S95T002409 , 100-10-, 200-10 Date: 10/16/1995 23:16:21
Data File : C:\DX\DATA\95101511.D14
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 14 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	5151	3000	5Hz	0.00	10.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.89		0.000	223	1331	2	
2	1.07	fluoride	604.148	281	1385	2	3.88
3	1.17		0.000	326	2431	2	
4	1.60	chloride	4563.411	1505	8544	1	1.27
5	1.92	nitrite	72591.332	15953	97078	1	0.00
6	3.21	nitrate	147064.968	19300	180983	1	1.90
7	4.91	phosphate	2884.007	100	1108	1	2.51
8	6.51	sulfate	4248.456	324	4451	1	2.36
9	8.59	oxalate	1392.540	29	403	1	2.75
		Totals	233348.861	38040	297714		

File: 95101511.D14 Sample: S95T002409



Data Reprocessed On 10/17/1995 06:50:21

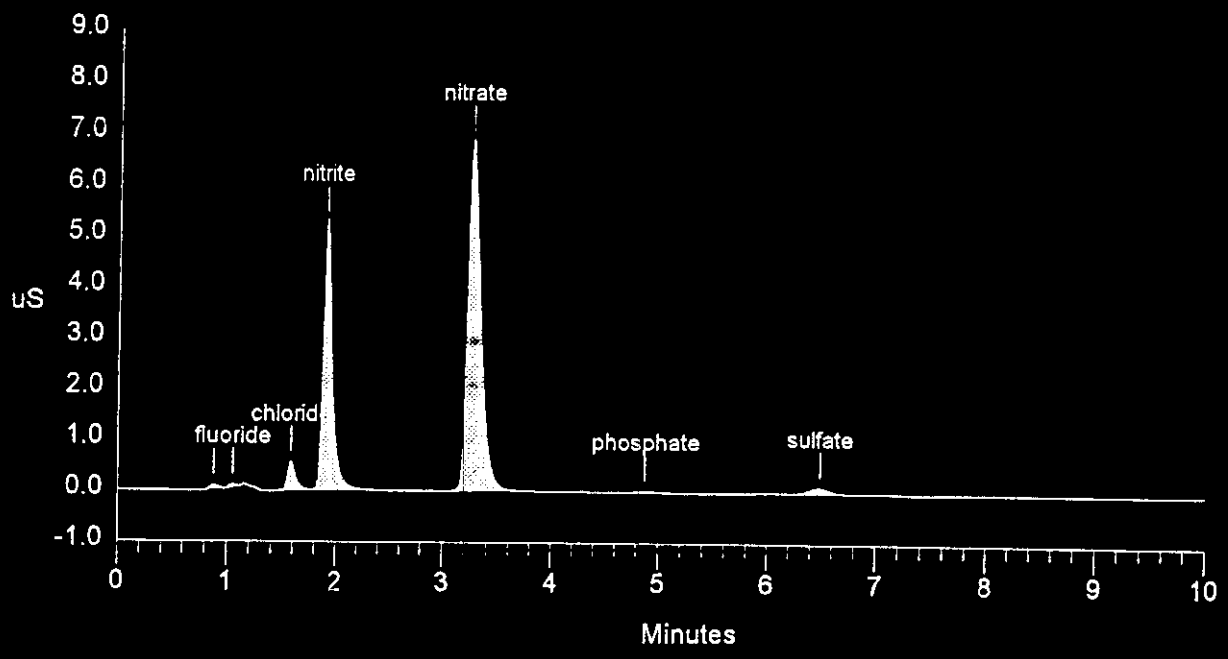
Sample Name: S95T002409-DUP 100-10, 100-10 Date: 10/17/1995 01:54:31
Data File : C:\DX\DATA\95101521.D01
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 1 Detector:CDM-1
Analyst : Kristin Hughes Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	10201	3000	5Hz	0.00	10.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.88		0.000	70	369	1	
2	1.05	fluoride	407.426	70	276	1	1.94
3	1.58	chloride	3232.584	563	2977	1	0.00
4	1.90	nitrite	49255.710	5268	31946	1	-1.04
5	3.25	nitrate	100116.717	6853	58225	1	3.17
6	4.88	phosphate	2843.934	29	291	1	1.88
7	6.49	sulfate	4683.815	117	1581	1	2.04
		Totals	160540.187	12971	95665		

File: 95101521.D01 Sample: S95T002409-DUP



Sample Name:	S95T002409DUP
Data File :	C:\DX\DATA\95101531.D12
Method :	C:\DX\METHOD\KIT.MET
ACI Address:	1 System: 1 Inject#: 12
Analyst :	

Date: 10/17/1995 21:38:54

Detector:CDM-1

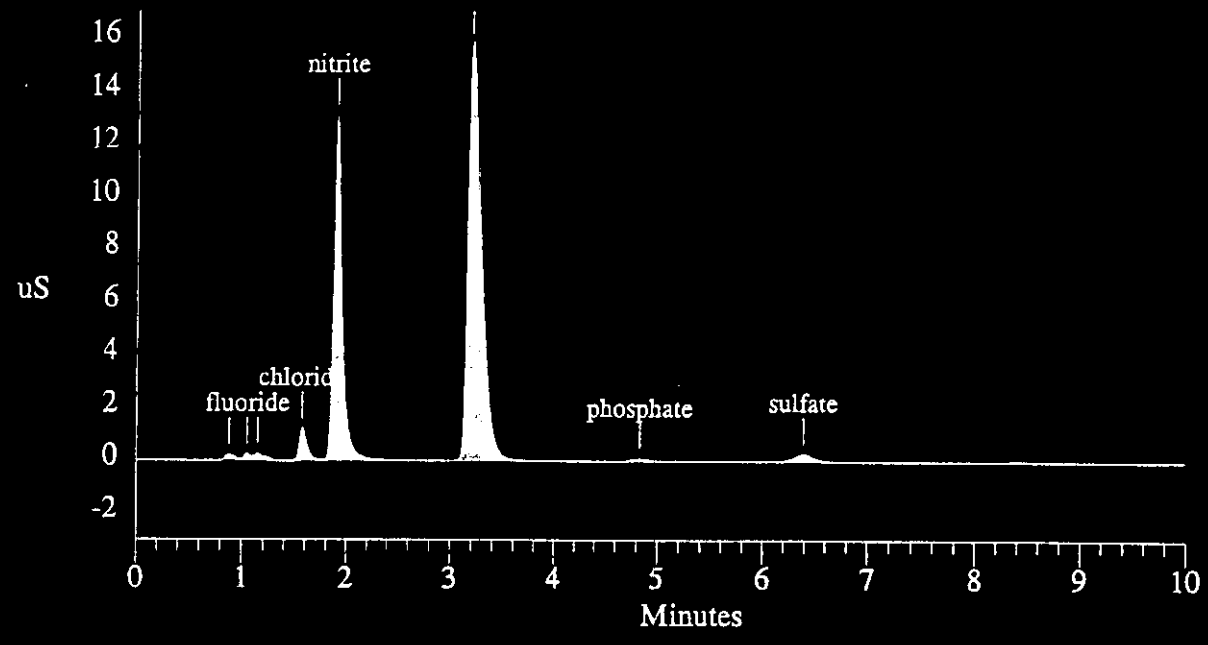
Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	5151	3000	5Hz	0.00	10.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.88		0.000	178	1013	2	
2	1.05	fluoride	510.219	233	1123	2	1.94
3	1.15		0.000	256	1909	2	
4	1.57	chloride	3573.562	1216	6654	1	-0.63
5	1.90	nitrite	58488.820	13074	77698	1	-1.04
6	3.19	nitrate	120587.472	15743	146127	1	1.27
7	4.83	phosphate	2722.476	91	1017	1	0.94
8	6.39	sulfate	3909.571	285	3934	1	0.47
		Totals	189793.121	31077	239475		

File: 95101531.D12 Sample: S95T002409



LABCORE Completed Worklist Report for Worklist# 2974

Analyst: eal **Instrument:** IC01 **Book#** 109N9A

95000135
AN-101

Method: LA-533-105 Rev/Mod D-1

Worklist Comment: AN-101 IC was part of WKL 2572 originally.JMF WHC-SD-WM-DP-148, REV. 1

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	CCB			0	@IC-QC F-QC	QC	1	<.013		ug/mL
1	CCB			0	@IC-QC CL-QC	QC	1	<.017		ug/mL
1	CCB			0	@IC-QC NO2-QC	QC	1	<.107		ug/mL
1	CCB			0	@IC-QC BR-QC	QC	n\a	n\a		ug/mL
1	CCB			0	@IC-QC NO3-QC	QC	1	<.140		ug/mL
1	CCB			0	@IC-QC PO4-QC	QC	1	<.296		ug/mL
1	CCB			0	@IC-QC SO4-QC	QC	1	<.136		ug/mL
1	CCB			0	@IC-QC OXALATQC	QC	n\a	n\a		ug/mL
2	CCV			0	@IC-QC F-QC	QC	59	58.5	99.150	% Recovery
2	CCV			0	@IC-QC CL-QC	QC	79	76.5	96.840	% Recovery
2	CCV			0	@IC-QC NO2-QC	QC	533	500.1	93.830	% Recovery
2	CCV			0	@IC-QC BR-QC	QC	n\a	n\a		% Recovery
2	CCV			0	@IC-QC NO3-QC	QC	614	584.5	95.200	% Recovery
2	CCV			0	@IC-QC PO4-QC	QC	546	524.2	96.010	% Recovery
2	CCV			0	@IC-QC SO4-QC	QC	631	598.7	94.880	% Recovery
2	CCV			0	@IC-QC OXALATQC	QC	n\a	n\a		% Recovery
3	SAMPLE	S95T002410		0	@IC-01 F-02	LIQUID	N/A	4.25e2	67.000	ug/mL
3	SAMPLE	S95T002410		0	@IC-01 CL-02	LIQUID	N/A	3.04e3	173.000	ug/mL
3	SAMPLE	S95T002410		0	@IC-01 NO2-02	LIQUID	N/A	4.60e4	1.090e+003	ug/mL
3	SAMPLE	S95T002410		0	@IC-01 NO3-02	LIQUID	N/A	9.42e4	1.430e+003	ug/mL
3	SAMPLE	S95T002410		0	@IC-01 PO4-02	LIQUID	N/A	2.17e3	1.520e+003	ug/mL
3	SAMPLE	S95T002410		0	@IC-01 SO4-02	LIQUID	N/A	3.46e3	701.000	ug/mL
4	DUP	S95T002410		0	@IC-01 F-02	LIQUID	4.25e2	4.23e2	0.470	RPD
4	DUP	S95T002410		0	@IC-01 CL-02	LIQUID	3.04e3	3.70e3	19.580	RPD
4	DUP	S95T002410		0	@IC-01 NO2-02	LIQUID	4.60e4	4.54e4	1.310	RPD
4	DUP	S95T002410		0	@IC-01 BR-02	LIQUID	n\a	n\a		RPD
4	DUP	S95T002410		0	@IC-01 NO3-02	LIQUID	9.42e4	9.40e4	0.210	RPD
4	DUP	S95T002410		0	@IC-01 PO4-02	LIQUID	2.17e3	2.17e3	0.000	RPD
4	DUP	S95T002410		0	@IC-01 SO4-02	LIQUID	3.46e3	3.43e3	0.870	RPD
4	DUP	S95T002410		0	@IC-01 OXALATE2	LIQUID	n\a	n\a		RPD

Final page for worklist# 2974

Analyst Signature Date

Analyst Signature Date

[signature] 10/25/95
Reviewer Signature Date

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

LABCORE Data Entry Template for Worklist# 2974

Analyst: EAL, KGH **Instrument:** IC01 IC01 **Book #** 109N9A

Method: LA-533-105 Rev/Mod D-1 WHC-SD-WM-DP-148, REV.1

Worklist Comment: AN-101 IC was part of WKL 2572 originally.JMF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	CCB				@IC-QC F-QC	QC	1	1.013	N/A	ug/mL
		1	CCB				@IC-QC CL-QC	QC	1	1.017	N/A	ug/mL
		1	CCB				@IC-QC NO2-QC	QC	1	1.107	N/A	ug/mL
		1	CCB				@IC-QC BR-QC	QC	NA	NA	N/A	ug/mL
		1	CCB				@IC-QC NO3-QC	QC	1	1.140	N/A	ug/mL
		1	CCB				@IC-QC PO4-QC	QC	1	1.296	N/A	ug/mL
		1	CCB				@IC-QC SO4-QC	QC	1	1.136	N/A	ug/mL
		1	CCB				@IC-QC OXALATQC	QC	NA	NA	N/A	ug/mL
		2	CCV				@IC-QC F-QC	QC	59	58.5	N/A	ug/mL
		2	CCV				@IC-QC CL-QC	QC	79	76.5	N/A	ug/mL
		2	CCV				@IC-QC NO2-QC	QC	533	500.1	N/A	ug/mL
		2	CCV				@IC-QC BR-QC	QC	NA	NA	N/A	ug/mL
		2	CCV				@IC-QC NO3-QC	QC	614	584.5	N/A	ug/mL
		2	CCV				@IC-QC PO4-QC	QC	546	524.2	N/A	ug/mL
		2	CCV				@IC-QC SO4-QC	QC	631	598.7	N/A	ug/mL
		2	CCV				@IC-QC OXALATQC	QC	NA	NA	N/A	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002410	0		@IC-01 F-02	LIQUID	N/A	4.25^{+2}	6.70^{+1}	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002410	0		@IC-01 CL-02	LIQUID	N/A	3.04^{+3}	1.73^{+2}	ug/mL

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.

Mistrpt Version 2.1 05/15/95
10/19/95 11:22

LABCORE Data Entry Template for Worklist# 2974

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
95000135	AN-101 GRAB	3 SAMPLE	S95T002410	0	@IC-01	NO2-02	LIQUID	N/A	4.60^{+4}	1.09^{+3}	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002410	0	@IC-01	NO3-02	LIQUID	N/A	9.42^{+4}	1.43^{+3}	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002410	0	@IC-01	PO4-02	LIQUID	N/A	2.17^{+3}	1.52^{+3}	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002410	0	@IC-01	SO4-02	LIQUID	N/A	3.46^{+3}	7.01^{+2}	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0	@IC-01	F-02	LIQUID	4.25^{+2}	4.23^{+2}	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0	@IC-01	CL-02	LIQUID	3.04^{+3}	3.70^{+3}	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0	@IC-01	NO2-02	LIQUID	4.60^{+4}	4.54^{+4}	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0	@IC-01	BR-02	LIQUID	N/A	N/A	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0	@IC-01	NO3-02	LIQUID	9.42^{+4}	9.40^{+4}	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0	@IC-01	PO4-02	LIQUID	2.17^{+3}	2.17^{+3}	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0	@IC-01	SO4-02	LIQUID	3.46^{+3}	3.43^{+3}	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0	@IC-01	OXALATE2	LIQUID	N/A	N/A	N/A	ug/mL

Final page for worklist # 2974

Was originally signed by
Analyst Signature Date
Ann Lambert & Kristin Higbee 10/17/95
Edited by Jean Luge 10/19/95
Verified 10/25/95 J. M. Luge

R D Jones 10-22-95
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.

~~WHC-SD-WM-DP-148 REV 0~~

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
INORGANIC ANALYTICAL BATCH AND SUMMARY SHEET

ANION ANALYSIS ON DIONEX

SAMPLE #:	S95T002410		
TEST CODE:	@IC-01	ANALYST:	EAL/KGH
INSTRUMENT:	IC01	ANALYSIS DATE:	10/17/95
WORK LIST #:	2974	SAMPLE POINT:	AN-101
BATCH ID:	N\A	SAMPLE PREP:	DIRECT

94.88 % ese 11/1/95

Result Units ug/mL	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
109N9A	99.2%	96.8%	93.8%	95.2%	96.0%	~~109.7%~~	96.5%	106.6%
S95T002410	4.25E+02	3.04E+03	4.60E+04	9.42E+04	2.17E+03	3.46E+03	<649.03	<540.86
S95T002410DUP	4.23E+02	3.70E+03	4.54E+04	9.40E+04	2.17E+03	3.43E+03	<649.03	<540.86
Duplicate 1 RPD	0.5%	19.7%	1.3%	0.3%	0.4%	0.9%	N/A	N/A
	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00
	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00
Duplicate 2 RPD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NARRATIVE: Analyst Comments:

Chemist Comments:

Form Completed By:	[signature]	Date:	10-22-95
Chemist Approval:	[signature]	Date:	10/23/95

WHC-SD-WM-DP-148, REV. 1

LAB LEADER INFO	
Method:	LA-533-105
Matrix:	LIQUID
Test Code:	@IC-01
Work List #:	2874
Batch #:	N/A
Result Units (µg/g or µg/mL):	µg/mL
Spike Book Number:	N/A
Enter Spike Sample # (1-4):	N/A
Prepared By:	RCJ
Prepared Date:	10/22/95
Chemist:	JMF
Analyst:	EAL/KGH
Analysis Date:	10/17/95
Time Complete:	10:00 PM
Instrument Code:	IC01
Rerun:	0
Sample Prep:	DIRECT
Sample Point:	AN-101
Sample Type	
STANDARD	109N9A
SAMPLE 1	S95T002410
DUPLICATE 1	S95T002410DUP
SAMPLE 2	
DUPLICATE 2	
SAMPLE 3	
DUPLICATE 3	
SAMPLE 4	
DUPLICATE 4	
SPIKE	
SPIKE DUPLICATE	

PRINT

TECH INFO

	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
Blank Data (µg/mL)	<.013	<.017	<.107	<.140	<.296	<.136	<.126	<.105
Standard Data (µg/mL)	58.5	76.5	500.1	584.5	524.2	598.7	554.6	560.9
Sample 1 Data (µg/mL)	4.25E+02	3.04E+03	4.60E+04	9.42E+04	2.17E+03	3.46E+03	<.126	<.105
Sample 1 Dilution Factor	5151	10201	10201	10201	5151	5151	5151	5151
Sample 1 Prep DF	1	1	1	1	1	1	1	1
Duplicate 1 Data (µg/mL)	4.23E+02	3.70E+03	4.54E+04	9.40E+04	2.17E+03	3.43E+03	<.126	<.105
Duplicate 1 Dilution Factor	5151	10201	10201	10201	5151	5151	5151	5151
Duplicate 1 Prep DF	1	1	1	1	1	1	1	1
Sample 2 Data (µg/mL)								
Sample 2 Dilution Factor								
Sample 2 Prep DF								
Duplicate 2 Data (µg/mL)								
Duplicate 2 Dilution Factor								
Duplicate 2 Prep DF								
Sample 3 Data (µg/mL)								
Sample 3 Dilution Factor								
Sample 3 Prep DF								
Duplicate 3 Data (µg/mL)								
Duplicate 3 Dilution Factor								
Duplicate 3 Prep DF								
Sample 4 Data (µg/mL)								
Sample 4 Dilution Factor								
Sample 4 Prep DF								
Duplicate 4 Data (µg/mL)								
Duplicate 4 Dilution Factor								
Duplicate 4 Prep DF								
Spike + Sample (µg/mL)								
Spike + Dup (µg/mL)								
Spike Volume (mL)								
Total Volume (mL)								
Std. Conc. (µg/mL)	59	79	533	614	546	631 ~~640~~ RAE 11/1/95	575	526
Detection Limit	0.013	0.017	0.107	0.140	0.296	0.136	0.126	0.105
Matrix Detection Limit 1	6.70E+01	1.73E+02	1.09E+03	1.43E+03	1.52E+03	7.01E+02	6.49E+02	5.41E+02
Matrix Detection Limit 2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Matrix Detection Limit 3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Matrix Detection Limit 4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Spike Recovery = [(Spike+Sample)-(Sample)*(Total Volume)]/[(Spike Vol.)*(Spike Std.)*(Sample DF)]*100%
Note: (For spike recovery when the sample conc. is less than detection limit you do NOT subtract sample conc.)
Duplicate Relative % Difference = ((Sample - Duplicate) / ((Sample + Duplicate) / 2) * 100%)
Less than Values are Calculated from the Detection Limit* Dilution Factor

94.88% RAE 11/1/95

v RESULTS v	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
Standard % Recovery	99.2%	96.8%	93.8%	95.2%	96.0%	~~100.2%~~	96.5%	106.6%
Sample 1 in µg/mL	4.25E+02	3.04E+03	4.60E+04	9.42E+04	2.17E+03	3.46E+03	<649.03	<540.86
Duplicate 1 in µg/mL	4.23E+02	3.70E+03	4.54E+04	9.40E+04	2.17E+03	3.43E+03	<649.03	<540.86
Duplicate 1 RPD	0.5%	19.7%	1.3%	0.3%	0.4%	0.9%	N/A	N/A
Sample 2 in µg/mL	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00
Duplicate 2 in µg/mL	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00
Duplicate 2 RPD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Date Entry by: [signature] Date: 10/22/95

Approved by: [signature] Date: 10/22/95

Form DIONEX.WB1 Rev. 1.3

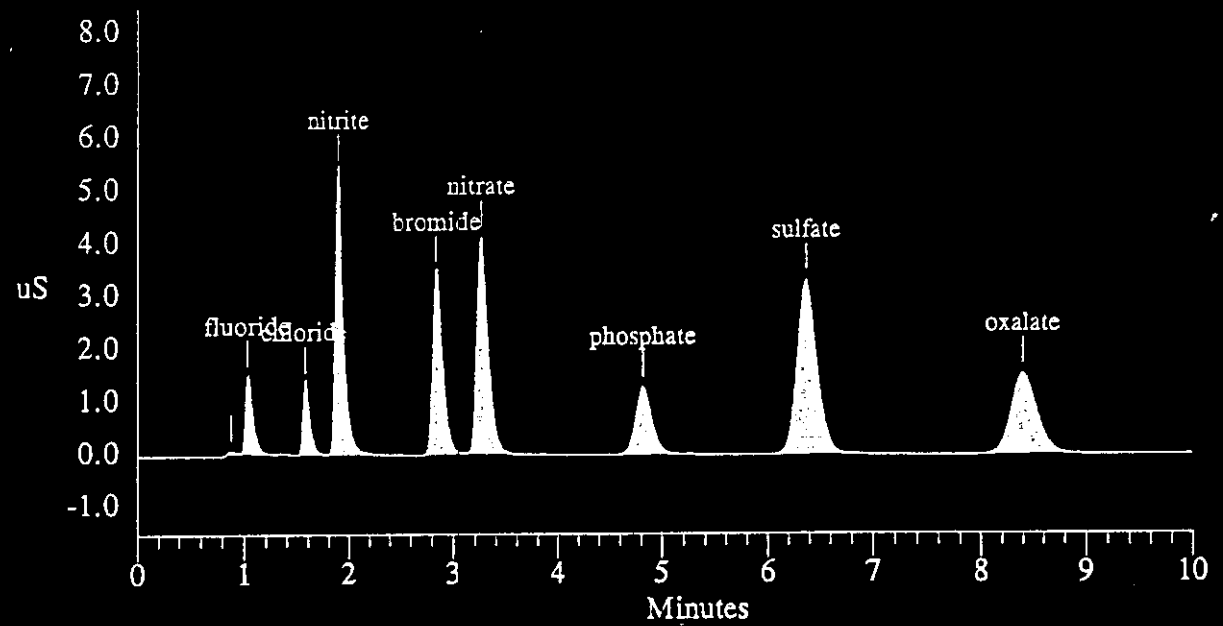
Sample Name: 109N9-A STD Date: 10/17/1995 21:26:52
Data File : C:\DX\DATA\95101531.D11
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 2 Inject#: 11 Detector:CDM-1
Analyst : [signature] 10/25/95 Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	3000	5Hz	0.00	10.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.88		0.000	64	298	2	
2	1.03	fluoride	58.457	1467	8065	2	0.00
3	1.57	chloride	76.460	1372	7275	1	-0.63
4	1.89	nitrite	500.118	5390	32803	1	-1.56
5	2.84	bromide	554.591	3471	24366	1	1.07
6	3.26	nitrate	584.537	4129	33259	1	3.49
7	4.82	phosphate	524.157	1287	14757	1	0.63
8	6.37	sulfate	598.718	3310	45090	1	0.16
9	8.40	oxalate	560.909	1532	27762	1	0.48
		Totals	3457.946	22022	193674		

