RMIS View/Print Document Cover Sheet

This document was retrieved from the Documentation and Records Management (DRM) ISEARCH System. It is intended for Information only and may not be the most recent or updated version. Contact a Document Service Center (see Hanford Info for locations) if you need additional retrieval information.

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

Page 1 of 3

1. ECN 627068

Proj.
ECN

2. ECN Category (mark one) Supplemental ☐ Direct Revision ☒ Change ECN ☐ Temporary ☐ Standby ☐ Supersedure ☐ Cancel/Void ☐	3. Originator's Name, Organization, MSIN, and Telephone No. Ruth A. Esch, Production Planning and Control, T6-06, 373-4314		3a. USQ Required? ☐ Yes ☒ No	4. Date 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 ☐ Yes (fill out Blk. 11b) ☒ No (NA Blks. 11b, 11c, 11d)	11b. Work Package No. N/A	11c. Modification Work Complete N/A _____ Cog. Engineer Signature & Date	11d. Restored to Original Condition (Temp. or Standby ECN only) 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 ☒ 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.			RELEASE STAMP DATE: STA: 4 JAN 17 1996 HANFORD RELEASE ID: 2	

ENGINEERING CHANGE NOTICE				Page 2 of 3	1. ECN (use no. from pg. 1) ECN-627068												
15. Design Verification Required ☐ Yes ☒ No		16. Cost Impact <table><thead><tr><th colspan="2">ENGINEERING</th><th colspan="2">CONSTRUCTION</th></tr></thead><tbody><tr><td>Additional</td><td>☐ \$</td><td>Additional</td><td>☐ \$</td></tr><tr><td>Savings</td><td>☐ \$</td><td>Savings</td><td>☐ \$</td></tr></tbody></table>		ENGINEERING		CONSTRUCTION		Additional	☐ \$	Additional	☐ \$	Savings	☐ \$	Savings	☐ \$	17. Schedule Impact (days) Improvement ☐ Delay ☐	
ENGINEERING		CONSTRUCTION															
Additional	☐ \$	Additional	☐ \$														
Savings	☐ \$	Savings	☐ \$														
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				Date													
<u>OPERATIONS AND ENGINEERING</u>																	
Cog. Eng. See Page 3 for Appropriate Signatures																	
Cog. Mgr.																	
QA																	
Safety																	
Environ.																	
Other																	
<u>ARCHITECT-ENGINEER</u>																	
PE																	
QA																	
Safety																	
Design																	
Environ.																	
Other																	
<u>DEPARTMENT OF ENERGY</u>																	
Signature or a Control Number that tracks the Approval Signature																	
<u>ADDITIONAL</u>																	

ENGINEERING DATA TRANSMITTAL

8-17-96
AEY

Page 1 of 1

1. EDT No. 614771

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) Production Planning and Control	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: Tank 241-AN-101/Waste Management/PPC/Analytical Services	6. Cog. Engr.: Ruth A. Esch	7. Purchase Order No.: N/A
8. Originator Remarks: This document is being released into the supporting document system for retrievability purposes.		9. Equip./Component No.: N/A
11. Receiver Remarks: For release.		10. System/Bldg./Facility: N/A
		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: 01/15/96

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	WHC-SD-WM-DP-148	N/A	1	Revised Final Report for Tank 241-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 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)				1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged			
17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)									
(G)	(H)	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN
Reason	Disp.								
2	1	Cog.Eng. Ruth A. Esch	<i>Ruth A. Esch</i>	1/15/96					
2	1	Cog. Mgr. J.G. Kristofzski	<i>J.G. Kristofzski</i>	1/16/96					
2	1	QA Tzu L. Tung	<i>Tzu L. Tung</i>	1/15/96					
		Safety							
		Env.							
2	1	Program Support A.D. Rice	<i>A.D. Rice</i>	1-16-96					
4	4	Cheryl J. Benar	<i>Cheryl J. Benar</i>	1-15-96					
18.		19.		20.		21. DOE APPROVAL (if required)			
L.B. Webb Signature of EDT Originator		N/A Authorized Representative for Receiving Organization		J.G. Kristofzski Cognizant Manager		Ctrl. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments			
Date		Date		Date					

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

U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN: ^{ECN 627068} ~~EDT-614771~~ NumberUC: 2070

Org Code: 75725 Charge Code: MD378

B&R Code: EW 3120074 Total Pages: 420

Key Words: Revised Final Report for Tank 241-AN-101, Grab Samples,
Samples 1AN-95-1 through 1AN-95-7

Abstract: N/A

TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

Printed in the United States of America. To obtain copies of this document, contact: WHC/BCS Document Control Services, P.O. Box 1970, Mailstop H6-08, Richland, WA 99352, Phone (509) 376-2420, Fax (509) 376-4989.

Release Approval

Date

Release Stamp

Approved for Public Release

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
TABLE OF CONTENTS

Narrative	1
AN-101 Grab Sample Breakdown (Attachment 1)	6
Sample Data Summary	9
Chain of Custody Forms	17
Dome Space Flammability Screening Data	20
Sample Handling	22
Sample Breakdown Worklist # 4275	23
Inorganic Analyses	24
Differential Scanning Calorimetry (DSC)	
DSC Worklist # 4454	25
DSC Worklist # 4455	32
Thermogravimetric Analysis (TGA)	
TGA Worklist # 4461	40
TGA Worklist # 4462	47
Specific Gravity Analysis (SpG)	
SpG Worklist # 4693	53
Radiochemical Analyses	65
Total Alpha Analysis (AT)	
AT Worklist # 4366	66
AT Worklist # 4765	79
PART II 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	90
Narrative	93
AN-101 Grab Sample Breakdown (Attachment 1)	98
Sample Data Summary	100
Chain of Custody Forms	105
Sample Preparations	108
Appearance Analysis Worklist # 2452	109

WHC-SD-WM-DP-148, REV. 1
TABLE OF CONTENTS (Continued)

Inorganic Analyses	110
Differential Scanning Calorimetry (DSC)	
DSC Worklist # 2476	111
DSC Worklist # 2477	117
Thermogravimetric Analysis (TGA)	
TGA Worklist # 2480	121
TGA Worklist # 2481	127
Specific Gravity Analysis (SpG)	
SpG Worklist # 2522	131
pH Analysis Worklist # 2523	140
OH Analysis Worklist # 2524	141
Ion Chromatographic Analysis (IC)	
IC Worklist # 2572	151
IC Worklist # 2743	168
IC Worklist # 2974	184
Inductively Coupled Plasma Spectrographic Analysis (ICP)	
ICP Worklist # 2558	195
Total Organic Carbon (TOC)	
TOC Worklist # 2526	202
Total Inorganic Carbon (TIC)	
TIC Worklist # 2525	226
Radiochemical Analyses	239
Gamma Energy Analysis (GEA)	
GEA Worklist # 2520	240
GEA Worklist # 2754	273
Strontium-90 Analysis (Sr-90)	
Sr-90 Worklist # 2933	290
Sr-90 Worklist # 3122	298
Americium-241 Analysis (Am-241)	
Am-241 Worklist # 2650	314
Plutonium Analysis (Pu-239)	
Pu-239 Worklist # 2499	383

This Document consists of pages 1 through 416.