File: 95101531.D11 Sample: 109N9-A



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 189 TO 194

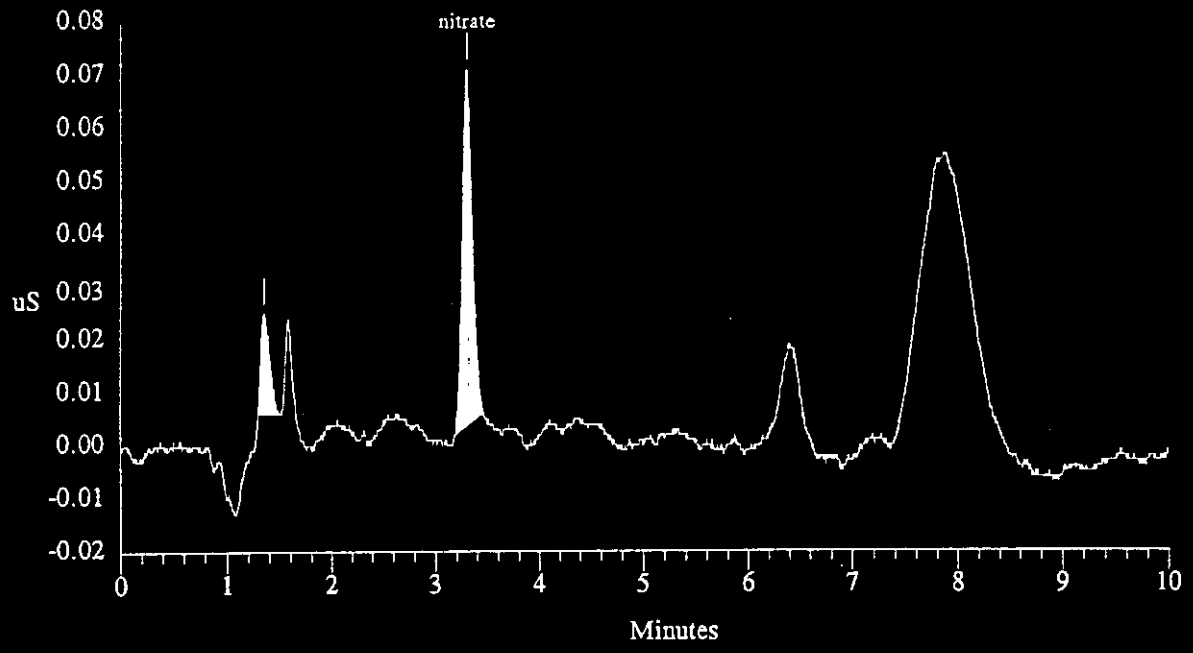
```
Sample Name: BLANK                          Date: 10/17/1995 19:31:57
Data File  : C:\DX\DATA\95101531.D09
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 9                  Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column/SRS
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
2	3.30	nitrate	0.389	67	475	1	4.76
		Totals	0.389	67	475		

File: 95101531.D09 Sample: BLANK



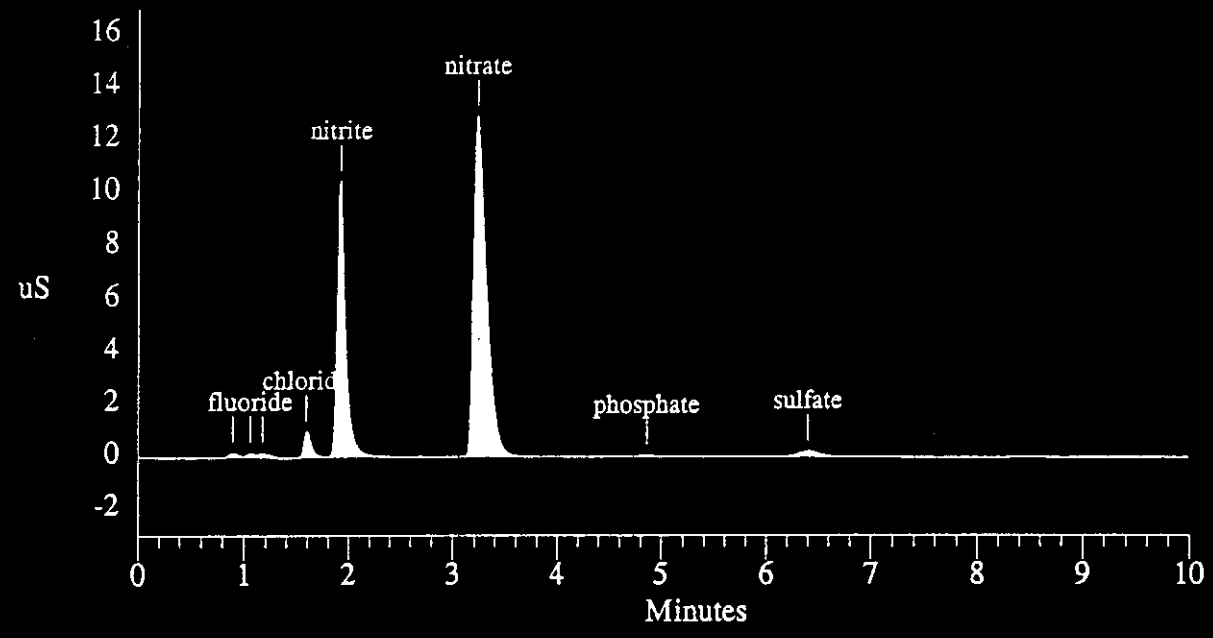
Sample Name: S95T002410 .100-10-.200-10 Date: 10/17/1995 21:58:05
Data File : C:\DX\DATA\95101531.D13
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 13 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	5151	3000	5Hz	0.00	10.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.89		0.000	155	938	2	
2	1.06	fluoride	424.605	177	885	2	2.91
3	1.17		0.000	198	1421	2	
4	1.59	chloride	2912.831	985	5398	1	0.63
5	1.92	nitrite	47368.121	10425	62494	1	0.00
6	3.23	nitrate	96903.069	12892	115736	1	2.54
7	4.86	phosphate	2165.466	65	703	1	1.46
8	6.40	sulfate	3459.491	234	3248	1	0.63
		Totals	153233.584	25131	190822		

File: 95101531.D13 Sample: S95T002410



Data Reprocessed On 10/17/1995 06:53:44

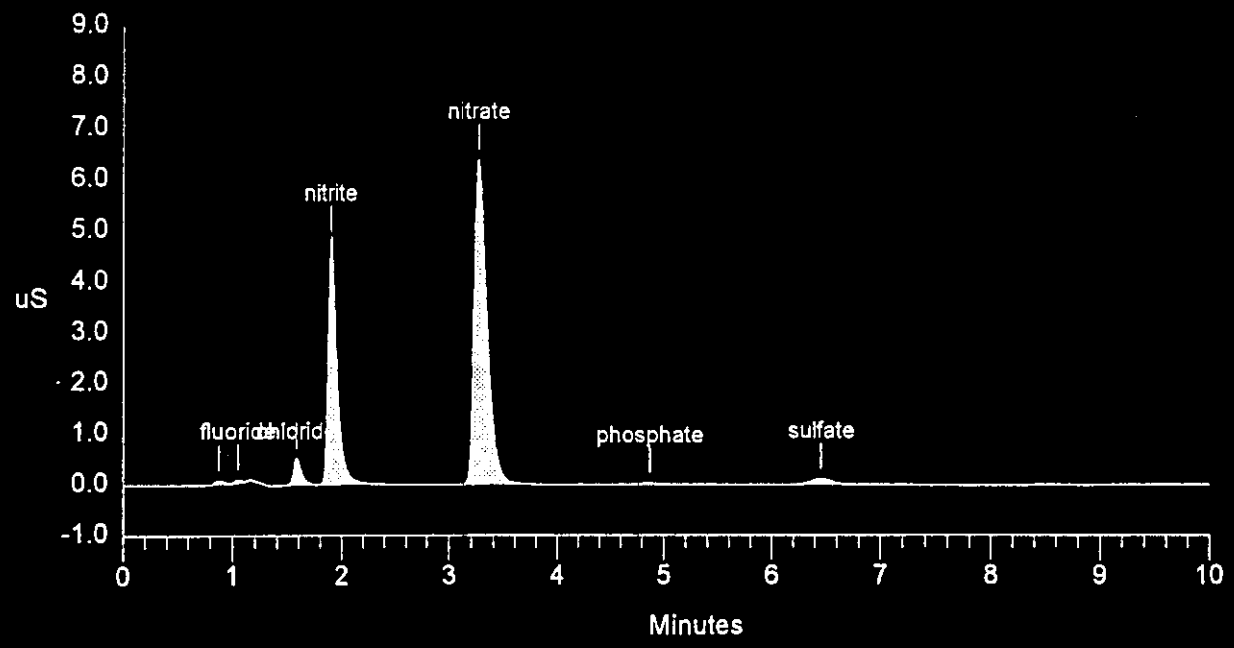
Sample Name: S95T002410-SAM .100-10-.100-10 Date: 10/17/1995 04:41:33
Data File : C:\DX\DATA\95101521.D05
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 5 Detector:CDM-1
Analyst : Kristi Hyde Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	10201	3000	5Hz	0.00	10.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.88		0.000	66	347	1	
2	1.05	fluoride	394.470	66	257	1	1.94
3	1.58	chloride	3037.553	530	2791	1	0.00
4	1.90	nitrite	45980.661	4790	29711	1	-1.04
5	3.27	nitrate	94249.692	6384	54631	1	3.81
6	4.87	phosphate	2999.265	31	336	1	1.67
7	6.46	sulfate	4604.721	116	1520	1	1.57
		Totals	151266.363	11982	89594		

File: 95101521.D05 Sample: S95T002410-SAM



WHC-SD-WM-DP-148, REV. 1

Data Reprocessed On 10/17/1995 06:56:03

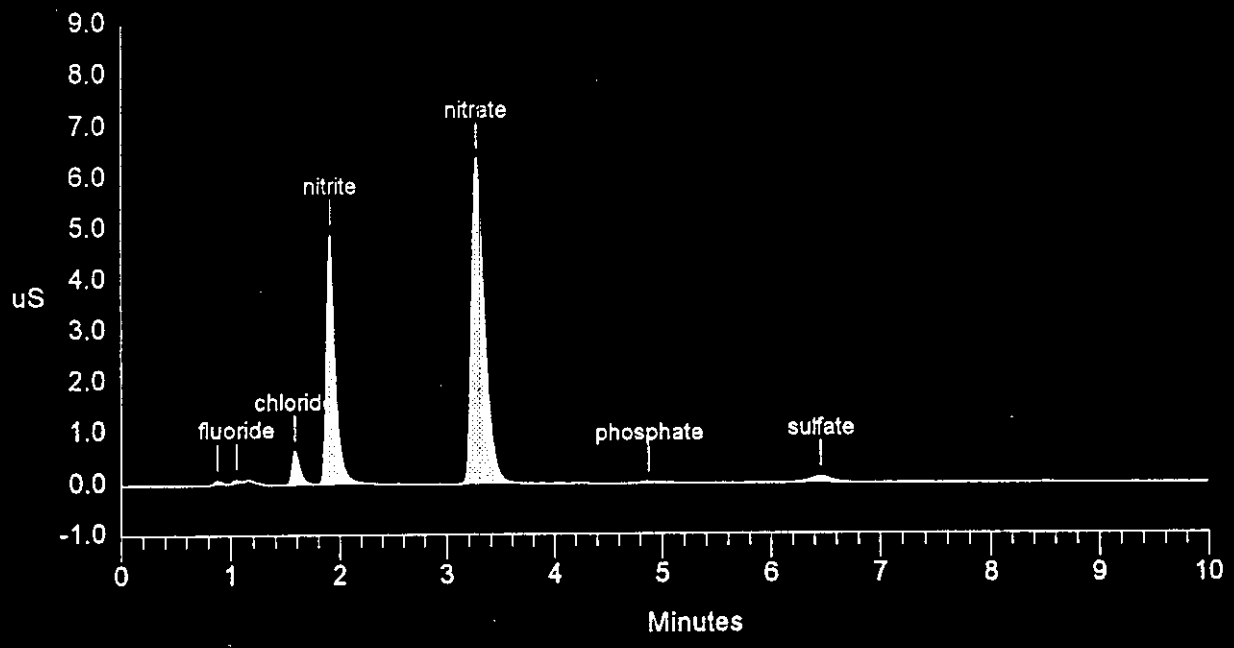
Sample Name: S95T002410-DUP 100-10 100-10 Date: 10/17/1995 04:58:45
Data File : C:\DX\DATA\95101521.D06
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 6 Detector:CDM-1
Analyst : [signature] Column: AG4A/AS4A anion column/SRS
10/17/95

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	10201	3000	5Hz	0.00	10.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.88		0.000	66	342	1	
2	1.05	fluoride	396.606	66	260	1	1.94
3	1.58	chloride	3700.025	650	3422	1	0.00
4	1.91	nitrite	45393.950	4890	29311	1	-0.52
5	3.27	nitrate	93996.130	6371	54476	1	3.81
6	4.88	phosphate	2824.253	28	286	1	1.88
7	6.46	sulfate	4636.333	117	1545	1	1.57
		Totals	150947.296	12189	89642		

File: 95101521.D06 Sample: S95T002410-DUP



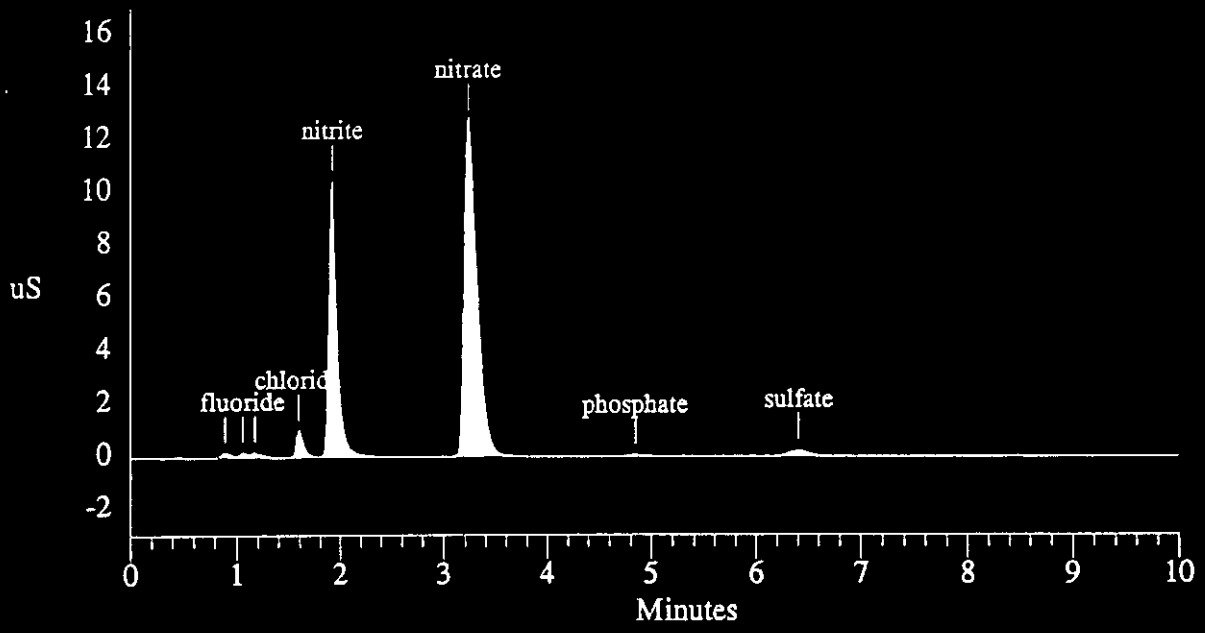
Sample Name: S95T002410 DUP .100-10, .200-10 Date: 10/17/1995 22:09:00
Data File : C:\DX\DATA\95101531.D14
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 14 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column/SRS

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	5151	3000	5Hz	0.00	10.00	200

********** Peak Report: All Peaks **********

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.89		0.000	152	919	2	
2	1.06	fluoride	422.599	176	879	2	2.91
3	1.17		0.000	197	1390	2	
4	1.59	chloride	2912.463	997	5397	1	0.63
5	1.92	nitrite	46812.077	10435	61736	1	0.00
6	3.23	nitrate	96430.002	12743	115137	1	2.54
7	4.85	phosphate	2174.687	66	708	1	1.25
8	6.41	sulfate	3427.668	236	3200	1	0.79
		Totals	152179.494	25002	189365		

File: 95101531.D14 Sample: S95T002410 DUP



FILE # 0950526C

09/25/95 06:58
A-0004-1

Page:

WHC-SD-WM-DP-148, REV. 1

LABCORE Data Entry Template for Worklist# 2558

Analyst: D. GOECKE Instrument: ~~ICP01~~ ICP02 9-26-95 Book# 4FB4FA

Method: LA-505-~~151~~ 161 9-26-95 Rev/Mod 8-0

Worklist Comment: ICP AN-101 (DIRECT) WHC-SD-WM-DP-148, REV. 0

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	ICV				@ICP-QC	QC		
2	ICB				@ICP-QC	QC		
3	ICSA				@ICP-QC	QC		
4	ICSAB				@ICP-QC	QC		
5	SAMPLE	S95T002408	0	D	@ICP-D01	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: AL-D-01 , FE-D-01 , NA-D-01							
6	DUP	S95T002408	0	D	@ICP-D01	LIQUID		
7	SPK	S95T002408	0	D	@ICP-D01	LIQUID		
8	SAMPLE	S95T002409	0	D	@ICP-D01	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: AL-D-01 , FE-D-01 , NA-D-01							
9	DUP	S95T002409	0	D	@ICP-D01	LIQUID		
10	SPK	S95T002409	0	D	@ICP-D01	LIQUID		
11	CCV				@ICP-QC	QC		
12	CCB				@ICP-QC	QC		
13	SAMPLE	S95T002410	0	D	@ICP-D01	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: AL-D-01 , FE-D-01 , NA-D-01							
14	DUP	S95T002410	0	D	@ICP-D01	LIQUID		
15	SPK	S95T002410	0	D	@ICP-D01	LIQUID		
16	ICSA				@ICP-QC	QC		
17	ICSAB				@ICP-QC	QC		

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 2558

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
18	CCV				@ICP-QC	QC		
19	CCB				@ICP-QC	QC		

WHC-SD-WM-DP-148, REV. 0

Final page for worklist # 2558

Reviewed by:

Analyst Signature: [signature] Date: 9-26-95

Analyst Signature: [signature] Date: 09/27/95

		D.F.
SS1T00 2407_C	.025mL - 10mL - 2mL - 5mL	2005
SS1T00 2407	.025mL - 10mL	401
SS1T00 2407_D	.025mL - 10mL	401
SS1T00 2407_A	.025mL - 2mL - 5mL	401
SS1T00 2408_C	.025 - 10mL - 2mL - 5mL	2005
SS1T00 2408	.025mL - 10mL	401
SS1T00 2408_D	.025mL - 10mL	401
SS1T00 2408_A	.025mL - 2mL - 5mL	401
SS1T00 2410_C	.025mL - 10mL - 2mL - 5mL	2005
SS1T00 2410	.025mL - 10mL	401
SS1T00 2410_D	.025mL - 10mL	401
SS1T00 2410_A	.025mL - 2mL - 5mL	401

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Data Entry Comments:

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

Analysis Report Summary Tue 09-26-95 03:18:11 PM page 1

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	950926C	ICP2	09/26/95	13:57	BJG	Q	CONC
2	ICB	950926C	ICP2	09/26/95	14:01	BJG	Q	CONC
3	ICSA	950926C	ICP2	09/26/95	14:05	BJG	Q	CONC
4	ICSAB	950926C	ICP2	09/26/95	14:08	BJG	Q	CONC
5	S95T002408_L	950926C	ICP2	09/26/95	14:13	BJG	S	CONC
6	S95T002408_	950926C	ICP2	09/26/95	14:16	BJG	S	CONC
7	S95T002408_D	950926C	ICP2	09/26/95	14:20	BJG	S	CONC
8	S95T002408_A	950926C	ICP2	09/26/95	14:23	BJG	S	CONC
9	S95T002409_L	950926C	ICP2	09/26/95	14:29	BJG	S	CONC
10	S95T002409_	950926C	ICP2	09/26/95	14:32	BJG	S	CONC
11	S95T002409_D	950926C	ICP2	09/26/95	14:35	BJG	S	CONC
12	S95T002409_A	950926C	ICP2	09/26/95	14:39	BJG	S	CONC
13	CCV	950926C	ICP2	09/26/95	14:44	BJG	Q	CONC
14	CCB	950926C	ICP2	09/26/95	14:47	BJG	Q	CONC
15	S95T002410_L	950926C	ICP2	09/26/95	14:50	BJG	S	CONC
16	S95T002410_	950926C	ICP2	09/26/95	14:54	BJG	S	CONC
17	S95T002410_D	950926C	ICP2	09/26/95	14:57	BJG	S	CONC
18	S95T002410_A	950926C	ICP2	09/26/95	15:00	BJG	S	CONC
19	ICSA	950926C	ICP2	09/26/95	15:06	BJG	Q	CONC
20	ICSAB	950926C	ICP2	09/26/95	15:09	BJG	Q	CONC
21	CCV_1	950926C	ICP2	09/26/95	15:12	BJG	Q	CONC
22	CCB_1	950926C	ICP2	09/26/95	15:15	BJG	Q	CONC

BJG 9-26-95
AN-101
S95T002408-10
Al, Fe, Na - only
.025mL-10-L

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SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 197 TO 201

#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.934	4.908	5.094	4.972	4.853	5.110
2	ICB	.0002	-.0013	.0070	.0030	-.0001	.0001
3	ICSA	-.0137	244.9	-.0882	-.0031	.0033	.0000
4	ICSAB	.9261	243.1	-.0800	-.0058	.4536	.4671
5	S95T002408_L	.7400	23400.	-9.214	6.887	-.2533	.1961
6	S95T002408	.7575	22180.	-19.40	11.86	-.0125	.3312
7	S95T002408_D	1.046	21940.	-18.90	12.72	-.0257	.3041
8	S95T002408_A	371.6	22470.	388.4	400.9	373.1	398.7
9	S95T002409_L	-1.432	20720.	.0217	12.03	-.3229	.1980
10	S95T002409	-.0991	19580.	-19.01	13.23	.0290	.2781
11	S95T002409_D	-.2448	19460.	-25.60	12.03	-.0247	.2251
12	S95T002409_A	365.7	20210.	384.8	399.5	370.8	396.9
13	CCV	4.940	4.905	5.109	4.970	4.866	5.124
14	CCB	-.0005	-.0018	.0147	.0064	-.0001	.0000
15	S95T002410_L	1.465	21130.	-27.94	18.05	-.1200	.0648
16	S95T002410	.0951	20800.	-24.98	10.83	.0157	.2383
17	S95T002410_D	-.0534	21500.	-28.35	13.06	-.0280	.2644
18	S95T002410_A	369.6	20650.	385.5	406.7	376.4	401.5
19	ICSA	-.0130	244.7	-.0911	-.0058	.0033	.0001
20	ICSAB	.9298	243.7	-.0520	.0005	.4550	.4695
21	CCV_1	4.901	4.878	5.091	4.936	4.863	5.070
22	CCB_1	-.0006	-.0084	-.0057	.0030	-.0001	.0000

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	4.981	5.184	5.041	5.018	5.029	5.088
2	ICB	.0125	.0011	.0009	-.0011	-.0001	.0003
3	ICSA	.0048	244.6	-.0005	.0024	.0004	-.0050
4	ICSAB	.0035	245.8	.9206	.0081	.4562	.4583
5	S95T002408_L	53.15	-46.14	.3022	8.400	-3.991	252.1
6	S95T002408	-2.504	-4.782	.0216	-2.883	1.024	245.6
7	S95T002408_D	10.13	-6.540	-.0282	.4621	.2668	241.9
8	S95T002408_A	384.8	406.1	392.6	390.2	390.3	637.6
9	S95T002409_L	15.17	-47.89	.5687	-8.303	2.009	254.2
10	S95T002409	1.588	22.67	.2370	-.7516	.4892	247.1
11	S95T002409_D	5.869	-6.897	-.1512	-2.984	.3563	243.2
12	S95T002409_A	393.1	404.7	391.9	386.1	391.1	642.3
13	CCV	5.009	5.267	5.076	5.009	5.050	5.107
14	CCB	.0170	.0006	-.0003	-.0033	-.0004	.0002
15	S95T002410_L	-6.370	-51.81	1.573	14.56	-1.548	264.0
16	S95T002410	1.282	13.15	-.0743	.1407	.5345	258.1
17	S95T002410_D	10.76	-7.981	-.0341	-.3217	.1754	266.3
18	S95T002410_A	399.9	411.4	396.6	393.7	394.9	652.3
19	ICSA	.0292	249.1	.0007	.0044	-.0008	-.0063
20	ICSAB	.0069	248.5	.9246	.0063	.4600	.4616
21	CCV_1	4.942	5.197	4.983	5.007	4.978	5.043
22	CCB_1	.0061	-.0008	-.0005	-.0030	-.0008	-.0006

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#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	5.018	.0073	5.077	4.653	4.960	4.897
2	ICB	-.0004	.0001	-.0006	-.1234	.0000	.0004
3	ICSA	-.0093	-.0028	91.30	.0425	-.0048	.0029
4	ICSAB	.4652	-.0027	91.03	-.0836	-.0043	.9528
5	S95T002408_L	-.1142	.4678	3.361	3410.	-1.161	.9885
6	S95T002408	.5430	.0286	5.635	3747.	-.3522	.1186
7	S95T002408_D	.3812	.0001	5.571	3636.	-.2865	.1186
8	S95T002408_A	390.8	.4734	399.2	4156.	389.1	384.6
9	S95T002409_L	-1.344	.4358	.6428	3360.	-1.557	.7908
10	S95T002409	.3739	.1599	3.490	3631.	-.1330	.2373
11	S95T002409_D	.1379	-.0233	2.529	3542.	-.5340	.1186
12	S95T002409_A	388.0	.6446	397.0	4007.	387.0	380.2
13	CCV	5.019	.0070	5.107	4.623	4.963	4.856
14	CCB	-.0012	.0001	.0004	-.0455	-.0004	.0019
15	S95T002410_L	-.1475	.2867	1.922	3538.	1.115	.5931
16	S95T002410	.6167	.0343	3.522	3839.	.1262	.1186
17	S95T002410_D	.1256	-.1301	2.945	3849.	-.0720	.0791
18	S95T002410_A	393.8	.4429	401.7	4136.	391.7	384.5
19	ICSA	-.0097	-.0115	92.06	-.0312	-.0042	.0029
20	ICSAB	.4662	-.0079	91.72	-.1455	-.0042	.9518
21	CCV_1	5.004	.0074	5.029	4.651	4.951	4.925
22	CCB_1	-.0004	.0003	-.0006	-.1375	-.0013	.0009

#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	4.927	4.915	5.112	4.900	5.102	4.998
2	ICB	-.0025	.0002	-.0017	.0039	.0008	-.0002
3	ICSA	246.5	-.0080	-.0133	189.8	.0157	-.0127
4	ICSAB	245.5	.4345	-.0155	189.3	.0158	.8689
5	S95T002408_L	-10.95	-.1235	29.64	127200.	-4.730	-4.612
6	S95T002408	-4.968	-.0753	32.74	123600.	-.6278	-1.305
7	S95T002408_D	-4.559	-.1041	33.29	122800.	-1.218	1.455
8	S95T002408_A	375.6	373.8	433.6	124600.	399.9	386.5
9	S95T002409_L	-6.370	.0460	33.61	130100.	-.0632	-6.762
10	S95T002409	-.1910	-.0386	35.00	125700.	.0335	3.547
11	S95T002409_D	-4.976	-.0698	34.63	125000.	-.3657	1.916
12	S95T002409_A	375.8	373.7	434.4	127200.	398.6	384.0
13	CCV	4.925	4.942	5.134	4.849	5.097	5.017
14	CCB	-.0055	.0003	.0012	.0032	-.0003	-.0091
15	S95T002410_L	.6056	-.2432	33.29	137500.	2.044	-1.704
16	S95T002410	-2.076	-.0548	36.46	133900.	.3553	1.079
17	S95T002410_D	-6.260	-.1517	36.04	138300.	-1.104	3.976
18	S95T002410_A	378.7	377.0	439.0	130600.	403.3	389.3
19	ICSA	247.1	-.0079	-.0131	187.9	.0141	-.0229
20	ICSAB	246.5	.4370	-.0129	188.9	.0147	.8909
21	CCV_1	4.890	4.882	5.078	4.899	5.088	4.934
22	CCB_1	-.0104	.0002	-.0011	.0075	-.0011	.0000

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#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.246	5.031	5.031	4.811	5.020	5.002
2	ICB	.0141	-.0043	-.0076	.0046	.0314	.0036
3	ICSA	.0357	.0393	.0364	.0052	-.1036	.0093
4	ICSAB	.0263	.9881	.0190	.0040	-.1023	.0137
5	S95T002408_L	555.0	42.50	575.0	18.03	16.06	22.97
6	S95T002408_	540.0	59.86	584.4	3.235	15.33	26.07
7	S95T002408_D	545.6	38.59	530.9	3.789	11.98	24.75
8	S95T002408_A	955.4	436.3	941.6	380.4	419.2	425.0
9	S95T002409_L	809.6	40.64	916.9	11.87	45.64	25.40
10	S95T002409_	731.0	40.61	891.4	1.088	14.31	26.88
11	S95T002409_D	709.2	38.59	856.6	-2.372	11.12	25.55
12	S95T002409_A	1146.	432.1	1291.	380.7	416.5	424.0
13	CCV	5.264	5.073	5.055	4.830	5.078	5.016
14	CCB	-.0047	-.0172	-.0087	.0074	.0211	.0052
15	S95T002410_L	798.5	35.27	931.7	8.211	30.96	25.46
16	S95T002410_	763.8	40.88	937.9	.8635	9.240	28.92
17	S95T002410_D	800.8	38.27	963.7	4.077	5.003	28.49
18	S95T002410_A	1187.	434.5	1313.	378.2	415.1	429.3
19	ICSA	.0165	.0411	.0328	.0042	-.0739	.0136
20	ICSAB	.0344	.9983	.0116	.0074	-.0794	.0119
21	CCV_1	5.263	4.983	5.057	4.761	5.001	4.959
22	CCB_1	.0109	-.0088	-.0143	-.0010	.0157	.0042

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	4.982	4.898	.0430	4.889	4.935	9.939
2	ICB	.0058	.0001	-.0015	.0002	-.0014	.0124
3	ICSA	-.0105	-.0041	.0011	.0018	.0468	-.2543
4	ICSAB	-.0013	-.0041	.0088	.0022	.0048	-.2576
5	S95T002408_L	9.349	.0765	-2.956	-.3968	-19.09	46.12
6	S95T002408_	.5883	.0609	-1.630	.1534	-4.682	27.27
7	S95T002408_D	.6936	.0609	-1.679	.0737	5.548	28.15
8	S95T002408_A	391.4	382.7	.9117	382.5	371.5	801.6
9	S95T002409_L	7.444	.0747	-3.499	1.589	44.85	67.45
10	S95T002409_	1.582	.0594	-.7477	-.0008	9.354	33.35
11	S95T002409_D	1.356	.0447	-3.701	-.0133	4.024	33.56
12	S95T002409_A	387.9	381.1	.8316	380.4	375.8	805.9
13	CCV	4.979	4.891	.0540	4.903	4.956	9.913
14	CCB	.0039	-.0008	-.0001	.0006	.0217	.0082
15	S95T002410_L	9.223	-1.582	10.31	.8527	13.95	51.91
16	S95T002410_	1.574	-.3189	-1.089	.1571	2.896	29.81
17	S95T002410_D	-.9045	-.3183	-1.214	-.0064	-2.445	30.87
18	S95T002410_A	391.6	385.0	1.889	384.3	384.9	808.3
19	ICSA	-.0037	-.0042	.0048	.0016	.0448	-.2753
20	ICSAB	-.0063	-.0041	.0075	.0016	.0373	-.2685
21	CCV_1	4.966	4.879	.0405	4.866	4.951	9.887
22	CCB_1	.0045	-.0008	-.0000	.0000	-.0123	.0176

WHC-SD-WM-DP-148, REV. 1

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#	Sample Name	V	Y	Zn	Zr
1	ICV	4.987	.0138	5.056	4.983
2	ICB	.0003	.0000	.0007	.0001
3	ICSA	-.0017	.0190	-.0059	-.0029
4	ICSAB	.4579	.0192	.9466	-.0028
5	S95T002408_L	.5104	.1572	8.055	.1665
6	S95T002408_	.3473	.0629	6.970	1.410
7	S95T002408_D	.2204	.0314	7.002	1.413
8	S95T002408_A	388.8	1.038	403.4	393.0
9	S95T002409_L	1.091	.1572	15.56	.1843
10	S95T002409_	.5181	.0629	16.16	1.218
11	S95T002409_D	.4016	-.0314	13.05	1.012
12	S95T002409_A	389.1	1.132	406.2	392.1
13	CCV	5.004	.0139	5.072	4.993
14	CCB	.0003	.0001	.0005	.0000
15	S95T002410_L	1.087	.4716	-2.834	-.8971
16	S95T002410_	.3364	.0314	29.46	.6931
17	S95T002410_D	-.0377	-.0629	6.004	.0460
18	S95T002410_A	392.2	.9747	408.6	395.5
19	ICSA	-.0013	.0194	-.0072	-.0025
20	ICSAB	.4591	.0195	.9499	-.0028
21	CCV_1	4.956	.0137	5.007	4.958
22	CCB_1	.0009	.0002	-.0005	-.0000

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WHC-SD-WM-DP-148, REV. 0

LABCORE Data Entry Template for Worklist# 2526

Analyst: raw **Instrument:** TOC01 WC39937 **Book #** 16N12-B

Method: LA-344-105 Rev/Mod C-0

Worklist Comment: TOC combustion AN-101

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK				TOC-01	LIQUID	1	6.00e0	N/A	ug/mL
		2	STD				TOC-01	LIQUID	3.00e3	3.04e3	N/A	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002408	0		TOC-01	LIQUID	N/A	3.67e3	5.50e1	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002408	0		TOC-01	LIQUID	3.67e3	3.50e3	N/A	ug/mL
95000135	AN-101 GRAB	5	SAMPLE	S95T002409	0		TOC-01	LIQUID	N/A	2.15e3	5.50e1	ug/mL
95000135	AN-101 GRAB	6	DUP	S95T002409	0		TOC-01	LIQUID	2.15e3	2.18e3	N/A	ug/mL
95000135	AN-101 GRAB	7	SPK	S95T002409	0		TOC-01	LIQUID	100	99.5	N/A	ug/mL
95000135	AN-101 GRAB	8	SAMPLE	S95T002410	0		TOC-01	LIQUID	N/A	2.15e3	5.50e1	ug/mL
95000135	AN-101 GRAB	9	DUP	S95T002410	0		TOC-01	LIQUID	2.15e3	2.17e3	N/A	ug/mL

Final page for worklist # 2526

For Robby Wendland
Robert W. Schroeder 9/26/95
Analyst Signature Date

[signature] 9/29/95
Analyst Signature Date

Reviewed
Robert W Schroeder 9/29/95

Data Entry Comments:

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

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

TOC : LA-344-105 (C-0) LIQUIDS

			BLANK
Type	Sample Volume in mL	(SS)	0.200
BLANK	H2SO4 Volume in mL	(VR)	0.000
Work List	Volume Injected in mL	(VI)	0.200
2526	Dilution Factor	(DF)	1
Test Code	Digest Dilution Factor	(DDF)	1
TOC	µg of Carbon in Sample	(C1)	3
Matrix	µg of Carbon in Blank	(C2)	1.8
LIQUID	g of Carbon/L	=	6.00E-03

Sample #
BLK
Instrument Code
WC39937
Analyst
R. WENDLAND
Date
09/26/95
Time

g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{VI * 1000}$

µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 mL/L

Detection Level (µg/mL) = $\frac{1 \text{ µg C} * DF * DDF}{VI}$

µg Carbon/mL =	6.00E+00	DETECTION LEVEL in µg/mL
		5.00E+00

Data Entry by: Ru Schroeder Date: 09/27/95

Approved by: Ru Schroeder Date: 9/28/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

TOC : LA-344-105 (C-0) **LIQUIDS**

Type	Sample Volume in mL	(SS)	STANDARD
STANDARD	H2SO4 Volume in mL	(VR)	0.200
Work List	Volume Injected in mL	(VI)	2.000
2526	Dilution Factor	(DF)	0.200
Test Code	Digest Dilution Factor	(DDF)	11
TOC	µg of Carbon in Sample	(C1)	1
Matrix	µg of Carbon in Blank	(C2)	57
LIQUID	g of Carbon/L	=	1.8
Sample #			3.04E+00
STD			
Instrument Code			
WC39937			
Analyst			
R. WENDLAND			
Date			
09/26/95			
Time			

g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{VI * 1000}$

µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 mL/L

Detection Level (µg/mL) = $\frac{1 \text{ µg C} * DF * DDF}{VI}$

µg Carbon/mL =	3.04E+03	DETECTION LEVEL in µg/mL
		5.50E+01

Data Entry by:	RW Schroeder	Date:	09/27/95
Approved by:	RW Schroeder	Date:	9/28/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

TOC : LA-344-105 (C-0) LIQUIDS

Type	Sample Volume in mL	(SS)	SAMPLE
SAMPLE	H2SO4 Volume in mL	(VR)	0.200
Work List	Volume Injected in mL	(VI)	2.000
2526	Dilution Factor	(DF)	0.200
Test Code	Digest Dilution Factor	(DDF)	11
TOC	µg of Carbon in Sample	(C1)	1
Matrix	µg of Carbon in Blank	(C2)	68.6
LIQUID	g of Carbon/L	=	1.8
Sample #			3.67E+00
S95T002408			
Instrument Code:			
WC39937			
Analyst			
R. WENDLAND			
Date			
09/26/95			
Time			

g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{VI * 1000}$

µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 mL/L

Detection Level (µg/mL) = $\frac{1 \text{ µg C} * DF * DDF}{VI}$

µg Carbon/mL =	3.67E+03	DETECTION LEVEL in µg/mL
		5.50E+01

Data Entry by:	R W Schneider	Date:	09/27/95
Approved by:	R W Schneider	Date:	9/28/95

Form 344105_C Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

TOC : LA-344-105 (C-0) **LIQUIDS**

Type			DUPLICATE
DUPLICATE	Sample Volume in mL	(SS)	0.200
Work List	H2SO4 Volume in mL	(VR)	2.000
2526	Volume Injected in mL	(VI)	0.200
Test Code	Dilution Factor	(DF)	11
TOC	Digest Dilution Factor	(DDF)	1
Matrix	µg of Carbon in Sample	(C1)	65.4
LIQUID	µg of Carbon in Blank	(C2)	1.8
Sample #	g of Carbon/L	=	3.50E+00
S95T002408			
Instrument Code:			
WC39937			
Analyst			
R. WENDLAND			
Date			
09/26/95			
Time			

g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{VI * 1000}$

µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 mL/L

Detection Level (µg/mL) = $\frac{1 \text{ µg C} * DF * DDF}{VI}$

µg Carbon/mL =	3.50E+03	DETECTION LEVEL in µg/mL
		5.50E+01

Data Entry by: RW Schroeder Date: 09/27/95

Approved by: RW Schroeder Date: 9/28/95

Form 344105_C Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

TOC : LA-344-105 (C-0) LIQUIDS

Type	Sample Volume in mL	(SS)	SAMPLE
SAMPLE	H2SO4 Volume in mL	(VR)	0.200
Work List	Volume Injected in mL	(VI)	2.000
2526	Dilution Factor	(DF)	0.200
Test Code	Digest Dilution Factor	(DDF)	11
TOC	µg of Carbon in Sample	(C1)	1
Matrix	µg of Carbon in Blank	(C2)	40.8
LIQUID	g of Carbon/L	=	1.8
Sample #			2.15E+00
S95T002409			
Instrument Code			
WC39937			
Analyst			
R. WENDLAND			
Date			
09/26/95			
Time			

g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{VI * 1000}$

µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 mL/L

Detection Level (µg/mL) = $\frac{1 \text{ µg C} * DF * DDF}{VI}$

µg Carbon/mL =	2.15E+03	DETECTION LEVEL in µg/mL
		5.50E+01

Data Entry by:	RW Schroeder	Date:	09/27/95
Approved by:	RW Schroeder	Date:	9/28/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

TOC : LA-344-105 (C-0) LIQUIDS

Type
DUPLICATE
Work List
2526
Test Code
TOC
Matrix
LIQUID
Sample #
S95T002409
Instrument Code
WC39937
Analyst
R. WENDLAND
Date
09/26/95
Time

		DUPLICATE
Sample Volume in mL	(SS)	0.200
H2SO4 Volume in mL	(VR)	2.000
Volume Injected in mL	(VI)	0.200
Dilution Factor	(DF)	11
Digest Dilution Factor	(DDF)	1
µg of Carbon in Sample	(C1)	41.4
µg of Carbon in Blank	(C2)	1.8
g of Carbon/L	=	2.18E+00

g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{VI * 1000}$

µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 mL/L

Detection Level (µg/mL) = $\frac{1 \text{ µg C} * DF * DDF}{VI}$

µg Carbon/mL =	2.18E+03	DETECTION LEVEL in µg/mL
		5.50E+01

Data Entry by: R W Schroeder Date: 09/27/95

Approved by: R W Schroeder Date: 9/28/95

PLACE ANALYTICAL CARD IN BOX BELOW-DO NOT WRITE IN SPACE

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

TOC: LA-344-105 SPIKED SAMPLE

SPIKE

Type	>>>>>> Sample Vial Data <<<<<<		>>>>> Spiked Vial Data <<<<<	
SPIKE	Sample Volume in mL	0.200	Sample Size in mL (SS)	0.200
Work List	H2SO4 Volume in mL	2.000	Spike Volume in mL	0.200
2526	Volume Injected in mL	0.200	H2SO4 Volume in mL	0.000
Test Code	µg of Carbon in Sample	40.8	Volume Injected in mL	0.200
toc01	µg of Carbon in Blank	1.8	Sample Pre-Spike Dil. Factor (PDF)	11
Matrix			Spike Value (µg/ml)	750
LIQUID			µg C in Sample + Spike	96.8
Sample #			µg C in Blank	2.7
S95T002409				
Instrument Code				
WC39937				
Analyst				
R. WENDLAND				
Date				
09/28/95				
Time				

PERCENT SPIKE REC = $\frac{\text{µg Carbon Recovered from Spike} * 100}{\text{µg Carbon in Spike}}$

WHERE : µg Carbon Recovered from Spike =

[(µgC in sample + spike - µgC in blank) * (Spike Correction Factor)]

- [(µgC sample - µgC blank) * (Sample Correction Factor) * (Sample Size Correction Factor) * (PDF)]

Spike Correction Factor = $\frac{\text{Total volume in spiked sample vial (mL)}}{\text{Volume injected (mL)}}$

Sample Correction Factor = $\frac{\text{Total volume in sample vial (mL)}}{\text{Volume injected (mL)}}$

Sample Size Correction Factor = $\frac{\text{Sample size in (mL) in spiked vial}}{\text{Sample size (mL) in sample}}$

Sample Pre-Spike Dilution Factor = $\frac{1}{\text{Dilution of Sample Before Added to Spike Vial}}$

WHERE : µg Carbon in Spike = Spike Value (µg/mL) * Spike Volume (mL)

Percent Spike Recovery 99.5%

Data Entry by: R.W. Edwards Date: 29-Sep-95

Approved by: R.W. Edwards Date: 9/29/95

Form X Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-149, REV. 1

WHC-SD-WM-DP-148, REV. 0

TOC : LA-344-105 (C-0) **LIQUIDS**

Type	Sample Volume in mL	(SS)	SAMPLE
SAMPLE	H2SO4 Volume in mL	(VR)	0.200
Work List	Volume Injected in mL	(VI)	2.000
2526	Dilution Factor	(DF)	0.200
Test Code	Digest Dilution Factor	(DDF)	11
TOC	µg of Carbon in Sample	(C1)	1
Matrix	µg of Carbon in Blank	(C2)	40.8
LIQUID	g of Carbon/L	=	1.8
Sample #			2.15E+00
S95T002410			
Instrument Code			
WC39937			
Analyst			
R. WENDLAND			
Date			
09/26/95			
Time			

g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{VI * 1000}$

µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 mL/L

Detection Level (µg/mL) = $\frac{1 \text{ µg C} * DF * DDF}{VI}$

µg Carbon/mL =	2.15E+03	DETECTION LEVEL in µg/mL
		5.50E+01

Data Entry by: Ron Schroeder Date: 09/27/95

Approved by: Ron Schroeder Date: 9/28/95

Form 344105_C Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

TOC : LA-344-105 (C-0) **LIQUIDS**

Type			DUPLICATE
DUPLICATE	Sample Volume in mL	(SS)	0.200
Work List	H2SO4 Volume in mL	(VR)	2.000
2526	Volume Injected in mL	(VI)	0.200
Test Code	Dilution Factor	(DF)	11
TOC	Digest Dilution Factor	(DDF)	1
Matrix	µg of Carbon in Sample	(C1)	41.2
LIQUID	µg of Carbon in Blank	(C2)	1.8
	g of Carbon/L =		2.17E+00

Sample #
S95T002410

Instrument Code
WC39937

Analyst
R. WENDLAND

Date
09/26/95

Time

$$\text{g of Carbon/L} = \frac{(C1-C2) * DF * DDF}{VI * 1000}$$

$$\text{µg of Carbon/mL} = \text{g of Carbon/L} * 1000000\ \text{µg/g} / 1000\ \text{mL/L}$$

$$\text{Detection Level (µg/mL)} = \frac{1\ \text{µg C} * DF * DDF}{VI}$$

µg Carbon/mL =	2.17E+03	DETECTION LEVEL in µg/mL
		5.50E+01

Data Entry by: R W Schroeder Date: 09/27/95

Approved by: R W Schroeder Date: 9/28/95

Form 344105_C Rev. 1.1

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD Date: 09/26/95 Time: 08:22:13

Sample Size = 200 uL
Dil Factor = 11
Blank ID # = BLK
Blank Value = .5994439 ug/minute C

Analyst : RA WENDLAND
Min Readings = 10
Max Readings = 10
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.50	0.00
2	1.01	37.90	98.68
3	1.51	47.60	20.38
4	2.01	50.60	5.93
5	2.51	52.60	3.80
6	3.01	54.00	2.59
7	3.51	55.20	2.17
8	4.01	55.90	1.25
9	4.51	56.60	1.24
10	5.00	57.00	0.70

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 212 TO 225

BLANK VALUE = 3 micrograms carbon
BLANK FACTOR = 3 / 5.004639 = +6.0E-01 ug/min Carbon

SAMPLE RESULTS:
(57 - 3.000018)(11)/(200) = +2.97E+00 g/L Carbon
(57 - 3.000018)(11)/(200)(12) = +2.47E-01 Molar Carbon

Sample Run By: RW 9-26-95
RA WENDLAND 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BLK Date: 09/26/95 Time: 08:16:39

Sample Size	= 200 uL	Analyst :	RA WENDLAND
Dil Factor	= 1	Min Readings	= 10
Blank ID #	= BLK	Max Readings	= 10
Blank Value	= N/A	% Difference	= 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	0.60	66.67
3	1.50	0.90	33.33
4	2.00	1.10	18.18
5	2.50	1.50	26.67
6	3.00	1.80	16.67
7	3.50	2.00	10.00
8	4.00	2.30	13.04
9	4.50	2.60	11.54
10	5.00	3.00	13.33

BLANK VALUE = 3 micrograms carbon

BLANK FACTOR = 3 / 5.004639 = +6.0E-01 ug/min Carbon

Sample Run By: _____

RA WENDLAND 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BASE Date: 09/26/95 Time: 06:20:55

Sample Size	= 200 uL	Analyst :	RA WENDLAND
Dil Factor	= 1	Min Readings	= 10
Blank ID #	=	Max Readings	= 10
Blank Value	= 0 ug/minute C	% Difference	= 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.10	0.00
2	1.01	0.30	66.67
3	1.51	0.50	40.00
4	2.01	0.60	16.67
5	2.51	0.90	33.33
6	3.01	1.00	10.00
7	3.51	1.20	16.67
8	4.00	1.40	14.29
9	4.50	1.70	17.65
10	5.00	1.80	5.56

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +0.0E+00 ug/min Carbon

SAMPLE RESULTS:
(1.8 - 0)(1)/(200) = +9.0E-03 g/L Carbon
(1.8 - 0)(1)/(200)(12) = +7.5E-04 Molar Carbon

Sample Run By: RA WENDLAND 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 8 Date: 09/26/95 Time: 08:34:19

Sample Size	= 200 uL	Analyst :	RA WENDLAND
Dil Factor	= 11	Min Readings	= 10
Blank ID #	= BLK	Max Readings	= 10
Blank Value	= .5994439 ug/minute C	% Difference	= 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	2.00	0.00
2	1.01	46.50	95.70
3	1.51	55.70	16.52
4	2.00	59.20	5.91
5	2.50	61.60	3.90
6	3.00	63.80	3.45
7	3.50	65.30	2.30
8	4.00	66.50	1.80
9	4.50	67.50	1.48
10	5.00	68.60	1.60

BLANK VALUE = 3 micrograms carbon
BLANK FACTOR = 3 / 5.004639 = +6.0E-01 ug/min Carbon

SAMPLE RESULTS:
(68.6 - 3.000018)(11)/(200) = +3.61E+00 g/L Carbon
(68.6 - 3.000018)(11)/(200)(12) = +3.01E-01 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 8D Date: 09/26/95 Time: 08:40:22

Sample Size	= 200 uL	Analyst :	RA WENDLAND
Dil Factor	= 11	Min Readings	= 10
Blank ID #	= BLK	Max Readings	= 10
Blank Value	= .5994439 ug/minute C	% Difference	= 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	5.00	0.00
2	1.01	43.80	88.58
3	1.51	51.90	15.61
4	2.00	55.40	6.32
5	2.50	58.10	4.65
6	3.00	60.10	3.33
7	3.50	61.80	2.75
8	4.00	63.30	2.37
9	4.50	64.50	1.86
10	5.00	65.40	1.38

BLANK VALUE = 3 micrograms carbon
BLANK FACTOR = 3 / 5.004639 = +6.0E-01 ug/min Carbon

SAMPLE RESULTS:
(65.4 - 3.000036)(11)/(200) = +3.43E+00 g/L Carbon
(65.4 - 3.000036)(11)/(200)(12) = +2.86E-01 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 9 Date: 09/26/95 Time: 08:46:07

Sample Size = 200 uL
Dil Factor = 11
Blank ID # = BLK
Blank Value = .5994439 ug/minute C

Analyst : RA WENDLAND
Min Readings = 10
Max Readings = 10
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.90	0.00
2	1.01	25.20	96.43
3	1.51	29.80	15.44
4	2.01	32.30	7.74
5	2.51	34.60	6.65
6	3.01	36.10	4.16
7	3.51	37.40	3.48
8	4.01	38.60	3.11
9	4.50	39.80	3.02
10	5.01	40.80	2.45

BLANK VALUE = 3 micrograms carbon
BLANK FACTOR = 3 / 5.004639 = +6.0E-01 ug/min Carbon

SAMPLE RESULTS:
(40.8 - 3.000512)(11)/(200) = +2.08E+00 g/L Carbon
(40.8 - 3.000512)(11)/(200)(12) = +1.73E-01 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 9D Date: 09/26/95 Time: 08:51:41

Sample Size = 200 uL Analyst : RA WENDLAND
Dil Factor = 11 Min Readings = 10
Blank ID # = BLK Max Readings = 10
Blank Value = .5994439 ug/minute C % Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	1.90	0.00
2	1.01	21.50	91.16
3	1.51	30.00	28.33
4	2.00	32.70	8.26
5	2.50	34.80	6.03
6	3.00	36.50	4.66
7	3.50	37.90	3.69
8	4.00	39.10	3.07
9	4.50	40.30	2.98
10	5.00	41.40	2.66

BLANK VALUE = 3 micrograms carbon
BLANK FACTOR = 3 / 5.004639 = +6.0E-01 ug/min Carbon

SAMPLE RESULTS:
(41.4 - 3.000036)(11)/(200) = +2.11E+00 g/L Carbon
(41.4 - 3.000036)(11)/(200)(12) = +1.76E-01 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BLK Date: 09/28/95 Time: 10:03:36

Sample Size = 200 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = N/A

Analyst : RA WENDLAND
Min Readings = 10
Max Readings = 10
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.90	66.67
3	1.51	1.10	18.18
4	2.01	1.30	15.38
5	2.51	1.80	27.78
6	3.01	1.90	5.26
7	3.51	2.10	9.52
8	4.01	2.60	19.23
9	4.50	2.70	3.70
10	5.00	3.00	10.00

BLANK VALUE = 3 micrograms carbon
BLANK FACTOR = 3 / 5.0047 = +6.0E-01 ug/min Carbon

Sample Run By: RW
RA WENDLAND 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BASE Date: 09/28/95 Time: 10:09:28

Sample Size = 200 uL Analyst : RA WENDLAND
Dil Factor = 1 Min Readings = 10
Blank ID # = BLK Max Readings = 10
Blank Value = .5994366 ug/minute C % Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.50	40.00
3	1.51	0.90	44.44
4	2.01	1.10	18.18
5	2.51	1.40	21.43
6	3.01	1.80	22.22
7	3.51	2.00	10.00
8	4.01	2.20	9.09
9	4.50	2.70	18.52
10	5.00	2.70	0.00

BLANK VALUE = 3 micrograms carbon
BLANK FACTOR = 3 / 5.0047 = +6.0E-01 ug/min Carbon

SAMPLE RESULTS:
(2.7 - 2.999854)(1)/(200) = < 5.00 E-3 g/L Carbon
(2.7 - 2.999854)(1)/(200)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: RA WENDLAND 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD Date: 09/28/95 Time: 10:15:54

Sample Size = 200 uL Analyst : RA WENDLAND
Dil Factor = 11 Min Readings = 10
Blank ID # = BLK Max Readings = 10
Blank Value = .5994366 ug/minute C % Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	32.50	99.38
3	1.51	45.20	28.10
4	2.01	50.10	9.78
5	2.51	52.60	4.75
6	3.01	54.50	3.49
7	3.51	55.30	1.45
8	4.01	56.40	1.95
9	4.50	56.60	0.35
10	5.00	57.10	0.88

BLANK VALUE = 3 micrograms carbon
BLANK FACTOR = 3 / 5.0047 = +6.0E-01 ug/min Carbon

SAMPLE RESULTS:
(57.1 - 3)(11)/(200) = +2.98E+00 g/L Carbon
(57.1 - 3)(11)/(200)(12) = +2.48E-01 Molar Carbon

Sample Run By: RA WENDLAND 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 2409SPK Date: 09/28/95 Time: 10:22:12

Sample Size	= 200 uL	Analyst :	RA WENDLAND
Dil Factor	= 1	Min Readings	= 10
Blank ID #	= BLK	Max Readings	= 10
Blank Value	= .5994366 ug/minute C	% Difference	= 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.01	52.40	99.24
3	1.51	72.10	27.32
4	2.01	80.30	10.21
5	2.51	85.50	6.08
6	3.01	88.80	3.72
7	3.51	91.60	3.06
8	4.00	93.90	2.45
9	4.50	95.50	1.68
10	5.00	96.80	1.34

BLANK VALUE = 3 micrograms carbon
BLANK FACTOR = 3 / 5.0047 = +6.0E-01 ug/min Carbon

SAMPLE RESULTS:
(96.8 - 2.99989)(1)/(200) = +4.69E-01 g/L Carbon
(96.8 - 2.99989)(1)/(200)(12) = +3.91E-02 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD Date: 09/28/95 Time: 10:33:50

Sample Size = 200 uL Analyst : RA WENDLAND
Dil Factor = 11 Min Readings = 10
Blank ID # = BLK Max Readings = 10
Blank Value = .5994366 ug/minute C % Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.01	29.80	98.66
3	1.51	46.10	35.36
4	2.01	50.40	8.53
5	2.51	53.20	5.26
6	3.01	55.10	3.45
7	3.51	56.60	2.65
8	4.01	57.80	2.08
9	4.50	58.80	1.70
10	5.00	59.60	1.34

BLANK VALUE = 3 micrograms carbon
BLANK FACTOR = 3 / 5.0047 = +6.0E-01 ug/min Carbon

SAMPLE RESULTS:
(59.6 - 3)(11)/(200) = +3.11E+00 g/L Carbon
(59.6 - 3)(11)/(200)(12) = +2.59E-01 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 10 Date: 09/26/95 Time: 08:57:02

Sample Size = 200 uL
Dil Factor = 11
Blank ID # = BLK
Blank Value = .5994439 ug/minute C

Analyst : RA WENDLAND
Min Readings = 10
Max Readings = 10
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	1.20	0.00
2	1.01	23.80	94.96
3	1.51	29.30	18.77
4	2.01	32.20	9.01
5	2.51	34.10	5.57
6	3.01	35.80	4.75
7	3.51	37.30	4.02
8	4.00	38.50	3.12
9	4.50	39.70	3.02
10	5.00	40.80	2.70

BLANK VALUE = 3 micrograms carbon
BLANK FACTOR = 3 / 5.004639 = +6.0E-01 ug/min Carbon

SAMPLE RESULTS:
(40.8 - 2.99989)(11)/(200) = +2.08E+00 g/L Carbon
(40.8 - 2.99989)(11)/(200)(12) = +1.73E-01 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 10D Date: 09/26/95 Time: 09:02:20

Sample Size = 200 uL
Dil Factor = 11
Blank ID # = BLK
Blank Value = .5994439 ug/minute C

Analyst : RA WENDLAND
Min Readings = 10
Max Readings = 10
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	1.40	0.00
2	1.01	23.20	93.97
3	1.51	29.00	20.00
4	2.00	31.90	9.09
5	2.50	34.10	6.45
6	3.00	36.00	5.28
7	3.50	37.40	3.74
8	4.00	38.80	3.61
9	4.50	40.00	3.00
10	5.00	41.20	2.91

BLANK VALUE = 3 micrograms carbon
BLANK FACTOR = 3 / 5.004639 = +6.0E-01 ug/min Carbon

SAMPLE RESULTS:
(41.2 - 2.999524)(11)/(200) = +2.10E+00 g/L Carbon
(41.2 - 2.999524)(11)/(200)(12) = +1.75E-01 Molar Carbon

Sample Run By: RA WENDLAND 00000

LABCORE Data Entry Template for Worklist# 2525

Analyst: RAW Instrument: TIC01 WC39937 Book # 17 NIZ-A

Method: LA-622-102 Rev/Mod C-0

Worklist Comment: TIC AN-101 WHC-SD-WM-DP-148, REV. 1

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK				TIC-01	LIQUID	i	< 5.0	N/A	ug/mL
		2	STD				TIC-01	LIQUID	6.00E02	5.83E02	N/A	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002408	0		TIC-01	LIQUID	N/A	2.54E03	2.00E1	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002408	0		TIC-01	LIQUID	2.54E03	2.61E03	N/A	ug/mL
95000135	AN-101 GRAB	5	SPK	S95T002408	0		TIC-01	LIQUID	100	103.3	N/A	ug/mL
95000135	AN-101 GRAB	6	SAMPLE	S95T002409	0		TIC-01	LIQUID	N/A	2.41E03	2.00E1	ug/mL
95000135	AN-101 GRAB	7	DUP	S95T002409	0		TIC-01	LIQUID	2.41E03	2.39E03	N/A	ug/mL
95000135	AN-101 GRAB	8	SAMPLE	S95T002410	0		TIC-01	LIQUID	N/A	2.33E03	2.00E1	ug/mL
95000135	AN-101 GRAB	9	DUP	S95T002410	0		TIC-01	LIQUID	2.33E03	2.35E03	N/A	ug/mL

Final page for worklist # 2525

R. WENDLAND 9-22-95
Analyst Signature Date

Analyst Signature Date 9-26-95

Reviewed by Robert W Schroeder 9/27/95

Data Entry Comments: SAMPLE — .050 mL

SPK — .200 SPK — .200 SAM — .050 INJ

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-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

TIC : LA-622-102 (C-0) SPIKED SAMPLE

SPIKE

Type
SPIKE
Work List
2525
Test Code
TIC-01
Matrix
LIQUID
Sample #
S95T002408
Instrument Code
TIC01
Analyst
R WENDLAND
Date
09/22/95
Time
09:08 AM

>>>>>> Sample Vial Data <<<<<<	
Sample Volume in mL	0.050
µg of Carbon in Sample	129.8
µg of Carbon in Blank	2.6

>>>>> Spiked Vial Data <<<<<	
Sample Volume in mL	0.200
Spike Volume in mL	0.200
Volume Injected in mL	0.050
Spike Value (µg/mL)	600
µg C in Sample + Spike	81.7
µg C in Blank	2.6

PERCENT SPIKE RECOVERY = $\frac{\text{µg Carbon Recovered from Spike} * 100}{\text{µg Carbon in Spike}}$

WHERE : µg Carbon Recovered from Spike =
[(µgC in sample + spike - µgC in blank) * (Spike Correction Factor)]
- [(µgC sample - µgC blank) * (Sample Size Correction Factor)]

Spike Correction Factor = $\frac{\text{Total volume in spiked sample vial (mL)}}{\text{Volume injected (mL)}}$

Sample Size Correction Factor = $\frac{\text{Sample size in (mL) in spiked vial}}{\text{Sample size (mL) in sample}}$

WHERE : µg Carbon in Spike =
[Spike Value (µg/mL) * Spike Volume (mL)]

Percent Spike Recovery = 103.3%

Data Entry by: Date: 09/22/95

Approved by: Date: 9/27/95

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0 WHC-SD-WM-DP-148, REV 1
<<< BLANK ANALYSIS >>>

Sample: BLK Date: 09/22/95 Time: 08:38:33

Sample Size = 200 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = N/A

Analyst : RA WENDLAND
Min Readings = 10
Max Readings = 10
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	0.50	60.00
3	1.50	0.70	28.57
4	2.00	1.10	36.36
5	2.50	1.30	15.38
6	3.00	1.60	18.75
7	3.51	1.90	15.79
8	4.00	2.10	9.52
9	4.50	2.50	16.00
10	5.00	2.60	3.85

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 228 TO 238

BLANK VALUE = 2.6 micrograms carbon
BLANK FACTOR = 2.6 / 5.004456 = +5.2E-01 ug/min Carbon

Sample Run By: RW 9/22/95
RA WENDLAND 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-148, REV. 1

Sample: BASE Date: 09/22/95 Time: 10:54:15

Sample Size	= 50 uL	Analyst :	RA WENDLAND
Dil Factor	= 1	Min Readings	= 10
Blank ID #	= BLK	Max Readings	= 10
Blank Value	= .519537 ug/minute C	% Difference	= 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	0.50	60.00
3	1.51	0.60	16.67
4	2.00	0.90	33.33
5	2.50	1.10	18.18
6	3.00	1.40	21.43
7	3.50	1.60	12.50
8	4.00	1.80	11.11
9	4.50	2.00	10.00
10	5.00	2.20	9.09

BLANK VALUE = 2.6 micrograms carbon
BLANK FACTOR = 2.6 / 5.004456 = +5.2E-01 ug/min Carbon

SAMPLE RESULTS:
(2.2 - 2.599683)(1)/(50) = < 5.00 E-3 g/L Carbon
(2.2 - 2.599683)(1)/(50)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-148, REV. 1

Sample: STD Date: 09/22/95 Time: 08:46:26

Sample Size = 200 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = .519537 ug/minute C

Analyst : RA WENDLAND
Min Readings = 10
Max Readings = 10
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	1.20	0.00
2	1.01	21.80	94.50
3	1.51	52.60	58.56
4	2.01	77.70	32.30
5	2.51	94.80	18.04
6	3.01	105.40	10.06
7	3.51	112.00	5.89
8	4.01	115.60	3.11
9	4.51	117.80	1.87
10	5.01	119.20	1.17

BLANK VALUE = 2.6 micrograms carbon
BLANK FACTOR = 2.6 / 5.004456 = +5.2E-01 ug/min Carbon

SAMPLE RESULTS:
(119.2 - 2.600539)(1)/(200) = +5.830E-01 g/L Carbon
(119.2 - 2.600539)(1)/(200)(12) = +4.858E-02 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-148, REV. 1

Sample: 08 Date: 09/22/95 Time: 08:57:30

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = .519537 ug/minute C

Analyst : RA WENDLAND
Min Readings = 10
Max Readings = 10
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	42.60	99.30
3	1.51	86.50	50.75
4	2.00	108.10	19.98
5	2.50	119.10	9.24
6	3.00	124.60	4.41
7	3.50	127.30	2.12
8	4.01	128.50	0.93
9	4.50	129.20	0.54
10	5.00	129.80	0.46

BLANK VALUE = 2.6 micrograms carbon
BLANK FACTOR = 2.6 / 5.004456 = +5.2E-01 ug/min Carbon

SAMPLE RESULTS:
(129.8 - 2.600127)(1)/(50) = +2.544E+00 g/L Carbon
(129.8 - 2.600127)(1)/(50)(12) = +2.120E-01 Molar Carbon

Sample Run By: RA WENDLAND 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-148, REV. 1

Sample: 08D Date: 09/22/95 Time: 09:02:48

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = .519537 ug/minute C

Analyst : RA WENDLAND
Min Readings = 10
Max Readings = 10
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.50	0.00
2	1.01	47.40	98.95
3	1.51	90.30	47.51
4	2.01	111.70	19.16
5	2.51	122.20	8.59
6	3.01	127.40	4.08
7	3.51	130.20	2.15
8	4.01	131.50	0.99
9	4.51	132.30	0.60
10	5.01	133.00	0.53

BLANK VALUE = 2.6 micrograms carbon
BLANK FACTOR = 2.6 / 5.004456 = +5.2E-01 ug/min Carbon

SAMPLE RESULTS:
(133 - 2.600539)(1)/(50) = +2.608E+00 g/L Carbon
(133 - 2.600539)(1)/(50)(12) = +2.173E-01 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-148, REV. 1

Sample: 08S Date: 09/22/95 Time: 09:08:07

Sample Size	= 50 uL	Analyst :	RA WENDLAND
Dil Factor	= 1	Min Readings	= 10
Blank ID #	= BLK	Max Readings	= 10
Blank Value	= .519537 ug/minute C	% Difference	= 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.60	0.00
2	1.01	31.20	98.08
3	1.51	56.60	44.88
4	2.00	69.00	17.97
5	2.50	75.00	8.00
6	3.00	78.00	3.85
7	3.50	79.80	2.26
8	4.00	80.60	0.99
9	4.50	81.20	0.74
10	5.00	81.70	0.61

BLANK VALUE = 2.6 micrograms carbon
BLANK FACTOR = 2.6 / 5.004456 = +5.2E-01 ug/min Carbon

SAMPLE RESULTS:
(81.7 - 2.600127)(1)/(50) = +1.58E+00 g/L Carbon
(81.7 - 2.600127)(1)/(50)(12) = +1.32E-01 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
WHC-SD-WM-DP-148, REV. 1

Sample: 08S (DUP) Date: 09/22/95 Time: 09:18:36

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = .519537 ug/minute C

Analyst : RA WENDLAND
Min Readings = 10
Max Readings = 10
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.40	0.00
2	1.01	28.90	98.62
3	1.51	54.40	46.88
4	2.00	67.60	19.53
5	2.50	74.70	9.50
6	3.00	78.40	4.72
7	3.50	80.50	2.61
8	4.00	81.70	1.47
9	4.50	82.60	1.09
10	5.00	83.00	0.48

BLANK VALUE = 2.6 micrograms carbon
BLANK FACTOR = 2.6 / 5.004456 = +5.2E-01 ug/min Carbon

SAMPLE RESULTS:
(83 - 2.600127)(1)/(50) = +1.61E+00 g/L Carbon
(83 - 2.600127)(1)/(50)(12) = +1.34E-01 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
WHC-SD-WM-DP-148, REV. 1

Sample: 09 Date: 09/22/95 Time: 09:13:21

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = .519537 ug/minute C

Analyst : RA WENDLAND
Min Readings = 10
Max Readings = 10
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.80	0.00
2	1.01	50.00	98.40
3	1.51	87.90	43.12
4	2.01	105.50	16.68
5	2.51	114.20	7.62
6	3.01	118.40	3.55
7	3.51	120.50	1.74
8	4.00	121.70	0.99
9	4.50	122.50	0.65
10	5.01	123.00	0.41

BLANK VALUE = 2.6 micrograms carbon
BLANK FACTOR = 2.6 / 5.004456 = +5.2E-01 ug/min Carbon

SAMPLE RESULTS:
(123 - 2.600507)(1)/(50) = +2.408E+00 g/L Carbon
(123 - 2.600507)(1)/(50)(12) = +2.007E-01 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-148, REV. 1

Sample: 9D Date: 09/22/95 Time: 10:17:24

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = .519537 ug/minute C

Analyst : RA WENDLAND
Min Readings = 10
Max Readings = 10
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.80	0.00
2	1.01	52.40	98.47
3	1.51	88.30	40.66
4	2.01	104.40	15.42
5	2.51	112.80	7.45
6	3.01	116.90	3.51
7	3.51	119.30	2.01
8	4.01	120.60	1.08
9	4.50	121.50	0.74
10	5.00	122.00	0.41

BLANK VALUE = 2.6 micrograms carbon
BLANK FACTOR = 2.6 / 5.004456 = +5.2E-01 ug/min Carbon

SAMPLE RESULTS:
(122 - 2.600095)(1)/(50) = +2.388E+00 g/L Carbon
(122 - 2.600095)(1)/(50)(12) = +1.990E-01 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

P

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

WHC-SD-WM-DP-148, REV. 1

Sample: 10 Date: 09/22/95 Time: 10:35:15

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = .519537 ug/minute C

Analyst : RA WENDLAND
Min Readings = 10
Max Readings = 10
% Difference = 10

== Reading	Analysis Time	Coulometer	% Difference ==
1	0.51	3.60	0.00
2	1.01	58.80	93.88
3	1.51	90.60	35.10
4	2.01	105.30	13.96
5	2.51	113.00	6.81
6	3.01	116.90	3.34
7	3.51	118.80	1.60
8	4.01	120.20	1.16
9	4.50	121.00	0.66
10	5.00	121.70	0.58

BLANK VALUE = 2.6 micrograms carbon
BLANK FACTOR = 2.6 / 5.004456 = +5.2E-01 ug/min Carbon

SAMPLE RESULTS:
(121.7 - 2.600127)(1)/(50) = +2.382E+00 g/L Carbon
(121.7 - 2.600127)(1)/(50)(12) = +1.985E-01 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
WHC-SD-WM-DP-148, REV. 1

Sample: 10D Date: 09/22/95 Time: 10:41:23

Sample Size = 50 uL
Dil Factor = 1
Blank ID # = BLK
Blank Value = .519537 ug/minute C

Analyst : RA WENDLAND
Min Readings = 10
Max Readings = 10
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	4.70	0.00
2	1.01	59.50	92.10
3	1.51	89.50	33.52
4	2.00	103.80	13.78
5	2.50	111.20	6.65
6	3.00	115.30	3.56
7	3.50	117.30	1.71
8	4.00	118.90	1.35
9	4.50	119.70	0.67
10	5.00	120.30	0.50

BLANK VALUE = 2.6 micrograms carbon
BLANK FACTOR = 2.6 / 5.004456 = +5.2E-01 ug/min Carbon

SAMPLE RESULTS:
(120.3 - 2.599556)(1)/(50) = +2.354E+00 g/L Carbon
(120.3 - 2.599556)(1)/(50)(12) = +1.962E-01 Molar Carbon

Sample Run By: _____
RA WENDLAND 00000

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

RADIOCHEMICAL ANALYSES

WHC-SD-WM-DP-148, REV. 1
WHC-SD-WM-DP-148, REV. 0

LABCORE Data Entry Template for Worklist# 2520

Analyst: RA RAG Instrument: GEA00 3 Book# 144852

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

Worklist Comment: GEA AN-101; use 0.100-10-1.000 dilution of sample. R(0)-PPB

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S95T002411	0		@GEA-01	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S95T002411	0		@GEA-01	LIQUID		
5	SAMPLE	S95T002412	0		@GEA-01	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
6	DUP	S95T002412	0		@GEA-01	LIQUID		
7	SAMPLE	S95T002413	0		@GEA-01	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
8	DUP	S95T002413	0		@GEA-01	LIQUID		

Final page for worklist # 2520

Rae Ann Green 10-2-95
Analyst Signature Date

C.J. Grimm 10/3/95
Analyst Signature Date

S95T002413

OUT FOR RERUN

Data Entry Comments:

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

```
**********************************************************************************
* 222-S Laboratory Counting Room    2-OCT-1995 16:32:48.55                       *
**********************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2520
Sample ID:               WRKLST2520-STD
Sample Size:             1.00000E-03 L
Dilution Factor:         1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             NI3AC:1.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:08.61 sec
Dead Time:               0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       2-OCT-1995 06:07:51.59
Decayed to:              2-OCT-1995 06:07:51.59
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

WHC-SD-WM-DP-148, REV. 1

Removed by: Raymond

Verified by: B Bachelor 10/3/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.50*	23213	1.53	1323.18	1316	16	1.4		CS-137	26.2
0	1172.99	13622	1.87	2346.25	2338	17	1.9		CO-60	21.5
0	1332.23	12257	1.92	2664.83	2655	20	1.9		CO-60	21.5

WHC-SD-WM-DP-148, REV. 0

Summary of Nuclide Activity
Sample ID : WRKLST2520-STD

Acquisition date : 2-OCT-1995 06:07:51

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	2.147E+01	2.147E+01	0.028E+01	1.32	
CS-137	30.00Y	1.000	2.624E+01	2.624E+01	0.038E+01	1.44	
Total Activity :			4.770E+01	4.770E+01			
Grand Total Activity :			4.770E+01	4.770E+01			

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

uCi/ml

Co-60 2.147 E-2

Cs-137 2.624 E-2

Sample ID : WRKLST2520-STD Acquisition date : 2-OCT-1995 06:07:51

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	1179.	477.59	1.1311E+00
NA-22	66.	1274.53	6.3702E-02
NA-24	25.	1368.55	4.2590E-02
K-40	143.	1460.75	9.7927E-01
SC-46	499.	1120.55	1.5740E-01
CR-51	1126.	320.08	8.3183E-01
MN-54	638.	834.83	1.3807E-01
CO-56	640.	846.76	1.4012E-01
CO-57	1235.	122.06	6.0823E-02
CO-58	554.	810.78	1.2617E-01
FE-59	645.	1099.25	3.1143E-01
ZN-65	587.	1115.55	3.3535E-01
SE-75	1306.	264.66	1.3422E-01
KR-85	837.	514.00	2.4095E+01
SR-85	837.	514.01	1.0894E-01
Y-88	12.	1836.06	3.6311E-02
Y-90	29.	1760.70	1.9265E-01
Y-91	175.	1204.67	3.2990E+01
NB-94	647.	871.09	1.4429E-01
NB-95	547.	765.78	1.1900E-01
ZR-95	530.	756.73	2.1221E-01
RU-103	870.	497.08	1.1412E-01
RURH-106	604.	621.93	2.1067E+00
AG-108m	514.	722.94	1.2069E-01
CD-109	1058.	88.03	1.8642E+00
AG-110M	1030.	657.76	1.5116E-01
SN-113	1027.	391.69	1.4571E-01
TE-123m	1227.	159.00	6.2375E-02
SB-124	576.	602.73	1.0159E-01
SB-125	1208.	427.89	3.6890E-01
TE-125m	1124.	109.27	1.8892E+01
I-129	1031.	39.60	0.0000E+00
I-131	1059.	364.48	1.1060E-01
XE-131m	1274.	163.93	2.7645E+00
BA-133	1067.	356.02	1.4258E-01
CS-134	596.	604.70	1.0380E-01
CS-136	628.	818.51	1.3524E-01
CS-138	26.	1435.86	9.4987E-02
CE-139	1227.	165.85	6.6868E-02
BA-140	681.	537.31	4.0161E-01
LA-140	24.	1596.21	4.8574E-02
CE-141	1239.	145.44	1.0639E-01
CE-144	1207.	133.51	4.5519E-01
CEPR-144	1208.	133.51	9.0960E-01
EU-152	29.	1408.01	2.2089E-01
EU-154	66.	1274.51	1.8479E-01
EU-155	1045.	86.54	2.1007E-01
HF-181	967.	482.18	1.3276E-01
TA-182	959.	67.75	3.0220E-01
HG-203	1226.	279.20	9.6967E-02
BI-207	566.	569.70	9.5938E-02

Sample ID : WRKLST2520-STD Acquisition date : 2-OCT-1995 06:07:51

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	1243.	277.36	1.2543E+00
PB-210	964.	46.50	0.0000E+00
BI-212	509.	727.18	1.6471E+00
PB-212	1436.	238.63	1.7502E-01
BI-214	622.	609.31	2.3253E-01
PB-214	1043.	351.92	4.3227E-01
RA-224	1375.	240.99	1.9016E+00
RA-226	1408.	186.10	1.7569E+00
AC-228	783.	911.21	6.1985E-01
TH-228	1024.	84.37	5.6485E+00
TH-229	1066.	88.47	2.7114E-01
U-232	912.	57.78	1.4137E+02
PA-233	1202.	312.17	2.2015E-01
PA-234M	640.	1001.03	2.7406E-01
TH-234	982.	63.29	3.7251E+00
U-235	1410.	185.71	1.0687E-01
NP-237	1045.	86.48	5.5649E-01
U-237	1020.	59.54	6.9839E-01
NP-238	724.	984.45	6.1292E-01
NP-239	1102.	106.12	2.3730E-01
PU-239	1154.	129.30	7.7395E+02
AM-241	1020.	59.54	6.6989E-01
AM-243	1018.	74.67	1.5728E-01

```
**********************************************************************
* 222-S Laboratory Counting Room    2-OCT-1995 07:54:05.51           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2520
Sample ID:               WRKLST#2520-BLNK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3353.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.51 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       2-OCT-1995 07:03:12.24
Decayed to:              2-OCT-1995 07:03:12.24
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Removed by:

Verified by:

10/3/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	295.00	44	1.15	590.34	586	9	74.3		PB-214	21.8
0	351.67*	43	1.48	703.64	698	12	96.5		PB-214	12.6
0	609.11*	60	1.04	1218.41	1215	9	42.0			
0	661.67*	75	2.16	1323.51	1318	14	43.4		CS-137	8.52

Summary of Nuclide Activity
Sample ID : WRKLST#2520-BLNK Acquisition date : 2-OCT-1995 07:03:12

Total number of lines in spectrum	4	
Number of unidentified lines	0	
Number of lines tentatively identified by NID	4	100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	8.524E+00	8.524E+00	3.695E+00	43.35	
~~PB-214~~	~~26.80M~~	~~1.782~~	~~8.943E+00~~	~~1.594E+01~~	~~0.974E+01~~	~~61.09~~	~~BKG~~
			---	---			10/3/95
Total Activity :			1.747E+01	2.446E+01			

Grand Total Activity : 1.747E+01 2.446E+01

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

Co-60 < 3.1824 E-3

Cs 137 8.524 E-3

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	40.	477.59	2.0965E+01
NA-22	16.	1274.53	3.1870E+00
NA-24	5.	1368.55	1.9124E+00
K-40	114.	1460.75	8.8424E+01
SC-46	36.	1120.55	4.2409E+00
CR-51	56.	320.08	1.8685E+01
MN-54	18.	834.83	2.3454E+00
CO-56	11.	846.76	1.8163E+00
CO-57	96.	122.06	1.7146E+00
CO-58	16.	810.78	2.1728E+00
FE-59	12.	1099.25	4.2105E+00
CO-60	15.	1332.50	3.1824E+00
ZN-65	14.	1115.55	5.2162E+00
SE-75	80.	264.66	3.3475E+00
KR-85	52.	514.00	6.0927E+02
SR-85	52.	514.01	2.7468E+00
Y-88	1.	1836.06	1.0597E+00
Y-90	11.	1760.70	1.2043E+01
Y-91	14.	1204.67	9.3198E+02
NB-94	21.	871.09	2.6221E+00
NB-95	28.	765.78	2.7117E+00
ZR-95	21.	756.73	4.2203E+00
RU-103	25.	497.08	1.9692E+00
RURH-106	25.	621.93	4.2923E+01
AG-108m	24.	722.94	2.6334E+00
CD-109	82.	88.03	5.2273E+01
AG-110M	29.	657.76	2.5438E+00
SN-113	47.	391.69	3.1354E+00
TE-123m	76.	159.00	1.5680E+00
SB-124	31.	602.73	2.3783E+00
SB-125	37.	427.89	6.5047E+00
TE-125m	87.	109.27	5.3042E+02
I-129	74.	39.60	0.0000E+00
I-131	49.	364.48	2.4052E+00
XE-131m	82.	163.93	7.0738E+01
BA-133	49.	356.02	3.0969E+00
CS-134	33.	604.70	2.4690E+00
CS-136	11.	818.51	1.8317E+00
CS-138	10.	1435.86	5.7694E+00
CE-139	79.	165.85	1.7172E+00
BA-140	32.	537.31	8.7852E+00
LA-140	7.	1596.21	2.6369E+00
CE-141	88.	145.44	2.8686E+00
CE-144	82.	133.51	1.2012E+01
CEPR-144	82.	133.51	2.3999E+01
EU-152	12.	1408.01	1.4032E+01
EU-154	16.	1274.51	9.2592E+00
EU-155	79.	86.54	5.8350E+00
HF-181	40.	482.18	2.7421E+00
TA-182	62.	67.75	7.7809E+00
HG-203	66.	279.20	2.2721E+00

Sample ID : WRKLST#2520-BLNK Acquisition date : 2-OCT-1995 07:03:12

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	27.	569.70	2.1306E+00
TL-208	70.	277.36	3.0060E+01
PB-210	46.	46.50	0.0000E+00
BI-212	29.	727.18	3.9932E+01
PB-212	83.	238.63	4.2528E+00
BI-214	107.	609.31	9.7309E+00
RA-224	102.	240.99	5.2434E+01
RA-226	94.	186.10	4.5769E+01
AC-228	33.	911.21	1.2877E+01
TH-228	84.	84.37	1.6362E+02
TH-229	83.	88.47	7.6493E+00
U-232	62.	57.78	3.7123E+03
PA-233	68.	312.17	5.3034E+00
PA-234M	17.	1001.03	4.4606E+00
TH-234	57.	63.29	9.0943E+01
U-235	101.	185.71	2.8875E+00
NP-237	80.	86.48	1.5543E+01
U-237	70.	59.54	1.8429E+01
NP-238	15.	984.45	8.9371E+00
NP-239	65.	106.12	5.8000E+00
PU-239	68.	129.30	1.8946E+04
AM-241	70.	59.54	1.7677E+01
AM-243	83.	74.67	4.5294E+00

```
**********************************************************************
* 222-S Laboratory Counting Room    2-OCT-1995 10:11:08.98           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2520
Sample ID:               S95T2411-SAM
Sample Size:             1.00000E-03 LI
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3354.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:52:15.51 sec
Dead Time:               4.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       2-OCT-1995 09:17:56.05
Decayed to:              2-OCT-1995 09:17:56.05
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Verified by:

10/3/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	661.49*	1063895	1.54	1323.16	1315	17	0.2		CS-137	1.215E+05
0	1322.30	271	2.21	2644.96	2639	13	21.7			

Acquisition date : 2-OCT-1995 09:17:56

Total number of lines in spectrum	2	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	1	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/LI	Wtd Mean Decay Corr uCi/LI	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.215E+05	1.215E+05	0.002E+05	0.20	
Total Activity :			1.215E+05	1.215E+05			
Grand Total Activity :			1.215E+05	1.215E+05			

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

uCi/ml

Co-60 < 4.1014 E-3

Cs-137 1.215 E+2

WHC-SD-WM-DP-149, REV. 1

WHC-SD-WM-DP-148, REV. 0

Minimum Detectable Activity Report
Sample ID : S95T2411-SAM

Acquisition date : 2-OCT-1995 09:17:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	32569.	477.59	6.0049E+02
NA-22	105.	1274.53	8.1221E+00
NA-24	17.	1368.55	3.4929E+00
K-40	144.	1460.75	9.9143E+01
SC-46	224.	1120.55	1.0637E+01
CR-51	25390.	320.08	3.9900E+02
MN-54	660.	834.83	1.4190E+01
CO-56	593.	846.76	1.3624E+01
CO-57	25682.	122.06	2.8012E+01
CO-58	703.	810.78	1.4360E+01
FE-59	210.	1099.25	1.7967E+01
CO-60	25.	1332.50	4.1014E+00 ←
ZN-65	220.	1115.55	2.0752E+01
SE-75	28014.	264.66	6.2787E+01
KR-85	16091.	514.00	1.0672E+04
SR-85	16089.	514.01	4.8255E+01
Y-88	1.	1836.06	9.6362E-01
Y-90	10.	1760.70	1.1227E+01
Y-91	111.	1204.67	2.6547E+03
NB-94	549.	871.09	1.3423E+01
NB-95	867.	765.78	1.5131E+01
ZR-95	872.	756.73	2.7511E+01
RU-103	20039.	497.08	5.5308E+01
RURH-106	5827.	621.93	6.6066E+02
AG-108m	1078.	722.94	1.7643E+01
CD-109	22736.	88.03	8.7274E+02
AG-110M	25873.	657.76	7.6528E+01
SN-113	27843.	391.69	7.6618E+01
TE-123m	26854.	159.00	2.9468E+01
SB-124	6148.	602.73	3.3519E+01
SB-125	32750.	427.89	1.9399E+02
TE-125m	23833.	109.27	8.7857E+03
I-129	20812.	39.60	0.0000E+00
I-131	26057.	364.48	5.5423E+01
XE-131m	27211.	163.93	1.2902E+03
BA-133	25554.	356.02	7.0467E+01
CS-134	6046.	604.70	3.3393E+01
CS-136	668.	818.51	1.4087E+01
CS-138	11.	1435.86	6.1842E+00
CE-139	27205.	165.85	3.1807E+01
BA-140	11555.	537.31	1.6713E+02
LA-140	8.	1596.21	2.7421E+00
CE-141	26774.	145.44	4.9959E+01
CE-144	26716.	133.51	2.1625E+02
CEPR-144	26716.	133.51	4.3211E+02
EU-152	12.	1408.01	1.4179E+01
EU-154	104.	1274.51	2.3543E+01
EU-155	22511.	86.54	9.8468E+01
HF-181	25702.	482.18	6.9112E+01
TA-182	20905.	67.75	1.4254E+02
HG-203	26871.	279.20	4.5856E+01

Sample ID : S95T2411-SAM Acquisition date : 2-OCT-1995 09:17:56

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BI-207	7069.	569.70	3.4238E+01
TL-208	26956.	277.36	5.9001E+02
PB-210	20800.	46.50	0.0000E+00
BI-212	1005.	727.18	2.3383E+02
PB-212	30991.	238.63	8.2132E+01
BI-214	6009.	609.31	7.2999E+01
PB-214	25644.	351.92	2.2120E+02
RA-224	30371.	240.99	9.0285E+02
RA-226	36078.	186.10	8.9824E+02
AC-228	459.	911.21	4.7935E+01
TH-228	22291.	84.37	2.6614E+03
TH-229	22755.	88.47	1.2654E+02
U-232	20661.	57.78	6.7957E+04
PA-233	25335.	312.17	1.0210E+02
PA-234M	309.	1001.03	1.9243E+01
TH-234	21022.	63.29	1.7408E+03
U-235	35753.	185.71	5.4347E+01
NP-237	22510.	86.48	2.6081E+02
U-237	20956.	59.54	3.1978E+02
NP-238	332.	984.45	4.1930E+01
NP-239	23600.	106.12	1.1096E+02
PU-239	26519.	129.30	3.7467E+05
AM-241	20956.	59.54	3.0671E+02
AM-243	21685.	74.67	7.3332E+01

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**********************************************************************
* 222-S Laboratory Counting Room    2-OCT-1995 11:10:31.16            *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2520
Sample ID:               S95T2411-DUP
Sample Size:             1.00000E-03 LI
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3355.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:52:15.00 sec
Dead Time:               4.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       2-OCT-1995 10:17:20.32
Decayed to:              2-OCT-1995 10:17:20.32
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Verified by: 10/3/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	661.49*	1061478	1.53	1323.16	1315	17	0.2		CS-137	1.212E+05
0	1321.96	271	2.87	2644.29	2636	20	27.9			
0	1376.35	16	3.34	2753.12	2743	20	126.9			

Acquisition date : 2-OCT-1995 10:17:20

Total number of lines in spectrum	3	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	1	33.33%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/LI	Wtd Mean Decay Corr uCi/LI	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.212E+05	1.212E+05	0.002E+05	0.20	
Total Activity :			1.212E+05	1.212E+05			
Grand Total Activity :			1.212E+05	1.212E+05			

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

uCi/ml.

Co 60 < 3.7388 E-3

Cs 137 1.212 E+2

Sample ID : S95T2411-DUP
Acquisition date : 2-OCT-1995 10:17:20

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	32165.	477.59	5.9676E+02
NA-22	116.	1274.53	8.5399E+00
NA-24	9.	1368.55	2.6329E+00
K-40	141.	1460.75	9.8302E+01
SC-46	239.	1120.55	1.1006E+01
CR-51	25071.	320.08	3.9648E+02
MN-54	661.	834.83	1.4199E+01
CO-56	613.	846.76	1.3842E+01
CO-57	25824.	122.06	2.8089E+01
CO-58	710.	810.78	1.4427E+01
FE-59	226.	1099.25	1.8632E+01
CO-60	21.	1332.50	3.7388E+00 ←
ZN-65	223.	1115.55	2.0852E+01
SE-75	27795.	264.66	6.2541E+01
KR-85	16228.	514.00	1.0718E+04
SR-85	16229.	514.01	4.8464E+01
Y-88	5.	1836.06	2.3227E+00
Y-90	6.	1760.70	8.5123E+00
Y-91	101.	1204.67	2.5378E+03
NB-94	553.	871.09	1.3480E+01
NB-95	845.	765.78	1.4937E+01
ZR-95	870.	756.73	2.7477E+01
RU-103	19763.	497.08	5.4925E+01
RURH-106	5709.	621.93	6.5393E+02
AG-108m	974.	722.94	1.6771E+01
CD-109	22389.	88.03	8.6604E+02
AG-110M	25702.	657.76	7.6275E+01
SN-113	27760.	391.69	7.6504E+01
TE-123m	26847.	159.00	2.9464E+01
SB-124	6035.	602.73	3.3208E+01
SB-125	32135.	427.89	1.9216E+02
TE-125m	23754.	109.27	8.7711E+03
I-129	20940.	39.60	0.0000E+00
I-131	25873.	364.48	5.5227E+01
XE-131m	26951.	163.93	1.2841E+03
BA-133	25598.	356.02	7.0528E+01
CS-134	5991.	604.70	3.3242E+01
CS-136	661.	818.51	1.4013E+01
CS-138	9.	1435.86	5.6996E+00
CE-139	27048.	165.85	3.1715E+01
BA-140	11633.	537.31	1.6769E+02
LA-140	8.	1596.21	2.7835E+00
CE-141	26663.	145.44	4.9855E+01
CE-144	26518.	133.51	2.1545E+02
CEPR-144	26518.	133.51	4.3051E+02
EU-152	14.	1408.01	1.5231E+01
EU-154	116.	1274.51	2.4802E+01
EU-155	22363.	86.54	9.8144E+01
HF-181	25894.	482.18	6.9371E+01
TA-182	21041.	67.75	1.4300E+02
HG-203	26870.	279.20	4.5855E+01

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BI-207	7126.	569.70	3.4376E+01
TL-208	26964.	277.36	5.9010E+02
PB-210	20687.	46.50	0.0000E+00
BI-212	948.	727.18	2.2715E+02
PB-212	30759.	238.63	8.1824E+01
BI-214	5931.	609.31	7.2521E+01
PB-214	25433.	351.92	2.2026E+02
RA-224	30543.	240.99	9.0540E+02
RA-226	36288.	186.10	9.0087E+02
AC-228	463.	911.21	4.8147E+01
TH-228	22255.	84.37	2.6592E+03
TH-229	22398.	88.47	1.2555E+02
U-232	20501.	57.78	6.7693E+04
PA-233	25159.	312.17	1.0175E+02
PA-234M	306.	1001.03	1.9133E+01
TH-234	20718.	63.29	1.7282E+03
U-235	35880.	185.71	5.4444E+01
NP-237	22366.	86.48	2.5998E+02
U-237	20561.	59.54	3.1676E+02
NP-238	310.	984.45	4.0560E+01
NP-239	23385.	106.12	1.1045E+02
PU-239	26654.	129.30	3.7561E+05
AM-241	20561.	59.54	3.0381E+02
AM-243	21570.	74.67	7.3138E+01

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**********************************************************************
* 222-S Laboratory Counting Room    2-OCT-1995 12:05:19.61           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:             2520
Sample ID:              S95T2412
Sample Size:            1.00000E-03 LI
Dilution Factor:        1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:            GEA3
File Number:            dka300:[spec.GEA3]3g3356.cnf
Geometry:               42
Count Time:             0 00:50:00.00 sec
Real Time:              0 00:52:17.54 sec
Dead Time:              4.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:      2-OCT-1995 11:12:04.97
Decayed to:             2-OCT-1995 11:12:04.97
Standard Deviations:    2
Analysis Library:       ENVGEA
Analyst:                ALJ
Background Subtract:    DKA300:[SPEC.GEA3]3GBACK

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

Verified by:

10/3/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	661.48*	1077744	1.54	1323.14	1315	17	0.2		CS-137	1.230E+05
0	1322.40	211	2.36	2645.17	2639	13	28.3			

WHC-SD-WM-DP-148, REV. 0

Summary of Nuclide Activity
Sample ID : S95T2412

Acquisition date : 2-OCT-1995 11:12:04

Total number of lines in spectrum	2	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	1	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/LI	Wtd Mean Decay Corr uCi/LI	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.230E+05	1.230E+05	0.002E+05	0.20	
	Total Activity :		1.230E+05	1.230E+05			
	Grand Total Activity :		1.230E+05	1.230E+05			

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

µCi/ml

Co-60 < 4.1829 E-3

Cs-137 1.230 E+2

Sample ID : S95T2412 Acquisition date : 2-OCT-1995 11:12:04

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	32789.	477.59	6.0252E+02
NA-22	145.	1274.53	9.5605E+00
NA-24	11.	1368.55	2.8989E+00
K-40	134.	1460.75	9.5676E+01
SC-46	233.	1120.55	1.0849E+01
CR-51	25648.	320.08	4.0102E+02
MN-54	708.	834.83	1.4691E+01
CO-56	650.	846.76	1.4261E+01
CO-57	26510.	122.06	2.8460E+01
CO-58	644.	810.78	1.3739E+01
FE-59	218.	1099.25	1.8297E+01
CO-60	26.	1332.50	4.1829E+00
ZN-65	257.	1115.55	2.2393E+01
SE-75	28358.	264.66	6.3172E+01
KR-85	16549.	514.00	1.0823E+04
SR-85	16547.	514.01	4.8937E+01
Y-88	3.	1836.06	1.8285E+00
Y-90	9.	1760.70	1.0765E+01
Y-91	100.	1204.67	2.5276E+03
NB-94	578.	871.09	1.3780E+01
NB-95	834.	765.78	1.4841E+01
ZR-95	880.	756.73	2.7622E+01
RU-103	20324.	497.08	5.5700E+01
RURH-106	5928.	621.93	6.6634E+02
AG-108m	992.	722.94	1.6931E+01
CD-109	23036.	88.03	8.7847E+02
AG-110M	26419.	657.76	7.7332E+01
SN-113	28200.	391.69	7.7108E+01
TE-123m	27253.	159.00	2.9686E+01
SB-124	6313.	602.73	3.3966E+01
SB-125	32987.	427.89	1.9469E+02
TE-125m	24403.	109.27	8.8901E+03
I-129	21378.	39.60	0.0000E+00
I-131	26462.	364.48	5.5852E+01
XE-131m	27323.	163.93	1.2929E+03
BA-133	25942.	356.02	7.1001E+01
CS-134	6303.	604.70	3.4095E+01
CS-136	731.	818.51	1.4733E+01
CS-138	10.	1435.86	5.9020E+00
CE-139	27363.	165.85	3.1899E+01
BA-140	11853.	537.31	1.6927E+02
LA-140	1.	1596.21	7.4935E-01
CE-141	27370.	145.44	5.0512E+01
CE-144	27304.	133.51	2.1862E+02
CEPR-144	27306.	133.51	4.3686E+02
EU-152	9.	1408.01	1.2323E+01
EU-154	146.	1274.51	2.7788E+01
EU-155	22950.	86.54	9.9424E+01
HF-181	26244.	482.18	6.9838E+01
TA-182	21672.	67.75	1.4513E+02
HG-203	27054.	279.20	4.6012E+01

Sample ID : S95T2412 Acquisition date : 2-OCT-1995 11:12:04

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BI-207	7109.	569.70	3.4335E+01
TL-208	27075.	277.36	5.9131E+02
PB-210	21064.	46.50	0.0000E+00
BI-212	1010.	727.18	2.3437E+02
PB-212	31576.	238.63	8.2904E+01
BI-214	6065.	609.31	7.3333E+01
PB-214	25891.	351.92	2.2234E+02
RA-224	31318.	240.99	9.1682E+02
RA-226	36485.	186.10	9.0330E+02
AC-228	496.	911.21	4.9833E+01
TH-228	22621.	84.37	2.6810E+03
TH-229	22954.	88.47	1.2709E+02
U-232	21005.	57.78	6.8520E+04
PA-233	25797.	312.17	1.0303E+02
PA-234M	347.	1001.03	2.0368E+01
TH-234	21254.	63.29	1.7504E+03
U-235	36040.	185.71	5.4565E+01
NP-237	22951.	86.48	2.6336E+02
U-237	21137.	59.54	3.2117E+02
NP-238	354.	984.45	4.3295E+01
NP-239	24093.	106.12	1.1211E+02
PU-239	26943.	129.30	3.7765E+05
AM-241	21137.	59.54	3.0803E+02
AM-243	21755.	74.67	7.3451E+01

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

```
**********************************************************************
* 222-S Laboratory Counting Room    2-OCT-1995 13:22:51.67            *
**********************************************************************
     >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2520
Sample ID:               S95T2412-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+02

     >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3357.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:52:18.04 sec
Dead Time:               4.4%

     >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       2-OCT-1995 12:29:54.80
Decayed to:              2-OCT-1995 12:29:54.80
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
**********************************************************************
```

Removed by:

Verified by: 10/3/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.48*	1084929	1.53	1323.15	1315	17	0.2		CS-137	1.239E+05
0	1321.79	351	3.43	2643.94	2636	18	20.9			

Summary of Nuclide Activity
Sample ID : S95T2412-DUP

Acquisition date : 2-OCT-1995 12:29:54

Total number of lines in spectrum	2	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	1	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.239E+05	1.239E+05	0.002E+05	0.20	
Total Activity :			1.239E+05	1.239E+05			
Grand Total Activity :			1.239E+05	1.239E+05			

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

uCi/ml
Co-60 < 4.3060 E-3
Cs137 1.239 E+2

Sample ID : S95T2412-DUP Acquisition date : 2-OCT-1995 12:29:54

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	32597.	477.59	6.0075E+02
NA-22	104.	1274.53	8.0867E+00
NA-24	9.	1368.55	2.6075E+00
K-40	145.	1460.75	9.9477E+01
SC-46	233.	1120.55	1.0859E+01
CR-51	25316.	320.08	3.9842E+02
MN-54	673.	834.83	1.4330E+01
CO-56	681.	846.76	1.4590E+01
CO-57	26325.	122.06	2.8360E+01
CO-58	726.	810.78	1.4591E+01
FE-59	271.	1099.25	2.0379E+01
CO-60	27.	1332.50	4.3060E+00 ←
ZN-65	231.	1115.55	2.1257E+01
SE-75	28755.	264.66	6.3612E+01
KR-85	16595.	514.00	1.0838E+04
SR-85	16591.	514.01	4.9002E+01
Y-88	0.	1836.06	0.0000E+00
Y-90	11.	1760.70	1.1786E+01
Y-91	125.	1204.67	2.8201E+03
NB-94	580.	871.09	1.3801E+01
NB-95	819.	765.78	1.4709E+01
ZR-95	852.	756.73	2.7194E+01
RU-103	20049.	497.08	5.5322E+01
RURH-106	5939.	621.93	6.6698E+02
AG-108m	1047.	722.94	1.7387E+01
CD-109	22723.	88.03	8.7249E+02
AG-110M	26912.	657.76	7.8051E+01
SN-113	28282.	391.69	7.7221E+01
TE-123m	27186.	159.00	2.9650E+01
SB-124	6214.	602.73	3.3698E+01
SB-125	32990.	427.89	1.9470E+02
TE-125m	24211.	109.27	8.8550E+03
I-129	21450.	39.60	0.0000E+00
I-131	26407.	364.48	5.5794E+01
XE-131m	27631.	163.93	1.3002E+03
BA-133	26130.	356.02	7.1257E+01
CS-134	6092.	604.70	3.3521E+01
CS-136	714.	818.51	1.4557E+01
CS-138	11.	1435.86	6.1865E+00
CE-139	27450.	165.85	3.1950E+01
BA-140	11821.	537.31	1.6904E+02
LA-140	7.	1596.21	2.5544E+00
CE-141	27540.	145.44	5.0669E+01
CE-144	27015.	133.51	2.1746E+02
CEPR-144	27015.	133.51	4.3453E+02
EU-152	15.	1408.01	1.5687E+01
EU-154	104.	1274.51	2.3476E+01
EU-155	22910.	86.54	9.9337E+01
HF-181	26488.	482.18	7.0162E+01
TA-182	21305.	67.75	1.4390E+02
HG-203	27375.	279.20	4.6284E+01

Sample ID : S95T2412-DUP Acquisition date : 2-OCT-1995 12:29:54

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	7471.	569.70	3.5197E+01
TL-208	27322.	277.36	5.9400E+02
PB-210	21025.	46.50	0.0000E+00
BI-212	1066.	727.18	2.4083E+02
PB-212	31689.	238.63	8.3052E+01
BI-214	6190.	609.31	7.4087E+01
PB-214	25884.	351.92	2.2232E+02
RA-224	31050.	240.99	9.1289E+02
RA-226	36599.	186.10	9.0471E+02
AC-228	500.	911.21	5.0032E+01
TH-228	22677.	84.37	2.6843E+03
TH-229	22731.	88.47	1.2648E+02
U-232	20881.	57.78	6.8318E+04
PA-233	25891.	312.17	1.0322E+02
PA-234M	307.	1001.03	1.9177E+01
TH-234	21064.	63.29	1.7425E+03
U-235	36298.	185.71	5.4760E+01
NP-237	22918.	86.48	2.6317E+02
U-237	20979.	59.54	3.1996E+02
NP-238	354.	984.45	4.3337E+01
NP-239	23708.	106.12	1.1121E+02
PU-239	27113.	129.30	3.7884E+05
AM-241	20979.	59.54	3.0688E+02
AM-243	21947.	74.67	7.3774E+01