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

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.

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

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	
IAN-95-1	S95T002405	327	Yellow	Clear	None	None	3500
IAN-95-2	S95T002406	502	Yellow	Clear	None	None	4500
IAN-95-3	S95T002407	662	Yellow	Clear	None	None	4500
IAN-95-4	S95T003909	327	Yellow	Clear	None	None	7000
IAN-95-5	S95T003910	502	Yellow	Clear	None	None	7500
IAN-95-6	S95T003911	662	Yellow	Clear	None	None	5000
IAN-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.

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

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 $\pm 20\%$ 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 $\pm 20\%$ 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 IAN-95-1, IAN-95-2, and IAN-95-3", dated November 2, 1995, Westinghouse Hanford Company, Richland, WA 99352

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

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

327 in.
1AN-95-4
S95T003909

Archive after
Subsampling

S95T003913

DSC
TGA
SpG
AT

502 in.
1AN-95-5
S95T003910

Archive after
Subsampling

S95T003914

DSC
TGA
SpG
AT

662 in.
1AN-95-6
S95T003911

Archive after
Subsampling

S95T003915

DSC
TGA
SpG
AT

Field Blank
1AN-95-7
S95T003912

Archive after
Subsampling

S95T003916

DSC
TGA
SpG
AT

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

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

SAMPLE DATA SUMMARY

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

Table 3: Safety Screen Results
AM-101 GRAB

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

SEGMENT PORTION: Supernate

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
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	41.50	106.5	<3.92e-04	<4.43E-04	<5.95E-4	n/a	n/a	94.64	1.00e-03	5.00E+02

=> Limit violated

=> Selected Limit

12-jan-1996 15:38:18
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		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
				Lower	Upper									
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	41.50	106.5	<3.92e-04	<5.43E-04	<3.92E-4	n/a	n/a	n/a	1.00e-03	5.00E+02

=> Limit violated

=> Selected Limit

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		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
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

=> Limit violated
=> Selected Limit

Table 3: Safety Screen Results
AN-101 GRAB

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

SEGMENT PORTION: Supernate

Sample#	RI A#	Analyte	Unit	Action Limits		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	430.0	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-DP-148, REV. 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		Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
				Lower	Upper								
S95T003914		% Water by TGA on Perkin Elmer	%	None	None	n/a	64.80	65.11	64.95	0.48	n/a	n/a	n/a
S95T003914		Specific Gravity	Sp.G.	None	None	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	430.0	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	51.50	<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-148, 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		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
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	41.50	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

Table 3: Safety Screen Results
AN-101 GRAB

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

SEGMENT PORTION: Supernate

Sample#	R A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T003916		% Water by TGA using Mettler	%	Lower	Upper	101.1	n/a	99.95	99.96	99.95	0.01	n/a	n/a	n/a
S95T003916		Specific Gravity		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	Sp.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	Joules/g	-1.0e+00	81.58	101.6	<1.86e-03	<5.00E-06	<6.69E-6	n/a	n/a	n/a	1.19e-05	5.00E+02
			uCi/mL											

=> Limit Violated
=> Selected Limit

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

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

CHAIN OF CUSTODY FORMS

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

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
<u>O₂</u>	<u>20.9%</u>
<u>LEL</u>	<u>0%</u>
<u>T.O.C.</u>	<u>4.6 PPM</u>
<u>NH₃</u>	<u>75 PPM</u>

Tank No. AN 101 Riser No. 15B

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

Vapor	Results
<u>O₂</u>	<u>20.9%</u>
<u>LEL</u>	<u>0%</u>
<u>T.O.C.</u>	<u>1.5 PPM</u>
<u>NH₃</u>	<u>40 PPM</u>

Tank No. AN 101 Riser No. 15B

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

Vapor	Results
<u>O₂</u>	<u>20.9%</u>
<u>LEL</u>	<u>0%</u>
<u>T.O.C.</u>	<u>0 PPM</u>
<u>NH₃</u>	<u>0 PPM</u>

COMMENTS:

<u>Kevin J. Newcomb</u> IH&S Date <u>12-12-95</u>	<u>12-795</u> IH&S Signature/Date
Document No. TO-080-065	Rev/Mod C-3
Page 66	

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

SAMPLE HANDLING

LABCORE Data Entry Template for Worklist#

4275

Analyst: KRM Instrument: NONE Book # 2/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		@BRKDOWN1 DOSERATE	LIQUID	N/A	10.5		mrad/hour
95000226	AN-101 GRAB	1	SAMPLE	S95T003912	0		@BRKDOWN1 APPEAR01	LIQUID	N/A	complete		
95000226	AN-101 GRAB	1	SAMPLE	S95T003912	0		@BRKDOWN1 SAMPAMT2	LIQUID	N/A	125		ml
95000226	AN-101 GRAB	2	SAMPLE	S95T003909	0		@BRKDOWN1 DOSERATE	LIQUID	N/A	7000 500		mrad/hour
95000226	AN-101 GRAB	2	SAMPLE	S95T003909	0		@BRKDOWN1 APPEAR01	LIQUID	N/A	complete		
95000226	AN-101 GRAB	2	SAMPLE	S95T003909	0		@BRKDOWN1 SAMPAMT2	LIQUID	N/A	125		ml
95000226	AN-101 GRAB	3	SAMPLE	S95T003910	0		@BRKDOWN1 DOSERATE	LIQUID	N/A	7500		mrad/hour
95000226	AN-101 GRAB	3	SAMPLE	S95T003910	0		@BRKDOWN1 APPEAR01	LIQUID	N/A	complete		
95000226	AN-101 GRAB	3	SAMPLE	S95T003910	0		@BRKDOWN1 SAMPAMT2	LIQUID	N/A	125		ml
95000226	AN-101 GRAB	4	SAMPLE	S95T003911	0		@BRKDOWN1 DOSERATE	LIQUID	N/A	5000		mrad/hour
95000226	AN-101 GRAB	4	SAMPLE	S95T003911	0		@BRKDOWN1 APPEAR01	LIQUID	N/A	complete		
95000226	AN-101 GRAB	4	SAMPLE	S95T003911	0		@BRKDOWN1 SAMPAMT2	LIQUID	N/A	125		ml

Final page for worklist #

4275

Analyst Signature

Date

12-15-95

Analyst Signature

Date

How 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. Cook* 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.

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

INORGANIC ANALYSES

LABCORE Data Entry Template for Worklist#

4454

Analyst: ADP Instrument: DSC0 3 Book # 12N14B ^{12/29/95}

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	<u>38.45</u>	<u>27.98</u>	<u>N/A</u>	Joules/g
95000226	AN-101 GRAB	2 SAMPLE	S95T003913	0	DSC-03	LIQUID	<u>N/A</u>	<u>Ø</u>		Joules/g
95000226	AN-101 GRAB	3 DUP	S95T003913	0	DSC-03	LIQUID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g
95000226	AN-101 GRAB	4 SAMPLE	S95T003914	0	DSC-03	LIQUID	<u>N/A</u>	<u>Ø</u>		Joules/g
95000226	AN-101 GRAB	5 DUP	S95T003914	0	DSC-03	LIQUID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist #

4454

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

Frank Coulin
Analyst Signature _____ Date 12/30/95

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 10.17 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.

Analyst: ASP Instrument: DSC0 _____ Book # 12N14A
1/2/96 BSV
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 Purnator 12-23-95
Analyst Signature Date

Analyst Signature Date

Other instrument
was used.

12/29/95
BSV

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

110146-42N44A Indium at 10C/min

12N148

BEST AVAILABLE COPY

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

X1	155.755 °C
X2	162.433 °C
Peak	159.516 °C
Area	419.626 mJ
ΔH	27.975 J/g
Height	33.278 mW
Onset	156.936 °C

27
Heat Flow (mW)

N2, EXOTHERM DOWN

TEMPERATURE 150.0 °C RISE 0.0 min RATE 10.0 °C/min

Temperature (°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

9957003913 SAM

BEST AVAILABLE COPY

exotherm down, N2 purge gas
THERM 88.8 g THERM 0.0 min RATE 10.0 C/min
AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 23 08:05:07 1995

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 °/min

Temperature (°C)

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

Curve 1: DSC

File info: SAM122307 Sat Dec 23 10:15:09 1995

Sample Weight: 23.530 mg

S95T003914 SAM

BEST AVAILABLE COPY

exotherm down, N2 purge gas
TIME: 33.0 s
TIME: 600.0 s
TIME: 0.0 min
RATE: 10.0 °C/min

Temperature (°C)

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

WHC-SD-WM-DP-165, REV. 8/11/96

Curve 1: DSC

File Info: SAM122308 Sat Dec 23 11:37:51 1995

Sample Weight: 21.270 mg

S95T003914 DUP

BEST AVAILABLE COPY

exotherm down, N2 purge gas
Tmax: 33.8 °C Tmin: 0.0 min RATE: 10.0 °C/min
AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 23 11:39:15 1995

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	28.5	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

[Signature] 1-8-96
Analyst Signature _____ Date _____

Verified by Blandina
[Signature]
Valenzuela
1-8-96

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 29.45 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: Rhm Instrument: DSC0 Book # 12M14B

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

Rhm 12/3/95
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

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

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

DSC STD 12N14-B N2

8.127 mg

Rate: 10.0 °C/min

File: 00017.001

DSC METTLER

30-Dec-95

Ident: 0.0

222-S Laboratory

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

R. D. Meyer 12/31/95

S95T003915 SAM N2

14.950 mg

Rate: 10.0 °C/min

File: 00019.001 DSC METTLER 31-Dec-95

Ident: 0.0 222-S Laboratory

Handwritten signature 12/31/93

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

DSC STD 12N14-B N2

4.398 mg

Rate: 10.0 °C/min

File: 00039.001 DSC METTLER 04-Jan-86

Ident: 0.0 222-S Laboratory

ENDO

Integration

Delta H 125 mJ

28.5 J/g

Peak

162.5°C

-5.6 mW

120.

140.

160.

180.°C

Anthony P. Turner 1-4-92

SW 1/1/96

F. Morgan 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	<u>59.74</u>	<u>60.18</u>	<u>N/A</u>	%
95000226	AN-101 GRAB	2 SAMPLE	S95T003913	0	TGA-03	LIQUID	<u>N/A</u>	<u>65.51</u>		%
95000226	AN-101 GRAB	3 DUP	S95T003913	0	TGA-03	LIQUID	<u>65.51</u>	<u>64.93</u>	<u>N/A</u>	%
95000226	AN-101 GRAB	4 SAMPLE	S95T003914	0	TGA-03	LIQUID	<u>N/A</u>	<u>64.80</u>		%
95000226	AN-101 GRAB	5 DUP	S95T003914	0	TGA-03	LIQUID	<u>64.80</u>	<u>65.11</u>	<u>N/A</u>	%

Final page for worklist # 4461

See attached for signatures
Analyst Signature

Date

12/29/95
BDV

Analyst Signature

Date

12/29/95

S95T003913 produced a second weight loss step of 3.72 wt% at approximately 500°C.

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist#

4461

Analyst: ADP Instrument: TGA0 Book # 65N8A

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

Anthony Duran 12-23-95
Analyst Signature Date

Analyst Signature Date

Other instrument
was used

12/29/95
BW

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

WHC-SD-WM-DP-165, REV. 01 11/1996

N2 10C/MIN
TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

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

Curve 1: TGA
 File Infor: SAM12301 Sat Dec 23 10:45:06 1995
 Sample Weight: 16.682 mg
 S95T003913 SAM

BEST AVAILABLE COPY

10C/MIN N2
 TEMPERATURE 35.8 8
 TIME 0.0 MIN RATE 10.0 C/min
 AD PURINTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Sat Dec 23 10:52:46 1995

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

Curve 1: TGA

File info: SAM122302 Sat Dec 23 11:55:30 1995

Sample Weight: 19.364 mg

S95T003913 DUP

BEST AVAILABLE COPY

WHC-SD-WM-DP-185, REV. 0 / 1/11/99

10C/MIN N2

TEMP: 35.8 °C

TIME: 0.0 min

RATE: 10.0 °C/min

TEMP: 35.8 °C

Temperature (°C)