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

```
**********************************************************************************
* 222-S Laboratory Counting Room    2-OCT-1995 14:23:49.14                       *
**********************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2520
Sample ID:               S95T2413-SAM
Sample Size:             1.00000E-03 LI
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3358.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:52:10.63 sec
Dead Time:               4.2%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       2-OCT-1995 13:30:53.49
Decayed to:              2-OCT-1995 13:30:53.49
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 ALJ
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Removed by:

Verified by:

B Machelor 10/3/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/LI
0	661.48*	1029913	1.53	1323.13	1315	17	0.2		CS-137	1.176E+05
0	1322.29	195	1.91	2644.94	2639	13	29.4			

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

Sample ID : S95T2413-SAM Acquisition date : 2-OCT-1995 13:30:53

Total number of lines in spectrum	2	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	1	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/LI	Wtd Mean Decay Corr uCi/LI	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.176E+05	1.176E+05	0.002E+05	0.20	
	Total Activity :		1.176E+05	1.176E+05			
	Grand Total Activity :		1.176E+05	1.176E+05			

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

uCi/ml
Co60 L 4.4602 E-3 10/3/95
Cs137 1.176 E+2

Sample ID : S95T2413-SAM Acquisition date : 2-OCT-1995 13:30:53

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BE-7	31237.	477.59	5.8808E+02
NA-22	94.	1274.53	7.7052E+00
NA-24	15.	1368.55	3.2958E+00
K-40	155.	1460.75	1.0286E+02
SC-46	200.	1120.55	1.0052E+01
CR-51	24265.	320.08	3.9006E+02
MN-54	592.	834.83	1.3436E+01
CO-56	547.	846.76	1.3077E+01
CO-57	24972.	122.06	2.7622E+01
CO-58	682.	810.78	1.4137E+01
FE-59	227.	1099.25	1.8668E+01
CO-60	29.	1332.50	4.4602E+00 ←
ZN-65	204.	1115.55	1.9948E+01
SE-75	26950.	264.66	6.1583E+01
KR-85	15866.	514.00	1.0597E+04
SR-85	15863.	514.01	4.7915E+01
Y-88	1.	1836.06	1.0597E+00
Y-90	6.	1760.70	8.8285E+00
Y-91	98.	1204.67	2.4922E+03
NB-94	515.	871.09	1.3007E+01
NB-95	734.	765.78	1.3926E+01
ZR-95	814.	756.73	2.6565E+01
RU-103	19120.	497.08	5.4025E+01
RURH-106	5606.	621.93	6.4803E+02
AG-108m	957.	722.94	1.6630E+01
CD-109	21760.	88.03	8.5379E+02
AG-110M	26017.	657.76	7.6741E+01
SN-113	26896.	391.69	7.5305E+01
TE-123m	26000.	159.00	2.8996E+01
SB-124	5989.	602.73	3.3083E+01
SB-125	31490.	427.89	1.9022E+02
TE-125m	23283.	109.27	8.6836E+03
I-129	20310.	39.60	0.0000E+00
I-131	25037.	364.48	5.4327E+01
XE-131m	25959.	163.93	1.2602E+03
BA-133	24820.	356.02	6.9448E+01
CS-134	5927.	604.70	3.3062E+01
CS-136	639.	818.51	1.3776E+01
CS-138	7.	1435.86	5.1704E+00
CE-139	26288.	165.85	3.1266E+01
BA-140	11140.	537.31	1.6410E+02
LA-140	6.	1596.21	2.3729E+00
CE-141	26023.	145.44	4.9254E+01
CE-144	25467.	133.51	2.1114E+02
CEPR-144	25466.	133.51	4.2189E+02
EU-152	6.	1408.01	1.0062E+01
EU-154	94.	1274.51	2.2372E+01
EU-155	21878.	86.54	9.7074E+01
HF-181	25038.	482.18	6.8213E+01
TA-182	20350.	67.75	1.4064E+02
HG-203	25876.	279.20	4.4999E+01

Sample ID : S95T2413-SAM Acquisition date : 2-OCT-1995 13:30:53

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/LI)
BI-207	6870.	569.70	3.3754E+01
TL-208	25942.	277.36	5.7881E+02
PB-210	20013.	46.50	0.0000E+00
BI-212	916.	727.18	2.2328E+02
PB-212	30414.	238.63	8.1364E+01
BI-214	5862.	609.31	7.2097E+01
PB-214	24705.	351.92	2.1693E+02
RA-224	29956.	240.99	8.9666E+02
RA-226	34716.	186.10	8.8113E+02
AC-228	434.	911.21	4.6596E+01
TH-228	21700.	84.37	2.6258E+03
TH-229	21786.	88.47	1.2382E+02
U-232	20113.	57.78	6.7050E+04
PA-233	24501.	312.17	1.0041E+02
PA-234M	317.	1001.03	1.9468E+01
TH-234	20056.	63.29	1.7003E+03
U-235	34336.	185.71	5.3259E+01
NP-237	21880.	86.48	2.5714E+02
U-237	19905.	59.54	3.1166E+02
NP-238	322.	984.45	4.1281E+01
NP-239	22752.	106.12	1.0894E+02
PU-239	25748.	129.30	3.6918E+05
AM-241	19905.	59.54	2.9892E+02
AM-243	20835.	74.67	7.1881E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room    3-OCT-1995 08:31:16.18                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2520
Sample ID:               S95T2413-DUP
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3370.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:53:45.19 sec
Dead Time:               7.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       3-OCT-1995 07:36:50.03
Decayed to:              3-OCT-1995 07:36:50.03
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 MB
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Removed by: S E Hogan

Verified by: [signature] 10/3/95

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	186.23*	996	1.63	372.89	370	6	70.4		RA-226	1.013E+03
0	474.06	2105	1.58	948.35	945	8	38.9			
0	661.49*	1717809	1.54	1323.15	1315	17	0.2		CS-137	1.961E+05
0	1321.86	830	2.25	2644.10	2636	16	12.9			

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

Sample ID : S95T2413-DUP
Acquisition date : 3-OCT-1995 07:36:50

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
CS-137	30.00Y	1.000	1.961E+05	1.961E+05	0.003E+05	0.16	
~~RA-226~~	1600.00Y	1.000	1.013E+03	1.013E+03	0.714E+03	70.41	BKG 12/13/95
	Total Activity :		1.971E+05	1.971E+05			
	Grand Total Activity :		1.971E+05	1.971E+05			

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

uCi/ml
Co-60 < 5.9090 E-3
Cs 137 1.961 E+2

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	52071.	477.59	7.5929E+02
NA-22	272.	1274.53	1.3081E+01
NA-24	18.	1368.55	3.6259E+00
K-40	129.	1460.75	9.4030E+01
SC-46	539.	1120.55	1.6520E+01
CR-51	41122.	320.08	5.0779E+02
MN-54	1723.	834.83	2.2919E+01
CO-56	1627.	846.76	2.2559E+01
CO-57	41745.	122.06	3.5713E+01
CO-58	1851.	810.78	2.3298E+01
FE-59	559.	1099.25	2.9271E+01
CO-60	52.	1332.50	5.9090E+00
ZN-65	539.	1115.55	3.2441E+01
SE-75	45179.	264.66	7.9736E+01
KR-85	26678.	514.00	1.3742E+04
SR-85	26674.	514.01	6.2133E+01
Y-88	1.	1836.06	1.0597E+00
Y-90	8.	1760.70	1.0184E+01
Y-91	283.	1204.67	4.2417E+03
NB-94	1512.	871.09	2.2290E+01
NB-95	2130.	765.78	2.3720E+01
ZR-95	2246.	756.73	4.4139E+01
RU-103	32681.	497.08	7.0632E+01
RURH-106	9734.	621.93	8.5389E+02
AG-108m	2707.	722.94	2.7964E+01
CD-109	36251.	88.03	1.1020E+03
AG-110M	43179.	657.76	9.8864E+01
SN-113	45465.	391.69	9.7908E+01
TE-123m	43289.	159.00	3.7414E+01
SB-124	10491.	602.73	4.3786E+01
SB-125	52771.	427.89	2.4625E+02
TE-125m	38529.	109.27	1.1171E+04
I-129	33794.	39.60	0.0000E+00
I-131	42463.	364.48	7.0754E+01
XE-131m	44055.	163.93	1.6418E+03
BA-133	41817.	356.02	9.0143E+01
CS-134	10496.	604.70	4.3998E+01
CS-136	1818.	818.51	2.3238E+01
CS-138	21.	1435.86	8.7841E+00
CE-139	43993.	165.85	4.0448E+01
BA-140	19367.	537.31	2.1637E+02
LA-140	12.	1596.21	3.4247E+00
CE-141	43203.	145.44	6.3463E+01
CE-144	43182.	133.51	2.7493E+02
CEPR-144	43182.	133.51	5.4937E+02
EU-152	29.	1408.01	2.1962E+01
EU-154	272.	1274.51	3.7968E+01
EU-155	36207.	86.54	1.2488E+02
HF-181	42746.	482.18	8.9130E+01
TA-182	33718.	67.75	1.8103E+02
HG-203	43350.	279.20	5.8244E+01

Sample ID : S95T2413-DUP Acquisition date : 3-OCT-1995 07:36:50

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	12271.	569.70	4.5109E+01
TL-208	43258.	277.36	7.4742E+02
PB-210	33580.	46.50	0.0000E+00
BI-212	2703.	727.18	3.8344E+02
PB-212	50837.	238.63	1.0519E+02
BI-214	10319.	609.31	9.5657E+01
PB-214	41622.	351.92	2.8607E+02
RA-224	50094.	240.99	1.1596E+03
AC-228	1171.	911.21	7.6573E+01
TH-228	35984.	84.37	3.3814E+03
TH-229	36285.	88.47	1.5980E+02
U-232	32983.	57.78	8.5862E+04
PA-233	41028.	312.17	1.2993E+02
PA-234M	836.	1001.03	3.1633E+01
TH-234	32944.	63.29	2.1792E+03
U-235	57846.	185.71	6.9129E+01
NP-237	36187.	86.48	3.3069E+02
U-237	33353.	59.54	4.0345E+02
NP-238	880.	984.45	6.8283E+01
NP-239	37988.	106.12	1.4079E+02
PU-239	42788.	129.30	4.7591E+05
AM-241	33353.	59.54	3.8694E+02
AM-243	34712.	74.67	9.2781E+01

LABCORE Data Entry Template for Worklist# 2754

Analyst: SMF Instrument: GEA00 ~~to C35731~~ 3 cal 10/30/95 Book# 144B52

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

Worklist Comment: GEA AN-101; 0.100-10-1.0 dil. of sample. Re-run#1 (RPD).-PPB

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD	1.0 ml			@GEA-01	LIQUID		
2	BLNK				@GEA-01	LIQUID		
3	SAMPLE	S95T002413	0		@GEA-01	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: CO60-02 , CO60-02E, CS13702 , CS13702E							
4	DUP	S95T002413	0		@GEA-01	LIQUID		

Final page for worklist # 2754

Sue Fulton 10.13.95 1525
Analyst Signature Date

D.A. Gillis 10-16-95
Analyst Signature Date

WHC-SD-WM-DP-~~148~~ 149, REV 1

Data Entry Comments:

Samples - .100 ml → 10 ml → 1.0 ml

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

```
**********************************************************************
* 222-S Laboratory Counting Room   13-OCT-1995 01:28:39.82           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:             2754
Sample ID:              WL2754-TD
Sample Size:            1.00000E-03 L
Dilution Factor:        1.00000E+00

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:            GEA3
File Number:            dka300:[spec.GEA3]3g3660.cnf
Geometry:               42
Count Time:             0 00:50:00.00 sec
Real Time:              0 00:50:08.47 sec
Dead Time:              0.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:      13-OCT-1995 00:37:51.70
Decayed to:             13-OCT-1995 00:37:51.70
Standard Deviations:    2
Analysis Library:       ENVGEA
Analyst:                VR
Background Subtract:    DKA300:[SPEC.GEA3]3GBACK

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

Removed by: Raymond

Verified by: M Jones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.56*	22697	1.54	1323.29	1316	16	1.5		CS-137	25.7
0	1173.02	13321	1.92	2346.32	2338	19	2.0		CO-60	21.0
0	1332.24	12035	1.86	2664.85	2657	18	1.9		CO-60	21.1

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	2.104E+01	2.104E+01	0.028E+01	1.35	
CS-137	30.00Y	1.000	2.565E+01	2.565E+01	0.037E+01	1.46	
Total Activity :			4.669E+01	4.669E+01			
Grand Total Activity :			4.669E+01	4.669E+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	1114.	477.59	1.0998E+00
NA-22	83.	1274.53	7.1563E-02
NA-24	31.	1368.55	4.7090E-02
K-40	140.	1460.75	9.6757E-01
SC-46	461.	1120.55	1.5126E-01
CR-51	1091.	320.08	8.1902E-01
MN-54	633.	834.83	1.3756E-01
CO-56	610.	846.76	1.3679E-01
CO-57	1154.	122.06	5.8783E-02
CO-58	603.	810.78	1.3164E-01
FE-59	635.	1099.25	3.0896E-01
ZN-65	557.	1115.55	3.2646E-01
SE-75	1268.	264.66	1.3228E-01
KR-85	811.	514.00	2.3721E+01
SR-85	811.	514.01	1.0724E-01
Y-88	7.	1836.06	2.7414E-02
Y-90	17.	1760.70	1.4784E-01
Y-91	147.	1204.67	3.0264E+01
NB-94	670.	871.09	1.4689E-01
NB-95	542.	765.78	1.1849E-01
ZR-95	529.	756.73	2.1219E-01
RU-103	837.	497.08	1.1189E-01
RURH-106	569.	621.93	2.0435E+00
AG-108m	477.	722.94	1.1626E-01
CD-109	1019.	88.03	1.8289E+00
AG-110M	971.	657.76	1.4675E-01
SN-113	1080.	391.69	1.4940E-01
TE-123m	1227.	159.00	6.2368E-02
SB-124	540.	602.73	9.8381E-02
SB-125	1121.	427.89	3.5527E-01
TE-125m	1110.	109.27	1.8776E+01
I-129	1003.	39.60	0.0000E+00
I-131	1076.	364.48	1.1152E-01
XE-131m	1197.	163.93	2.6794E+00
BA-133	1007.	356.02	1.3849E-01
CS-134	560.	604.70	1.0062E-01
CS-136	582.	818.51	1.3015E-01
CS-138	18.	1435.86	7.7643E-02
CE-139	1189.	165.85	6.5828E-02
BA-140	683.	537.31	4.0239E-01
LA-140	23.	1596.21	4.7796E-02
CE-141	1191.	145.44	1.0434E-01
CE-144	1186.	133.51	4.5104E-01
CEPR-144	1186.	133.51	9.0129E-01
EU-152	22.	1408.01	1.9289E-01
EU-154	83.	1274.51	2.0796E-01
EU-155	1010.	86.54	2.0651E-01
HF-181	939.	482.18	1.3081E-01
TA-182	995.	67.75	3.0792E-01
HG-203	1214.	279.20	9.6499E-02
BI-207	595.	569.70	9.8318E-02

Sample ID : WL2754-TD Acquisition date : 13-OCT-1995 00:37:51

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
TL-208	1190.	277.36	1.2275E+00
PB-210	915.	46.50	0.0000E+00
BI-212	539.	727.18	1.6949E+00
PB-212	1430.	238.63	1.7469E-01
BI-214	564.	609.31	2.2145E-01
PB-214	1052.	351.92	4.3407E-01
RA-224	1386.	240.99	1.9097E+00
RA-226	1337.	186.10	1.7120E+00
AC-228	790.	911.21	6.2253E-01
TH-228	1026.	84.37	5.6536E+00
TH-229	1027.	88.47	2.6622E-01
U-232	898.	57.78	1.4025E+02
PA-233	1069.	312.17	2.0767E-01
PA-234M	626.	1001.03	2.7099E-01
TH-234	955.	63.29	3.6739E+00
U-235	1333.	185.71	1.0389E-01
NP-237	1013.	86.48	5.4772E-01
U-237	938.	59.54	6.6966E-01
NP-238	703.	984.45	6.0419E-01
NP-239	1096.	106.12	2.3674E-01
PU-239	1171.	129.30	7.7953E+02
AM-241	938.	59.54	6.4235E-01
AM-243	978.	74.67	1.5420E-01

```
**********************************************************************************
* 222-S Laboratory Counting Room   13-OCT-1995 09:18:08.94                       *
**********************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2754
Sample ID:               WORKLIST2754-BLK
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             dka300:[spec.GEA3]3g3666.cnf
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:50:00.48 sec
Dead Time:               0.0%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       13-OCT-1995 08:27:28.16
Decayed to:              13-OCT-1995 08:27:28.16
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Removed by: D.A. Wilcox

Verified by: R.A. Jones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.58*	90	1.59	1323.33	1318	12	35.4		CS-137	10.2
0	687.34	15	1.23	1374.84	1372	6	79.5			

Sample ID : WORKLIST2754-BLK Acquisition date : 13-OCT-1995 08:27:28

Total number of lines in spectrum 2
Number of unidentified lines 1
Number of lines tentatively identified by NID 1 50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.022E+01	1.022E+01	0.362E+01	35.37	
Total Activity :			1.022E+01	1.022E+01			
Grand Total Activity :			1.022E+01	1.022E+01			

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

Sample ID : WORKLIST2754-BLK Acquisition date : 13-OCT-1995 08:27:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BE-7	40.	477.59	2.1087E+01
NA-22	6.	1274.53	2.0035E+00
NA-24	6.	1368.55	2.0949E+00
K-40	121.	1460.75	9.1078E+01
SC-46	19.	1120.55	3.1260E+00
CR-51	63.	320.08	1.9844E+01
MN-54	15.	834.83	2.1415E+00
CO-56	19.	846.76	2.4179E+00
CO-57	83.	122.06	1.5947E+00
CO-58	12.	810.78	1.9130E+00
FE-59	13.	1099.25	4.3888E+00
CO-60	9.	1332.50	2.4030E+00
ZN-65	17.	1115.55	5.6879E+00
SE-75	51.	264.66	2.6843E+00
KR-85	50.	514.00	5.9332E+02
SR-85	50.	514.01	2.6787E+00
Y-88	5.	1836.06	2.3695E+00
Y-90	3.	1760.70	6.3790E+00
Y-91	13.	1204.67	9.1507E+02
NB-94	12.	871.09	1.9683E+00
NB-95	27.	765.78	2.6666E+00
ZR-95	19.	756.73	4.0089E+00
RU-103	32.	497.08	2.2094E+00
RURH-106	22.	621.93	4.0670E+01
AG-108m	17.	722.94	2.2398E+00
CD-109	63.	88.03	4.6083E+01
AG-110M	23.	657.76	2.2712E+00
SN-113	35.	391.69	2.7173E+00
TE-123m	80.	159.00	1.6109E+00
SB-124	20.	602.73	1.9269E+00
SB-125	38.	427.89	6.6478E+00
TE-125m	77.	109.27	4.9928E+02
I-129	47.	39.60	0.0000E+00
I-131	43.	364.48	2.2556E+00
XE-131m	67.	163.93	6.4103E+01
BA-133	48.	356.02	3.0409E+00
CS-134	22.	604.70	2.0087E+00
CS-136	12.	818.51	1.9164E+00
CS-138	9.	1435.86	5.5879E+00
CE-139	72.	165.85	1.6327E+00
BA-140	38.	537.31	9.5927E+00
LA-140	2.	1596.21	1.4095E+00
CE-141	92.	145.44	2.9312E+00
CE-144	79.	133.51	1.1737E+01
CEPR-144	79.	133.51	2.3463E+01
EU-152	8.	1408.01	1.1435E+01
EU-154	6.	1274.51	5.8209E+00
EU-155	71.	86.54	5.5279E+00
HF-181	51.	482.18	3.0682E+00
TA-182	61.	67.75	7.6994E+00
HG-203	59.	279.20	2.1553E+00

Sample ID : WORKLIST2754-BLK Acquisition date : 13-OCT-1995 08:27:28

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	26.	569.70	2.0798E+00
TL-208	63.	277.36	2.8500E+01
PB-210	52.	46.50	0.0000E+00
BI-212	26.	727.18	3.7253E+01
PB-212	102.	238.63	4.7039E+00
BI-214	71.	609.31	7.9430E+00
PB-214	77.	351.92	1.1840E+01
RA-224	77.	240.99	4.5438E+01
RA-226	77.	186.10	4.1393E+01
AC-228	37.	911.21	1.3579E+01
TH-228	77.	84.37	1.5623E+02
TH-229	61.	88.47	6.5389E+00
U-232	71.	57.78	3.9877E+03
PA-233	52.	312.17	4.6169E+00
PA-234M	18.	1001.03	4.6559E+00
TH-234	55.	63.29	8.9294E+01
U-235	75.	185.71	2.4839E+00
NP-237	71.	86.48	1.4688E+01
U-237	57.	59.54	1.6748E+01
NP-238	9.	984.45	7.0505E+00
NP-239	56.	106.12	5.4096E+00
PU-239	57.	129.30	1.7403E+04
AM-241	57.	59.54	1.6062E+01
AM-243	83.	74.67	4.5460E+00

```
**********************************************************************
* 222-S Laboratory Counting Room   13-OCT-1995 08:11:39.53           *
**********************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2754
Sample ID:               S95T2413-SAM
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+02

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3
File Number:             NI3AC:1.cnf  Spectrum# 3662
Geometry:                42
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:52:15.65 sec
Dead Time:               4.3%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       13-OCT-1995 03:50:49.89
Decayed to:              13-OCT-1995 03:50:49.89
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Removed by: D Hamilton

Verified by: R K Jones

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.53*	1066528	1.57	1323.24	1315	17	0.2		CS-137	1.218E+05
0	1322.24	254	2.51	2644.85	2639	12	21.6			
0	1415.94	18	3.13	2832.32	2823	19	74.9			

Summary of Nuclide Activity
Sample ID : S95T2413-SAM

Acquisition date : 13-OCT-1995 03:50:49

Total number of lines in spectrum	3	
Number of unidentified lines	2	
Number of lines tentatively identified by NID	1	33.33%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.218E+05	1.218E+05	0.002E+05	0.20	
Total Activity :			1.218E+05	1.218E+05			
Grand Total Activity :			1.218E+05	1.218E+05			

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	32207.	477.59	5.9714E+02
NA-22	115.	1274.53	8.4871E+00
NA-24	12.	1368.55	2.9652E+00
K-40	123.	1460.75	9.1665E+01
SC-46	214.	1120.55	1.0412E+01
CR-51	25659.	320.08	4.0110E+02
MN-54	678.	834.83	1.4377E+01
CO-56	657.	846.76	1.4335E+01
CO-57	25901.	122.06	2.8131E+01
CO-58	719.	810.78	1.4520E+01
FE-59	235.	1099.25	1.8994E+01
CO-60	22.	1332.50	3.8636E+00
ZN-65	196.	1115.55	1.9589E+01
SE-75	28035.	264.66	6.2810E+01
KR-85	16253.	514.00	1.0726E+04
SR-85	16249.	514.01	4.8495E+01
Y-88	4.	1836.06	2.1194E+00
Y-90	14.	1760.70	1.3529E+01
Y-91	103.	1204.67	2.5627E+03
NB-94	557.	871.09	1.3525E+01
NB-95	843.	765.78	1.4920E+01
ZR-95	877.	756.73	2.7583E+01
RU-103	19945.	497.08	5.5178E+01
RURH-106	5870.	621.93	6.6309E+02
AG-108m	1017.	722.94	1.7137E+01
CD-109	22390.	88.03	8.6607E+02
AG-110M	25653.	657.76	7.6202E+01
SN-113	27576.	391.69	7.6250E+01
TE-123m	26968.	159.00	2.9530E+01
SB-124	6018.	602.73	3.3161E+01
SB-125	32356.	427.89	1.9282E+02
TE-125m	23880.	109.27	8.7943E+03
I-129	21239.	39.60	0.0000E+00
I-131	26181.	364.48	5.5555E+01
XE-131m	27178.	163.93	1.2895E+03
BA-133	25948.	356.02	7.1009E+01
CS-134	6088.	604.70	3.3509E+01
CS-136	721.	818.51	1.4633E+01
CS-138	14.	1435.86	7.1093E+00
CE-139	26844.	165.85	3.1595E+01
BA-140	11752.	537.31	1.6855E+02
LA-140	10.	1596.21	3.1887E+00
CE-141	26824.	145.44	5.0006E+01
CE-144	26924.	133.51	2.1709E+02
CEPR-144	26925.	133.51	4.3380E+02
EU-152	20.	1408.01	1.8255E+01
EU-154	114.	1274.51	2.4632E+01
EU-155	22460.	86.54	9.8357E+01
HF-181	25962.	482.18	6.9462E+01
TA-182	21068.	67.75	1.4310E+02
HG-203	26886.	279.20	4.5869E+01