AD PURINTON

PERKIN-ELMER

7 Series Thermal Analysis System

Sat Dec 23 11:56:48 1995

Curve 1: TGA

File Info: SAM122309 Sat Dec 23 14:16:26 1995

Sample Weight: 19.951 mg

935T003914 SAM

BEST AVAILABLE COPY

WHC-SD-WM-DP-165, REV. 01 ¹⁴⁸ Jan 11/1990

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

10C/MIN N2
TEMP: 23.8 °C
TIME: 0.0 min RATE: 10.0 °C/min

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

BEST AVAILABLE COPY

10C/MIN N2
 Temp: 38.8 °C
 Time: 0.0 min
 Rate: 10.0 °C/min
 AD PURINTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Sat Dec 23 15:41:14 1995

WHC-SD-WM-DP-165, REV. 8, 1/11/90

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	<u>59.74</u>	<u>60.37*</u>	<u>N/A</u>	%
95000226	AN-101 GRAB	2 SAMPLE	S95T003915	0	TGA-01	LIQUID	<u>N/A</u>	<u>65.95</u>		%
95000226	AN-101 GRAB	3 DUP	S95T003915	0	TGA-01	LIQUID	<u>65.95</u>	<u>66.03</u>	<u>N/A</u>	%
95000226	AN-101 GRAB	4 SAMPLE	S95T003916	0	TGA-01	LIQUID	<u>N/A</u>	<u>99.95</u>		%
95000226	AN-101 GRAB	5 DUP	S95T003916	0	TGA-01	LIQUID	<u>99.95</u>	<u>99.96</u>	<u>N/A</u>	%

Final page for worklist # 4462

Anthony Perinton 12-23-95
Analyst Signature Date

JPW 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 12/23/95
BDV

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 48 TO 52.

BEST AVAILABLE COPY

TGA STD 65N8A N2

20.013 mg

Rate: 10.0 °C/min

File: 00079.001

TG

METTLER

23-Dec-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height-12.08 mg

-60.37 %

Resid. 7.93 mg

39.63 %

Dpeak 88.3°C

48

5. mg

50.

100.

150.

200.

°C

Anthony Perreault 12-23-95

WHC-SD-WM-DP-185, REV. 01 11/19/96 *AW*

BEST AVAILABLE COPY

BEST AVAILABLE COPY

895T003915 SAM N2

18.437 mg

Rate: 10.0 °C/min

File: 00084.001

TG

METTLER

23-Dec-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height-12.16 mg

-65.95 %

ResidC. 6.28 mg

34.05 %

Dpeak 85.0 °C

Step Analysis

Height -0.64 mg

-3.47 %

ResidC. 5.64 mg

30.58 %

WHC-SD-WM-DP-165, REV. 8 / 11/1996

BEST AVAILABLE COPY

BEST AVAILABLE COPY

595T003915 DUP N2

25.994 mg

Rate: 10.0 °C/min

File: 00086.001

TG

METTLER

23-Dec-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height-17.16 mg

-66.03 %

Res1C. 8.83 mg

33.97 %

Dpeak 99.0 °C

Step Analysis

Height -0.88 mg

-3.37 %

Res1C. 7.95 mg

30.60 %

50

10. mg

100.

200.

300.

400.

°C

WHC-SD-WM-DP-105, REV. 8/11/96

BEST AVAILABLE COPY

S95T003916 SAM N2

9.718 mg

Rate: 10.0 °C/min

File: 00088.001 TG METTLER 23-Dec-95

Ident: 0.0 222-S Laboratory

Step Analysis
Height -9.71 mg
-99.95 %
Resid. 0.01 mg
0.05 %

5. mg

100. 200. 300. 400. °C

BEST AVAILABLE COPY

S95T003916 DUP N2

Rate: 10.0 °C/min

File: 00090.001 TG METTLER 23-Dec-95

Ident: 0.0 222-S Laboratory

10.103 mg

Step Analysis
Height-10.10 mg
-99.96 %
Resid. 0.00 mg
0.04 %

WHC-SD-WM-DP-148 REV. 1
LABCORE Data Entry Template for Worklist#

4693

Analyst: KCH Instrument: BA001 Book # 133N167A

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	<u>1.40</u>	<u>1.376</u>	<u>N/A</u>	Sp.G.
95000226	AN-101 GRAB	2 SAMPLE	S95T003913	0	SPG-01	LIQUID	<u>N/A</u>	<u>1.226</u>	<u>0.01</u>	Sp.G.
95000226	AN-101 GRAB	3 DUP	S95T003913	0	SPG-01	LIQUID	<u>1.226</u>	<u>1.214</u>	<u>N/A</u>	Sp.G.
95000226	AN-101 GRAB	4 SAMPLE	S95T003914	0	SPG-01	LIQUID	<u>N/A</u>	<u>1.214</u>	<u>0.01</u>	Sp.G.
95000226	AN-101 GRAB	5 DUP	S95T003914	0	SPG-01	LIQUID	<u>1.214</u>	<u>1.216</u>	<u>N/A</u>	Sp.G.
95000226	AN-101 GRAB	6 SAMPLE	S95T003915	0	SPG-01	LIQUID	<u>N/A</u>	<u>1.223</u>	<u>0.01</u>	Sp.G.
95000226	AN-101 GRAB	7 DUP	S95T003916 ^{595T003915}	0	SPG-01	LIQUID	<u>1.223</u>	<u>1.217</u>	<u>N/A</u>	Sp.G.
95000226	AN-101 GRAB	8 SAMPLE	^{re 1/12/96} S95T003916	0	SPG-01	LIQUID	<u>N/A</u>	<u>0.977</u>	<u>0.01</u>	Sp.G.
95000226	AN-101 GRAB	9 DUP	S95T003916	0	SPG-01	LIQUID	<u>0.977</u>	<u>0.989</u>	<u>N/A</u>	Sp.G.