Sample ID : S95T2413-SAM Acquisition date : 13-OCT-1995 03:50:49

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	7335.	569.70	3.4877E+01
TL-208	26846.	277.36	5.8880E+02
PB-210	20690.	46.50	0.0000E+00
BI-212	1069.	727.18	2.4120E+02
PB-212	30908.	238.63	8.2022E+01
BI-214	6031.	609.31	7.3130E+01
PB-214	25515.	351.92	2.2064E+02
RA-224	30657.	240.99	9.0709E+02
RA-226	36518.	186.10	9.0371E+02
AC-228	457.	911.21	4.7822E+01
TH-228	22438.	84.37	2.6701E+03
TH-229	22413.	88.47	1.2559E+02
U-232	20631.	57.78	6.7907E+04
PA-233	25385.	312.17	1.0220E+02
PA-234M	323.	1001.03	1.9660E+01
TH-234	20600.	63.29	1.7232E+03
U-235	36176.	185.71	5.4667E+01
NP-237	22471.	86.48	2.6059E+02
U-237	20733.	59.54	3.1808E+02
NP-238	330.	984.45	4.1809E+01
NP-239	23474.	106.12	1.1066E+02
PU-239	26595.	129.30	3.7520E+05
AM-241	20733.	59.54	3.0507E+02
AM-243	21764.	74.67	7.3465E+01

```
*****************************************************************************
* 222-S Laboratory Counting Room   13-OCT-1995 08:13:27.57                  *
*****************************************************************************
      >>>>>>>>>> SAMPLE INFORMATION <<<<<<<<<<
Worklist #:              2754
Sample ID:               S95T2413-DUP                    Removed by:
Sample Size:             1.00000E-03 L
Dilution Factor:         1.01000E+02                     D H Milicia

      >>>>>>>>>> COUNT INFORMATION <<<<<<<<<<
Detector ID:             GEA3                            Verified by:
File Number:             NI3AC:1.cnf    Spectrum # 3663
Geometry:                42                               R H Jones
Count Time:              0 00:50:00.00 sec
Real Time:               0 00:52:18.57 sec
Dead Time:               4.4%

      >>>>>>>>>> ANALYSIS INFORMATION <<<<<<<<<<
Sample Count Time:       13-OCT-1995 05:33:20.32
Decayed to:              13-OCT-1995 05:33:20.32
Standard Deviations:     2
Analysis Library:        ENVGEA
Analyst:                 DM
Background Subtract:     DKA300:[SPEC.GEA3]3GBACK

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

Post-NID Peak Search Report

It	Energy	Area	FWHM	Channel	Left	Pw	%Err	Fit	Nuclides	Activity uCi/L
0	661.53*	1091282	1.57	1323.24	1315	17	0.2		CS-137	1.246E+05
0	1322.00	290	2.51	2644.37	2638	14	21.9			

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

Acquisition date : 13-OCT-1995 05:33:20

Total number of lines in spectrum	2	
Number of unidentified lines	1	
Number of lines tentatively identified by NID	1	50.00%

Nuclide Type :

Nuclide	Hlife	Decay	Wtd Mean Uncorrected uCi/L	Wtd Mean Decay Corr uCi/L	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CS-137	30.00Y	1.000	1.246E+05	1.246E+05	0.002E+05	0.20	
Total Activity :			1.246E+05	1.246E+05			
Grand Total Activity :			1.246E+05	1.246E+05			

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	33131.	477.59	6.0566E+02
NA-22	129.	1274.53	9.0077E+00
NA-24	8.	1368.55	2.3934E+00
K-40	128.	1460.75	9.3478E+01
SC-46	219.	1120.55	1.0533E+01
CR-51	25463.	320.08	3.9957E+02
MN-54	707.	834.83	1.4684E+01
CO-56	660.	846.76	1.4369E+01
CO-57	26639.	122.06	2.8529E+01
CO-58	739.	810.78	1.4723E+01
FE-59	247.	1099.25	1.9446E+01
CO-60	31.	1332.50	4.5613E+00
ZN-65	217.	1115.55	2.0567E+01
SE-75	28544.	264.66	6.3378E+01
KR-85	16931.	514.00	1.0947E+04
SR-85	16928.	514.01	4.9497E+01
Y-88	3.	1836.06	1.8354E+00
Y-90	6.	1760.70	9.0232E+00
Y-91	110.	1204.67	2.6472E+03
NB-94	550.	871.09	1.3438E+01
NB-95	803.	765.78	1.4560E+01
ZR-95	876.	756.73	2.7561E+01
RU-103	20494.	497.08	5.5932E+01
RURH-106	6131.	621.93	6.7766E+02
AG-108m	1099.	722.94	1.7821E+01
CD-109	22864.	88.03	8.7518E+02
AG-110M	26768.	657.76	7.7841E+01
SN-113	28311.	391.69	7.7260E+01
TE-123m	27629.	159.00	2.9890E+01
SB-124	6321.	602.73	3.3986E+01
SB-125	33401.	427.89	1.9591E+02
TE-125m	24490.	109.27	8.9059E+03
I-129	21648.	39.60	0.0000E+00
I-131	26810.	364.48	5.6218E+01
XE-131m	27322.	163.93	1.2929E+03
BA-133	26416.	356.02	7.1646E+01
CS-134	6373.	604.70	3.4286E+01
CS-136	688.	818.51	1.4290E+01
CS-138	4.	1435.86	3.9085E+00
CE-139	27377.	165.85	3.1907E+01
BA-140	11852.	537.31	1.6926E+02
LA-140	4.	1596.21	2.0261E+00
CE-141	27254.	145.44	5.0405E+01
CE-144	26943.	133.51	2.1717E+02
CEPR-144	26943.	133.51	4.3395E+02
EU-152	10.	1408.01	1.2934E+01
EU-154	129.	1274.51	2.6190E+01
EU-155	22765.	86.54	9.9022E+01
HF-181	26510.	482.18	7.0191E+01
TA-182	21401.	67.75	1.4422E+02
HG-203	27152.	279.20	4.6095E+01

Sample ID : S95T2413-DUP Acquisition date : 13-OCT-1995 05:33:20

Nuclide	Bckgnd Sum	Energy (keV)	MDA (uCi/L)
BI-207	7247.	569.70	3.4667E+01
TL-208	27134.	277.36	5.9196E+02
PB-210	20958.	46.50	0.0000E+00
BI-212	1140.	727.18	2.4901E+02
PB-212	31879.	238.63	8.3300E+01
BI-214	6177.	609.31	7.4011E+01
PB-214	26131.	351.92	2.2340E+02
RA-224	31268.	240.99	9.1610E+02
RA-226	36348.	186.10	9.0160E+02
AC-228	516.	911.21	5.0844E+01
TH-228	22845.	84.37	2.6943E+03
TH-229	22954.	88.47	1.2710E+02
U-232	21045.	57.78	6.8585E+04
PA-233	26189.	312.17	1.0381E+02
PA-234M	354.	1001.03	2.0581E+01
TH-234	21184.	63.29	1.7475E+03
U-235	35991.	185.71	5.4527E+01
NP-237	22745.	86.48	2.6217E+02
U-237	21025.	59.54	3.2031E+02
NP-238	345.	984.45	4.2787E+01
NP-239	23994.	106.12	1.1188E+02
PU-239	26986.	129.30	3.7795E+05
AM-241	21025.	59.54	3.0721E+02
AM-243	21757.	74.67	7.3454E+01

LABCORE Data Entry Template for Worklist# 2933

Analyst: RK **Instrument:** AB00 12 **Book #** 51852

Method: LA-220-101 Rev/Mod 0-1 WHC-SD-WM-DP-148, REV. 1

Worklist Comment: RUSH SAMPLE!! Use .100-10-1.00 mL sample size. SLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
		1	STD				@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
		1	STD				@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
		2	BLNK-PREP				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
		2	BLNK-PREP				@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
		2	BLNK-PREP				@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
		3	BLNK/BKG				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000135	AN-101 GRAB	4	SAMPLE	S95T002411	0		@SR90-01 SR90-01	LIQUID	N/A			uCi/mL
95000135	AN-101 GRAB	4	SAMPLE	S95T002411	0		@SR90-01 SR90-01C	LIQUID	N/A			% Recovery
95000135	AN-101 GRAB	4	SAMPLE	S95T002411	0		@SR90-01 SR90-01E	LIQUID	N/A			% Ct. Error
95000135	AN-101 GRAB	5	DUP	S95T002411	0		@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000135	AN-101 GRAB	5	DUP	S95T002411	0		@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
95000135	AN-101 GRAB	5	DUP	S95T002411	0		@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
95000135	AN-101 GRAB	6	SAMPLE	S95T002412	0		@SR90-01 SR90-01	LIQUID	N/A			uCi/mL
95000135	AN-101 GRAB	6	SAMPLE	S95T002412	0		@SR90-01 SR90-01C	LIQUID	N/A			% Recovery
95000135	AN-101 GRAB	6	SAMPLE	S95T002412	0		@SR90-01 SR90-01E	LIQUID	N/A			% Ct. Error
95000135	AN-101 GRAB	7	DUP	S95T002412	0		@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000135	AN-101 GRAB	7	DUP	S95T002412	0		@SR90-01 SR90-01C	LIQUID			N/A	% Recovery

Data Entry Comments:

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

worklistrpt Version 2.1 05/15/95
10/16/95 15:54

LABCORE Data Entry Template for Worklist# 2933

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
95000135	AN-101 GRAB	7 DUP	S95T002412	0		@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error

Final page for worklist # 2933

Analyst Signature 10/16/95 Date

Analyst Signature 10/17/95 Date

Data Entry Comments:

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

WORKBOOK PAGE: STD1

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

Type						STANDARD
STD	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	10200	GROSS WEIGHT	(W2)	7.9794
2933	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.8866
Test Code	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0928
@SR90-01	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	4.85
Matrix	DILUTION FACTOR	(DF)	1			
LIQUID	DIGEST DILUTION FACTOR	DDF	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	1018.40	SR-90 EFFICIENCY FACTO	(C1)	0.4180
95003205	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	20:04	Rmax		N/A
0	DATE OF SEPARATION	(SD)	10/16/95	DETECTION LIMIT	(Ld)	1.61
Sample Prep	TIME OF COUNT	(TOC)	00:55	Sr-89/90 CONC. in µCi/L		1.1190E+00
N/A	DATE OF COUNT	(DOC)	10/17/95			
Sample #	STANDARD BOOK #		51B52			
WRKLST#2399	STANDARD VALUE in µCi/mL		1.0909E-03			
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

MCB

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

RWK

NOTE: Expected weight = CVA * 0.1

Date Complete

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

10/17/95

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

Analysis Date

			DETECTION LEVEL
10/16/95	Sr-89/90 CONCENTRATION	1.12E-03 µCi/mL	
Analysis Time			
10:00 PM	RELATIVE COUNTING ERROR	1.9%	1.77E-06 µCi/L
Sample Point			
AN-101 GRAB	PERCENT CARRIER RECOVERY	92.8%	

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

STANDARD.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-148, REV. 0

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)	33	GROSS WEIGHT	(W2)	7.9094
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.8267
2933	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0827
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	5.13
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1.70	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95003205	TIME OF SEPARATION	(ST)	19:59	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	10/16/95	DETECTION LIMIT	(Ld)	1.61
0	TIME OF COUNT	(TOC)	01:07	Sr-89/90 CONC in µCi/L		2.1105E-01
Sample Prep	DATE OF COUNT	(DOC)	10/17/95			
N/A						
Sample #						
S95T2411						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
MCB	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
RWK	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
10/17/95	

Analysis Date				DETECTION LEVEL
10/16/95	Sr-89/90 CONCENTRATION	2.11E-04	µCi/m	
Analysis Time				
10:00 PM	RELATIVE COUNTING ERROR	80.7%		2.00E-04 µCi/mL
Sample Point				
AN-101 GRAB	PERCENT CARRIER RECOVERY	82.7%		

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

BLANK.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-148, REV. 0

WORKBOOK PAGE: SAM4

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

Type						SAMPLE
SAMPLE	DETECTOR NUMBER		12	CARRIER ADDED In mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	51656	GROSS WEIGHT	(W2)	7.9990
2933	COUNT TIME In MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9094
Test Code	BACKGROUND In cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0896
@SR90-01	SAMPLE VOLUME In mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	5.35
Matrix	DILUTION FACTOR	(DF)	101			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	5164.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
95003205	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	19:59	Rmax		N/A
0	DATE OF SEPARATION	(SD)	10/16/95	DETECTION LIMIT	(Ld)	1.61
Sample Prep	TIME OF COUNT	(TOC)	01:20	Sr-89/90 CONC In µCi/L		5.9035E+02
N/A	DATE OF COUNT	(DOC)	10/17/95			
Sample #						
S95T002411						

Instrument Code: WB27811
Prepared By: MCB
Chemist: SLF
Analyst: RWK
Date Complete: 10/17/95
Analysis Date: 10/16/95
Analysis Time: 10:00 PM
Sample Point: AN-101 GRAB

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

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	5.90E-01	µCi/mL	1.85E-04 µCi/mL
RELATIVE COUNTING ERROR	0.9%		
PERCENT CARRIER RECOVERY	89.6%		

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

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP5

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

Type						DUP
DUP	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	52400	GROSS WEIGHT	(W2)	8.0121
2933	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9218
Test Code	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0903
@SR90-01	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	5.52
Matrix	DILUTION FACTOR	(DF)	101			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	5238.40	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
95003205	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	19:59	Rmax		N/A
0	DATE OF SEPARATION	(SD)	10/16/95	DETECTION LIMIT	(Ld)	1.61
Sample Prep	TIME OF COUNT	(TOC)	01:30	Sr-89/90 CONC in µCi/L		5.9316E+02
N/A	DATE OF COUNT	(DOC)	10/17/95			

Sample #	
S95T002411	
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
MCB	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
RWK	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
10/17/95	
Analysis Date	
10/16/95	
Analysis Time	
10:00 PM	
Sample Point	
AN-101 GRAB	

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	5.93E-01	µCi/mL	
RELATIVE COUNTING ERROR	0.9%		1.83E-04 µCi/mL
PERCENT CARRIER RECOVERY	90.3%		

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

SAMPLE.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-149, REV. 1

WHC-SD-WM-DP-148, REV. 0

WORKBOOK PAGE: SAM6

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

Type						SAMPLE
SAMPLE	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	23419	GROSS WEIGHT	(W2)	8.0105
2933	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9213
Test Code	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0892
@SR90-01	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	5.77
Matrix	DILUTION FACTOR	(DF)	101			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	2340.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
95003205	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	19:59	Rmax		N/A
0	DATE OF SEPARATION	(SD)	10/16/95	DETECTION LIMIT	(Ld)	1.61
Sample Prep	TIME OF COUNT	(TOC)	01:45	Sr-89/90 CONC in µCi/L		2.6756E+02
N/A	DATE OF COUNT	(DOC)	10/17/95			
Sample #						
S95T002412						

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/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
MCB	RS*DF*DDF/((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
RWK	NOTE: Expected weight = CVA * 0.1
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
10/17/95	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100

Analysis Date				DETECTION LEVEL
10/16/95	Sr-89/90 CONCENTRATION	2.68E-01	µCi/mL	
Analysis Time				
10:00 PM	RELATIVE COUNTING ERROR	1.3%		1.85E-04 µCi/mL
Sample Point				
AN-101 GRAB	PERCENT CARRIER RECOVERY	89.2%		

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

SAMPLE.WB1 REV 1.2 22010NML

WORKBOOK PAGE: DUP7

WHC-SD-WM-DP-148, REV. 0

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

Type						DUP
DUP	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	22476	GROSS WEIGHT	(W2)	7.9385
2933	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.8503
Test Code	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0882
@SR90-01	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	5.93
Matrix	DILUTION FACTOR	(DF)	101			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	2246.00	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
95003205	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	20:04	Rmax		N/A
0	DATE OF SEPARATION	(SD)	10/16/95	DETECTION LIMIT	(Ld)	1.61
Sample Prep	TIME OF COUNT	(TOC)	02:00	Sr-89/90 CONC in µCi/L		2.5923E+02
N/A	DATE OF COUNT	(DOC)	10/17/95			
Sample #						
S95T002412						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
MCB	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
RWK	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
10/17/95	
Analysis Date	
10/16/95	
Analysis Time	
10:00 PM	
Sample Point	
AN-101 GRAB	

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	2.59E-01	µCi/mL	
RELATIVE COUNTING ERROR	1.3%		1.86E-04 µCi/mL
PERCENT CARRIER RECOVERY	88.2%		

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

SAMPLE.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-148, REV. 1
WHC-SD-WM-DP-148, REV. 0

LABCORE Data Entry Template for Worklist# 3122

Analyst: EAL Instrument: AB00 10 Book # 51852

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

Worklist Comment: Rerun #1. SLF

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
		1	STD				@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
		1	STD				@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
		2	BLNK-PREP				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
		2	BLNK-PREP				@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
		2	BLNK-PREP				@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
		3	BLNK/BKG				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000135	AN-101 GRAB	4	SAMPLE	S95T002413	0		@SR90-01 SR90-01	LIQUID	N/A			uCi/mL
95000135	AN-101 GRAB	4	SAMPLE	S95T002413	0		@SR90-01 SR90-01C	LIQUID	N/A			% Recovery
95000135	AN-101 GRAB	4	SAMPLE	S95T002413	0		@SR90-01 SR90-01E	LIQUID	N/A			% Ct. Error
95000135	AN-101 GRAB	5	DUP	S95T002413	0		@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000135	AN-101 GRAB	5	DUP	S95T002413	0		@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
95000135	AN-101 GRAB	5	DUP	S95T002413	0		@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error

Final page for worklist # 3122

Analyst Signature Date 10/30/95

Analyst Signature Date 10/31/95

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.

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)	10054	GROSS WEIGHT	(W2)	8.0247
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9296
3122	BACKGROUND in cpm	(BKG)	9.3	NET WEIGHT	(W3)	0.0951
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	0.63
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	DDF	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	996.10	SR-90 EFFICIENCY FACTO	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.84	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
95003464	TIME OF SEPARATION	(ST)	21:52	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	10/30/95	DETECTION LIMIT	(Ld)	3.77
0	TIME OF COUNT	(TOC)	22:30	Sr-89/90 CONC. in µCi/L		1.1559E+00
Sample Prep	DATE OF COUNT	(DOC)	10/30/95			
N/A	STANDARD BOOK #		51B52			
Sample #	STANDARD VALUE in µCi/mL		1.0899E-03			
WRKLST#3122						
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					
MCB	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					
EAL	NOTE: Expected weight = CVA * 0.1					
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
10/31/95	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					

Analysis Date				DETECTION LEVEL
10/30/95	Sr-89/90 CONCENTRATION	1.16E-03	µCi/mL	
Analysis Time				
10:15 PM	RELATIVE COUNTING ERROR	2.0%		4.37E-06 µCi/L
Sample Point				
AN-101 GRAB	PERCENT CARRIER RECOVERY	95.1%		

Analyst:		EAL	Date:	31-Oct-95
Signature of Chemist:		SLF	Date:	OCT 31

STANDARD.WB1 REV 1 2 22010NML

WORKBOOK PAGE: BLANK2 WHC-SD-WM-DP-148, REV. 0

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

Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	BLNK-PREP 1.000
BLNK-PREP	TOTAL COUNTS	(TC)	112	GROSS WEIGHT	(W2)	8.0262
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9329
3122	BACKGROUND in cpm	(BKG)	9.3	NET WEIGHT	(W3)	0.0933
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	0.83
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	1.90	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.84	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
95003464	TIME OF SEPARATION	(ST)	21:52	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	10/30/95	DETECTION LIMIT	(Ld)	3.77
0	TIME OF COUNT	(TOC)	22:42	Sr-89/90 CONC in µCi/L		2.2645E-01
Sample Prep	DATE OF COUNT	(DOC)	10/30/95			
N/A						
Sample #						
WRKLST#3122						
Instrument Code						
WB26870						
Prepared By						
MCB						
Chemist						
SLF						
Analyst						
EAL						
Date Complete						
10/31/95						
Analysis Date						
10/30/95						
Analysis Time						
10:15 PM						
Sample Point						
AN-101 GRAB						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

Sr-89/90 CONCENTRATION	2.26E-04	µCi/m	DETECTION LEVEL
RELATIVE COUNTING ERROR	147.7%		4.49E-04 µCi/mL
PERCENT CARRIER RECOVERY	93.3%		

Analyst:	EAL	Date:	31-Oct-95
Signature of Chemist:	SLF	Date:	OCT 31 [illegible]

BLANK.WB1 REV 1.2 22010NML

WORKBOOK PAGE: SAM4

WHC-SD-WM-DP-148, REV. 0

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

						SAMPLE
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	23901	GROSS WEIGHT	(W2)	7.9921
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9008
3122	BACKGROUND in cpm	(BKG)	9.3	NET WEIGHT	(W3)	0.0913
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	1.02
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	2380.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
Batch Number	CRITICAL LEVEL	(Lc)	1.84	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
95003464	TIME OF SEPARATION	(ST)	21:52	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	10/30/95	DETECTION LIMIT	(Ld)	3.77
0	TIME OF COUNT	(TOC)	22:53	Sr-89/90 CONC in µCi/L		2.8935E+02
Sample Prep	DATE OF COUNT	(DOC)	10/30/95			
N/A						
Sample #						
S95T002413						

Instrument Code: WB26870
Prepared By: MCB
Chemist: SLF
Analyst: EAL
Date Complete: 10/31/95
Analysis Date: 10/30/95
Analysis Time: 10:15 PM
Sample Point: AN-101 GRAB

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	2.89E-01	µCi/mL	
RELATIVE COUNTING ERROR	1.3%		4.58E-04 µCi/mL
PERCENT CARRIER RECOVERY	91.3%		

Analyst:	EAL	Date:	31-Oct-95
Signature of Chemist:	SLF	Date:	OCT 31

SAMPLE.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-148, REV. 1

WORKBOOK PAGE: DUP5

WHC-SD-WM-DP-148, REV. 0

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

Type						DUP
DUP	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000
Work LIst	TOTAL COUNTS	(TC)	24608	GROSS WEIGHT	(W2)	8.0599
3122	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9591
Test Code	BACKGROUND in cpm	(BKG)	9.3	NET WEIGHT	(W3)	0.1008
@SR90-01	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	1.75
Matrix	DILUTION FACTOR	(DF)	101			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	2451.50	SR-90 EFFICIENCY FACTOR	(C1)	0.4051
95003464	CRITICAL LEVEL	(Lc)	1.84	Y-90 EFFICIENCY FACTOR	(C2)	0.4503
Rerun	TIME OF SEPARATION	(ST)	21:52	Rmax		N/A
0	DATE OF SEPARATION	(SD)	10/30/95	DETECTION LIMIT	(Ld)	3.77
Sample Prep	TIME OF COUNT	(TOC)	23:37	Sr-89/90 CONC in µCi/L		2.6757E+02
N/A	DATE OF COUNT	(DOC)	10/30/95			
Sample #						
S95T002413						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB26870	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
MCB	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
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
EAL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
10/31/95	

Analysis Date				DETECTION LEVEL
10/30/95	Sr-89/90 CONCENTRATION	2.68E-01	µCi/mL	
Analysis Time				
10:15 PM	RELATIVE COUNTING ERROR	1.3%		4.11E-04 µCi/mL
Sample Point				
AN-101 GRAB	PERCENT CARRIER RECOVERY	100.8%		

Analyst:	EAL	Date:	31-Oct-95
Signature of Chemist:	SLF	Date:	OCT 31 1995

SAMPLE.WB1 REV 1.2 22010NML

WHC-SD-WM-DP-148, REV. 0

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

LABCORE Data Entry Template for Worklist# 2492

Analyst: Sue C Li **Instrument:** AB00 12 **Book #** 5105-2

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

Worklist Comment: Determine sample size using Ludlum. SLF

DATA NOT USED IN PACKAGE

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
		1	STD				@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
		1	STD				@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
		2	BLNK-PREP				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
		2	BLNK-PREP				@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
		2	BLNK-PREP				@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
		3	BLNK/BKG				@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000135	AN-101 GRAB	4	SAMPLE	S95T002411	0		@SR90-01 SR90-01	LIQUID	N/A			uCi/mL
95000135	AN-101 GRAB	4	SAMPLE	S95T002411	0		@SR90-01 SR90-01C	LIQUID	N/A			% Recovery
95000135	AN-101 GRAB	4	SAMPLE	S95T002411	0		@SR90-01 SR90-01E	LIQUID	N/A			% Ct. Error
95000135	AN-101 GRAB	5	DUP	S95T002411	0		@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000135	AN-101 GRAB	5	DUP	S95T002411	0		@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
95000135	AN-101 GRAB	5	DUP	S95T002411	0		@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
95000135	AN-101 GRAB	6	SAMPLE	S95T002412	0		@SR90-01 SR90-01	LIQUID	N/A			uCi/mL
95000135	AN-101 GRAB	6	SAMPLE	S95T002412	0		@SR90-01 SR90-01C	LIQUID	N/A			% Recovery
95000135	AN-101 GRAB	6	SAMPLE	S95T002412	0		@SR90-01 SR90-01E	LIQUID	N/A			% Ct. Error
95000135	AN-101 GRAB	7	DUP	S95T002412	0		@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000135	AN-101 GRAB	7	DUP	S95T002412	0		@SR90-01 SR90-01C	LIQUID			N/A	% Recovery

Stamped in error 10/30/95 DATA NOT USED IN PACKAGE

Data Entry Comments: Results from S95T00 2413 used from this worklist. Result from S95T00 2413 put on for rerun 10/31/95 RAE 10/30/95 Blnk value indicates possible contamination

also The RPD for 2411 + 2412 is out of control limits.

Batch will be reran.

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# 2492

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
95000135	AN-101 GRAB	7 DUP	S95T002412	0		@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error
95000135	AN-101 GRAB	8 SAMPLE	S95T002413	0		@SR90-01 SR90-01	LIQUID	N/A			uCi/mL
95000135	AN-101 GRAB	8 SAMPLE	S95T002413	0		@SR90-01 SR90-01C	LIQUID	N/A			% Recovery
95000135	AN-101 GRAB	8 SAMPLE	S95T002413	0		@SR90-01 SR90-01E	LIQUID	N/A			% Ct. Error
95000135	AN-101 GRAB	9 DUP	S95T002413	0		@SR90-01 SR90-01	LIQUID			N/A	uCi/mL
95000135	AN-101 GRAB	9 DUP	S95T002413	0		@SR90-01 SR90-01C	LIQUID			N/A	% Recovery
95000135	AN-101 GRAB	9 DUP	S95T002413	0		@SR90-01 SR90-01E	LIQUID			N/A	% Ct. Error

Final page for worklist # 2492

Sue C Lai 10-5-95
Analyst Signature Date

S E Hogan 10/6/95
Analyst Signature Date

DATA NOT USED IN PACKAGE
rae 10/31/95

DATA NOT USED IN PACKAGE
Changed in error
JAW 10/30/95

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.

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)	9559	GROSS WEIGHT	(W2)	7.9982
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9070
2492	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0912
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	5.38
@SR90-01	DILUTION FACTOR	(DF)	1			
Matrix	DIGEST DILUTION FACTOR	DDF	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	954.30	SR-90 EFFICIENCY FACTO	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95002637	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	10/05/95	DETECTION LIMIT	(Ld)	1.61
0	TIME OF COUNT	(TOC)	16:38	Sr-89/90 CONC. in µCi/L		1.0608E+00
Sample Prep	DATE OF COUNT	(DOC)	10/05/95			
N/A	STANDARD BOOK #		51B52			
Sample #	STANDARD VALUE in µCi/mL		1.0916E-03			
WORKLIST 2492-ST						
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					
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					
SCL	NOTE: Expected weight = CVA * 0.1					
Date Complete	Detection Levels and Less Than Values are determined from Procedure LA-508-002.					
10/06/95	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100					
Analysis Date						
10/05/95	Sr-89/90 CONCENTRATION		1.06E-03	µCi/mL		
Analysis Time						
11:15 AM	RELATIVE COUNTING ERROR		2.0%			
Sample Point						
AN-101	PERCENT CARRIER RECOVERY		91.2%			

DETECTION LEVEL: 1.80E-06 µCi/L

Analyst:		SCL	Date:	06-Oct-95
Signature of Chemist:		SLF	Date:	10/10/95

STANDARD.WB1 REV 1 2 22010NML

DATA NOT USED IN PACKAGE 10/31/95

DATA NOT USED IN PACKAGE Stamped in error 10/30/95

WORKBOOK PAGE: BLANK2

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

Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	BLNK-PREP 1.000
BLNK-PREP	TOTAL COUNTS	(TC)	114	GROSS WEIGHT	(W2)	8.1212
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	8.0291
2492	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0921
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	5.55
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	9.80	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95002637	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	10/05/95	DETECTION LIMIT	(Ld)	1.61
0	TIME OF COUNT	(TOC)	16:48	Sr-89/90 CONC in µCi/L		1.0876E+01
Sample Prep	DATE OF COUNT	(DOC)	10/05/95			
N/A						
Sample #						
WORKLIST 2492-BL						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
10/06/95	

Analysis Date				DETECTION LEVEL
10/05/95	Sr-89/90 CONCENTRATION	1.09E-02	µCi/m	
Analysis Time				1.79E-03 µCi/mL
11:15 AM	RELATIVE COUNTING ERROR	22.8%		
Sample Point				
AN-101	PERCENT CARRIER RECOVERY	92.1%		

Analyst:	SCL	Date:	06-Oct-95
Signature of Chemist:	SLF	Date:	10/10/95

BLANK.WB1 REV 1.2 22010NML

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WHC-SD-WM-DP-148, REV. 0

WORKBOOK PAGE: SAM4

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

Type						SAMPLE
SAMPLE	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	3762	GROSS WEIGHT	(W2)	8.0035
2492	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9133
Test Code	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0902
@SR90-01	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	5.75
Matrix	DILUTION FACTOR	(DF)	101			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	374.60	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
95002637	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
0	DATE OF SEPARATION	(SD)	10/05/95	DETECTION LIMIT	(Ld)	1.61
Sample Prep	TIME OF COUNT	(TOC)	17:00	Sr-89/90 CONC in µCi/L		4.2359E+02
N/A	DATE OF COUNT	(DOC)	10/05/95			
Sample #						
S95T002411						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
10/06/95	
Analysis Date	
10/05/95	
Analysis Time	
11:15 AM	
Sample Point	
AN-101	

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	4.24E-01	µCi/mL	1.83E-03 µCi/mL
RELATIVE COUNTING ERROR	3.2%		
PERCENT CARRIER RECOVERY	90.2%		

Analyst:		SCL	Date:	06-Oct-95
Signature of Chemist:		SLF	Date:	10/10/95

SAMPLE.WB1 REV 1.2 22010NML1

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WHC-SD-WM-DP-148, REV. 0

WORKBOOK PAGE: DUP5

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)	4489	GROSS WEIGHT	(W2)	8.0514
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9610
2492	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0904
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	6.25
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	447.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95002637	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	10/05/95	DETECTION LIMIT	(Ld)	1.61
0	TIME OF COUNT	(TOC)	17:30	Sr-89/90 CONC in µCi/L		5.0203E+02
Sample Prep	DATE OF COUNT	(DOC)	10/05/95			
N/A						
Sample #						
S95T002411						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
10/06/95	

Analysis Date				DETECTION LEVEL
10/05/95	Sr-89/90 CONCENTRATION	5.02E-01	µCi/mL	
Analysis Time				
11:15 AM	RELATIVE COUNTING ERROR	2.9%		1.81E-03 µCi/mL
Sample Point				
AN-101	PERCENT CARRIER RECOVERY	90.4%		

Analyst:		SCL	Date:	06-Oct-95
Signature of Chemist:		SLF	Date:	10/16/95

SAMPLE.WB1 REV 1.2 22010NML

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WORKBOOK PAGE: SAM6 WHC-SD-WM-DP-148, REV. 0

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

Type						SAMPLE
SAMPLE	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	1519	GROSS WEIGHT	(W2)	8.0579
2492	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9694
Test Code	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0885
@SR90-01	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	6.75
Matrix	DILUTION FACTOR	(DF)	101			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	150.30	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
95002637	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
0	DATE OF SEPARATION	(SD)	10/05/95	DETECTION LIMIT	(Ld)	1.61
Sample Prep	TIME OF COUNT	(TOC)	18:00	Sr-89/90 CONC in µCi/L		1.7141E+02
N/A	DATE OF COUNT	(DOC)	10/05/95			
Sample #						
S95T002412						

Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
10/06/95	

Analysis Date				DETECTION LEVEL
10/05/95	Sr-89/90 CONCENTRATION	1.71E-01	µCi/mL	
Analysis Time				
11:15 AM	RELATIVE COUNTING ERROR	5.1%		1.84E-03 µCi/mL
Sample Point				
AN-101	PERCENT CARRIER RECOVERY	88.5%		

Analyst:		SCL	Date:	06-Oct-95
Signature of Chemist:		SLF	Date:	10/16/95

SAMPLE.WB1 REV 1.2 22010NML

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WORKBOOK PAGE: DUP7

WHC-SD-WM-DP-148, REV. 0

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)	1958	GROSS WEIGHT	(W2)	7.9275
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.8389
2492	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0886
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	7.42
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	194.20	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
Batch Number	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
95002637	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
Rerun	DATE OF SEPARATION	(SD)	10/05/95	DETECTION LIMIT	(Ld)	1.61
0	TIME OF COUNT	(TOC)	18:40	Sr-89/90 CONC in µCi/L		2.1972E+02
Sample Prep	DATE OF COUNT	(DOC)	10/05/95			
N/A						
Sample #						
S95T002412						

Instrument Code: WB27811
Prepared By: SEH
Chemist: SLF
Analyst: SCL
Date Complete: 10/06/95
Analysis Date: 10/05/95
Analysis Time: 11:15 AM
Sample Point: AN-101

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	2.20E-01	µCi/mL	
RELATIVE COUNTING ERROR	4.5%		1.83E-03 µCi/mL
PERCENT CARRIER RECOVERY	88.6%		

Analyst:		SCL	Date:	06-Oct-95
Signature of Chemist:		SLF	Date:	10/16/95

SAMPLE.WB1 REV 1.2 22010NML

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WORKBOOK PAGE: SAM8

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

Type						SAMPLE
SAMPLE	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	1765	GROSS WEIGHT	(W2)	8.0750
2492	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9852
Test Code	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0898
@SR90-01	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	8.17
Matrix	DILUTION FACTOR	(DF)	101			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	174.90	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
95002637	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
0	DATE OF SEPARATION	(SD)	10/05/95	DETECTION LIMIT	(Ld)	1.61
Sample Prep	TIME OF COUNT	(TOC)	19:25	Sr-89/90 CONC in µCi/L		1.9376E+02
N/A	DATE OF COUNT	(DOC)	10/05/95			

Sample #	
S95T002413	
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)
WB27811	Sr-89/90 CONC in µCi/L Replace RS with RMAX if RS<=Lc and RS>=0 or Replace RS with Lc if RS<0
Prepared By	RS*DF*DDF/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT)))*SS*REC*2220000)
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))
Chemist	Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT)*1.96)
SLF	Percent Carrier Recovery = (Net Weight / Expected weight) * 100
Analyst	NOTE: Expected weight = CVA * 0.1
SCL	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Date Complete	Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100
10/06/95	

Analysis Date				DETECTION LEVEL
10/05/95	Sr-89/90 CONCENTRATION	1.94E-01	µCi/mL	
Analysis Time				1.79E-03 µCi/mL
11:15 AM	RELATIVE COUNTING ERROR	4.7%		
Sample Point				
AN-101	PERCENT CARRIER RECOVERY	89.8%		

Analyst:		SCL	Date:	06-Oct-95
Signature of Chemist:		SLF	Date:	10/6/95

SAMPLE.WB1 REV 1.2 22010NML

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WHC-SD-WM-DP-148, REV. 1

WORKBOOK PAGE: DUP9

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

Type						DUP
DUP	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
Work List	TOTAL COUNTS	(TC)	1795	GROSS WEIGHT	(W2)	8.0401
2492	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9531
Test Code	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0870
@SR90-01	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	8.33
Matrix	DILUTION FACTOR	(DF)	101			
LIQUID	DIGEST DILUTION FACTOR	(DDF)	1			
Batch Number	SAMPLE COUNT RATE	(Rs)	177.90	SR-90 EFFICIENCY FACTOR	(C1)	0.4180
95002637	CRITICAL LEVEL	(Lc)	0.76	Y-90 EFFICIENCY FACTOR	(C2)	0.4660
Rerun	TIME OF SEPARATION	(ST)	11:15	Rmax		N/A
0	DATE OF SEPARATION	(SD)	10/05/95	DETECTION LIMIT	(Ld)	1.61
Sample Prep	TIME OF COUNT	(TOC)	19:35	Sr-89/90 CONC in µCi/L		2.0308E+02
N/A	DATE OF COUNT	(DOC)	10/05/95			
Sample #						
S95T002413						
Instrument Code						
WB27811						
Prepared By						
SEH						
Chemist						
SLF						
Analyst						
SCL						
Date Complete						
10/06/95						
Analysis Date						
10/05/95						
Analysis Time						
11:15 AM						
Sample Point						
AN-101						

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

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

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

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

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

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

NOTE: Expected weight = CVA * 0.1

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

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

			DETECTION LEVEL
Sr-89/90 CONCENTRATION	2.03E-01	µCi/mL	
RELATIVE COUNTING ERROR	4.7%		1.84E-03 µCi/mL
PERCENT CARRIER RECOVERY	87.0%		

Analyst:		SCL	Date:	06-Oct-95
Signature of Chemist:		SLF	Date:	10/16/95

SAMPLE.WB1 REV 1.2 22010NML

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Stamped in error 10/30/95

LABCORE Completed Worklist Report for Worklist# 2650

Analyst: akl **Instrument:** AM01 **Book#** 104643

Method: LA-953-103 **Rev/Mod** A-4 WHC-SD-WM-DP-148, REV. 1

Worklist Comment: Use a 1.0 mL sample size. --LLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@AM24101 AM24101	LIQUID	3.07E-02	2.76E-2	89.900	% Recovery
1	STD		0		@AM24101 AM24101E	LIQUID	1.00	1.33E+00	1.330	% Ct. Error
1	STD		0		@AM24101 AM24101T	LIQUID	100	8.12E+01	81.200	% Recovery
2	BLNK		0		@AM24101 AM24101	LIQUID	1	<1.24E-5		uCi/mL
2	BLNK		0		@AM24101 AM24101E	LIQUID	1.00	1.00E+02	100.000	% Ct. Error
2	BLNK		0		@AM24101 AM24101T	LIQUID	100	8.99E+01	89.900	% Recovery
3	SAMPLE	S95T002411	0		@AM24101 AM24101	LIQUID	N/A	< 1.31E-05	1.310e-005	uCi/mL
3	SAMPLE	S95T002411	0		@AM24101 AM24101E	LIQUID	N/A	4.84E+00	0.000	% Ct. Error
3	SAMPLE	S95T002411	0		@AM24101 AM24101T	LIQUID	N/A	9.18E+01	1.000e-007	% Recovery
4	DUP	S95T002411	0		@AM24101 AM24101	LIQUID	<1.31E-5	2.28E-5		RPD
4	DUP	S95T002411	0		@AM24101 AM24101E	LIQUID	1.00	2.91E+00	2.910	% Ct. Error
4	DUP	S95T002411	0		@AM24101 AM24101T	LIQUID	100	9.35E+01	93.500	% Recovery
5	SAMPLE	S95T002412	0		@AM24101 AM24101	LIQUID	N/A	6.90E-05	2.240e-005	uCi/mL
5	SAMPLE	S95T002412	0		@AM24101 AM24101E	LIQUID	N/A	1.77E+00	0.000	% Ct. Error
5	SAMPLE	S95T002412	0		@AM24101 AM24101T	LIQUID	N/A	6.44E+01	1.000e-007	% Recovery
6	DUP	S95T002412	0		@AM24101 AM24101	LIQUID	6.90E-5	7.28E-5	5.360	RPD
6	DUP	S95T002412	0		@AM24101 AM24101E	LIQUID	1.00	2.28E+00	2.280	% Ct. Error
6	DUP	S95T002412	0		@AM24101 AM24101T	LIQUID	100	1.00E+02	100.000	% Recovery
7	SAMPLE	S95T002413	0		@AM24101 AM24101	LIQUID	N/A	6.52E-05	1.570e-005	uCi/mL
7	SAMPLE	S95T002413	0		@AM24101 AM24101E	LIQUID	N/A	1.95E+00	0.000	% Ct. Error
7	SAMPLE	S95T002413	0		@AM24101 AM24101T	LIQUID	N/A	9.12E+01	1.000e-007	% Recovery
8	DUP	S95T002413	0		@AM24101 AM24101	LIQUID	6.52E-5	6.59E-5	1.070	RPD
8	DUP	S95T002413	0		@AM24101 AM24101E	LIQUID	1.00	1.87E+00	1.870	% Ct. Error
8	DUP	S95T002413	0		@AM24101 AM24101T	LIQUID	100	9.04E+01	90.400	% Recovery

Final page for worklist# 2650

Analyst Signature Date

Analyst Signature Date

6 Oct 95
Reviewer Signature Date

S95T2412 and S95T2413 show Cm-243/244 activity at levels that are too low for quantification.
10/6/95

S95T2411 sample and dup are close to detection level; smearing on planchet may be responsible for "actual" result on dup -- rerun not requested.

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

LABCORE Data Entry Template for Worklist# 2650

Analyst: GLL **Instrument:** AM01 _____ **Book#** 104643

Method: LA-953-103 Rev/Mod _____

Worklist Comment: Use a 1.0 mL sample size. --LLF WHC-SD-WM-DP-148, REV. 1

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AM24101	LIQUID		
2	BLNK				@AM24101	LIQUID		
3	SAMPLE	S95T002411	0		@AM24101	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
4	DUP	S95T002411	0		@AM24101	LIQUID		
5	SAMPLE	S95T002412	0		@AM24101	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
6	DUP	S95T002412	0		@AM24101	LIQUID		
7	SAMPLE	S95T002413	0		@AM24101	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
8	DUP	S95T002413	0		@AM24101	LIQUID		

Final page for worklist # 2650

GLewis 10/5/95
Analyst Signature Date

C.J. Quinn 10/6/95
Analyst Signature Date

Data Entry Comments:

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

WORKBOOK PAGE: STD1

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

Type	Date Counted		OCT-05-95	Am 241 AEA Frac.	(C241)	STD 0.558
STD	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.424
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
2650	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		13413
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	6
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		104.45
LIQUID	Detector Number		1	Am 243 cpm		79.3
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002844	Standard Book No		104B43	AEA Count Time	(min)	480
Rerun	Standard Value in µCi/mL		0.03067	Am 241 µCi/L =		2.7584E+01
0				Cm 243/244 µCi/L =	<	3.0442E+00

Sample Prep	
N/A	
Sample Number	Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))
WORKLIST#2650	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))
Instrument Code	
AL10539	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV
CJO	
Chemist	
LLF	
Analyst	
AKL	
Date Complete	
10/06/95	
Analysis Date	
10/05/95	
Analysis Time	
02:00 PM	
Sample Point	
AN-101	

Am 241 µCi/mL =	2.76E-02	DETECTION LEVELS in µCi/mL
Relative Counting Error =	1.3%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241 3.04E-03
Cm 243/244 µCi/mL	< 3.04E-03	
Relative Counting Error =	100.0%	Cm 243/244 3.04E-03
Am 243 Tracer Recovery =	81.2%	

Analyst:	AKL	Date:	10/06/95
Signature of Chemist:	LLF	Date:	6 Oct 95

STANDARD.WB1 REV 1.2 953103ML

WORKBOOK PAGE: BLANK2

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

Type	Date Counted		OCT-05-95	Am 241 AEA Frac.	(C241)	BLNK
BLNK	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.928
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2650	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		6785
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	3
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		0
LIQUID	Detector Number		2	Am 243 cpm		100.8
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002844				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	1.2437E-02
0				Cm 243/244 µCi/L =	<	1.2437E-02
Sample Prep						
N/A						

Sample Number: S95T2411-BLANK

Instrument Code: AL10540

Prepared By: CJO

Chemist: LLF

Analyst: AKL

Date Complete: 10/06/95

Analysis Date: 10/05/95

Analysis Time: 02:00 PM

Sample Point: AN-101

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

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

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

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

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

Am 241 µCi/mL =	< 1.24E-05	DETECTION LEVELS in µCi/mL
Relative Counting Error =	100.0%	

NOTE: Cm-243/244 Result is a LESS THAN Value.

Cm 243/244 µCi/mL	< 1.24E-05	Am 241 1.24E-05
Relative Counting Error =	100.0%	Cm 243/244 1.24E-05
Am 243 Tracer Recovery =	89.9%	

Analyst:	AKL	Date:	10/06/95
Signature of Chemist:	LLF	Date:	6 Oct 95

BLANK.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM3

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

Type	Date Counted		OCT-05-95	Am 241 AEA Frac.	(C241)	SAMPLE 0.052
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.86
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2650	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		7524
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114843	Background in cpm	(Bkg)	5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		3.62
LIQUID	Detector Number		3	Am 243 cpm		59.99
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002844				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	1.3148E-02
0				Cm 243/244 µCi/L =	<	1.3148E-02
Sample Prep						
N/A						
Sample Number						
S95T002411						
Instrument Code						
AL10541						
Prepared By						
CJO						
Chemist						
LLF						
Analyst						
AKL						
Date Complete						
10/06/95						
Analysis Date						
10/05/95						
Analysis Time						
02:00 PM						
Sample Point						
AN-101						

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

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

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

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

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

Am 241 µCi/mL	=	< 1.31E-05
Relative Counting Error	=	4.8%

NOTE: Cm-243/244 Result is a LESS THAN Value.

Cm 243/244 µCi/mL		< 1.31E-05
Relative Counting Error	=	100.0%
Am 243 Tracer Recovery	=	91.8%

DETECTION LEVELS in µCi/mL	
Am 241	1.31E-05
Cm 243/244	1.31E-05

Analyst:	AKL	Date:	10/06/95
Signature of Chemist:	LLF	Date:	6 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP4

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

Type	Date Counted		OCT-05-95	Am 241 AEA Frac.	(C241)	DUP 0.098
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.891
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2650	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		7428
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		10.47
LIQUID	Detector Number		1	Am 243 cpm		95.01
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002844				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		2.2825E-02
0				Cm 243/244 µCi/L =	<	1.2462E-02
Sample Prep						
N/A						
Sample Number	Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
S95T002411	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
Instrument Code						
AL10539	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100					
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV					
CJO						
Chemist						
LLF	Am 241 µCi/mL =		2.28E-05	DETECTION LEVELS in µCi/mL		
Analyst	Relative Counting Error =		2.9%			
AKL						
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241		
10/06/95	Cm 243/244 µCi/mL		< 1.25E-05	1.25E-05		
Analysis Date	Relative Counting Error =		100.0%	Cm 243/244		
10/05/95	Am 243 Tracer Recovery =		93.5%	1.25E-05		
Analysis Time						
02:00 PM						
Sample Point						
AN-101						

Analyst:	AKL	Date:	10/06/95
Signature of Chemist:	LLF	Date:	6 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM5

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

Type	Date Counted		OCT-05-95	Am 241 AEA Frac.	(C241)	SAMPLE 0.239
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.719
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0.011
2650	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		6284
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	3
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		33.85
LIQUID	Detector Number		2	Am 243 cpm		102.06
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		1.58
95002844				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		6.8982E-02
0				Cm 243/244 µCi/L =	<	2.2393E-02
Sample Prep						
N/A						
Sample Number						
S95T002412						
Instrument Code						
AL10540						
Prepared By						
CJO						
Chemist						
LLF						
Analyst						
AKL						
Date Complete						
10/06/95						
Analysis Date						
10/05/95						
Analysis Time						
02:00 PM						
Sample Point						
AN-101						

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

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

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

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

Am 241 µCi/mL =	6.90E-05	DETECTION LEVELS in µCi/mL
Relative Counting Error =	1.8%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241 2.24E-05
Cm 243/244 µCi/mL	< 2.24E-05	
Relative Counting Error =	7.2%	Cm 243/244 2.24E-05
Am 243 Tracer Recovery =	64.4%	

Analyst:	AKL	Date:	10/06/95
Signature of Chemist:	LLF	Date:	6 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP6

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

Type	Date Counted		OCT-05-95	Am 241 AEA Frac.	(C241)	DUP 0.255
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.727
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0.012
2650	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		9658
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		20.76
LIQUID	Detector Number		3	Am 243 cpm		59.29
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		1.02
95002844				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		7.2790E-02
0				Cm 243/244 µCi/L =	<	1.4273E-02
Sample Prep						
N/A						
Sample Number						
S95T002412						
Instrument Code						
AL10541						
Prepared By						
CJO						
Chemist						
LLF						
Analyst						
AKL						
Date Complete						
10/06/95						
Analysis Date						
10/05/95						
Analysis Time						
02:00 PM						
Sample Point						
AN-101						

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

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

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

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

Am 241 µCi/mL =	7.28E-05	DETECTION LEVELS in µCi/mL
Relative Counting Error =	2.3%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241 1.43E-05
Cm 243/244 µCi/mL	< 1.43E-05	
Relative Counting Error =	8.9%	Cm 243/244 1.43E-05
Am 243 Tracer Recovery =	100.1%	

Analyst:	AKL	Date:	10/06/95
Signature of Chemist:	LLF	Date:	6 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM7

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

						SAMPLE
Type	Date Counted		OCT-05-95	Am 241 AEA Frac.	(C241)	0.227
SAMPLE	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.723
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0.011
2650	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		8898
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	6
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		27.73
LIQUID	Detector Number		1	Am 243 cpm		88.45
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		1.29
95002844				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		6.5156E-02
0				Cm 243/244 µCi/L =	<	1.5734E-02
Sample Prep						
N/A						

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

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

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

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

Sample Number	
S95T002413	
Instrument Code	
AL10539	
Prepared By	
CJO	
Chemist	
LLF	
Analyst	
AKL	
Date Complete	
10/06/95	
Analysis Date	
10/05/95	
Analysis Time	
02:00 PM	
Sample Point	
AN-101	

Am 241 µCi/mL =	6.52E-05	DETECTION LEVELS in µCi/mL
Relative Counting Error =	1.9%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241
Cm 243/244 µCi/mL	< 1.57E-05	1.57E-05
Relative Counting Error =	7.9%	Cm 243/244
Am 243 Tracer Recovery =	91.2%	1.57E-05

Analyst:	AKL	Date:	10/06/95
Signature of Chemist:	LLF	Date:	6 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP8

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

Type	Date Counted		OCT-05-95	Am 241 AEA Frac.	(C241)	DUP 0.221
DUP	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.696
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0.01
2650	Tracer Volume in mL	(SPKV)	0.050	Total AT Counts		9070
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	3
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		30.27
LIQUID	Detector Number		2	Am 243 cpm		95.34
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		1.39
95002844				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		6.5894E-02
0				Cm 243/244 µCi/L =	<	1.6484E-02
Sample Prep						
N/A						
Sample Number						
S95T002413						
Instrument Code						
AL10540						
Prepared By						
CJO						
Chemist						
LLF						
Analyst						
AKL						
Date Complete						
10/06/95						
Analysis Date						
10/05/95						
Analysis Time						
02:00 PM						
Sample Point						
AN-101						

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

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

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

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

Am 241 µCi/mL =	6.59E-05	DETECTION LEVELS in µCi/mL
Relative Counting Error =	1.9%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241 1.65E-05
Cm 243/244 µCi/mL	< 1.65E-05	
Relative Counting Error =	7.6%	Cm 243/244 1.65E-05
Am 243 Tracer Recovery =	90.4%	

Analyst:	AKL	Date:	10/06/95
Signature of Chemist:	LLF	Date:	6 Oct 95

SAMPLE.WB1 REV 1.2 953103ML

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
WORKLIST#2650-ST
File ID: 2a2943.CNF

Counted on: 10/ 5/95 @19: 8
Detector: AEA2
Geometry number: 1
Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1840.1	1840.1	303.277	303.277	20.000	19.597	10.000	4.975
2	1428.6	1428.6	257.034	256.741	24.000	18.599	12.000	4.805
3?	10.6	10.6	148.448	148.202	124.000	1.000	62.000	0.100

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.558	5.479	5.480	-.0010	.09	104.45	0.9	392.3	0.177E-03
	Pu238		5.487	5.480	0.007				512.2	0.231E-03
2	Pu239	0.424	5.147	5.266	-.1190	.09	79.30	1.1	280.0	0.126E-03
	Am243		5.270	5.266	0.004				282.8	0.127E-03
3		????		4.767			0.84	10.0		
Totals:		0.982	<--valid peaks only-->				183.74			

DETECTOR CALIBRATION
Energy(MEV) = 4.085 + (0.0046)*Channel
Energy range (MeV): 4.085 TO 6.440
Efficiency = 0.2832 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	89786.0	100.000
Smoothed	89786.0	100.000
Composite fit	88613.5	98.694
Residuals	1172.5	1.306

Analyzed by: ALJ 10-6-95

WHC-SD-WM-DP-149, REV. 1

Spectrum 2a2943.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 13733.6

Raw Data Dump for AEA Spectrum: 2a2943.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	1.	2.	0.	3.
21	3.	0.	2.	2.	1.	2.	4.	3.	0.	2.
31	2.	2.	2.	2.	0.	1.	4.	2.	3.	2.
41	5.	1.	2.	2.	1.	0.	1.	5.	4.	0.
51	3.	0.	0.	1.	1.	0.	3.	4.	0.	3.
61	1.	4.	1.	5.	4.	1.	0.	1.	3.	1.
71	2.	1.	6.	3.	4.	1.	5.	3.	5.	5.
81	3.	1.	4.	4.	4.	5.	3.	2.	1.	2.
91	2.	1.	3.	4.	2.	4.	1.	1.	3.	4.
101	6.	5.	8.	3.	4.	4.	4.	4.	3.	4.
111	4.	7.	9.	6.	11.	8.	8.	4.	6.	8.
121	7.	5.	8.	5.	8.	7.	4.	7.	9.	9.
131	10.	3.	7.	9.	5.	8.	13.	6.	10.	4.
141	7.	11.	11.	5.	12.	12.	12.	10.	13.	12.
151	8.	13.	6.	9.	11.	14.	14.	8.	21.	7.
161	12.	14.	11.	16.	17.	14.	17.	12.	21.	24.
171	22.	24.	15.	14.	27.	20.	21.	15.	26.	30.
181	23.	32.	33.	33.	22.	26.	34.	29.	37.	51.
191	45.	46.	31.	47.	46.	41.	45.	54.	35.	53.
201	55.	41.	52.	59.	65.	82.	66.	67.	68.	57.
211	87.	92.	95.	103.	104.	123.	101.	105.	117.	121.
221	139.	162.	152.	173.	177.	189.	216.	210.	234.	254.
231	261.	304.	313.	324.	387.	402.	475.	437.	514.	590.
241	632.	656.	705.	816.	868.	947.	1052.	1042.	1200.	1335.
251	1297.	1415.	1495.	1488.	1445.	1604.	1612.	1511.	1477.	1466.
261	1275.	1254.	1110.	1041.	923.	800.	716.	650.	588.	491.
271	401.	416.	426.	360.	324.	400.	374.	342.	382.	384.
281	409.	441.	510.	552.	628.	679.	664.	784.	870.	968.
291	1070.	1123.	1176.	1314.	1397.	1478.	1627.	1641.	1848.	1815.
301	1852.	1807.	1904.	1972.	1816.	1736.	1538.	1499.	1357.	1212.
311	1080.	963.	736.	673.	531.	429.	357.	287.	218.	195.
321	114.	118.	74.	46.	45.	43.	21.	9.	7.	7.
331	5.	2.	0.	2.	3.	0.	1.	0.	0.	1.
341	0.	2.	0.	0.	0.	1.	0.	0.	1.	2.
351	0.	0.	0.	0.	0.	1.	0.	0.	1.	1.
361	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
371	1.	0.	0.	0.	0.	0.	1.	0.	0.	0.
381	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
391	0.	1.	0.	0.	0.	0.	1.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	1.	0.	0.	0.	0.	0.	0.	1.	1.	0.
421	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
451	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	1.	0.	0.	0.	0.	0.	0.	2.
471	1.	1.	0.	0.	1.	1.	0.	0.	1.	0.
481	1.	0.	1.	0.	1.	2.	0.	0.	0.	0.
491	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
WORKLIST2650-BLK
File ID: 3a3424.CNF

Counted on: 10/ 5/95 @19: 8
Detector: AEA3
Geometry number: 1
Count time: 28806. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	2476.3	2476.3	257.118	257.118	16.000	8.111	8.000	2.557
2?	11.5	11.5	154.394	154.261	164.000	1.000	82.000	0.100
3?	10.3	10.3	151.491	151.000	152.000	1.000	76.000	0.100

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.928	5.270	5.269	0.001	0.04	100.80	0.9	583.5	0.263E-03
2		????		4.796			0.91	9.5		
3		????		4.781			0.82	14.4		
Totals:		0.928	<--valid peaks only-->				100.80			

DETECTOR CALIBRATION
Energy(MEV) = 4.086 + (0.0046)*Channel
Energy range (MeV): 4.086 TO 6.442
Efficiency = 0.1745 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	52154.0	100.000
Smoothed	52154.0	100.000
Composite fit	49222.9	94.380
Residuals	2931.1	5.620

Analyzed by: ALJ 10-6-95

WHC-SD-WM-DP-148, REV. 1 WHC-SD-WM-DP-148, REV. 0

Spectrum 3a3424.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 15162.5

Raw Data Dump for AEA Spectrum: 3a3424.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	2.	1.	3.
21	1.	0.	0.	2.	0.	1.	2.	0.	1.	1.
31	1.	3.	2.	1.	1.	2.	2.	1.	3.	1.
41	2.	3.	1.	0.	1.	0.	0.	0.	1.	2.
51	1.	2.	2.	1.	0.	2.	1.	0.	4.	1.
61	0.	0.	2.	3.	0.	1.	0.	1.	3.	2.
71	3.	2.	1.	4.	2.	1.	2.	1.	2.	0.
81	1.	0.	4.	0.	6.	3.	0.	0.	2.	1.
91	8.	2.	1.	2.	7.	3.	1.	4.	1.	6.
101	1.	4.	4.	1.	5.	2.	4.	4.	2.	5.
111	2.	2.	1.	3.	5.	6.	2.	3.	2.	2.
121	5.	3.	4.	7.	3.	4.	3.	2.	6.	10.
131	1.	7.	3.	6.	3.	8.	3.	4.	3.	7.
141	5.	4.	4.	12.	6.	6.	11.	12.	9.	10.
151	12.	14.	9.	5.	17.	12.	7.	7.	9.	8.
161	13.	13.	9.	13.	12.	12.	27.	14.	9.	18.
171	13.	20.	21.	18.	16.	19.	27.	14.	28.	21.
181	22.	21.	30.	20.	23.	29.	42.	32.	31.	44.
191	40.	40.	38.	40.	47.	43.	42.	54.	60.	56.
201	61.	68.	64.	70.	73.	87.	84.	95.	97.	91.
211	109.	123.	127.	142.	137.	148.	137.	160.	184.	160.
221	216.	207.	197.	217.	246.	256.	266.	300.	242.	317.
231	344.	341.	369.	435.	447.	435.	487.	528.	607.	627.
241	663.	755.	794.	859.	967.	1111.	1273.	1367.	1424.	1558.
251	1837.	1954.	2073.	2255.	2556.	2644.	2660.	2698.	2518.	2084.
261	1729.	1290.	936.	661.	515.	371.	303.	247.	208.	187.
271	162.	138.	98.	89.	52.	40.	28.	14.	13.	4.
281	4.	5.	0.	4.	1.	2.	3.	1.	0.	5.
291	4.	7.	4.	3.	5.	4.	6.	2.	4.	5.
301	3.	7.	6.	9.	9.	3.	5.	4.	3.	5.
311	5.	3.	1.	1.	1.	1.	1.	2.	0.	0.
321	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
331	0.	0.	0.	0.	0.	0.	1.	1.	1.	0.
341	0.	0.	0.	0.	2.	0.	1.	0.	0.	2.
351	0.	0.	0.	0.	0.	0.	1.	1.	1.	0.
361	0.	0.	0.	2.	0.	0.	0.	0.	0.	0.
371	1.	0.	0.	0.	1.	1.	0.	1.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	1.	0.	0.	0.	1.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2411
File ID: 4a4513.CNF

Counted on: 10/ 5/95 @19: 9
Detector: AEA4
Geometry number: 1
Count time: 28806. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	88.9	88.9	300.300	300.300	18.000	10.855	9.000	4.040
2	1635.2	1635.2	255.299	255.297	16.000	7.906	8.000	3.039

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.052	5.479	5.472	0.007	0.05	3.62	4.7	21.6	0.975E-05
	Pu238		5.487	5.472	0.015				28.3	0.127E-04
2	Am243	0.860	5.270	5.265	0.005	0.04	59.99	1.2	340.6	0.153E-03
Totals:		0.912	<--valid peaks only-->				63.61			

DETECTOR CALIBRATION
Energy(MEV) = 4.091 + (0.0046)*Channel
Energy range (MeV): 4.091 TO 6.446
Efficiency = 0.1779 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	33501.0	100.000
Smoothed	33501.0	100.000
Composite fit	30538.0	91.155
Residuals	2963.0	8.845

Analyzed by: ALJ 10-6-95

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

Spectrum 4a4513.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 11008.5

Raw Data Dump for AEA Spectrum: 4a4513.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	1.	0.	0.	0.	0.	0.	0.	0.	1.	2.
61	1.	0.	0.	0.	1.	1.	0.	0.	0.	0.
71	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
81	0.	1.	1.	1.	0.	0.	1.	1.	0.	0.
91	1.	0.	0.	0.	1.	1.	0.	1.	0.	1.
101	0.	1.	0.	0.	1.	0.	1.	0.	0.	1.
111	0.	2.	2.	4.	2.	3.	1.	1.	1.	0.
121	0.	0.	1.	0.	1.	1.	2.	1.	1.	0.
131	0.	2.	2.	1.	1.	2.	1.	1.	3.	2.
141	8.	2.	2.	2.	4.	2.	6.	5.	7.	4.
151	8.	1.	5.	4.	6.	4.	5.	4.	13.	6.
161	5.	9.	10.	6.	3.	6.	8.	4.	12.	9.
171	8.	13.	13.	18.	20.	17.	11.	23.	14.	22.
181	26.	27.	27.	33.	20.	26.	32.	29.	29.	29.
191	38.	59.	38.	34.	39.	38.	37.	37.	46.	67.
201	58.	48.	54.	61.	65.	72.	52.	58.	74.	75.
211	93.	82.	84.	92.	75.	90.	96.	83.	113.	107.
221	130.	122.	129.	142.	131.	144.	149.	163.	159.	158.
231	200.	223.	232.	237.	248.	257.	303.	325.	372.	400.
241	396.	432.	513.	547.	619.	761.	808.	923.	1025.	1207.
251	1394.	1507.	1644.	1676.	1820.	1827.	1587.	1458.	1166.	922.
261	738.	479.	350.	244.	186.	144.	112.	91.	85.	60.
271	55.	56.	43.	27.	26.	17.	22.	14.	6.	14.
281	22.	13.	12.	23.	17.	20.	21.	30.	30.	34.
291	46.	41.	63.	52.	80.	91.	84.	97.	80.	96.
301	98.	90.	75.	72.	56.	47.	44.	34.	18.	18.
311	13.	15.	13.	5.	2.	2.	1.	2.	0.	0.
321	0.	0.	1.	0.	0.	0.	0.	1.	0.	0.
331	1.	0.	1.	2.	0.	0.	0.	0.	0.	0.
341	1.	0.	0.	0.	0.	0.	0.	1.	1.	2.
351	1.	1.	2.	3.	0.	1.	0.	4.	2.	1.
361	2.	1.	3.	3.	3.	5.	1.	2.	6.	8.
371	3.	2.	2.	3.	1.	1.	0.	0.	1.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	1.	0.	0.	0.	0.	0.	0.	0.	2.	0.
431	1.	0.	1.	0.	0.	0.	1.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2411-DUP
File ID: 5a5037.CNF

Counted on: 10/ 5/95 @19: 9
Detector: AEA5
Geometry number: 1
Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	97.9	97.9	298.721	298.721	24.000	25.146	12.000	2.385
2	1580.0	1580.0	254.367	254.314	24.000	21.202	12.000	4.969
3?	8.2	8.2	154.720	154.320	62.000	276.025	31.000	88.960
4?	0.0	0.1	145.232	145.232	4.000	0.100	2.000	0.100

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.098	5.479	5.485	-.006	0.12	10.47	2.8	43.9	0.198E-04
	Pu238		5.487	5.485	0.002				57.3	0.258E-04
2	Pu239	0.891	5.147	5.276	-.129	0.10	95.01	0.9	374.2	0.169E-03
	Am243		5.270	5.276	-.006				378.0	0.170E-03
3		????		4.806			1.36	48.2		
4		????		4.764			0.00	8722.		
Totals:		0.989	<--valid peaks only-->				105.48			

DETECTOR CALIBRATION
Energy(MEV) = 4.081 + (0.0047)*Channel
Energy range (MeV): 4.081 TO 6.487
Efficiency = 0.2539 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	51191.0	100.000
Smoothed	51191.0	100.000
Composite fit	51281.9	100.178
Residuals	-90.9	-0.178

WHC-SD-WM-DP-148, REV. 1

Analyzed by: ALJ 10-6-95

WHC-SD-WM-DP-148, REV. 0

WHC-SD-WM-DP-149, REV. 1

WHC-SD-WM-DP-148, REV. 0

Raw Data Dump for AEA Spectrum: 5a5037.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
21	1.	1.	1.	1.	0.	1.	0.	0.	0.	1.
31	0.	0.	0.	1.	0.	1.	0.	0.	0.	1.
41	1.	0.	0.	0.	0.	0.	0.	1.	1.	0.
51	1.	0.	1.	3.	1.	3.	1.	0.	2.	2.
61	1.	2.	1.	0.	2.	2.	0.	2.	3.	0.
71	1.	0.	3.	0.	6.	2.	0.	1.	1.	2.
81	2.	2.	5.	3.	1.	1.	0.	3.	3.	2.
91	1.	2.	2.	4.	3.	1.	2.	6.	1.	3.
101	3.	4.	4.	4.	4.	1.	1.	5.	2.	3.
111	1.	4.	4.	5.	2.	8.	1.	3.	2.	2.
121	11.	6.	11.	6.	6.	5.	1.	7.	4.	6.
131	4.	5.	5.	4.	4.	6.	4.	9.	2.	6.
141	10.	7.	9.	11.	13.	10.	9.	9.	7.	9.
151	8.	8.	13.	18.	15.	11.	12.	10.	14.	7.
161	16.	20.	13.	11.	15.	13.	16.	22.	11.	24.
171	18.	20.	24.	18.	25.	37.	23.	24.	29.	29.
181	30.	34.	31.	22.	33.	36.	31.	41.	34.	42.
191	46.	50.	54.	56.	53.	56.	75.	59.	54.	47.
201	60.	75.	79.	74.	90.	105.	111.	99.	95.	109.
211	119.	130.	122.	142.	146.	164.	170.	189.	178.	199.
221	220.	218.	242.	274.	241.	332.	351.	317.	424.	376.
231	402.	460.	508.	544.	555.	591.	670.	748.	747.	819.
241	953.	1000.	1037.	1167.	1185.	1229.	1311.	1415.	1498.	1559.
251	1584.	1644.	1685.	1659.	1654.	1615.	1574.	1527.	1389.	1276.
261	1212.	1041.	894.	715.	662.	556.	450.	420.	293.	228.
271	193.	157.	143.	112.	89.	86.	65.	45.	49.	49.
281	35.	48.	39.	43.	65.	52.	51.	65.	73.	54.
291	70.	74.	92.	83.	85.	88.	103.	106.	104.	105.
301	84.	89.	91.	100.	87.	60.	59.	53.	56.	40.
311	36.	30.	26.	21.	23.	9.	7.	13.	8.	2.
321	2.	5.	4.	5.	0.	0.	1.	0.	1.	0.
331	2.	0.	2.	0.	0.	1.	1.	0.	1.	1.
341	4.	4.	1.	0.	2.	2.	2.	1.	1.	1.
351	4.	5.	5.	4.	2.	3.	0.	3.	2.	3.
361	4.	6.	3.	5.	5.	6.	4.	6.	1.	1.
371	4.	2.	7.	2.	4.	4.	0.	1.	1.	4.
381	1.	0.	0.	1.	0.	0.	0.	0.	0.	1.
391	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
401	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
431	1.	0.	0.	0.	0.	0.	0.	3.	0.	0.
441	0.	0.	1.	0.	0.	1.	0.	1.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.
471	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
481	1.	0.	0.	1.	2.	0.	0.	0.	1.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2412-SAM
File ID: 6a6248.CNF

Counted on: 10/ 5/95 @19:10
Detector: AEA6
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	41.6	41.6	370.019	370.019	14.000	6.719	7.000	2.217
2	835.7	835.7	300.994	300.994	16.000	10.619	8.000	3.939
3	2742.2	2742.2	254.644	254.633	14.000	8.890	7.000	3.568

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Cm244	0.011	5.795	5.792	0.003	0.03	1.58	7.1	29.2	0.132E-04
	Cm243		5.779	5.792	-.013				40.0	0.180E-04
2	Am241	0.239	5.479	5.475	0.004	0.05	33.85	1.5	664.5	0.299E-03
	Pu238		5.487	5.475	0.012				867.5	0.391E-03
3	Am243	0.719	5.270	5.261	0.009	0.04	102.06	0.9	1902.1	0.857E-03
Totals:		0.969	<--valid peaks only-->				137.50			

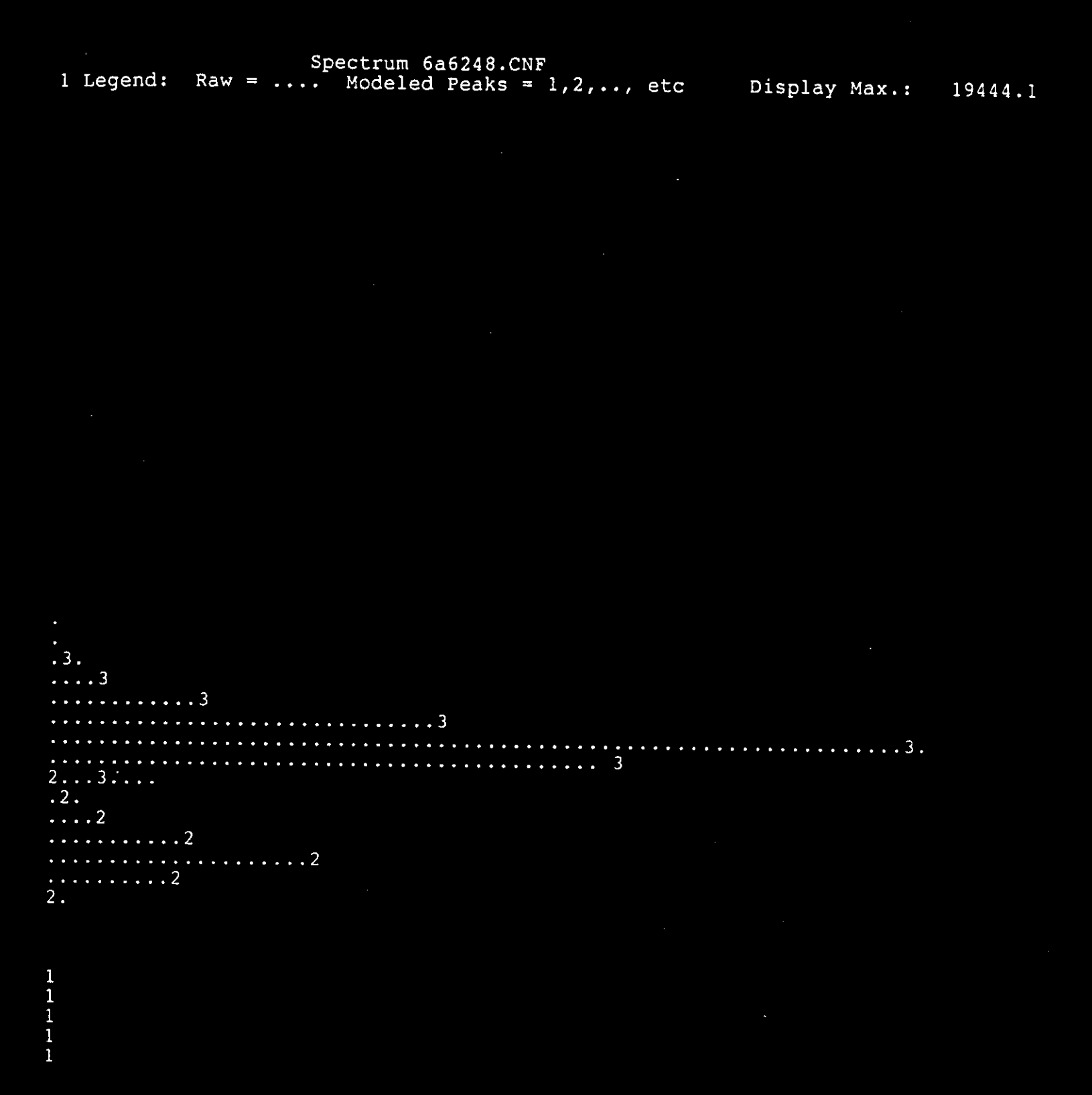
DETECTOR CALIBRATION
Energy(MEV) = 4.090 + (0.0046)*Channel
Energy range (MeV): 4.090 TO 6.445
Efficiency = 0.0542 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	68116.0	100.000
Smoothed	68115.7	100.000
Composite fit	66007.6	96.905
Residuals	2108.4	3.095

Analyzed by: ALJ 10-6-95

WHC-SD-WM-DP-148, REV. 1


Spectrum 6a6248.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 19444.1

Raw Data Dump for AEA Spectrum: 6a6248.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	1.	0.	0.	0.	0.	1.	0.	0.	1.	0.
31	1.	0.	0.	1.	0.	0.	1.	0.	0.	0.
41	0.	1.	0.	1.	0.	1.	0.	0.	1.	0.
51	1.	0.	0.	1.	1.	1.	0.	0.	0.	0.
61	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
71	0.	0.	1.	0.	0.	1.	0.	0.	1.	1.
81	1.	2.	0.	1.	0.	1.	1.	0.	1.	0.
91	0.	0.	1.	2.	0.	0.	1.	1.	0.	2.
101	1.	0.	1.	0.	1.	0.	2.	0.	0.	1.
111	0.	0.	2.	0.	0.	1.	0.	1.	0.	1.
121	2.	0.	1.	0.	2.	0.	4.	1.	0.	0.
131	1.	1.	1.	0.	2.	1.	3.	3.	2.	2.
141	1.	3.	1.	1.	2.	1.	2.	1.	3.	2.
151	3.	1.	5.	1.	3.	2.	3.	1.	2.	4.
161	4.	4.	3.	2.	2.	2.	3.	4.	4.	2.
171	7.	6.	2.	3.	10.	8.	8.	6.	6.	8.
181	9.	7.	8.	8.	12.	13.	8.	14.	13.	22.
191	19.	10.	18.	22.	24.	24.	20.	19.	39.	19.
201	35.	36.	51.	45.	33.	38.	43.	38.	45.	54.
211	60.	58.	74.	72.	79.	78.	82.	89.	94.	139.
221	121.	138.	131.	138.	168.	161.	194.	192.	195.	249.
231	258.	290.	333.	328.	418.	415.	489.	530.	582.	642.
241	748.	861.	980.	1153.	1225.	1469.	1684.	1774.	2052.	2279.
251	2455.	2656.	2854.	2997.	3021.	2866.	2508.	2267.	1839.	1399.
261	1001.	772.	558.	401.	366.	296.	263.	250.	218.	173.
271	147.	142.	128.	99.	116.	79.	107.	118.	106.	107.
281	125.	140.	158.	183.	181.	247.	251.	283.	290.	372.
291	390.	439.	517.	557.	612.	684.	741.	833.	871.	933.
301	884.	858.	852.	760.	619.	483.	377.	329.	243.	198.
311	171.	140.	103.	70.	47.	42.	24.	16.	8.	6.
321	3.	4.	2.	1.	0.	0.	3.	0.	1.	1.
331	2.	1.	0.	1.	1.	1.	2.	0.	0.	4.
341	1.	3.	5.	5.	5.	5.	11.	6.	8.	4.
351	7.	7.	10.	11.	13.	9.	6.	18.	23.	25.
361	24.	30.	26.	25.	35.	37.	40.	40.	40.	49.
371	41.	43.	34.	15.	25.	21.	9.	3.	3.	0.
381	1.	0.	1.	0.	0.	1.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	2.	0.	0.	0.	1.	1.	0.	1.
421	1.	2.	2.	2.	2.	1.	3.	0.	0.	0.
431	0.	1.	2.	4.	3.	1.	2.	1.	2.	1.
441	2.	1.	1.	2.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2412-DUP
File ID: 7a7853.CNF

Counted on: 10/ 5/95 @19:11
Detector: AEA7
Geometry number: 1
Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	18.3	18.3	369.163	369.163	12.000	6.538	6.000	1.181
2	363.3	363.3	301.156	301.151	16.000	11.448	8.000	2.275
3	1172.9	1172.9	255.220	255.132	18.000	10.643	9.000	2.532

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Cm244	0.012	5.795	5.810	-.015	0.03	1.02	8.9	4.7	0.213E-05
	Cm243		5.779	5.810	-.031				6.5	0.291E-05
2	Am241	0.255	5.479	5.490	-.011	0.05	20.76	2.0	102.3	0.461E-04
	Pu238		5.487	5.490	-.003				133.6	0.602E-04
3	Am243	0.727	5.270	5.274	-.004	0.05	59.29	1.2	277.4	0.125E-03
Totals:		0.994	<--valid peaks only-->				81.07			

DETECTOR CALIBRATION
Energy(MEV) = 4.075 + (0.0047)*Channel
Energy range (MeV): 4.075 TO 6.481
Efficiency = 0.2159 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	39161.0	100.000
Smoothed	39161.2	100.000
Composite fit	38913.2	99.367
Residuals	247.8	0.633

Analyzed by: ALJ 10-6-95

WHC-SD-WM-DP-149, REV. 1

Spectrum 7a7853.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 8786.7

Raw Data Dump for AEA Spectrum: 7a7853.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
21	0.	0.	2.	0.	0.	0.	0.	1.	0.	0.
31	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
41	0.	0.	0.	0.	1.	0.	0.	3.	0.	0.
51	0.	0.	0.	1.	0.	1.	0.	0.	0.	0.
61	1.	1.	0.	1.	0.	0.	2.	0.	0.	1.
71	0.	0.	0.	1.	0.	0.	2.	0.	0.	0.
81	0.	0.	1.	1.	1.	0.	0.	1.	1.	1.
91	0.	3.	1.	2.	1.	1.	0.	1.	1.	0.
101	1.	0.	1.	2.	0.	0.	0.	1.	0.	3.
111	0.	0.	0.	1.	2.	1.	3.	1.	2.	2.
121	1.	3.	0.	0.	2.	3.	2.	2.	2.	1.
131	1.	3.	2.	1.	2.	1.	4.	3.	1.	3.
141	0.	0.	2.	6.	2.	5.	5.	4.	1.	0.
151	1.	0.	3.	1.	4.	4.	7.	4.	0.	3.
161	4.	5.	6.	7.	5.	7.	7.	6.	8.	6.
171	12.	11.	6.	6.	5.	8.	10.	8.	14.	9.
181	11.	12.	9.	8.	20.	16.	17.	21.	15.	10.
191	15.	21.	19.	27.	17.	31.	18.	30.	28.	29.
201	34.	40.	25.	41.	24.	46.	53.	45.	49.	64.
211	73.	84.	68.	78.	104.	92.	112.	127.	133.	143.
221	139.	129.	163.	159.	212.	201.	211.	209.	234.	270.
231	286.	281.	316.	323.	368.	357.	436.	437.	497.	514.
241	527.	605.	642.	680.	746.	757.	792.	924.	928.	1026.
251	1142.	1160.	1300.	1222.	1257.	1266.	1199.	1183.	982.	859.
261	680.	529.	404.	307.	251.	178.	177.	150.	124.	101.
271	106.	111.	102.	109.	88.	98.	105.	103.	94.	112.
281	127.	112.	148.	145.	139.	179.	200.	198.	218.	253.
291	258.	244.	280.	283.	319.	325.	351.	364.	362.	375.
301	329.	411.	350.	341.	291.	244.	185.	171.	137.	97.
311	79.	54.	50.	31.	27.	15.	12.	9.	9.	5.
321	7.	0.	1.	0.	3.	1.	0.	2.	0.	2.
331	0.	0.	1.	2.	0.	3.	2.	4.	4.	0.
341	4.	1.	6.	2.	7.	8.	2.	5.	2.	3.
351	5.	8.	12.	9.	7.	12.	11.	14.	20.	20.
361	15.	20.	18.	13.	17.	10.	22.	16.	18.	20.
371	22.	11.	15.	5.	3.	7.	4.	3.	0.	0.
381	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	2.	0.	0.	0.	2.
421	0.	0.	1.	1.	1.	0.	1.	1.	1.	1.
431	1.	1.	0.	0.	1.	1.	1.	2.	1.	1.
441	0.	0.	2.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	2.	0.								

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2413-SAM
File ID: 8a8028.CNF

Counted on: 10/ 5/95 @19:11
Detector: AEA8
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	32.1	32.1	373.449	373.449	16.000	7.342	8.000	2.269
2	662.0	662.0	304.917	304.917	18.000	11.678	9.000	4.277
3	2246.4	2246.4	258.601	258.589	16.000	10.072	8.000	3.855

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Cm244	0.011	5.795	5.791	0.0040	0.03	1.29	7.9	25.3	0.114E-04
	Cm243		5.779	5.791	-.012				34.7	0.156E-04
2	Am241	0.227	5.479	5.476	0.0030	0.05	27.73	1.7	578.5	0.261E-03
	Pu238		5.487	5.476	0.011				755.2	0.340E-03
3	Am243	0.723	5.270	5.263	0.0070	0.05	88.45	1.0	1751.8	0.789E-03
Totals:		0.960	<--valid peaks only-->				117.47			

DETECTOR CALIBRATION
Energy(MEV) = 4.073 + (0.0046)*Channel
Energy range (MeV): 4.073 TO 6.428
Efficiency = 0.0510 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	58728.0	100.000
Smoothed	58728.0	100.000
Composite fit	56392.4	96.023
Residuals	2335.6	3.977

WHC-SD-WM-DP-148, REV. 1

Analyzed by: ALJ

WHC-SD-WM-DP-148, REV. 0

Spectrum 8a8028.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 15876.0

Raw Data Dump for AEA Spectrum: 8a8028.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	2.	3.
21	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
31	1.	1.	1.	0.	1.	0.	1.	0.	0.	0.
41	0.	1.	0.	0.	0.	2.	0.	1.	0.	1.
51	2.	2.	4.	0.	3.	2.	0.	1.	1.	0.
61	0.	1.	0.	2.	2.	0.	1.	0.	1.	0.
71	2.	1.	0.	0.	2.	0.	0.	2.	0.	1.
81	1.	1.	2.	0.	1.	0.	1.	1.	2.	0.
91	1.	0.	0.	1.	0.	3.	0.	2.	0.	4.
101	2.	0.	2.	0.	0.	2.	3.	2.	1.	0.
111	1.	2.	4.	0.	0.	5.	2.	0.	6.	2.
121	3.	0.	2.	3.	3.	1.	2.	2.	2.	4.
131	0.	1.	2.	4.	4.	5.	2.	3.	3.	1.
141	2.	3.	5.	1.	6.	4.	4.	2.	3.	1.
151	4.	4.	2.	1.	5.	2.	6.	7.	4.	12.
161	6.	3.	8.	3.	6.	11.	11.	5.	13.	3.
171	8.	5.	9.	4.	9.	12.	12.	16.	13.	12.
181	8.	11.	19.	14.	15.	10.	25.	17.	16.	17.
191	16.	18.	27.	33.	17.	31.	22.	30.	30.	41.
201	34.	39.	43.	43.	38.	41.	37.	44.	52.	59.
211	58.	77.	70.	66.	85.	75.	81.	89.	90.	88.
221	103.	134.	110.	109.	125.	142.	140.	139.	160.	183.
231	183.	208.	227.	231.	259.	233.	277.	364.	403.	397.
241	425.	501.	561.	649.	646.	764.	878.	985.	1030.	1155.
251	1332.	1469.	1626.	1884.	2016.	2189.	2393.	2445.	2474.	2316.
261	2090.	1810.	1559.	1247.	1017.	786.	559.	438.	369.	279.
271	271.	211.	196.	161.	138.	144.	113.	92.	98.	93.
281	79.	79.	103.	96.	112.	127.	126.	146.	169.	189.
291	197.	229.	271.	294.	325.	332.	407.	455.	487.	555.
301	585.	639.	667.	702.	724.	702.	630.	544.	518.	427.
311	359.	295.	207.	181.	151.	117.	82.	73.	48.	34.
321	32.	17.	8.	8.	3.	2.	1.	0.	3.	0.
331	1.	1.	1.	0.	0.	3.	2.	1.	5.	3.
341	2.	2.	3.	2.	1.	5.	3.	0.	2.	6.
351	7.	11.	3.	3.	7.	10.	6.	10.	9.	11.
361	15.	13.	13.	23.	23.	28.	20.	34.	22.	25.
371	24.	25.	40.	38.	31.	22.	20.	19.	18.	8.
381	9.	7.	1.	2.	1.	0.	0.	0.	0.	2.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	1.	0.	0.	0.	1.	0.	1.
421	0.	0.	1.	0.	0.	0.	0.	1.	1.	1.
431	0.	0.	2.	1.	2.	2.	2.	1.	2.	1.
441	2.	2.	1.	0.	2.	1.	0.	0.	0.	1.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2413-DUP
File ID: 9a9116.CNF

Counted on: 10/ 5/95 @19:12
Detector: AEA9
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	30.6	30.6	372.036	372.036	12.000	5.274	6.000	1.219
2	670.2	670.2	303.147	303.146	14.000	7.920	7.000	2.056
3	2242.8	2242.8	256.997	256.972	14.000	6.139	7.000	1.625

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Cm243	0.010	5.779	5.806	-.027	0.02	1.39	7.6	7.7	0.346E-05
	Cm244		5.795	5.806	-.011				5.6	0.252E-05
2	Pu238	0.221	5.487	5.489	-.002	0.04	30.27	1.6	169.7	0.764E-04
	Am241		5.479	5.489	-.010				130.0	0.585E-04
3	Am243	0.696	5.270	5.277	-.007	0.03	95.34	0.9	388.6	0.175E-03
Totals:		0.927	<--valid peaks only-->				127.00			

DETECTOR CALIBRATION
Energy(MEV) = 4.095 + (0.0046)*Channel
Energy range (MeV): 4.095 TO 6.450
Efficiency = 0.2478 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	65737.0	100.000
Smoothed	65737.0	100.000
Composite fit	60965.8	92.742
Residuals	4771.2	7.258

Analyzed by: ALJ 10/4/95

WHC-SD-WM-DP-148, REV. 1

Spectrum 9a9116.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 13941.4

Raw Data Dump for AEA Spectrum: 9a9116.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	3.	1.	0.	1.	0.	0.	2.
31	1.	0.	0.	2.	0.	0.	0.	0.	2.	0.
41	1.	2.	0.	1.	1.	1.	3.	1.	3.	0.
51	0.	0.	0.	2.	1.	1.	1.	0.	1.	2.
61	2.	3.	2.	1.	0.	1.	2.	3.	0.	2.
71	1.	3.	1.	1.	0.	0.	2.	2.	2.	1.
81	3.	0.	3.	2.	3.	0.	4.	0.	2.	1.
91	3.	3.	3.	2.	3.	4.	2.	1.	2.	1.
101	2.	1.	3.	3.	2.	4.	5.	3.	2.	2.
111	4.	5.	4.	5.	4.	1.	3.	2.	1.	5.
121	1.	4.	6.	4.	2.	8.	3.	6.	7.	7.
131	5.	5.	2.	7.	6.	4.	9.	5.	12.	9.
141	9.	6.	10.	6.	3.	10.	9.	7.	17.	13.
151	6.	12.	16.	14.	8.	16.	20.	13.	14.	15.
161	21.	19.	17.	17.	14.	20.	24.	18.	15.	22.
171	24.	39.	30.	21.	32.	33.	39.	34.	32.	40.
181	43.	34.	39.	33.	54.	45.	43.	59.	55.	56.
191	70.	64.	62.	60.	87.	81.	73.	79.	107.	79.
201	111.	94.	125.	118.	139.	116.	126.	139.	140.	157.
211	158.	198.	159.	188.	201.	197.	217.	226.	239.	222.
221	264.	292.	305.	278.	323.	300.	331.	336.	369.	385.
231	438.	471.	472.	519.	514.	539.	588.	702.	655.	740.
241	766.	832.	840.	943.	1011.	1127.	1184.	1298.	1385.	1527.
251	1615.	1669.	1953.	2067.	2259.	2371.	2490.	2492.	2246.	1781.
261	1293.	846.	549.	417.	310.	269.	248.	234.	261.	222.
271	243.	222.	189.	158.	164.	129.	131.	139.	141.	136.
281	154.	161.	184.	183.	211.	190.	250.	243.	273.	307.
291	300.	344.	381.	379.	411.	442.	515.	496.	646.	597.
301	635.	730.	725.	719.	692.	574.	433.	315.	246.	184.
311	154.	111.	88.	79.	81.	43.	30.	20.	7.	11.
321	5.	2.	3.	2.	1.	3.	2.	3.	6.	5.
331	3.	1.	5.	2.	3.	5.	5.	6.	2.	6.
341	5.	4.	4.	10.	7.	3.	7.	3.	8.	10.
351	5.	13.	7.	8.	11.	12.	10.	12.	17.	14.
361	20.	20.	26.	19.	17.	17.	30.	38.	30.	27.
371	31.	27.	37.	31.	19.	25.	13.	4.	1.	1.
381	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
391	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.
401	0.	1.	0.	1.	1.	0.	0.	0.	2.	0.
411	1.	1.	0.	0.	1.	1.	1.	0.	0.	0.
421	0.	0.	1.	1.	0.	0.	0.	1.	2.	1.
431	1.	0.	1.	1.	0.	1.	3.	0.	6.	0.
441	2.	0.	0.	0.	0.	1.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

WHC-SD-WM-DP-148, REV. 0

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

LABCORE Completed Worklist Report for Worklist# 2500

Analyst: akl **Instrument:** AM01 **Book#** 104843

Method: LA-953-103 **Rev/Mod** A-4 WHC-SD-WM-DP-148, REV. 1

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

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@AM24101 AM24101	LIQUID	3.07E-02		2.64E-2	85.990	% Recovery
1	STD		0		@AM24101 AM24101E	LIQUID	1.00		1.06E+00	1.060	% Ct. Error
1	STD		0		@AM24101 AM24101T	LIQUID	100		8.94E+01	89.400	% Recovery
2	BLNK		0		@AM24101 AM24101	LIQUID	1		<2.49E-4		uCi/mL
2	BLNK		0		@AM24101 AM24101E	LIQUID	1.00		6.41E+00	6.410	% Ct. Error
2	BLNK		0		@AM24101 AM24101T	LIQUID	100		8.92E+01	89.200	% Recovery