Final page for worklist #

4693

Analyst Signature [Signature] Date 1-7-96

Analyst Signature [Signature] Date 1-8-96

1-8-96

Date

[Signature] 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
SIGNATUREANALYSIS
DATEANALYSIS
TIMEINSTRUMENT
CODE

4693

Kinden Higbee

1-7-96

1430

☒ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # =

STD # = 133N16-A

TARE WEIGHT (g)

1.88609

GROSS WEIGHT (g)

2.09385

VOL. of SOLUTION (mL)

150.17

REPLICATE

1.88609

2.09385

☐ SAMPLE
STANDARD☒ DUPLICATE

SAMPLE # = 595T003914

STD # =

TARE WEIGHT (g)

1.85221

GROSS WEIGHT (g)

2.03480

VOL. of SOLUTION (mL)

150.17

REPLICATE

☒ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # = 595T003913

STD # =

TARE WEIGHT (g)

1.83139

GROSS WEIGHT (g)

2.01556

VOL. of SOLUTION (mL)

150.17

REPLICATE

☒ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # = 595T003915

STD # =

TARE WEIGHT (g)

1.87140

GROSS WEIGHT (g)

2.05500

VOL. of SOLUTION (mL)

150.17

REPLICATE

☐ SAMPLE
STANDARD☒ DUPLICATE

SAMPLE # = 595T003913

STD # =

TARE WEIGHT (g)

1.83705

GROSS WEIGHT (g)

2.01935

VOL. of SOLUTION (mL)

150.17

REPLICATE

☐ SAMPLE
STANDARD☒ DUPLICATE

SAMPLE # = 595T003915

STD # =

TARE WEIGHT (g)

1.85166

GROSS WEIGHT (g)

2.03480

VOL. of SOLUTION (mL)

150.17

REPLICATE

☒ SAMPLE
STANDARD☐ DUPLICATE

SAMPLE # = 595T003914

STD # =

TARE WEIGHT (g)

1.92234

GROSS WEIGHT (g)

2.10457

VOL. of SOLUTION (mL)

150.17

REPLICATE

☒ SAMPLE
STANDARD☒ DUPLICATE

SAMPLE # = 595T003916

STD # =

TARE WEIGHT (g)

1.89162

GROSS WEIGHT (g)

2.10333

VOL. of SOLUTION (mL)

150.17

REPLICATE

1.85485

2.00333

150.17

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

SPECIFIC GRAVITY ANALYSIS

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

1.83139 g

2.01556 g

1.83785 g

2.01935 g

1.92234 g

2.10457 g

1.85221 g

2.03488 g

1.87140 g

2.05500 g

1.85166 g

2.03449 g

1.89162 g

2.03832 g

1.85485 g

2.00333 g

18

101

15

16

STD

----- CALIBRATION -----

01/07/96 11:49:57

CAL BEGIN

STD 10.1.19

TYPE : AT 261

2.00.00

797082

CAL END

150.77

----- END -----

1.88669 g

2.09385 g

1.86298 g

2.06908 g

20716

2061

BEST AVAILABLE COPY

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 μ L	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	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
K HIGBEE			
Date			
01/07/96	v RESULT v		
Time	Specific Gravity Average =	1.376	

Data Entry by: Frank Conlin Date: 01/07/96
 Approved by: RW Schaefer 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-148, REV. 1

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

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	2.0156	
Work List	Tare Weight (W1)	1.8314	
4693	Weight of Solution (W2-W1)	0.18417	0
Test Code	Volume of Solution μ L	150.1700	
SPG-01	Specific Gravity	1.2264	NA
Matrix			
LIQUID			
Sample #			
S95T003913			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst	Specific Gravity = $[(W2-W1) \times 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} \times 1.000 \text{ g/mL}]$		
K HIGBEE			
Date			
01/07/96			
Time			
	∇ RESULT ∇		
	Specific Gravity =	1.226	

Data Entry by:	<i>Frank Conlin</i>	Date:	01/07/96
Approved by:	<i>RW Schneider</i>	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- 144, REV. 1

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

Type		DUP	REPLICATE
DUP	Gross Weight (W2)	2.0194	
Work List	Tare Weight (W1)	1.8371	
4693	Weight of Solution (W2-W1)	0.1823	0
Test Code	Volume of Solution μ L	150.1700	
SPG-01	Specific Gravity	1.2140	NA
Matrix			
LIQUID			
Sample #			
S95T003913			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
K HIGBEE			
Date			
01/07/96			
Time			
	v RESULT v		
	Specific Gravity =	1.214	

Data Entry by:	<i>Janita Corbin</i>	Date:	01/07/96
Approved by:	<i>RW. Johnson</i>	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		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 μ L	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	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
K HIGBEE			
Date			
01/07/96			
Time			
	v RESULT v		
	Specific Gravity =	1.214	

Data Entry by:	<i>Frank Conlin</i>	Date:	01/07/96
Approved by:	<i>Rw. Schneider</i>	Date:	1/9/96

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)	2.0550	
Work List	Tare Weight (W1)	1.8714	
4693	Weight of Solution (W2-W1)	0.1836	0
Test Code	Volume of Solution μ L	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	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
K HIGBEE			
Date			
01/07/96			
Time			
	∇ RESULT ∇		
	Specific Gravity =	1.223	

Data Entry by:	<i>Frank Conlin</i>	Date:	01/07/96
Approved by:	<i>RW Schneider</i>	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	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 μ L	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	Specific Gravity = $[(W2-W1) \times 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} \times 1.000 \text{ g/mL}]$		
K HIGBEE			
Date			
01/07/96			
Time	∇ RESULT ∇		
	Specific Gravity =	1.217	

Data Entry by:

Date: 01/07/96

Approved by:

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 μ L	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	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
K HIGBEE			
Date			
01/07/96			
Time	Specific Gravity =	0.977	

Data Entry by:

Date:

01/07/96

Approved by:

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- 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 μ L	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	Specific Gravity = $[(W2-W1) \times 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} \times 1.000 \text{ g/mL}]$		
K HIGBEE			
Date			
01/07/96			
Time	$\checkmark$ RESULT $\checkmark$		
	Specific Gravity =	0.989	

Data Entry by:	<i>[Signature]</i>	Date:	01/07/96
Approved by:	<i>RW Schwab</i>	Date:	1/9/96

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

RADIOCHEMICAL ANALYSES

B

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

WHC-SD-WM-DP-165, REV. 148

11/19/90 AN101

Page: 1

LABCORE Data Entry Template for Worklist# 4366

Analyst: AKL Instrument: AB00 16 Book# 11056Method: 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