3	SAMPLE	S95T002411	0		@AM24101 AM24101	LIQUID	N/A	<	2.48E-04	2.480e-004	uCi/mL
3	SAMPLE	S95T002411	0		@AM24101 AM24101E	LIQUID	N/A		5.90E+00	0.000	% Ct. Error
3	SAMPLE	S95T002411	0		@AM24101 AM24101T	LIQUID	N/A		9.04E+01	1.000e-007	% Recovery
4	DUP	S95T002411	0		@AM24101 AM24101	LIQUID	<2.48E-4		<2.16E-4		RPD
4	DUP	S95T002411	0		@AM24101 AM24101E	LIQUID	1.00		1.00E+02	100.000	% Ct. Error
4	DUP	S95T002411	0		@AM24101 AM24101T	LIQUID	100		9.80E+01	98.000	% Recovery
5	SAMPLE	S95T002412	0		@AM24101 AM24101	LIQUID	N/A	<	2.37E-04	2.370e-004	uCi/mL
5	SAMPLE	S95T002412	0		@AM24101 AM24101E	LIQUID	N/A		4.49E+00	0.000	% Ct. Error
5	SAMPLE	S95T002412	0		@AM24101 AM24101T	LIQUID	N/A		9.25E+01	1.000e-007	% Recovery
6	DUP	S95T002412	0		@AM24101 AM24101	LIQUID	<2.37E-4		2.68E-4		RPD
6	DUP	S95T002412	0		@AM24101 AM24101E	LIQUID	1.00		2.87E+00	2.870	% Ct. Error
6	DUP	S95T002412	0		@AM24101 AM24101T	LIQUID	100		9.50E+01	95.000	% Recovery
7	SAMPLE	S95T002413	0		@AM24101 AM24101	LIQUID	N/A	<	2.39E-04	2.390e-004	uCi/mL
7	SAMPLE	S95T002413	0		@AM24101 AM24101E	LIQUID	N/A		4.08E+00	0.000	% Ct. Error
7	SAMPLE	S95T002413	0		@AM24101 AM24101T	LIQUID	N/A		9.28E+01	1.000e-007	% Recovery
8	DUP	S95T002413	0		@AM24101 AM24101	LIQUID	<2.39E-4		5.79E-4		RPD
8	DUP	S95T002413	0		@AM24101 AM24101E	LIQUID	1.00		1.89E+00	1.890	% Ct. Error
8	DUP	S95T002413	0		@AM24101 AM24101T	LIQUID	100		8.86E+01	88.600	% Recovery

Final page for worklist# 2500

Analyst Signature Date

Analyst Signature Date

Reviewer Signature 26 Sep 95 Date

This data is not used in final results. All samples were rerun on worklist # 2650. RLC 10/16/95

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

(19)

09/20/95 13:11
A-0004-1

WHC-SD-WM-DP-148, REV. 0

LABCORE Data Entry Template for Worklist# 2500

Analyst: AKL Instrument: AM01 _____ Book# 104643

Method: LA-953-103 Rev/Mod A-4 WHC-SD-WM-DP-148, REV. 1

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@AM24101	LIQUID		
2	BLNK				@AM24101	LIQUID		
3	SAMPLE	S95T002411	0		@AM24101	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
4	DUP	S95T002411	0		@AM24101	LIQUID		
5	SAMPLE	S95T002412	0		@AM24101	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
6	DUP	S95T002412	0		@AM24101	LIQUID		
7	SAMPLE	S95T002413	0		@AM24101	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: AM24101 , AM24101E, AM24101T							
8	DUP	S95T002413	0		@AM24101	LIQUID		

Final page for worklist # 2500

C Lewis 9.25.95
Analyst Signature Date

M S Sum 9/26/95
Analyst Signature Date

Data Entry Comments:

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

WORKBOOK PAGE: STD1

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

Type	Date Counted		SEP-25-95	Am 241 AEA Frac.	(C241)	STD 0.364
STD	Sample Volume in mL	(SS)	1.000	Am 243 AEA Frac.	(C243)	0.577
Work List	Sample D.F.	(DF)	101	Cm 243/244 AEA Frac.	(Cm)	0
2500	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		21598
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	6
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		116.55
LIQUID	Detector Number		1	Am 243 cpm		184.44
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002647	Standard Book No		104B43	AEA Count Time	(min)	480
Rerun	Standard Value in µCi/mL		0.03067	Am 241 µCi/L =		2.6445E+01
0				Cm 243/244 µCi/L =	<	4.0625E+00

Sample Prep
N/A
Sample Number
WRKLST#2500
Instrument Code
AL10539
Prepared By
MCB
Chemist
LLF
Analyst
AKL
Date Complete
09/26/95
Analysis Date
09/25/95
Analysis Time
02:00 PM
Sample Point
AN-101 GRAB

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

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

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

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

Am 241 µCi/mL	=	2.64E-02
Relative Counting Error	=	1.1%
NOTE: Cm-243/244 Result is a LESS THAN Value.		
Cm 243/244 µCi/mL		< 4.06E-03
Relative Counting Error	=	100.0%
Am 243 Tracer Recovery	=	89.4%

DETECTION LEVELS in µCi/mL	
Am 241	4.06E-03
Cm 243/244	4.06E-03

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

STANDARD.WB1 REV 1.2 953103ML

WORKBOOK PAGE: BLANK2

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

Type	Date Counted		SEP-25-95	Am 241 AEA Frac.	(C241)	BLNK 0.011
BLNK	Sample Volume in mL	(SS)	0.100	Am 243 AEA Frac.	(C243)	0.935
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2500	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		13247
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	2
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		1.97
LIQUID	Detector Number		2	Am 243 cpm		174.43
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002647				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	2.4879E-01
0				Cm 243/244 µCi/L =	<	2.4879E-01
Sample Prep						
N/A						
Sample Number	Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
WRKLST#2500	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
Instrument Code						
AL10540	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100					
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV					
MCB						
Chemist	NOTE: Am-241 Result is a LESS THAN Value.					
LLF	Am 241 µCi/mL =		< 2.49E-04			
Analyst	Relative Counting Error =		6.4%			
AKL						
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.					
09/26/95	Cm 243/244 µCi/mL		< 2.49E-04			
Analysis Date	Relative Counting Error =		100.0%			
09/25/95	Am 243 Tracer Recovery =		89.2%			
Analysis Time						
02:00 PM						
Sample Point						
AN-101 GRAB						

DETECTION LEVELS in µCi/mL	
Am 241	2.49E-04
Cm 243/244	2.49E-04

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

BLANK.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM3

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

Type	Date Counted		SEP-25-95	Am 241 AEA Frac.	(C241)	SAMPLE 0.011
SAMPLE	Sample Volume in mL	(SS)	0.100	Am 243 AEA Frac.	(C243)	0.927
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2500	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		13533
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		2.33
LIQUID	Detector Number		3	Am 243 cpm		195.56
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002647				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	2.4755E-01
0				Cm 243/244 µCi/L =	<	2.4755E-01
Sample Prep						
N/A						
Sample Number						
S95T002411						
Instrument Code						
AL10541						
Prepared By						
MCB						
Chemist						
LLF						
Analyst						
AKL						
Date Complete						
09/26/95						
Analysis Date						
09/25/95						
Analysis Time						
02:00 PM						
Sample Point						
AN-101 GRAB						

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

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

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

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

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

Am 241 µCi/mL =	< 2.48E-04	DETECTION LEVELS in µCi/mL
Relative Counting Error =	5.9%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241 2.48E-04
Cm 243/244 µCi/mL	< 2.48E-04	
Relative Counting Error =	100.0%	Cm 243/244 2.48E-04
Am 243 Tracer Recovery =	90.4%	

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

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP4

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

Type	Date Counted		SEP-25-95			DUP
DUP	Sample Volume in mL	(SS)	0.100	Am 241 AEA Frac.	(C241)	0
Work List	Sample D.F.	(DF)	1	Am 243 AEA Frac.	(C243)	0.982
2500	Tracer Volume in mL	(SPKV)	0.100	Cm 243/244 AEA Frac.	(Cm)	0
Test Code	Digest D.F.	(DDF)	1.000	Total AT Counts		13975
@AM24101	Tracer Book No.		114B43	AT Count Time (min)	(TC)	30
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Background in cpm	(Bkg)	6
LIQUID	Detector Number		1	Am 241 cpm		0
Batch Number	Detector Efficiency	(DetEff)	0.5000	Am 243 cpm		203.19
95002647				Cm 243/244 cpm		0
Rerun				AEA Count Time	(min)	480
0				Am 241 µCi/L =	<	2.1561E-01
Sample Prep				Cm 243/244 µCi/L =	<	2.1561E-01
N/A						
Sample Number						
S95T002411						
Instrument Code						
AL10539						
Prepared By						
MCB						
Chemist						
LLF						
Analyst						
AKL						
Date Complete						
09/26/95						
Analysis Date						
09/25/95						
Analysis Time						
02:00 PM						
Sample Point						
AN-101 GRAB						

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

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

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

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

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

Am 241 µCi/mL	=	< 2.16E-04
Relative Counting Error	=	100.0%

NOTE: Cm-243/244 Result is a LESS THAN Value.

Cm 243/244 µCi/mL		< 2.16E-04
Relative Counting Error	=	100.0%
Am 243 Tracer Recovery	=	98.0%

DETECTION LEVELS in µCi/mL
Am 241 2.16E-04
Cm 243/244 2.16E-04

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

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM5

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

Type	Date Counted		SEP-25-95	Am 241 AEA Frac.	(C241)	SAMPLE 0.022
SAMPLE	Sample Volume in mL	(SS)	0.100	Am 243 AEA Frac.	(C243)	0.948
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2500	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		13547
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	2
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		4.06
LIQUID	Detector Number		2	Am 243 cpm		175.23
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002647				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	2.3663E-01
0				Cm 243/244 µCi/L =	<	2.3663E-01
Sample Prep						
N/A						
Sample Number	Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
S95T002412	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
Instrument Code						
AL10540	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100					
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV					
MCB						
Chemist	NOTE: Am-241 Result is a LESS THAN Value.					
LLF	Am 241 µCi/mL =	< 2.37E-04		DETECTION LEVELS in µCi/mL		
Analyst	Relative Counting Error =	4.5%				
AKL						
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241		
09/26/95	Cm 243/244 µCi/mL	< 2.37E-04		2.37E-04		
Analysis Date	Relative Counting Error =	100.0%		Cm 243/244		
09/25/95	Am 243 Tracer Recovery =	92.5%		2.37E-04		
Analysis Time						
02:00 PM						
Sample Point						
AN-101 GRAB						

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

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP6

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

Type	Date Counted		SEP-25-95	Am 241 AEA Frac.	(C241)	DUP 0.061
DUP	Sample Volume in mL	(SS)	0.100	Am 243 AEA Frac.	(C243)	0.943
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2500	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		14080
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	5
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		10.33
LIQUID	Detector Number		3	Am 243 cpm		160.68
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002647				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		2.6848E-01
0				Cm 243/244 µCi/L =	<	2.3154E-01
Sample Prep						
N/A						
Sample Number	Am-241 µCi/L = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
S95T002412	Cm-243/244 µCi/L = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/µCi))					
Instrument Code						
AL10541	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100					
Prepared By	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV					
MCB						
Chemist						
LLF	Am 241 µCi/mL =	2.68E-04				
Analyst	Relative Counting Error =	2.9%				
AKL						
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.					
09/26/95	Cm 243/244 µCi/mL	< 2.32E-04				
Analysis Date	Relative Counting Error =	100.0%				
09/25/95	Am 243 Tracer Recovery =	95.0%				
Analysis Time						
02:00 PM						
Sample Point						
AN-101 GRAB						

DETECTION LEVELS in µCi/mL	
Am 241	2.32E-04
Cm 243/244	2.32E-04

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

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: SAM7

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

Type	Date Counted		SEP-25-95	Am 241 AEA Frac.	(C241)	SAMPLE 0.024
SAMPLE	Sample Volume in mL	(SS)	0.100	Am 243 AEA Frac.	(C243)	0.937
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2500	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		13863
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	6
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		4.94
LIQUID	Detector Number		1	Am 243 cpm		191.76
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002647				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =	<	2.3875E-01
0				Cm 243/244 µCi/L =	<	2.3875E-01
Sample Prep						
N/A						
Sample Number						
S95T002413						
Instrument Code						
AL10539						
Prepared By						
MCB						
Chemist						
LLF						
Analyst						
AKL						
Date Complete						
09/26/95						
Analysis Date						
09/25/95						
Analysis Time						
02:00 PM						
Sample Point						
AN-101 GRAB						

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

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

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

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

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

Am 241 µCi/mL =	< 2.39E-04	DETECTION LEVELS in µCi/mL
Relative Counting Error =	4.1%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241 2.39E-04
Cm 243/244 µCi/mL	< 2.39E-04	
Relative Counting Error =	100.0%	Cm 243/244 2.39E-04
Am 243 Tracer Recovery =	92.8%	

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

SAMPLE.WB1 REV 1.2 953103ML

WORKBOOK PAGE: DUP8

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

Type	Date Counted		SEP-25-95	Am 241 AEA Frac.	(C241)	DUP 0.128
DUP	Sample Volume in mL	(SS)	0.100	Am 243 AEA Frac.	(C243)	0.917
Work List	Sample D.F.	(DF)	1	Cm 243/244 AEA Frac.	(Cm)	0
2500	Tracer Volume in mL	(SPKV)	0.100	Total AT Counts		13415
Test Code	Digest D.F.	(DDF)	1.000	AT Count Time (min)	(TC)	30
@AM24101	Tracer Book No.		114B43	Background in cpm	(Bkg)	2
Matrix	Am-243 Tracer Value	(dpm/mL)	9214	Am 241 cpm		25.58
LIQUID	Detector Number		2	Am 243 cpm		182.55
Batch Number	Detector Efficiency	(DetEff)	0.5000	Cm 243/244 cpm		0
95002647				AEA Count Time	(min)	480
Rerun				Am 241 µCi/L =		5.7934E-01
0				Cm 243/244 µCi/L =	<	2.5540E-01
Sample Prep						
N/A						

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

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

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

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

Sample Number	
S95T002413	
Instrument Code	
AL10540	
Prepared By	
MCB	
Chemist	
LLF	
Analyst	
AKL	
Date Complete	
09/26/95	
Analysis Date	
09/25/95	
Analysis Time	
02:00 PM	
Sample Point	
AN-101 GRAB	

Am 241 µCi/mL =	5.79E-04	DETECTION LEVELS in µCi/mL
Relative Counting Error =	1.9%	
NOTE: Cm-243/244 Result is a LESS THAN Value.		Am 241
Cm 243/244 µCi/mL	< 2.55E-04	2.55E-04
Relative Counting Error =	100.0%	Cm 243/244
Am 243 Tracer Recovery =	88.6%	2.55E-04

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

SAMPLE.WB1 REV 1.2 953103ML

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
2500-STD
File ID: 10a2367.CNF

Counted on: 9/25/95 @18:41
Detector: AEA10
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	3171.0	3171.0	304.935	304.935	14.000	6.858	7.000	2.436
2	5232.0	5232.0	258.754	258.738	12.000	5.519	6.000	1.929

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.364	5.487	5.486	0.001	0.03	116.55	0.8	533.0	0.240E-03
	Am241		5.479	5.486	-.007				408.3	0.184E-03
2	Am243	0.577	5.270	5.274	-.004	0.03	184.44	0.7	613.4	0.276E-03
Totals:		0.941	<--valid peaks only-->				300.99			

DETECTOR CALIBRATION
Energy(MEV) = 4.083 + (0.0046)*Channel
Energy range (MeV): 4.083 TO 6.439
Efficiency = 0.3037 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	153504.0	100.000
Smoothed	153504.0	100.000
Composite fit	144483.9	94.124
Residuals	9020.1	5.876

Analyzed by: _____
SEH

Spectrum 10a2367.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 34052.5

Raw Data Dump for AEA Spectrum: 10a2367.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	2.	1.	0.	1.	4.
31	1.	2.	3.	1.	1.	1.	0.	1.	0.	3.
41	0.	0.	2.	1.	1.	2.	0.	2.	1.	0.
51	1.	1.	1.	0.	1.	2.	1.	1.	2.	3.
61	3.	1.	2.	1.	3.	1.	1.	0.	0.	1.
71	1.	1.	1.	1.	0.	3.	0.	0.	4.	1.
81	1.	0.	2.	2.	1.	1.	0.	1.	1.	0.
91	2.	2.	1.	3.	3.	1.	6.	2.	2.	1.
101	1.	1.	1.	1.	2.	2.	3.	3.	3.	1.
111	1.	4.	3.	3.	0.	5.	3.	3.	0.	3.
121	1.	0.	3.	3.	1.	3.	4.	3.	0.	7.
131	5.	4.	7.	4.	4.	10.	1.	2.	3.	3.
141	6.	5.	5.	5.	6.	6.	8.	9.	5.	6.
151	14.	9.	6.	7.	8.	6.	6.	8.	4.	6.
161	8.	10.	8.	14.	14.	18.	20.	18.	13.	15.
171	20.	11.	14.	22.	25.	16.	16.	22.	20.	27.
181	24.	30.	30.	34.	31.	34.	28.	39.	46.	58.
191	51.	62.	50.	69.	61.	67.	73.	95.	83.	79.
201	98.	110.	123.	115.	122.	123.	151.	142.	150.	167.
211	187.	209.	211.	197.	205.	220.	264.	262.	256.	314.
221	314.	293.	339.	327.	378.	373.	455.	460.	488.	553.
231	563.	605.	602.	683.	728.	782.	830.	884.	939.	1044.
241	1123.	1242.	1354.	1388.	1572.	1752.	1932.	2150.	2476.	2635.
251	2894.	3148.	3370.	3877.	4261.	4767.	5248.	5749.	5946.	5764.
261	4988.	3476.	2257.	1465.	965.	787.	684.	672.	642.	603.
271	612.	546.	537.	466.	437.	397.	436.	409.	366.	393.
281	430.	499.	498.	584.	548.	600.	623.	683.	752.	811.
291	954.	1029.	1129.	1259.	1383.	1602.	1726.	1895.	2042.	2282.
301	2581.	2734.	3087.	3417.	3653.	3421.	3006.	2385.	1648.	1234.
311	901.	764.	580.	506.	418.	374.	250.	190.	120.	70.
321	21.	14.	3.	1.	1.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
341	0.	0.	1.	0.	1.	0.	1.	1.	1.	0.
351	0.	0.	0.	0.	0.	1.	0.	1.	0.	0.
361	0.	1.	0.	0.	0.	0.	2.	2.	1.	0.
371	0.	1.	1.	0.	2.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
421	0.	0.	1.	0.	0.	0.	0.	1.	0.	0.
431	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Eric Burke

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
2500-BLNK
File ID: 11a3367.CNF

Counted on: 9/25/95 @18:42
Detector: AEA11
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	12.1	12.1	304.900	304.900	16.000	8.532	8.000	0.427
2	5083.3	5083.3	259.663	259.663	12.000	5.611	6.000	2.074

PEAK RESULTS
Peak Error Limit: 30%

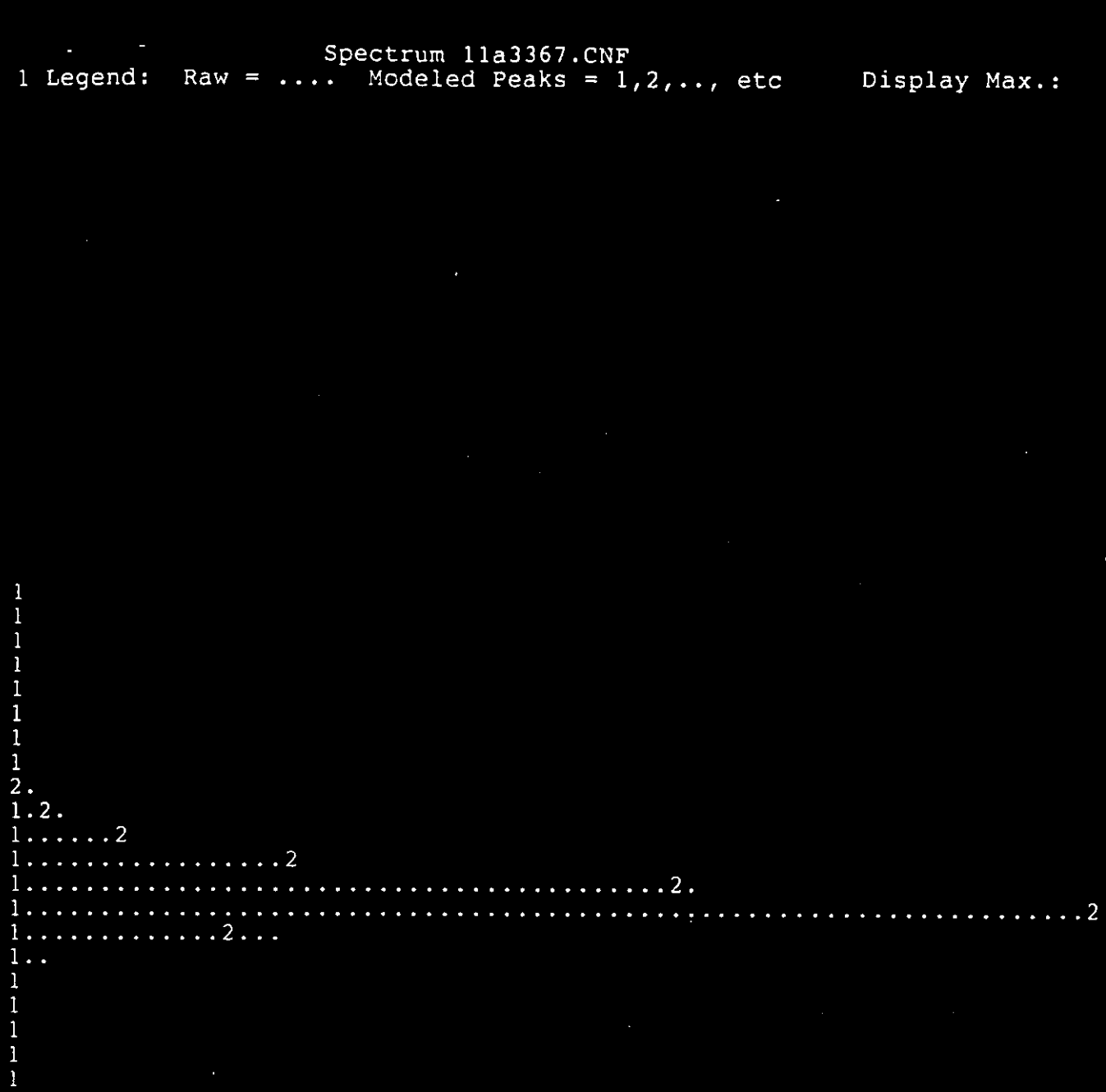
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu238	0.011	5.487	5.483	0.004	0.04	1.97	6.4	19.5	0.877E-05
	Am241		5.479	5.483	-.004				14.9	0.671E-05
2	Am243	0.935	5.270	5.274	-.004	0.03	174.43	0.7	1251.4	0.564E-03
Totals:		0.946	<--valid peaks only-->				176.40			

DETECTOR CALIBRATION
Energy(MEV) = 4.080 + (0.0046)*Channel
Energy range (MeV): 4.080 TO 6.435
Efficiency = 0.1408 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	89510.0	100.000
Smoothed	89510.0	100.000
Composite fit	84682.6	94.607
Residuals	4827.4	5.393

Analyzed by: SEH


Spectrum 11a3367.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 34943.9

Raw Data Dump for AEA Spectrum: 11a3367.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	1.	1.	0.	0.	0.	0.	1.
31	0.	0.	0.	1.	2.	1.	0.	0.	1.	0.
41	0.	0.	0.	0.	3.	0.	0.	0.	1.	1.
51	0.	1.	1.	1.	1.	2.	2.	0.	2.	3.
61	1.	0.	0.	2.	0.	0.	0.	1.	0.	0.
71	1.	1.	0.	2.	0.	2.	4.	0.	1.	0.
81	1.	1.	0.	2.	5.	1.	3.	3.	0.	3.
91	1.	2.	2.	1.	4.	2.	1.	1.	4.	1.
101	3.	2.	2.	2.	1.	2.	0.	6.	1.	3.
111	1.	5.	1.	4.	1.	3.	2.	2.	2.	5.
121	4.	3.	3.	5.	8.	2.	3.	3.	5.	4.
131	0.	6.	3.	5.	5.	5.	5.	2.	6.	6.
141	6.	1.	3.	8.	4.	8.	5.	5.	7.	5.
151	5.	7.	6.	5.	9.	10.	9.	16.	13.	11.
161	8.	10.	10.	14.	17.	17.	11.	23.	11.	10.
171	21.	15.	18.	18.	13.	20.	19.	19.	25.	39.
181	20.	24.	33.	35.	33.	24.	24.	43.	50.	41.
191	45.	42.	33.	46.	47.	47.	56.	67.	54.	60.
201	65.	70.	73.	77.	74.	115.	89.	89.	106.	90.
211	114.	102.	104.	115.	123.	130.	163.	143.	150.	145.
221	172.	180.	190.	221.	217.	256.	264.	267.	305.	303.
231	339.	380.	433.	468.	485.	534.	591.	661.	707.	756.
241	847.	987.	1103.	1153.	1288.	1456.	1636.	1860.	2102.	2422.
251	2566.	2836.	3217.	3375.	3744.	4268.	4573.	5198.	5466.	5803.
261	5460.	4616.	3480.	2322.	1412.	823.	631.	490.	449.	393.
271	384.	345.	309.	247.	233.	146.	100.	78.	46.	20.
281	8.	6.	2.	2.	0.	0.	1.	1.	0.	3.
291	2.	5.	4.	6.	6.	9.	6.	7.	7.	10.
301	6.	6.	11.	12.	17.	13.	6.	12.	7.	8.
311	5.	5.	3.	0.	1.	2.	1.	1.	0.	0.
321	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	0.	0.	1.	0.	1.
341	0.	0.	3.	0.	0.	1.	0.	0.	3.	1.
351	1.	0.	0.	1.	1.	1.	0.	3.	0.	2.
361	3.	1.	1.	1.	2.	1.	3.	2.	2.	1.
371	1.	2.	1.	1.	0.	0.	1.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2411-SAM
File ID: 12a1217.CNF

Counted on: 9/25/95 @18:43
Detector: AEA12
Geometry number: 1
Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	30.3	30.3	299.826	299.826	16.000	9.821	8.000	1.235
2	5769.0	5769.0	254.229	254.228	14.000	6.078	7.000	2.387

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.011	5.479	5.485	-.006	0.05	2.33	5.9	8.8	0.395E-05
	Pu238		5.487	5.485	0.002				11.5	0.516E-05
2	Am243	0.927	5.270	5.276	-.006	0.03	195.56	0.6	698.8	0.315E-03
Totals:		0.938	<--valid peaks only-->				197.90			

DETECTOR CALIBRATION
Energy(MEV) = 4.106 + (0.0046)*Channel
Energy range (MeV): 4.106 TO 6.461
Efficiency = 0.2827 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	101240.0	100.000
Smoothed	101240.0	100.000
Composite fit	95006.5	93.843
Residuals	6233.5	6.157

Analyzed by: _____
SEH

Spectrum 12a1217.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 40229.4

Raw Data Dump for AEA Spectrum: 12a1217.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	2.	1.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	2.	1.	0.	0.
41	0.	0.	0.	1.	1.	0.	2.	1.	0.	2.
51	0.	1.	0.	1.	1.	1.	1.	0.	2.	2.
61	0.	1.	1.	1.	0.	2.	2.	1.	1.	1.
71	0.	0.	1.	1.	1.	1.	1.	0.	2.	1.
81	2.	0.	3.	0.	2.	1.	1.	3.	0.	2.
91	1.	2.	1.	1.	1.	4.	0.	1.	2.	1.
101	0.	3.	3.	1.	6.	1.	3.	2.	6.	3.
111	1.	0.	0.	4.	6.	0.	4.	5.	3.	2.
121	4.	3.	0.	4.	4.	2.	3.	13.	3.	5.
131	5.	4.	4.	5.	11.	6.	3.	7.	6.	8.
141	11.	6.	8.	8.	10.	16.	7.	7.	11.	9.
151	18.	12.	15.	17.	8.	15.	8.	15.	14.	19.
161	9.	18.	12.	21.	26.	28.	19.	18.	24.	28.
171	28.	21.	34.	34.	35.	37.	24.	46.	32.	52.
181	41.	34.	48.	50.	53.	39.	45.	68.	51.	62.
191	59.	50.	68.	71.	68.	82.	89.	95.	82.	98.
201	103.	111.	74.	108.	121.	115.	131.	133.	144.	143.
211	156.	162.	160.	172.	196.	205.	193.	229.	233.	226.
221	256.	280.	307.	367.	369.	356.	406.	423.	499.	529.
231	553.	634.	698.	758.	802.	937.	1028.	1157.	1248.	1427.
241	1578.	1859.	2102.	2421.	2643.	3007.	3395.	3653.	3996.	4614.
251	5111.	5560.	6050.	6544.	6396.	5854.	4732.	3496.	2327.	1469.
261	956.	715.	589.	526.	485.	443.	437.	360.	306.	224.
271	166.	131.	71.	46.	27.	7.	4.	3.	4.	2.
281	2.	7.	5.	3.	7.	12.	15.	12.	11.	12.
291	11.	15.	18.	18.	25.	25.	29.	30.	30.	35.
301	34.	26.	20.	23.	17.	12.	10.	16.	7.	6.
311	3.	3.	1.	1.	1.	0.	0.	0.	0.	0.
321	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
331	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
341	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
351	0.	1.	0.	0.	1.	1.	0.	2.	0.	1.
361	0.	2.	1.	0.	0.	2.	1.	0.	2.	1.
371	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	2.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2411-DUP
File ID: 9a9103.CNF

Counted on: 9/25/95 @18:43
Detector: AEA9
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1?	24.4	24.4	303.121	303.121	16.000	7.976	8.000	0.890
2	4612.3	4612.3	257.029	257.028	14.000	6.433	7.000	1.631

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Peak Centroid Obs.	Peak Centroid Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1		????		5.485			2.02	6.3		
2	Am243	0.982	5.270	5.273	-.0030	.03	203.19	0.6	829.9	0.374E-03
Totals:		0.982	<--valid peaks only-->				203.19			

DETECTOR CALIBRATION
Energy(MEV) = 4.091 + (0.0046)*Channel
Energy range (MeV): 4.091 TO 6.446
Efficiency = 0.2473 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	99291.0	100.000
Smoothed	99291.0	100.000
Composite fit	98503.4	99.207
Residuals	787.6	0.793

Analyzed by: _____
SEH

WHC-SD-WM-DP-148, REV. 1

Spectrum 9a9103.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 29907.5

Raw Data Dump for AEA Spectrum: 9a9103.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	1.	1.	0.	1.	0.	0.	1.
31	0.	0.	1.	0.	1.	1.	1.	1.	0.	1.
41	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
51	0.	1.	1.	1.	1.	0.	1.	1.	0.	1.
61	1.	2.	1.	0.	0.	1.	0.	0.	1.	4.
71	0.	0.	1.	1.	2.	0.	1.	0.	0.	2.
81	0.	0.	0.	1.	1.	2.	0.	3.	0.	0.
91	0.	2.	2.	2.	3.	3.	1.	1.	0.	2.
101	1.	1.	1.	1.	1.	0.	3.	0.	4.	0.
111	1.	2.	6.	1.	3.	0.	3.	3.	2.	4.
121	0.	0.	4.	1.	2.	4.	0.	3.	0.	1.
131	3.	1.	4.	1.	3.	1.	1.	2.	1.	4.
141	3.	4.	5.	3.	3.	3.	5.	5.	4.	5.
151	6.	6.	12.	1.	7.	8.	4.	11.	11.	11.
161	4.	10.	7.	6.	11.	8.	17.	16.	12.	14.
171	12.	19.	17.	21.	17.	20.	17.	18.	21.	20.
181	27.	33.	46.	28.	36.	35.	28.	39.	53.	31.
191	39.	41.	45.	58.	77.	65.	74.	65.	74.	91.
201	81.	91.	113.	105.	110.	125.	135.	140.	162.	156.
211	167.	166.	201.	203.	216.	229.	255.	274.	274.	352.
221	335.	328.	416.	456.	406.	526.	488.	568.	630.	633.
231	723.	800.	816.	904.	1018.	1109.	1207.	1306.	1340.	1518.
241	1704.	1785.	1922.	2109.	2375.	2490.	2701.	3006.	3296.	3486.
251	3502.	3773.	4070.	4179.	4524.	4866.	4986.	4964.	4661.	3884.
261	2838.	1687.	1089.	737.	529.	497.	453.	378.	347.	335.
271	271.	232.	187.	100.	98.	59.	24.	21.	6.	9.
281	8.	6.	8.	4.	10.	7.	6.	10.	18.	14.
291	9.	10.	10.	13.	16.	15.	25.	19.	32.	22.
301	21.	26.	29.	19.	29.	21.	17.	14.	10.	7.
311	2.	2.	5.	2.	3.	2.	2.	1.	1.	0.
321	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
331	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
341	0.	0.	0.	0.	0.	1.	0.	0.	2.	1.
351	0.	1.	1.	1.	1.	0.	1.	2.	1.	0.
361	1.	1.	0.	0.	1.	0.	1.	2.	2.	1.
371	1.	0.	0.	1.	2.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
441	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	1.	2.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Eric Barclay

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2412-SAM
File ID: 8a8015.CNF

Counted on: 9/25/95 @18:44
Detector: AEA8
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	81.4	81.4	304.429	304.429	16.000	9.805	8.000	2.320
2	4459.3	4459.3	258.378	258.376	18.000	10.249	9.000	3.994

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.022	5.479	5.478	0.001	0.05	4.06	4.4	19.1	0.861E-05
	Pu238		5.487	5.478	0.009				24.9	0.112E-04
2	Am243	0.948	5.270	5.266	0.004	0.05	175.23	0.7	783.9	0.353E-03
Totals:		0.970	<--valid peaks only-->				179.28			

DETECTOR CALIBRATION
Energy(MEV) = 4.078 + (0.0046)*Channel
Energy range (MeV): 4.078 TO 6.433
Efficiency = 0.2258 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	88705.0	100.000
Smoothed	88705.0	100.000
Composite fit	86065.7	97.025
Residuals	2639.3	2.975

Analyzed by: _____
SEH

Spectrum 8a8015.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 31210.3

Raw Data Dump for AEA Spectrum: 8a8015.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
21	0.	2.	1.	0.	0.	0.	3.	1.	1.	1.
31	1.	1.	0.	0.	0.	0.	2.	0.	0.	0.
41	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.
51	1.	0.	3.	1.	0.	1.	3.	0.	1.	0.
61	1.	0.	1.	1.	3.	1.	0.	1.	0.	0.
71	1.	0.	2.	0.	1.	2.	0.	2.	0.	0.
81	2.	0.	2.	0.	0.	1.	0.	0.	1.	0.
91	1.	0.	4.	2.	0.	2.	1.	2.	1.	1.
101	3.	2.	0.	0.	1.	2.	3.	2.	0.	3.
111	0.	1.	1.	2.	0.	2.	0.	1.	2.	1.
121	1.	2.	1.	4.	0.	1.	4.	0.	3.	1.
131	2.	2.	0.	0.	3.	1.	1.	1.	3.	1.
141	1.	0.	3.	4.	0.	2.	2.	2.	1.	3.
151	1.	2.	4.	2.	2.	2.	3.	3.	3.	7.
161	3.	4.	5.	4.	3.	6.	4.	7.	6.	4.
171	9.	9.	4.	6.	7.	7.	8.	5.	12.	12.
181	8.	10.	12.	15.	16.	12.	19.	8.	15.	20.
191	17.	28.	18.	24.	22.	31.	30.	30.	35.	42.
201	44.	44.	45.	55.	60.	66.	79.	52.	58.	80.
211	73.	100.	93.	66.	96.	113.	145.	138.	136.	157.
221	170.	180.	174.	182.	194.	238.	225.	246.	298.	311.
231	329.	357.	373.	446.	482.	544.	571.	608.	692.	782.
241	895.	942.	1067.	1225.	1325.	1519.	1723.	1988.	2188.	2487.
251	2790.	3215.	3497.	3849.	4125.	4487.	4730.	4856.	4842.	4444.
261	4187.	3480.	2915.	2374.	1878.	1450.	1020.	826.	574.	491.
271	389.	355.	286.	253.	170.	156.	107.	92.	51.	49.
281	30.	20.	24.	11.	12.	16.	9.	16.	26.	27.
291	26.	30.	40.	38.	37.	33.	45.	67.	58.	55.
301	70.	89.	84.	82.	94.	83.	66.	66.	59.	40.
311	34.	23.	21.	22.	8.	13.	10.	6.	6.	2.
321	0.	2.	0.	1.	0.	0.	1.	1.	0.	0.
331	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
341	0.	0.	2.	1.	0.	1.	0.	0.	0.	0.
351	1.	0.	0.	1.	0.	2.	3.	1.	2.	0.
361	3.	2.	2.	7.	2.	1.	3.	4.	8.	5.
371	4.	5.	5.	6.	6.	4.	5.	3.	1.	1.
381	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
421	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Eric Bullen

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2412-DUP
File ID: 7a7841.CNF

Counted on: 9/25/95 @18:45
Detector: AEA7
Geometry number: 1
Count time: 28804. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	60.4	60.4	301.561	301.561	26.000	19.120	13.000	0.956
2	3046.9	3046.9	254.377	254.367	22.000	22.312	11.000	7.788

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.061	5.479	5.490	-.011	0.09	10.33	2.8	230.0	0.104E-03
	Pu238		5.487	5.490	-.003				300.3	0.135E-03
2	Pu239	0.943	5.147	5.269	-.122	0.10	160.68	0.7	3361.4	0.151E-02
	Am243		5.270	5.269	0.001				3395.4	0.153E-02
Totals:		1.003	<--valid peaks only-->				171.01			

DETECTOR CALIBRATION
Energy(MEV) = 4.073 + (0.0047)*Channel
Energy range (MeV): 4.073 TO 6.479
Efficiency = 0.0478 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	81811.0	100.000
Smoothed	81810.9	100.000
Composite fit	82096.1	100.348
Residuals	-285.1	-0.348

Analyzed by: _____
SEH

Spectrum 7a7841.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 23178.9

Raw Data Dump for AEA Spectrum: 7a7841.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	1.	3.
21	0.	0.	1.	1.	2.	0.	0.	1.	0.	1.
31	3.	1.	2.	0.	1.	1.	0.	0.	1.	1.
41	2.	3.	2.	0.	0.	2.	0.	0.	0.	0.
51	3.	2.	0.	0.	1.	0.	0.	0.	1.	0.
61	2.	1.	1.	0.	0.	4.	2.	0.	3.	0.
71	4.	0.	2.	1.	1.	0.	2.	2.	2.	1.
81	0.	2.	0.	2.	1.	2.	1.	1.	3.	1.
91	0.	2.	2.	0.	1.	1.	0.	3.	1.	2.
101	2.	0.	2.	2.	3.	1.	1.	2.	5.	3.
111	1.	1.	0.	1.	4.	0.	3.	3.	4.	2.
121	1.	3.	2.	3.	1.	3.	2.	2.	4.	8.
131	3.	1.	5.	2.	2.	3.	4.	3.	5.	2.
141	3.	4.	2.	4.	4.	2.	3.	3.	6.	4.
151	6.	4.	5.	12.	3.	9.	8.	2.	5.	8.
161	6.	4.	6.	8.	4.	11.	9.	7.	11.	13.
171	11.	10.	11.	12.	16.	12.	10.	22.	20.	19.
181	20.	17.	18.	18.	23.	21.	25.	31.	24.	37.
191	51.	44.	40.	42.	40.	43.	61.	47.	42.	63.
201	49.	62.	49.	63.	65.	78.	80.	84.	86.	99.
211	97.	101.	114.	133.	146.	147.	153.	167.	189.	180.
221	216.	224.	253.	260.	275.	323.	329.	394.	386.	430.
231	527.	565.	614.	646.	745.	882.	870.	988.	1114.	1255.
241	1385.	1511.	1669.	1894.	1956.	2171.	2307.	2542.	2731.	2934.
251	2947.	3057.	3299.	3181.	3293.	2982.	2939.	2878.	2633.	2470.
261	2287.	1958.	1814.	1538.	1304.	1125.	944.	798.	650.	494.
271	435.	361.	250.	236.	150.	152.	107.	103.	68.	61.
281	48.	40.	33.	24.	26.	35.	36.	36.	24.	27.
291	45.	40.	40.	51.	46.	47.	60.	55.	60.	41.
301	72.	67.	53.	57.	45.	37.	42.	36.	37.	25.
311	37.	29.	30.	8.	10.	11.	7.	3.	8.	4.
321	7.	6.	2.	1.	1.	0.	2.	0.	0.	1.
331	0.	1.	0.	0.	0.	1.	0.	0.	0.	0.
341	0.	0.	0.	0.	0.	3.	0.	1.	0.	1.
351	1.	0.	0.	2.	4.	2.	1.	4.	3.	2.
361	4.	5.	2.	5.	2.	0.	4.	3.	2.	3.
371	3.	6.	2.	3.	0.	1.	2.	0.	0.	2.
381	1.	0.	1.	1.	0.	1.	0.	0.	0.	0.
391	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	1.	0.	0.	0.	1.	1.
431	0.	2.	0.	0.	1.	1.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
511	3.	0.								

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2413-SAM
File ID: 6a6235.CNF

Counted on: 9/25/95 @18:46
Detector: AEA6
Geometry number: 1
Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	78.6	78.6	299.916	299.916	20.000	10.928	10.000	1.854
2	4474.9	4474.9	254.127	254.124	16.000	9.327	8.000	2.842
3?	13.9	13.9	156.398	156.203	140.000	1.000	70.000	0.100

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.024	5.479	5.475	0.004	0.05	4.94	4.0	21.3	0.960E-05
	Pu238		5.487	5.475	0.012				27.8	0.125E-04
2	Am243	0.937	5.270	5.265	0.005	0.04	191.76	0.6	785.8	0.354E-03
3		????		4.814			1.11	8.7		
Totals:		0.961	<--valid peaks only-->				196.70			

DETECTOR CALIBRATION
Energy(MEV) = 4.096 + (0.0046)*Channel
Energy range (MeV): 4.096 TO 6.451
Efficiency = 0.2465 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	98234.0	100.000
Smoothed	98234.4	100.000
Composite fit	94952.3	96.659
Residuals	3281.7	3.341

Analyzed by: SEH

Spectrum 6a6235.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 32900.6

Raw Data Dump for AEA Spectrum: 6a6235.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
21	3.	1.	3.	1.	1.	1.	0.	0.	0.	0.
31	2.	0.	1.	1.	0.	0.	0.	2.	1.	2.
41	3.	0.	2.	2.	0.	1.	1.	2.	2.	0.
51	2.	2.	1.	1.	1.	2.	2.	1.	2.	2.
61	1.	3.	2.	1.	3.	0.	5.	2.	2.	4.
71	5.	0.	1.	1.	0.	4.	3.	3.	2.	0.
81	4.	2.	1.	2.	1.	3.	4.	4.	1.	2.
91	3.	6.	1.	2.	1.	4.	3.	2.	3.	5.
101	2.	1.	4.	3.	4.	3.	8.	5.	5.	7.
111	7.	4.	6.	2.	6.	7.	1.	3.	3.	3.
121	3.	4.	3.	7.	6.	7.	3.	3.	5.	10.
131	6.	9.	4.	5.	6.	6.	6.	11.	14.	9.
141	8.	6.	7.	5.	10.	8.	9.	14.	12.	10.
151	14.	14.	8.	14.	13.	19.	17.	15.	10.	12.
161	14.	15.	13.	16.	21.	17.	7.	16.	14.	18.
171	21.	20.	22.	25.	25.	33.	34.	33.	33.	37.
181	32.	47.	52.	41.	43.	44.	51.	43.	54.	50.
191	57.	62.	70.	67.	85.	86.	85.	100.	91.	114.
201	94.	112.	108.	121.	134.	144.	148.	164.	166.	196.
211	198.	221.	224.	242.	231.	270.	269.	293.	304.	334.
221	338.	382.	439.	422.	453.	510.	536.	604.	630.	670.
231	756.	794.	875.	920.	1074.	1098.	1297.	1355.	1424.	1603.
241	1727.	1964.	2097.	2287.	2575.	2854.	3053.	3394.	3626.	3992.
251	4325.	4569.	4650.	4868.	4711.	4480.	4020.	3338.	2657.	2070.
261	1504.	1070.	820.	653.	490.	443.	373.	334.	282.	232.
271	207.	162.	120.	79.	57.	38.	27.	20.	15.	16.
281	20.	28.	15.	23.	29.	33.	30.	39.	45.	38.
291	25.	57.	55.	66.	54.	70.	83.	77.	89.	82.
301	84.	78.	62.	68.	46.	40.	35.	28.	14.	12.
311	18.	9.	8.	4.	6.	3.	1.	0.	1.	1.
321	0.	1.	0.	0.	2.	2.	0.	0.	0.	0.
331	0.	0.	1.	1.	0.	0.	2.	0.	0.	1.
341	1.	1.	0.	0.	1.	0.	2.	1.	0.	1.
351	2.	1.	1.	2.	2.	0.	4.	3.	0.	5.
361	2.	3.	5.	4.	4.	4.	8.	8.	2.	6.
371	3.	4.	1.	1.	7.	1.	1.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	1.	0.	1.	1.	0.
431	0.	1.	0.	0.	0.	2.	0.	0.	0.	2.
441	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	1.	0.	0.	0.	1.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	1.	0.								

Em Baetz

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2413-DUP
File ID: 5a5024.CNF

Counted on: 9/25/95 @18:46
Detector: AEA5
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	66.9	66.9	302.195	302.195	20.000	17.298	10.000	0.254
2	3763.0	3763.0	256.314	256.311	22.000	17.795	11.000	6.307
3?	0.0	0.1	150.032	150.032	0.000	0.100	0.000	0.100

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am241	0.128	5.479	5.485	-.006	0.08	25.58	1.8	487.7	0.220E-03
	Pu238		5.487	5.485	0.002				636.7	0.287E-03
2	Pu239	0.917	5.147	5.269	-.122	0.08	182.55	0.7	3271.5	0.147E-02
	Am243		5.270	5.269	0.001				3304.6	0.149E-02
3		????		4.770			0.00	*****		
Totals:		1.045	<--valid peaks only-->				208.13			

DETECTOR CALIBRATION
Energy(MEV) = 4.065 + (0.0047)*Channel
Energy range (MeV): 4.065 TO 6.471
Efficiency = 0.0558 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	95596.0	100.000
Smoothed	95596.0	100.000
Composite fit	99907.7	104.510
Residuals	-4311.7	-4.510

Analyzed by: _____
SEH

WHC-SD-WM-DP-148, REV. 1

Spectrum 5a5024.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 26848.0

Raw Data Dump for AEA Spectrum: 5a5024.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	2.	1.	2.	3.
21	0.	1.	1.	0.	2.	2.	2.	1.	3.	0.
31	2.	1.	0.	0.	3.	0.	2.	1.	2.	0.
41	1.	3.	0.	0.	0.	2.	2.	2.	2.	1.
51	1.	3.	1.	1.	2.	1.	0.	2.	2.	0.
61	2.	1.	0.	0.	0.	2.	3.	1.	3.	0.
71	1.	2.	2.	4.	2.	0.	3.	1.	2.	2.
81	0.	1.	2.	2.	1.	1.	1.	4.	5.	1.
91	4.	5.	3.	1.	1.	2.	1.	2.	0.	3.
101	3.	3.	1.	3.	2.	5.	4.	2.	2.	3.
111	1.	3.	5.	5.	7.	8.	5.	6.	1.	3.
121	2.	6.	8.	1.	6.	4.	4.	5.	7.	8.
131	1.	6.	6.	6.	4.	9.	9.	9.	7.	11.
141	8.	12.	7.	13.	8.	7.	13.	13.	8.	20.
151	14.	11.	7.	12.	5.	11.	21.	12.	16.	11.
161	22.	21.	18.	22.	24.	21.	23.	18.	23.	27.
171	16.	22.	28.	25.	32.	26.	37.	27.	30.	39.
181	34.	40.	31.	26.	47.	34.	44.	54.	47.	57.
191	65.	50.	58.	69.	61.	62.	70.	64.	77.	83.
201	83.	103.	83.	93.	110.	98.	103.	113.	110.	126.
211	128.	131.	147.	139.	147.	171.	174.	163.	171.	210.
221	216.	226.	246.	261.	268.	277.	333.	322.	382.	410.
231	474.	534.	534.	560.	642.	771.	864.	928.	1050.	1149.
241	1300.	1484.	1561.	1822.	2044.	2171.	2460.	2697.	2970.	3156.
251	3331.	3523.	3840.	3799.	3980.	4077.	3909.	3810.	3611.	3390.
261	3188.	2792.	2534.	2112.	1756.	1529.	1198.	975.	785.	648.
271	528.	369.	328.	277.	201.	154.	124.	101.	87.	80.
281	45.	37.	28.	31.	36.	31.	28.	28.	28.	39.
291	31.	44.	54.	52.	54.	66.	64.	58.	69.	57.
301	72.	66.	75.	63.	65.	46.	43.	46.	46.	30.
311	35.	18.	23.	20.	18.	11.	12.	7.	6.	6.
321	1.	2.	1.	3.	1.	1.	1.	0.	1.	0.
331	0.	0.	1.	1.	0.	0.	0.	2.	1.	1.
341	0.	1.	1.	1.	2.	0.	1.	1.	0.	2.
351	4.	2.	0.	1.	1.	2.	3.	2.	3.	2.
361	2.	4.	4.	3.	6.	2.	8.	1.	1.	7.
371	4.	1.	4.	4.	7.	2.	1.	0.	6.	0.
381	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	1.	0.	0.	0.	0.	0.	1.	0.	0.
431	0.	0.	1.	0.	0.	1.	0.	0.	0.	1.
441	0.	0.	1.	0.	0.	1.	0.	1.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	1.	1.	0.	1.	0.	3.	1.	1.
481	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
511	0.	0.								

WHC-SD-WM-DP-148, REV. 0

LABCORE Completed Worklist Report for Worklist# 2499

Analyst: rwk Instrument: PU01 Book# 104643

Method: LA-943-127 Rev/Mod B-0 WHC-SD-WM-DP-148, REV. 1

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

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@PU23901 PU23901	LIQUID	1.28E-01	1.31E-1	102.340	% Recovery
1	STD		0		@PU23901 PU23901E	LIQUID	1.00	2.81E+00	2.810	% Ct. Error
1	STD		0		@PU23901 PU23901T	LIQUID	100	4.48E+01	44.800	% Recovery
2	BLNK		0		@PU23901 PU23901	LIQUID	1	<1.59E-5		uCi/mL
2	BLNK		0		@PU23901 PU23901T	LIQUID	100	3.85E+01	38.500	% Recovery
2	BLNK		0		@PU23901 PU23901E	LIQUID	1.00	1.00E+02	100.000	% Ct. Error
3	SAMPLE	S95T002411	0		@PU23901 PU23901	LIQUID	N/A	8.16E-05	1.170e-005	uCi/mL
3	SAMPLE	S95T002411	0		@PU23901 PU23901T	LIQUID	N/A	7.43E+01	1.000e-007	% Recovery
3	SAMPLE	S95T002411	0		@PU23901 PU23901E	LIQUID	N/A	3.17E+00	0.000	% Ct. Error
4	DUP	S95T002411	0		@PU23901 PU23901	LIQUID	8.16E-5	8.25E-5	1.100	RPD
4	DUP	S95T002411	0		@PU23901 PU23901T	LIQUID	100	7.62E+01	76.200	% Recovery
4	DUP	S95T002411	0		@PU23901 PU23901E	LIQUID	1.00	2.80E+00	2.800	% Ct. Error
5	SAMPLE	S95T002412	0		@PU23901 PU23901	LIQUID	N/A	4.96E-05	8.670e-006	uCi/mL
5	SAMPLE	S95T002412	0		@PU23901 PU23901T	LIQUID	N/A	8.85E+01	1.000e-007	% Recovery
5	SAMPLE	S95T002412	0		@PU23901 PU23901E	LIQUID	N/A	3.44E+00	0.000	% Ct. Error
6	DUP	S95T002412	0		@PU23901 PU23901	LIQUID	4.96E-5	4.80E-5	3.280	RPD
6	DUP	S95T002412	0		@PU23901 PU23901T	LIQUID	100	1.01E+02	101.000	% Recovery
6	DUP	S95T002412	0		@PU23901 PU23901E	LIQUID	1.00	3.26E+00	3.260	% Ct. Error
7	SAMPLE	S95T002413	0		@PU23901 PU23901	LIQUID	N/A	4.86E-05	1.410e-005	uCi/mL
7	SAMPLE	S95T002413	0		@PU23901 PU23901T	LIQUID	N/A	5.35E+01	1.000e-007	% Recovery
7	SAMPLE	S95T002413	0		@PU23901 PU23901E	LIQUID	N/A	4.47E+00	0.000	% Ct. Error
8	DUP	S95T002413	0		@PU23901 PU23901	LIQUID	4.86E-5	4.82E-5	0.830	RPD
8	DUP	S95T002413	0		@PU23901 PU23901T	LIQUID	100	8.07E+01	80.700	% Recovery
8	DUP	S95T002413	0		@PU23901 PU23901E	LIQUID	1.00	3.53E+00	3.530	% Ct. Error

Final page for worklist# 2499

Analyst Signature Date

Analyst Signature Date

20 Oct 95
Reviewer Signature Date

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

LABCORE Data Entry Template for Worklist# 2499

Analyst: RK Instrument: PU01 _____ Book# 104843

Method: LA-943-127 Rev/Mod B-0 WHC-SD-WM-DP-148, REV. 1

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

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@PU23901	LIQUID		
2	BLNK				@PU23901	LIQUID		
3	SAMPLE	S95T002411	0		@PU23901	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: PU23901 , PU23901E, PU23901T							
4	DUP	S95T002411	0		@PU23901	LIQUID		
5	SAMPLE	S95T002412	0		@PU23901	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: PU23901 , PU23901E, PU23901T							
6	DUP	S95T002412	0		@PU23901	LIQUID		
7	SAMPLE	S95T002413	0		@PU23901	LIQUID	95000135	AN-101 GRAB
	Analytes Requested: PU23901 , PU23901E, PU23901T							
8	DUP	S95T002413	0		@PU23901	LIQUID		

Final page for worklist # 2499

Analyst Signature 9/29/95 Date

Analyst Signature 10/2/95 Date

Data Entry Comments:

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

WORKBOOK PAGE: STD1

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID

Type					STD
STD	DATE COUNTED		SEP-29-95	PU 236 AEA FRAC (C236)	0.439
Work List	SAMPLE VOLUME in mL	SS	0.100	PU 238 AEA FRAC (C238)	0.000
2499	SAMPLE DILUTION FACTOR	DF	101.000	PU 239 AEA FRAC (C239)	0.564
Test Code	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	3608
@PU23901	DIGEST DILUTION FACTOR	DDF	1.000	AT COUNT TIME (MIN)	30
Matrix	TRACER BOOK NO		117B43	BACKGROUND in cpm (Bkg)	6.000
LIQUID	DETECTOR NUMBER		1	PU 236 cpm	17.970
Batch Number	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm	0.000
95002646	TRACER PREPARATION DATE		09/12/95	PU 239 cpm	23.070
Rerun	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME	480
0	PU-236 DECAY CORR'D VALUE (dpm/mL)		2239.505	Pu 239/240 µCi/L	1.3090E+02
Sample Prep	PU-238 TRACER VALUE (dpm/mL		0.000		
N/A	STANDARD BOOK NO		104B43		
Sample #	STANDARD VALUE in µCi/mL		0.128		
WRKLST#2499					
Instrument Code	Decay Time = Date Counted - Tracer Preparation Date				
AL10539	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of ((-ln2 * Decay Time/1040.95)]				
Prepared By	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg)* 1/EFF *C236*100/Pu-236 Decay Corr'd Value * SPKV				
MCB	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(2220000 dpm/µCi)]				
Chemist	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)				
LLF	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]				
Analyst	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100				
RWK					
Date Complete	v RESULTS v				
10/02/95	Pu 239/240 µCi/mL		1.31E-01	DETECTION LEVELS in µCi/mL	
Analysis Date	Relative Counting Error	=	2.8%		
09/29/95				Pu 239/240	
Analysis Time				1.55E-02	
06:00 AM					
Sample Point					
AN-101 GRAB	Pu 236 Tracer Recovery	=	44.8%		

Analyst:	RWK	Date:	02-Oct-95
Signature of Chemist:	LLF	Date:	2 Oct 95

STANDARD WB1 REV 1.2 943127ML

WHC-SD-WM-DP-148, REV. 1 WHC-SD-WM-DP-148, REV. 0

WORKBOOK PAGE: BLANK2

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

						BLNK
Type	DATE COUNTED		SEP-29-95	PU 236 AEA FRAC	(C236)	0.986
BLNK	SAMPLE VOLUME in mL	SS	0.500	PU 238 AEA FRAC	(C238)	0.000
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.000
2499	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		1403
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm (Bkg)		3.000
Matrix	DETECTOR NUMBER		2	PU 236 cpm		14.990
LIQUID	EFFICIENCY FACTOR	EFF	0.5000	PU 238 cpm		0.000
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		0.000
95002646	TRACER PREPARATION VALUE (dpm/mL)		2265.00	AEA COUNT TIME		480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		2239.50	Pu 239/240 µCi/L =	<	1.593E-02
0	PU-238 TRACER VALUE (dpm/mL)		0.00			

Sample Prep	
N/A	
Sample #	Decay Time = Date Counted - Tracer Preparation Date
WRKLST#2499	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)}
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg)*C236*100/(Pu-236 Decay Corr'd Value * SPKV*EFF)
AL10540	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
MCB	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
LLF	
Analyst	
RWK	
Date Complete	v RESULTS v

10/02/95	Pu 239/240 µCi/mL	<	1.59E-05	DETECTION LEVELS in µCi/mL
Analysis Date	Relative Counting Error	=	100.0%	
09/29/95				
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.			Pu 239/240
06:00 AM	Pu 238 µCimL	<	1.59E-05	1.59E-05
Sample Point	Relative Counting Error	=	100.0%	Pu 238
AN-101 GRAB	Pu 236 Tracer Recovery	=	38.5%	1.59E-05

Analyst:	RWK	Date:	02-Oct-95
Signature of Chemist:	LLF	Date:	2 Oct 95

BLANK.WB1 REV 1.2 943127ML

WHC-SD-WM-DP-148, REV. L

WHC-SD-WM-DP-148, REV. 0

WORKBOOK PAGE: SAM3

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

						SAMPLE
Type	DATE COUNTED		SEP-29-95	PU 236 AEA FRAC	(C236)	0.697
SAMPLE	SAMPLE VOLUME in mL	SS	0.500	PU 238 AEA FRAC	(C238)	0.049
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.282
2499	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		3699
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)	4.000
Matrix	DETECTOR NUMBER		3	PU 236 cpm		27.600
LIQUID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm		1.920
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		11.160
95002646	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME		480
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		2239.505	Pu 239/240 µCi/L		8.1629E-02
0	PU-238 TRACER VALUE (dpm/mL)		0.000			

Sample Prep
N/A
Sample #
S95T002411
Instrument Code
AL10541
Prepared By
MCB
Chemist
LLF
Analyst
RWK
Date Complete
10/02/95
Analysis Date
09/29/95
Analysis Time
06:00 AM
Sample Point
AN-101 GRAB

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of ((-ln2 * Decay Time/1040.95)]

Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)

Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)

Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]

Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

v RESULTS v

Pu 239/240 µCi/mL		8.16E-05	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	3.2%	
			Pu 239/240
Pu 238 µCi/mL		1.42E-05	1.17E-05
Relative Counting Error	=	6.7%	Pu 238
Pu 236 Tracer Recovery	=	74.3%	1.17E-05

Analyst:	RWK	Date:	02-Oct-95
Signature of Chemist:	LLF	Date:	2 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

WORKBOOK PAGE: DUP4

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

Type						DUP
DUP	DATE COUNTED		SEP-29-95	PU 236 AEA FRAC	(C236)	0.702
Work List	SAMPLE VOLUME in mL	SS	0.500	PU 238 AEA FRAC	(C238)	0.044
2499	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.287
Test Code	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		3767
@PU23901	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
Matrix	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)	4.000
LIQUID	DETECTOR NUMBER		3	PU 236 cpm		35.160
Batch Number	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm		2.210
95002646	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		14.380
Rerun	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME		480
0	PU-236 DECAY CORR'D VALUE (dpm/mL)		2239.505	Pu 239/240 µCi/L		8.2485E-02
Sample Prep	PU-238 TRACER VALUE (dpm/mL)		0.000			
N/A						

Sample #: S95T002411
Instrument Code: AL10541
Prepared By: MCB
Chemist: LLF
Analyst: RWK
Date Complete: 10/02/95
Analysis Date: 09/29/95
Analysis Time: 06:00 AM
Sample Point: AN-101 GRAB

Decay Time = Date Counted - Tracer Preparation Date
Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]
Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)
Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

v RESULTS v

			DETECTION LEVELS In µCi/mL
Pu 239/240 µCi/mL		8.25E-05	
Relative Counting Error	=	2.8%	
			Pu 239/240
Pu 238 µCi/mL		1.26E-05	1.13E-05
Relative Counting Error	=	6.2%	Pu 238
Pu 236 Tracer Recovery	=	76.2%	1.13E-05

Analyst: RWK Date: 02-Oct-95

Signature of Chemist: [signature] LLF Date: 2 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

WORKBOOK PAGE: SAM5

WHC-SD-WM-DP-148, REV. 0

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

Type					SAMPLE
SAMPLE	DATE COUNTED		SEP-29-95	PU 236 AEA FRAC (C236)	0.789
Work List	SAMPLE VOLUME in mL	SS	0.500	PU 238 AEA FRAC (C238)	0.057
2499	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.194
Test Code	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	3946
@PU23901	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
Matrix	TRACER BOOK NO		117B43	BACKGROUND in cpm (Bkg)	6.000
LIQUID	DETECTOR NUMBER		1	PU 236 cpm	34.190
Batch Number	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm	2.470
95002646	TRACER PREPARATION DATE		09/12/95	PU 239 cpm	8.420
Rerun	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME	480
0	PU-236 DECAY CORR'D VALUE (dpm/mL)		2239.505	Pu 239/240 µCi/L	4.9608E-02
	PU-238 TRACER VALUE (dpm/mL)		0.000		

Sample Prep	
N/A	
Sample #	Decay Time = Date Counted - Tracer Preparation Date
S95T002412	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)
AL10539	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
MCB	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
LLF	
Analyst	
RWK	
Date Complete	v RESULTS v

10/02/95	Pu 239/240 µCi/mL		4.96E-05	DETECTION LEVELS in µCi/mL
Analysis Date	Relative Counting Error	=	3.4%	
09/29/95				Pu 239/240
Analysis Time				8.67E-06
06:00 AM	Pu 238 µCimL		1.46E-05	Pu 238
Sample Point	Relative Counting Error	=	5.9%	8.67E-06
AN-101 GRAB	Pu 236 Tracer Recovery	=	88.5%	

Analyst:	RWK	Date:	02-Oct-95
Signature of Chemist:	LLF	Date:	2 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

WHC-SD-WM-DP-148, REV. 0

WORKBOOK PAGE: DUP6

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

Type	DATE COUNTED		SEP-29-95	PU 236 AEA FRAC (C236)	DUP
DUP	SAMPLE VOLUME in mL	SS	0.500	PU 238 AEA FRAC (C238)	0.794
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.058
2499	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	0.189
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	4355
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm (Bkg)	30
Matrix	DETECTOR NUMBER		2	PU 236 cpm	3.000
LIQUID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm	39.150
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm	2.870
95002646	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME	9.320
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)		2239.505	Pu 239/240 µCi/L	480
0	PU-238 TRACER VALUE (dpm/mL)		0.000		4.8025E-02

Sample Prep
N/A

Sample #
S95T002412

Instrument Code
AL10540

Prepared By
MCB

Chemist
LLF

Analyst
RWK

Date Complete
10/02/95

Analysis Date
09/29/95

Analysis Time
06:00 AM

Sample Point
AN-101 GRAB

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)}]

Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)

Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)

Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]

Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

v RESULTS v

			DETECTION LEVELS in µCi/mL
Pu 239/240 µCi/mL		4.80E-05	
Relative Counting Error	=	3.3%	
			Pu 239/240
Pu 238 µCimL		1.47E-05	7.62E-06
Relative Counting Error	=	5.5%	Pu 238
Pu 236 Tracer Recovery	=	100.8%	7.62E-06

Analyst:	RWK	Date:	02-Oct-95
Signature of Chemist:	LLF	Date:	2 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

WHC-SD-WM-DP-148, REV. 1

WHC-SD-WM-DP-148, REV. 0

WORKBOOK PAGE: SAM7

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

Type					SAMPLE
SAMPLE	DATE COUNTED		SEP-29-95	PU 236 AEA FRAC (C236)	0.805
Work List	SAMPLE VOLUME in mL	SS	0.500	PU 238 AEA FRAC (C238)	0.053
2499	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.194
Test Code	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	2323
@PU23901	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
Matrix	TRACER BOOK NO		117B43	BACKGROUND in cpm (Bkg)	3.000
LIQUID	DETECTOR NUMBER		2	PU 236 cpm	20.660
Batch Number	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm	1.370
95002646	TRACER PREPARATION DATE		09/12/95	PU 239 cpm	4.970
Rerun	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME	480
0	PU-236 DECAY CORR'D VALUE (dpm/mL)		2239.505	Pu 239/240 µCi/L	4.8622E-02
Sample Prep	PU-238 TRACER VALUE (dpm/mL)		0.000		
N/A					

Sample #	Decay Time = Date Counted - Tracer Preparation Date
S95T002413	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of {(-ln2 * Decay Time/1040.95)]
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)
AL10540	Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)
MCB	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]
Chemist	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100
LLF	
Analyst	
RWK	

v RESULTS v

Date Complete				DETECTION LEVELS in µCi/mL
10/02/95	Pu 239/240 µCi/mL		4.86E-05	
Analysis Date	Relative Counting Error	=	4.5%	
09/29/95				
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.			Pu 239/240
06:00 AM	Pu 238 µCi/mL		< 1.41E-05	1.41E-05
Sample Point	Relative Counting Error	=	7.9%	
AN-101 GRAB	Pu 236 Tracer Recovery	=	53.5%	Pu 238
				1.41E-05

Analyst:	RWK	Date:	02-Oct-95
Signature of Chemist:	LLF	Date:	2 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

WORKBOOK PAGE: DUP8

Pu 238 and 239/240 : LA-943-127 (B-0) LIQUID / SOLID

Type						DUP
DUP	DATE COUNTED		SEP-29-95	PU 236 AEA FRAC	(C236)	0.782
Work List	SAMPLE VOLUME in mL	SS	0.500	PU 238 AEA FRAC	(C238)	0.061
2499	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC	(C239)	0.187
Test Code	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS		3585
@PU23901	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)		30
Matrix	TRACER BOOK NO		117B43	BACKGROUND in cpm	(Bkg)	4.000
LIQUID	DETECTOR NUMBER		3	PU 236 cpm		33.280
Batch Number	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm		2.610
95002646	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		7.960
Rerun	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME		480
0	PU-236 DECAY CORR'D VALUE (dpm/mL)		2239.505	Pu 239/240 µCi/L		4.8246E-02
	PU-238 TRACER VALUE (dpm/mL)		0.000			

Sample Prep
N/A
Sample #
S95T002413
Instrument Code
AL10541
Prepared By
MCB
Chemist
LLF
Analyst
RWK
Date Complete
10/02/95
Analysis Date
09/29/95
Analysis Time
06:00 AM
Sample Point
AN-101 GRAB

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value *[e to the power of ((-ln2 * Decay Time/1040.95)]

Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) *C236*100/(Pu-236 Decay Corr'd Value * SPKV * EFF)

Pu 239/240 µCi/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/µCi)]

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)

Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]

Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

v RESULTS v

Pu 239/240 µCi/mL		4.82E-05	DETECTION LEVELS in µCi/mL
Relative Counting Error	=	3.5%	
			Pu 239/240
Pu 238 µCimL		1.57E-05	9.60E-06
Relative Counting Error	=	5.8%	Pu 238
Pu 236 Tracer Recovery	=	80.7%	9.60E-06

Analyst:	RWK	Date:	02-Oct-95
Signature of Chemist:	LLF	Date:	2 Oct 95

SAMPLE.WB1 REV 1.2 943127ML

WHC-SD-WM-DP-148, REV. 0
Westinghouse Hanford Co.

Raymond 9.29.95

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

DATA REDUCTION REPORT

SAMPLE
WORKLIST#2499
File ID: 19a1915.CNF

Counted on: 9/29/95 @11:50
Detector: AEA19
Geometry number: 1
Count time: 28808. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	680.1	680.1	361.917	361.917	10.000	3.014	5.000	1.389
2?	10.8	10.8	304.602	304.513	12.000	2.421	6.000	1.094
3	972.6	972.6	230.039	230.039	12.000	3.740	6.000	2.416

PEAK RESULTS
Peak Error Limit: 30%

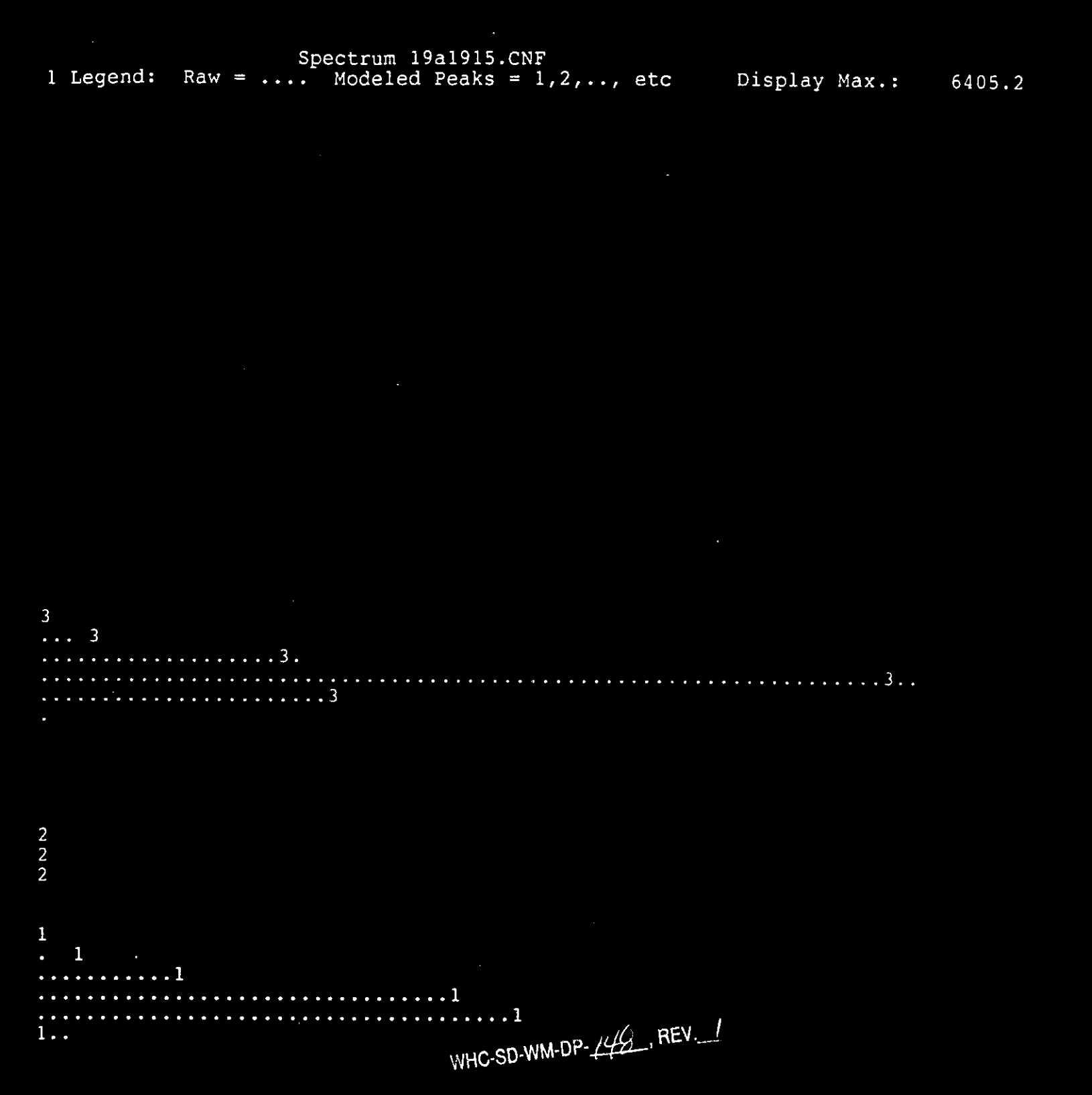
Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.439	5.755	5.750	0.005	0.01	17.97	2.1	1002.2	0.451E-03
2		????		5.486			0.28	17.9		
3	Pu239	0.564	5.147	5.143	0.004	0.02	23.07	1.9	1260.7	0.568E-03
	Pu240		5.144	5.143	0.001				1260.7	0.568E-03
Totals:		1.003	<--valid peaks only-->				41.04			

DETECTOR CALIBRATION
Energy(MEV) = 4.085 + (0.0046)*Channel
Energy range (MeV): 4.085 TO 6.440
Efficiency = 0.0183 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	19644.0	100.000
Smoothed	19644.0	100.000
Composite fit	19838.9	100.992
Residuals	-194.9	-0.992

Analyzed by: ALJ


Spectrum 19a1915.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 6405.2

Raw Data Dump for AEA Spectrum: 19a1915.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.
21	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
31	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.
41	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	1.	0.	0.	0.	0.	1.	0.	1.
91	0.	1.	0.	1.	1.	0.	0.	0.	0.	0.
101	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
111	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
121	0.	0.	0.	0.	0.	0.	1.	0.	1.	1.
131	0.	1.	0.	0.	2.	0.	1.	0.	0.	0.
141	1.	0.	0.	0.	1.	2.	1.	1.	1.	0.
151	0.	2.	0.	0.	0.	2.	1.	0.	0.	1.
161	0.	0.	0.	0.	0.	0.	1.	0.	0.	2.
171	0.	0.	1.	0.	3.	2.	0.	0.	1.	1.
181	0.	0.	1.	0.	0.	0.	2.	1.	1.	0.
191	1.	0.	1.	2.	1.	1.	3.	2.	6.	1.
201	3.	1.	0.	4.	4.	4.	4.	7.	10.	18.
211	29.	41.	43.	55.	67.	102.	110.	152.	198.	246.
221	294.	322.	353.	466.	543.	682.	809.	997.	1074.	1126.
231	1125.	970.	640.	366.	132.	55.	17.	4.	0.	0.
241	0.	0.	1.	0.	0.	1.	0.	2.	0.	0.
251	0.	0.	1.	1.	1.	1.	2.	0.	0.	1.
261	0.	0.	1.	0.	0.	1.	0.	0.	1.	0.
271	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.
281	0.	0.	1.	0.	0.	0.	0.	2.	3.	1.
291	4.	0.	1.	4.	10.	9.	3.	5.	8.	6.
301	8.	9.	7.	17.	11.	11.	10.	5.	2.	0.
311	0.	0.	1.	0.	0.	0.	0.	3.	1.	0.
321	0.	1.	1.	1.	0.	1.	3.	5.	2.	0.
331	2.	2.	1.	7.	1.	3.	3.	5.	8.	9.
341	12.	19.	36.	41.	57.	59.	91.	139.	178.	207.
351	263.	328.	321.	354.	336.	335.	352.	460.	562.	617.
361	742.	813.	796.	640.	362.	130.	27.	6.	1.	0.
371	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Raymond 9.29.95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
WORKLIST#2499-BL
File ID: 20a2020.CNF

Counted on: 9/29/95 @11:50
Detector: AEA20
Geometry number: 1
Count time: 28807. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	692.7	692.7	362.937	362.937	10.000	2.454	5.000	1.502

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.986	5.755	5.751	0.004	0.01	14.99	2.3	152.7	0.688E-04
Totals:		0.986	<--valid peaks only-->				14.99			

DETECTOR CALIBRATION
Energy(MEV) = 4.081 + (0.0046)*Channel
Energy range (MeV): 4.081 TO 6.437
Efficiency = 0.1002 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	7297.0	100.000
Smoothed	7297.0	99.999
Composite fit	7198.0	98.643
Residuals	99.0	1.357

Analyzed by: ALJ

WHC-SD-WM-DP-148, REV.1

Spectrum 20a2020.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 3876.7
1
.....1.
.....1
.....1
.1....

Raw Data Dump for AEA Spectrum: 20a2020.CNF

1	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
11	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
31	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	1.	1.	0.	1.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
81	0.	0.	1.	0.	1.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
101	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
111	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
121	0.	0.	0.	0.	0.	0.	2.	0.	1.	0.
131	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
141	0.	0.	0.	0.	1.	1.	0.	1.	0.	1.
151	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
161	0.	0.	0.	0.	0.	2.	0.	0.	1.	0.
171	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
181	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
191	0.	1.	0.	0.	0.	0.	0.	0.	1.	1.
201	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
211	0.	0.	0.	0.	1.	0.	0.	1.	0.	4.
221	0.	2.	2.	1.	1.	0.	2.	1.	1.	2.
231	2.	2.	2.	1.	0.	1.	0.	0.	0.	0.
241	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
251	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
261	0.	0.	1.	0.	2.	0.	0.	0.	1.	0.
271	0.	2.	0.	0.	0.	0.	0.	1.	0.	1.
281	1.	0.	1.	1.	0.	0.	1.	2.	1.	0.
291	0.	1.	1.	0.	1.	1.	0.	2.	3.	0.
301	4.	0.	4.	3.	4.	3.	0.	1.	1.	1.
311	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
321	0.	0.	0.	0.	0.	1.	0.	1.	2.	1.
331	4.	1.	1.	2.	1.	1.	1.	1.	7.	5.
341	5.	6.	8.	13.	17.	26.	36.	53.	73.	113.
351	151.	206.	311.	272.	268.	212.	238.	272.	324.	444.
361	635.	756.	907.	838.	592.	287.	74.	13.	2.	1.
371	1.	1.	2.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Raymond 9.29.95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2411-SAM
File ID: 21a2128.CNF

Counted on: 9/29/95 @11:51
Detector: AEA21
Geometry number: 1
Count time: 28810. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	882.7	882.7	359.951	359.951	12.000	3.975	6.000	1.514
2	64.0	64.0	302.065	301.976	12.000	3.826	6.000	1.539
3	397.9	397.9	227.949	227.949	12.000	4.876	6.000	2.537

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Peak Centroid Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.697	5.755	5.749	0.006	0.02	27.60	1.7	258.4	0.116E-03
2	Pu238	0.049	5.487	5.482	0.005	0.02	1.92	6.7	24.5	0.110E-04
	Am241		5.479	5.482	-.003				18.8	0.846E-05
3	Pu239	0.282	5.147	5.141	0.006	0.02	11.16	2.7	102.4	0.461E-04
	Pu240		5.144	5.141	0.003				102.4	0.461E-04
Totals:		1.027	<--valid peaks only-->				40.68			

DETECTOR CALIBRATION
Energy(MEV) = 4.093 + (0.0046)*Channel
Energy range (MeV): 4.093 TO 6.448
Efficiency = 0.1090 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	19013.0	100.000
Smoothed	19012.8	99.999
Composite fit	19532.8	102.734
Residuals	-519.8	-2.734

Analyzed by: ALJ

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

Spectrum 21a2128.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 5568.5

Raw Data Dump for AEA Spectrum: 21a2128.CNF

1	0.	0.	0.	0.	0.	0.	1.	0.	1.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
41	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.
51	0.	1.	1.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
71	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	1.	0.	0.	1.	0.	0.	0.	0.	0.
101	0.	0.	0.	0.	0.	0.	3.	0.	0.	0.
111	0.	0.	0.	0.	1.	1.	0.	0.	0.	0.
121	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
131	0.	1.	0.	0.	0.	0.	1.	1.	1.	0.
141	0.	0.	0.	1.	1.	0.	2.	2.	1.	1.
151	0.	1.	1.	0.	1.	1.	0.	0.	0.	1.
161	2.	0.	1.	1.	1.	0.	1.	0.	0.	0.
171	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
181	0.	0.	1.	1.	0.	2.	0.	1.	0.	0.
191	2.	1.	2.	2.	2.	2.	1.	1.	5.	6.
201	2.	3.	9.	5.	10.	14.	10.	18.	18.	22.
211	35.	47.	43.	69.	79.	99.	118.	122.	160.	180.
221	198.	248.	270.	315.	375.	414.	424.	455.	423.	395.
231	297.	221.	98.	57.	21.	8.	2.	0.	0.	0.
241	0.	0.	0.	1.	1.	0.	0.	1.	0.	0.
251	0.	2.	1.	0.	1.	1.	1.	0.	0.	0.
261	0.	0.	0.	0.	1.	0.	1.	0.	0.	1.
271	1.	0.	0.	3.	0.	0.	0.	1.	1.	0.
281	3.	4.	9.	5.	9.	14.	13.	10.	13.	17.
291	32.	29.	30.	43.	43.	47.	49.	60.	64.	60.
301	72.	77.	65.	64.	65.	37.	9.	0.	1.	1.
311	1.	0.	0.	1.	0.	0.	0.	4.	0.	2.
321	3.	1.	0.	2.	3.	3.	6.	4.	2.	2.
331	10.	11.	13.	10.	15.	13.	28.	36.	54.	62.
341	66.	75.	109.	156.	195.	224.	268.	360.	376.	451.
351	584.	576.	578.	578.	592.	686.	717.	875.	928.	1011.
361	969.	883.	608.	372.	145.	24.	1.	0.	1.	1.
371	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Raymond 9.29.95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2411-DUP
File ID: 22a2277.CNF

Counted on: 9/29/95 @11:52
Detector: AEA22
Geometry number: 1
Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1093.8	1093.8	362.142	362.142	12.000	3.760	6.000	1.343
2	75.5	75.5	303.338	303.246	12.000	3.334	6.000	1.340
3	485.8	485.8	228.778	228.778	12.000	5.011	6.000	2.352

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.702	5.755	5.761	-.006	0.02	35.16	1.5	4429.5	0.200E-02
	Cm243		5.779	5.761	0.018				5946.5	0.268E-02
2	Pu238	0.044	5.487	5.490	-.003	0.02	2.21	6.3	378.7	0.171E-03
	Am241		5.479	5.490	-.011				290.1	0.131E-03
3	Pu239	0.287	5.147	5.147	0.000	0.02	14.38	2.4	1774.8	0.799E-03
	Pu240		5.144	5.147	-.003				1774.8	0.799E-03
Totals:		1.033	<--valid peaks only-->				51.75			

DETECTOR CALIBRATION
Energy(MEV) = 4.095 + (0.0046)*Channel
Energy range (MeV): 4.095 TO 6.450
Efficiency = 0.0081 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	24057.0	100.000
Smoothed	24056.3	99.997
Composite fit	24842.4	103.265
Residuals	-785.4	-3.265

Analyzed by: ALJ

Spectrum 22a2277.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 6319.8

Raw Data Dump for AEA Spectrum: 22a2277.CNF

1	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
11	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.
51	0.	0.	1.	0.	0.	1.	0.	0.	0.	0.
61	0.	1.	0.	0.	0.	0.	0.	0.	1.	0.
71	0.	0.	1.	0.	0.	0.	1.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
91	0.	2.	0.	0.	0.	1.	0.	1.	0.	0.
101	0.	0.	0.	0.	0.	0.	0.	1.	1.	0.
111	1.	0.	1.	0.	0.	0.	0.	0.	1.	1.
121	0.	2.	1.	1.	0.	1.	0.	1.	1.	0.
131	0.	0.	0.	1.	0.	1.	1.	0.	0.	0.
141	1.	0.	1.	1.	2.	1.	0.	2.	2.	2.
151	0.	2.	1.	0.	3.	0.	0.	0.	1.	0.
161	0.	1.	0.	0.	1.	1.	1.	0.	1.	0.
171	0.	1.	0.	0.	1.	1.	0.	0.	0.	0.
181	1.	1.	2.	0.	0.	2.	0.	1.	1.	0.
191	0.	1.	0.	1.	0.	4.	3.	2.	2.	4.
201	4.	7.	3.	8.	12.	16.	18.	30.	14.	30.
211	41.	52.	65.	82.	91.	100.	153.	141.	193.	218.
221	263.	291.	310.	376.	462.	404.	514.	526.	558.	482.
231	490.	374.	237.	115.	65.	13.	4.	2.	0.	0.
241	1.	1.	1.	0.	0.	1.	1.	1.	3.	3.
251	3.	4.	3.	0.	3.	3.	3.	4.	2.	0.
261	0.	0.	0.	0.	2.	0.	0.	0.	2.	1.
271	2.	1.	1.	0.	0.	0.	2.	3.	2.	1.
281	2.	1.	1.	6.	6.	9.	13.	12.	20.	18.
291	18.	34.	36.	55.	40.	45.	50.	56.	61.	76.
301	64.	79.	100.	76.	76.	82.	39.	16.	5.	0.
311	1.	0.	2.	2.	1.	0.	2.	1.	1.	1.
321	3.	2.	1.	2.	5.	3.	3.	4.	5.	6.
331	7.	12.	10.	11.	11.	18.	23.	32.	33.	44.
341	67.	74.	90.	116.	153.	192.	276.	283.	340.	467.
351	506.	618.	676.	755.	715.	731.	712.	854.	933.	1045.
361	1121.	1226.	1234.	1147.	842.	455.	146.	28.	4.	1.
371	1.	2.	0.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Raymond 9.29.95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2412-SAM
File ID: 23a2378.CNF

Counted on: 9/29/95 @11:52
Detector: AEA23
Geometry number: 1
Count time: 28809. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1135.4	1135.4	361.722	361.722	10.000	3.456	5.000	1.337
2	84.8	84.8	303.256	303.204	12.000	3.297	6.000	1.325
3	303.1	303.1	229.269	229.269	12.000	4.164	6.000	2.016

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.789	5.755	5.755	0.000	0.02	34.19	1.5	2684.0	0.121E-02
2	Pu238	0.057	5.487	5.486	0.001	0.02	2.47	5.9	264.3	0.119E-03
	Am241		5.479	5.486	-.007				202.4	0.912E-04
3	Pu239	0.194	5.147	5.145	0.002	0.02	8.42	3.1	647.5	0.292E-03
	Pu240		5.144	5.145	-.001				647.5	0.292E-03
Totals:		1.040	<--valid peaks only-->				45.08			

DETECTOR CALIBRATION
Energy(MEV) = 4.091 + (0.0046)*Channel
Energy range (MeV): 4.091 TO 6.446
Efficiency = 0.0130 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	20808.0	100.000
Smoothed	20808.0	100.000
Composite fit	21647.5	104.034
Residuals	-839.5	-4.034

Analyzed by: ALJ

Spectrum 23a2378.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 6055.4

Raw Data Dump for AEA Spectrum: 23a2378.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.
31	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
71	0.	0.	0.	0.	1.	0.	0.	0.	1.	0.
81	0.	0.	0.	1.	0.	0.	0.	0.	0.	1.
91	1.	1.	0.	0.	0.	0.	0.	1.	0.	0.
101	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
111	0.	1.	0.	0.	0.	0.	2.	0.	0.	0.
121	0.	0.	1.	0.	0.	0.	1.	1.	0.	0.
131	0.	0.	0.	0.	2.	0.	0.	0.	1.	1.
141	1.	0.	0.	2.	3.	4.	2.	1.	0.	1.
151	0.	0.	1.	1.	0.	1.	1.	1.	1.	1.
161	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
181	1.	1.	0.	0.	0.	0.	1.	1.	1.	0.
191	0.	1.	0.	1.	1.	2.	1.	1.	3.	2.
201	3.	3.	4.	3.	5.	10.	3.	10.	8.	13.
211	29.	15.	34.	45.	48.	53.	58.	97.	118.	110.
221	148.	154.	191.	217.	220.	241.	288.	301.	356.	346.
231	311.	238.	140.	81.	37.	15.	2.	0.	0.	1.
241	2.	2.	0.	0.	2.	0.	0.	1.	0.	1.
251	2.	1.	3.	2.	1.	0.	3.	2.	1.	0.
261	1.	0.	0.	0.	0.	1.	1.	2.	1.	0.
271	1.	0.	1.	0.	0.	2.	2.	1.	1.	1.
281	1.	4.	4.	3.	1.	15.	14.	11.	17.	23.
291	26.	33.	48.	49.	54.	54.	54.	58.	64.	77.
301	80.	82.	108.	88.	92.	72.	41.	13.	4.	0.
311	0.	0.	2.	0.	0.	2.	2.	0.	0.	4.
321	1.	1.	4.	3.	4.	1.	4.	6.	2.	9.
331	6.	3.	7.	16.	14.	19.	26.	18.	29.	34.
341	51.	60.	72.	100.	132.	191.	236.	275.	392.	458.
351	535.	627.	642.	707.	621.	670.	755.	878.	996.	1124.
361	1210.	1306.	1268.	1064.	679.	240.	38.	11.	0.	0.
371	1.	1.	2.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
431	0.	0.	0.	0.	1.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Raymond 9.29.95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2412-DUP
File ID: 24a2467.CNF

Counted on: 9/29/95 @11:53
Detector: AEA24
Geometry number: 1
Count time: 28807. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1255.9	1255.9	361.613	361.613	10.000	3.705	5.000	1.385
2	95.9	95.9	303.776	303.671	10.000	3.189	5.000	1.214
3	325.8	325.8	229.725	229.725	12.000	4.727	6.000	2.308

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.794	5.755	5.742	0.013	0.02	39.15	1.4	1997.7	0.900E-03
2	Pu238	0.058	5.487	5.476	0.011	0.01	2.87	5.5	199.4	0.898E-04
	Am241		5.479	5.476	0.003				152.7	0.688E-04
3	Pu239	0.189	5.147	5.136	0.011	0.02	9.32	2.9	466.0	0.210E-03
	Pu240		5.144	5.136	0.008				466.0	0.210E-03
Totals:		1.041	<--valid peaks only-->				51.35			

DETECTOR CALIBRATION
Energy(MEV) = 4.079 + (0.0046)*Channel
Energy range (MeV): 4.079 TO 6.434
Efficiency = 0.0200 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	23673.0	100.000
Smoothed	23673.0	100.000
Composite fit	24651.8	104.135
Residuals	-978.8	-4.135

Analyzed by: ALJ

Spectrum 24a2467.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 6968.3

Raw Data Dump for AEA Spectrum: 24a2467.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.
11	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
21	1.	0.	0.	1.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.
41	0.	0.	0.	1.	0.	0.	0.	1.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
71	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
81	1.	0.	0.	0.	0.	0.	1.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.
101	0.	1.	0.	0.	0.	0.	1.	1.	0.	0.
111	0.	0.	1.	0.	2.	0.	0.	2.	0.	0.
121	1.	0.	0.	0.	1.	1.	0.	0.	0.	0.
131	0.	1.	0.	0.	0.	0.	0.	1.	1.	3.
141	0.	1.	0.	0.	0.	2.	1.	0.	3.	4.
151	2.	1.	1.	0.	1.	2.	0.	1.	0.	1.
161	2.	0.	0.	0.	0.	0.	1.	1.	0.	0.
171	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
181	0.	0.	2.	0.	1.	0.	0.	0.	0.	1.
191	0.	0.	0.	1.	3.	3.	1.	3.	0.	2.
201	2.	1.	2.	3.	5.	6.	5.	5.	12.	17.
211	21.	25.	27.	56.	44.	52.	68.	73.	107.	122.
221	140.	175.	175.	229.	256.	256.	320.	330.	367.	359.
231	344.	334.	213.	137.	64.	42.	5.	2.	0.	0.
241	0.	0.	0.	2.	2.	0.	2.	2.	2.	0.
251	2.	2.	1.	1.	5.	2.	5.	4.	3.	4.
261	0.	0.	0.	0.	1.	0.	1.	0.	0.	1.
271	1.	0.	0.	4.	0.	1.	2.	2.	3.	2.
281	4.	3.	6.	9.	7.	9.	18.	17.	28.	27.
291	22.	27.	40.	38.	63.	69.	74.	67.	55.	82.
301	105.	95.	99.	117.	98.	109.	58.	26.	5.	1.
311	3.	0.	2.	0.	1.	2.	3.	1.	1.	2.
321	3.	2.	4.	5.	2.	1.	3.	4.	7.	4.
331	14.	7.	12.	16.	14.	19.	25.	29.	35.	55.
341	61.	93.	119.	151.	169.	207.	263.	345.	408.	459.
351	585.	690.	791.	829.	786.	824.	865.	998.	1121.	1272.
361	1366.	1421.	1365.	1190.	745.	291.	56.	9.	3.	1.
371	1.	1.	0.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Raymond 9.29.95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2413-SAM
File ID: 25a2570.CNF

Counted on: 9/29/95 @11:54
Detector: AEA25
Geometry number: 1
Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	553.4	553.4	360.403	360.403	10.000	4.449	5.000	1.318
2	41.4	41.4	302.351	302.121	12.000	3.585	6.000	1.210
3	150.1	150.1	228.135	228.134	14.000	6.004	7.000	2.453

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Peak Centroid Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.805	5.755	5.747	0.008	0.02	20.66	2.0	1121.4	0.505E-03
2	Pu238	0.053	5.487	5.479	0.008	0.02	1.37	8.6	101.0	0.455E-04
	Am241		5.479	5.479	0.000				77.4	0.349E-04
3	Pu239	0.194	5.147	5.139	0.008	0.03	4.97	4.0	264.6	0.119E-03
	Pu240		5.144	5.139	0.005				264.6	0.119E-03
Totals:		1.052	<--valid peaks only-->				27.00			

DETECTOR CALIBRATION
Energy(MEV) = 4.089 + (0.0046)*Channel
Energy range (MeV): 4.089 TO 6.444
Efficiency = 0.0188 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	12322.0	100.000
Smoothed	12322.5	100.004
Composite fit	12961.5	105.190
Residuals	-639.5	-5.190

Analyzed by: _____
ALJ

WHC-SD-WM-DP-149, REV. 1

Spectrum 25a2570.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc Display Max.: 3634.8

Raw Data Dump for AEA Spectrum: 25a2570.CNF

1	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
21	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
41	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
61	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
101	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
111	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.
121	0.	0.	0.	0.	1.	0.	0.	1.	0.	0.
131	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
141	0.	2.	1.	2.	0.	3.	2.	1.	2.	1.
151	0.	1.	0.	1.	0.	2.	0.	0.	0.	0.
161	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
171	0.	0.	0.	1.	0.	2.	0.	0.	0.	0.
181	0.	0.	0.	0.	0.	1.	0.	1.	2.	0.
191	3.	1.	5.	1.	3.	5.	1.	8.	4.	2.
201	7.	6.	5.	5.	10.	10.	16.	11.	15.	20.
211	25.	24.	27.	28.	44.	46.	56.	67.	69.	85.
221	104.	116.	116.	115.	139.	164.	146.	163.	170.	145.
231	130.	102.	67.	41.	18.	12.	2.	1.	0.	0.
241	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.
251	0.	1.	0.	1.	0.	0.	2.	1.	1.	1.
261	2.	0.	1.	1.	0.	0.	0.	2.	0.	1.
271	2.	2.	1.	3.	1.	2.	3.	5.	4.	2.
281	3.	3.	6.	7.	11.	10.	9.	15.	20.	18.
291	20.	24.	29.	31.	37.	27.	31.	39.	35.	44.
301	52.	55.	44.	51.	39.	41.	18.	2.	2.	1.
311	1.	1.	1.	2.	4.	4.	3.	1.	4.	3.
321	9.	2.	8.	13.	10.	12.	5.	7.	14.	14.
331	25.	22.	20.	30.	32.	44.	44.	48.	50.	68.
341	73.	92.	96.	141.	148.	174.	197.	244.	274.	326.
351	338.	381.	412.	413.	426.	455.	505.	515.	546.	576.
361	624.	585.	479.	369.	195.	60.	10.	1.	0.	0.
371	2.	0.	0.	1.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

Kaymark 9.29.95

Westinghouse Hanford Co.

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

DATA REDUCTION REPORT

SAMPLE
S95T2413-DUP
File ID: 26a2673.CNF

Counted on: 9/29/95 @11:55
Detector: AEA26
Geometry number: 1
Count time: 28807. Sec

PEAK ANALYSIS

Peak ID	Peak height Initial	Peak height Final	Peak center Initial	Peak center Final	FWHM Initial	FWHM Final	Tau Initial	Tau Final
1	1101.5	1101.5	362.198	362.198	12.000	3.497	6.000	1.351
2	86.7	86.7	303.956	303.865	10.000	3.073	5.000	1.150
3	269.9	269.9	229.055	229.054	12.000	4.960	6.000	2.331

PEAK RESULTS
Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.782	5.755	5.768	-.0130.02		33.28	1.6	342.7	0.154E-03
	Cm243		5.779	5.768	0.011				460.0	0.207E-03
2	Pu238	0.061	5.487	5.500	-.0130.01		2.61	5.7	36.5	0.165E-04
	Am241		5.479	5.500	-.021				28.0	0.126E-04
3	Pu239	0.187	5.147	5.156	-.0090.02		7.96	3.2	80.3	0.362E-04
	Pu240		5.144	5.156	-.012				80.3	0.362E-04
Totals:		1.030	<--valid peaks only-->				43.85			

DETECTOR CALIBRATION
Energy(MEV) = 4.102 + (0.0046)*Channel
Energy range (MeV): 4.102 TO 6.458
Efficiency = 0.0991 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	20443.0	100.000
Smoothed	20443.0	100.000
Composite fit	21051.7	102.978
Residuals	-608.7	-2.978

Analyzed by: _____
ALJ

WHC-SD-WM-DP-148, REV. 1
WHC-SD-WM-DP-148, REV. 0

Spectrum 2oa2673.CNF
1 Legend: Raw = ... Modeled Peaks = 1,2,.., etc
Display Max.: 6271.1
3
..3
.....3.
.....3
.....3
2
.2
....2.
..2
1
1
.... 1
.....1
.....1....
.....1
...1..

Raw Data Dump for AEA Spectrum: 26a2673.CNF

1	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.
11	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
21	1.	0.	0.	0.	0.	1.	0.	1.	0.	0.
31	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
41	1.	0.	0.	2.	0.	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
61	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
71	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
81	1.	1.	0.	0.	0.	1.	0.	0.	0.	0.
91	1.	0.	0.	0.	1.	0.	1.	0.	0.	0.
101	1.	1.	0.	0.	0.	0.	1.	0.	1.	0.
111	2.	1.	0.	0.	1.	2.	0.	1.	0.	2.
121	0.	0.	0.	0.	0.	1.	1.	0.	0.	0.
131	0.	0.	1.	1.	0.	0.	0.	1.	0.	0.
141	0.	2.	1.	2.	1.	0.	3.	1.	2.	3.
151	2.	0.	0.	0.	1.	1.	0.	0.	1.	2.
161	0.	1.	0.	0.	0.	0.	1.	1.	0.	2.
171	1.	0.	0.	1.	2.	0.	1.	1.	0.	2.
181	1.	1.	0.	1.	0.	0.	0.	1.	1.	1.
191	1.	2.	0.	0.	1.	0.	0.	0.	2.	2.
201	4.	3.	2.	6.	2.	8.	7.	10.	17.	16.
211	22.	18.	36.	46.	49.	61.	75.	87.	100.	110.
221	126.	145.	179.	204.	242.	237.	270.	289.	289.	320.
231	254.	223.	146.	78.	48.	11.	4.	3.	1.	0.
241	0.	2.	0.	0.	1.	1.	1.	1.	0.	2.
251	0.	0.	1.	1.	3.	2.	1.	1.	1.	0.
261	1.	1.	1.	0.	2.	0.	1.	1.	0.	1.
271	1.	0.	0.	0.	1.	2.	1.	1.	3.	1.
281	3.	3.	4.	8.	11.	12.	13.	15.	17.	24.
291	21.	33.	32.	32.	56.	54.	62.	55.	64.	79.
301	86.	96.	75.	103.	92.	104.	51.	19.	7.	1.
311	2.	1.	4.	0.	0.	2.	1.	1.	2.	5.
321	1.	4.	3.	2.	1.	1.	2.	6.	4.	3.
331	7.	3.	8.	11.	10.	17.	16.	26.	26.	33.
341	55.	60.	70.	96.	132.	182.	220.	277.	344.	382.
351	482.	576.	590.	666.	698.	699.	699.	763.	914.	1066.
361	1079.	1264.	1278.	1139.	844.	421.	111.	19.	4.	1.
371	1.	1.	1.	2.	1.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.								

DISTRIBUTION SHEET

To Distribution	From Production Planning and Control	Page 1 of 1 Date: 01/05/96
Project Title/Work Order WHC-SD-WM-DP-148, REV. 1 "Final Report for Tank 241-AN-101, Grab Samples 1AN-95-1 through 1AN-95-7."		EDT NO.: ~~614771~~ N/A ECN NO.: ~~N/A~~ ECN-627068

Name	MSIN	Text With all Attach	EDT/ECN ONLY
Pacific Northwest Laboratory			
J. R. Gormsen	K7-28		X
S. J. Harris	K7-22	X	
K. L. Silvers	P7-27		X
U.S. Department of Energy, RL			
C. A. Babel	S7-54	X	
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J. E. Meacham	S7-15	X	
K. L. Powell	T6-04		X
L. W. Shelton	H5-49	X	
B. C. Simpson	R2-12		X
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Central Files	A3-88	2	
EDMC	H6-08	X	
LTIC	T6-03		X
TCRC	R2-12	X	
TFIC (Tank Farm Information Center)	R1-20		X
Washington State Department of Ecology Single-Shell Tank Unit Manager			
A. B. Stone	B5-18	X	
U. S. Department of Energy			
Jim Poppiti 12800 Middlebrook Rd. Trevion II, EM-36 Germantown, MD 20874			X
Los Alamos Technical Associates			
T. T. Tran 309 Bradley Blvd. Richland, WA 99352		X	