C. J. Quinn 12/18/95
Analyst Signature Date

C. J. Quinn 12/19/95
Analyst Signature Date
M. E. Quinn 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	0ALPHA01 ALPHA01	LIQUID	1.92E-05	1.95E-5	101.560 % Recovery	
1 STD		0	0ALPHA01 ALPHA01E	LIQUID	1.00	3.78E+00	3.780 % Ct. Error	
2 BLNK-PREP		0	0ALPHA01 ALPHA01	LIQUID	1	<1.86E-3	uCi/mL	
2 BLNK-PREP		0	0ALPHA01 ALPHA01E	LIQUID	1.00	5.00E+02	500.000 % Ct. Error	
3 BLNK/BKG		0	0ALPHA01 ALPHA01	LIQUID	1.00E+00	1.00E+00	1.000 uCi/mL	
4 SAMPLE	S95T003913	0	0ALPHA01 ALPHA01	LIQUID	N/A <	1.01E-03	2.410e-003 uCi/mL	
4 SAMPLE	S95T003913	0	0ALPHA01 ALPHA01E	LIQUID	N/A	5.00E+02	0.000 % Ct. Error	
5 DUP	S95T003913	0	0ALPHA01 ALPHA01	LIQUID	<1.01E-3	<1.35E-3	RPD	
5 DUP	S95T003913	0	0ALPHA01 ALPHA01E	LIQUID	1.00	5.00E+02	500.000 % Ct. Error	
6 SPK	S95T003913	0	0ALPHA01 ALPHA01	LIQUID	3.92E-02	3.80E-02	96.940 % Recovery	
7 SAMPLE	S95T003914	0	0ALPHA01 ALPHA01	LIQUID	N/A <	1.01E-03	2.410e-003 uCi/mL	
7 SAMPLE	S95T003914	0	0ALPHA01 ALPHA01E	LIQUID	N/A	5.00E+02	0.000 % Ct. Error	
8 DUP	S95T003914	0	0ALPHA01 ALPHA01	LIQUID	<1.01E-3	<1.86E-3	RPD	
8 DUP	S95T003914	0	0ALPHA01 ALPHA01E	LIQUID	1.00	2.99E+02	299.000 % Ct. Error	
9 SAMPLE	S95T003915	0	0ALPHA01 ALPHA01	LIQUID	N/A <	2.20E-03	2.410e-003 uCi/mL	
9 SAMPLE	S95T003915	0	0ALPHA01 ALPHA01E	LIQUID	N/A	5.00E+02	0.000 % Ct. Error	
10 DUP	S95T003915	0	0ALPHA01 ALPHA01	LIQUID	<2.20E-3	<1.35E-3	RPD	
10 DUP	S95T003915	0	0ALPHA01 ALPHA01E	LIQUID	1.00	5.00E+02	500.000 % Ct. Error	
11 SAMPLE	S95T003916	0	0ALPHA01 ALPHA01	LIQUID	N/A <	5.00E-06	1.190e-005 uCi/mL	
11 SAMPLE	S95T003916	0	0ALPHA01 ALPHA01E	LIQUID	N/A	5.00E+02	0.000 % Ct. Error	
12 DUP	S95T003916	0	0ALPHA01 ALPHA01	LIQUID	<5.00E-6	<6.69E-6	RPD	
12 DUP	S95T003916	0	0ALPHA01 ALPHA01E	LIQUID	1.00	4.38E+02	438.000 % Ct. Error	

Final page for worklist# 4366

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature

12/20/95
Date

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

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

STANDARD

		STANDARD	REPLICATE
Type	DETECTOR NUMBER	16	16
STD	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	2714	2782
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)	10.000	10.000
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	11B56	11B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	90.167	92.433
Batch Number	Standard Value in $\mu\text{Ci/mL}$	1.92E-05	
95004914	Concentration in $\mu\text{Ci/L}$ =	1.93E-02	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$ =	1.98E-02	
0	AVERAGE CONCENTRATION in $\mu\text{Ci/L}$ =	1.9547E-02	
Sample Prep			
N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
WL#4366	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L}$ / 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	ALPHA TOTAL CONCENTRATION in $\mu\text{Ci/mL}$	1.95E-05	DETECTION LEVEL
Analyst			
AKL			
Date Complete	RELATIVE COUNTING ERROR	3.8%	1.19E-07 $\mu\text{Ci/mL}$
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

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)	16	16
Work List	GROSS COUNTS (GC)	2	2
4366	COUNT TIME in MINUTES (CT)	4	14
AT or TB ?	BACKGROUND in cpm (BKG)	30	30
AT	SAMPLE SIZE in mL (SS)	0.3	0.3
Test Code	DILUTION FACTOR (DF)	0.050	0.050
@ALPHA01	DIGEST DILUTION FACTOR (DDF)	101	101
Matrix	EFFICIENCY FACTOR (EFF)	1	1
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.2104	0.2104
Batch Number		0.233	0.430
95004914	Blank Concentration in $\mu\text{Ci/L}$	< 1.01E+00	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	< 1.86E+00	
0	Maximum Concentration in $\mu\text{Ci/L}$	< 1.8615E+00	
Sample Prep			
N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
WL#4366	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF			
Analyst	ALPHA TOTAL	$\mu\text{Ci/mL}$	< 1.86E-03
AKL	LESS Than Value was Determined from Lc.		
Date Complete	RELATIVE COUNTING ERROR	500.0%	DETECTION LEVEL
12/19/95			2.41E-03
Analysis Date			$\mu\text{Ci/mL}$
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
BLANK WB1 Rev. 1.0	508101ML	

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

Type	DETECTOR NUMBER	SAMPLE	REPLICATE
SAMPLE	DISH SIZE (1, 2, or 5) (MS)	16	16
Work List	GROSS COUNTS (GC)	2	2
4366	COUNT TIME in MINUTES (CT)	7	9
AT or TB ?	BACKGROUND in cpm (BKG)	30	30
AT	SAMPLE SIZE in mL (SS)	0.3	0.3
Test Code	DILUTION FACTOR (DF)	0.050	0.050
@ALPHA01	DIGEST DILUTION FACTOR (DDF)	101	101
Matrix	EFFICIENCY FACTOR (EFF)	1	1
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.2104	0.2104
Batch Number		0.233	0.233
95004914	Blank Concentration in $\mu\text{Ci/L}$	< 1.01E+00	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	< 1.01E+00	
0	Maximum Concentration in $\mu\text{Ci/L}$	< 1.0091E+00	
Sample Prep			
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/ μCi)		
S95T003913	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L}$ / 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	ALPHA TOTAL in $\mu\text{Ci/mL}$	< 1.01E-03	DETECTION LEVEL
Analyst	LESS Than Value was Determined from Lc.		
AKL			
Date Complete	RELATIVE COUNTING ERROR	500.0%	2.41E-03 $\mu\text{Ci/mL}$
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.	508101ML	

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 $\mu\text{Ci/L}$	< 1.01E+00	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	< 1.35E+00	
0	Maximum Concentration in $\mu\text{Ci/L}$	< 1.3520E+00	
Sample Prep			
N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
S95T003913	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
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	ALPHA TOTAL in $\mu\text{Ci/mL}$	< 1.35E-03	DETECTION LEVEL
Analyst	LESS THAN Value was Determined from Rmax. <i>12/20/96</i>		
AKL			
Date Complete	RELATIVE COUNTING ERROR	500.0%	2.41E-03 $\mu\text{Ci/mL}$
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	

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 $\mu\text{Ci/mL}$ (SVal)	3.9215E-02	3.9215E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2104	0.2104
0	SAMPLE + SPIKE $\mu\text{Ci/mL}$ (S+S)	7.60E+00	7.74E+00
Sample Prep	AVERAGE or MAXIMUM $\mu\text{Ci/mL}$ in SAMPLE	< 1.0100E-03	
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			

R_s (Sample Count Rate) = $(TC / CT) - BKG$
 $SAMPLE + SPIKE \mu\text{Ci/mL} = R_s * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$
 $QC \text{ ACTUAL} = SVal$
 $QC \text{ FOUND} = (((S+S \mu\text{Ci/mL} - SAMPLE \mu\text{Ci/mL}) * ((SDF/SVol)/(DF*DDF/SS))))$
 $PERCENT \text{ SPIKE RECOVERY} = (QC \text{ FOUND} / QC \text{ ACTUAL}) * 100$

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	=	3.80E-02
AVG. PERCENT SPIKE RECOVERY	=	96.9%

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

SPIKE.WB1 Rev. 1.0

508101ML

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 $\mu\text{Ci/L}$	< 1.01E+00	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	< 1.01E+00	
0	Maximum Concentration in $\mu\text{Ci/L}$	< 1.0091E+00	
Sample Prep			
N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
S95T003914	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF			
Analyst	ALPHA TOTAL in $\mu\text{Ci/mL}$	< 1.01E-03	DETECTION LEVEL
AKL	LESS THAN Value was Determined from Rmax. <i>rec 1/12/96</i>		
Date Complete	RELATIVE COUNTING ERROR	500.0%	2.41E-03 $\mu\text{Ci/mL}$
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: <i>[Signature]</i>	SLF	Date: 12/20/95
SAMPLE WB1 Rev. 1.0	508101ML	

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

	DUP	REPLICATE
Type	DETECTOR NUMBER	18
DUP	DISH SIZE (1, 2, or 5) (MS)	2
Work List	GROSS COUNTS (GC)	14
4366	COUNT TIME in MINUTES (CT)	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.3
AT	SAMPLE SIZE in mL (SS)	0.050
Test Code	DILUTION FACTOR (DF)	101
@ALPHA01	DIGEST DILUTION FACTOR (DDF)	1
Matrix	EFFICIENCY FACTOR (EFF)	0.2104
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.430
Batch Number		
95004914	Blank Concentration in $\mu\text{Ci/L}$	< 1.86E+00
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	< 1.52E+00
0	Maximum Concentration in $\mu\text{Ci/L}$	< 1.8615E+00
Sample Prep		
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG	
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/ μCi)	
S95T003914	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L}$ / 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	ALPHA TOTAL in $\mu\text{Ci/mL}$	< 1.86E-03
Analyst	LESS THAN Value was Determined from Rmax.	
AKL		
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	50801ML	

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	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 $\mu\text{Ci/L}$	< 1.01E+00	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	< 2.20E+00	
0	Maximum Concentration in $\mu\text{Ci/L}$	< 2.1984E+00	
Sample Prep			
N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
S95T003915	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
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	ALPHA TOTAL	in $\mu\text{Ci/mL}$	< 2.20E-03
Analyst	LESS Than Value was Determined from Lc.	12/12/96	
AKL			
Date Complete	RELATIVE COUNTING ERROR	500.0%	2.41E-03 $\mu\text{Ci/mL}$
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	

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)	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 $\mu\text{Ci/L}$	< 1.01E+00	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	< 1.35E+00	
0	Maximum Concentration in $\mu\text{Ci/L}$	< 1.3520E+00	
Sample Prep			
N/A	Rs (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $Rs * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
S95T003915	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$	< 1.35E-03	DETECTION LEVEL
Analyst	LESS Than Value was Determined from Lc. ²⁰⁶ <i>1/12/96</i>		
AKL			
Date Complete	RELATIVE COUNTING ERROR	500.0%	2.41E-03 $\mu\text{Ci/mL}$
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: <i>[Signature]</i>	SLF	Date: <i>12/20/95</i>
SAMPLE.WB1 Rev. 1.0	508101ML	

WHC-SD-WM-DP-165, REV. 8 / ¹⁴⁸ 11/11/94

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 $\mu\text{Ci/L}$	< 5.00E-03	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	< 5.00E-03	
0	Maximum Concentration in $\mu\text{Ci/L}$	< 4.9957E-03	
Sample Prep			
N/A	Rs (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $Rs * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
S95T003916	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$	< 5.00E-06	DETECTION LEVEL
Analyst	LESS Than Value was Determined from Lc. ^{not} 1/12/96		
AKL			
Date Complete	RELATIVE COUNTING ERROR	500.0%	1.19E-05 $\mu\text{Ci/mL}$
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	

148
WHC-SD-WM-DP-165, REV. 0 / *show 1/11/94*

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)	17	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)	0.100	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	0.267	0.313

Batch Number	
95004914	Blank Concentration in $\mu\text{Ci/L}$ 5.71E-03
Rerun	Replicate Concentration in $\mu\text{Ci/L}$ < 6.69E-03
0	Maximum Concentration in $\mu\text{Ci/L}$ < 6.6933E-03

Sample Prep	
N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$
Sample #	$\text{ALPHA TOTAL } \mu\text{Ci/L} = R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$
S95T003916	$\text{ALPHA TOTAL } \mu\text{Ci/mL} = \text{ALPHA TOTAL } \mu\text{Ci/L} / 1000\text{mL/L}$
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 $\mu\text{Ci/mL}$	< 6.69E-06
Analyst			
AKL	LESS THAN Value was Determined from R_s .	<i>see 1/12/96</i>	
Date Complete			
12/19/95	RELATIVE COUNTING ERROR	438.3%	DETECTION LEVEL
Analysis Date			1.19E-05
12/18/95			$\mu\text{Ci/mL}$
Analysis Time			
03:30 PM			
Sample Point			
AN-101 GRAB			

Analyst	CJO	Date: 19-Dec-95
Signature of Chemist: <i>[Signature]</i>	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. Lan 1-9-96
Analyst Signature Date

[Signature] 11/2/96
Analyst Signature Date

Data Entry Comments:

Spikes: 119B 43

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		QALPHA01 ALPHA01	LIQUID	1.54E-05	1.64E-5	106.490 % Recovery	
1	STD		0		QALPHA01 ALPHA01E	LIQUID	1.00	4.10E+00	4.100 % Ct. Error	
2	BLNK		0		QALPHA01 ALPHA01	LIQUID	1	<3.92E-4		uCi/mL
2	BLNK		0		QALPHA01 ALPHA01E	LIQUID	1.00	5.00E+02	500.000 % Ct. Error	
3	BLNK/BKG		0		QALPHA01 ALPHA01	LIQUID	1.00E+00	6.67E-01	0.670	uCi/mL
4	SAMPLE	S95T003903	0		QALPHA01 ALPHA01	LIQUID	N/A	<4.43E-04	1.000e-003	uCi/mL
4	SAMPLE	S95T003903	0		QALPHA01 ALPHA01E	LIQUID	N/A	5.00E+02	0.000 % Ct. Error	
5	DUP	S95T003903	0		QALPHA01 ALPHA01	LIQUID	<4.43E-4	<5.95E-4		RPD
5	DUP	S95T003903	0		QALPHA01 ALPHA01E	LIQUID	1.00	5.00E+02	500.000 % Ct. Error	
6	SPK	S95T003903	0		QALPHA01 ALPHA01	LIQUID	3.92E-02	3.71E-02	94.640 % Recovery	
7	SAMPLE	S95T003905	0		QALPHA01 ALPHA01	LIQUID	N/A	<5.43E-04	1.000e-003	uCi/mL
7	SAMPLE	S95T003905	0		QALPHA01 ALPHA01E	LIQUID	N/A	5.00E+02	0.000 % Ct. Error	
8	DUP	S95T003905	0		QALPHA01 ALPHA01	LIQUID	<5.43E-4	<3.92E-4		RPD
8	DUP	S95T003905	0		QALPHA01 ALPHA01E	LIQUID	1.00	5.00E+02	500.000 % Ct. Error	
9	SAMPLE	S95T003906	0		QALPHA01 ALPHA01	LIQUID	N/A	<7.40E-4	1.000e-003	uCi/mL
9	SAMPLE	S95T003906	0		QALPHA01 ALPHA01E	LIQUID	N/A	5.00E+02	0.000 % Ct. Error	
10	DUP	S95T003906	0		QALPHA01 ALPHA01	LIQUID	<7.40E-4	<8.37E-4		RPD
10	DUP	S95T003906	0		QALPHA01 ALPHA01E	LIQUID	1.00	2.66E+02	266.000 % Ct. Error	

Final page for worklist# 4765

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature

Date

1/12/96

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

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

WORKBOOK PAGE: STD1

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

STANDARD

		STANDARD	REPLICATE
Type	DETECTOR NUMBER	16	16
STD	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	2299	2300
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)	10.000	10.000
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	14B56	14B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	76.483	76.517
Batch Number	Standard Value in $\mu\text{Ci/mL}$	1.54E-05	
96000200	Concentration in $\mu\text{Ci/L}$	1.64E-02	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	1.64E-02	
0	AVERAGE CONCENTRATION in $\mu\text{Ci/L}$	1.6378E-02	
Sample Prep			
N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SLF			
Chemist			
SLF	ALPHA TOTAL CONCENTRATION in $\mu\text{Ci/mL}$	1.64E-05	DETECTION LEVEL
Analyst			
SCL			
Date Complete	RELATIVE COUNTING ERROR	4.1%	9.01E-08 $\mu\text{Ci/mL}$
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
STANDARD.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: BLANK2

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

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

		BLNK	REPLICATE
Type	DETECTOR NUMBER	16	16
BLNK	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	3	3
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 $\mu\text{Ci/L}$	< 3.92E-01	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	< 3.92E-01	
0	Maximum Concentration in $\mu\text{Ci/L}$	< 3.9246E-01	
Sample Prep			
N/A	Rs (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $Rs * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
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			
SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$	< 3.92E-04	DETECTION LEVEL
Analyst	LESS Than Value was Determined from Lc. <i>roc 1/12/96</i>		
SCL			
Date Complete	RELATIVE COUNTING ERROR	500.0%	1.00E-03 $\mu\text{Ci/mL}$
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
BLANK.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SAM4

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

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)	5	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	0.186	0.165
Batch Number			
96000200	Blank Concentration in $\mu\text{Ci/L}$	< 4.43E-01	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	< 3.92E-01	
0	Maximum Concentration in $\mu\text{Ci/L}$	< 4.4286E-01	
Sample Prep			
N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
S95T003903	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
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			
SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$	< 4.43E-04	DETECTION LEVEL
Analyst	LESS THAN Value was Determined from Rmax. <i>see 1/12/96</i>		
SCL			
Date Complete	RELATIVE COUNTING ERROR	500.0%	1.00E-03 $\mu\text{Ci/mL}$
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: DUP5

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

LIQUIDS

WHC-SD

WM DF

11/9, REV. 1

Type	DETECTOR NUMBER	DUP	REPLICATE
DUP	DISH SIZE (1, 2, or 5)	16	16
Work List	(MS)	2	2
4765	GROSS COUNTS (GC)	6	12
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	0.228	0.250
96000200	Blank Concentration in $\mu\text{Ci/L}$	< 5.43E-01	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	5.95E-01	
0	Maximum Concentration in $\mu\text{Ci/L}$	< 5.9464E-01	
Sample Prep			
N/A	Rs (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $Rs * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
S95T003903	ALPHA TOTAL $\mu\text{Ci/mL}$ = $ALPHA\ TOTAL\ \mu\text{Ci/L} / 1000\text{mL/L}$		
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			
SLF			
Analyst			
SCL			
Date Complete			
01/10/96			
Analysis Date			
01/09/96			
Analysis Time			
10:00 AM			
Sample Point			
AN-101			

v RESULTS v

ALPHA TOTAL	in $\mu\text{Ci/mL}$	< 5.95E-04	DETECTION LEVEL
LESS THAN Value was Determined from Rmax.	BAC 1/12/96		
RELATIVE COUNTING ERROR	500.0%		1.00E-03 $\mu\text{Ci/mL}$

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

SAMPLE.WB1 Rev. 1.0

508101ML

84

 BAC
 1/15/96

WORKBOOK PAGE: SPIKE6

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

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)	50848	53180
4765	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.15	0.15
AT	SAMPLE VOLUME in mL (Spiked Vial) (SS)	1.000	1.000
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	1111	1111
@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
96000200	SPIKE VALUE in $\mu\text{Ci/mL}$ (SVal)	3.9212E-02	3.9212E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2104	0.2104
0	SAMPLE + SPIKE $\mu\text{Ci/mL}$ (S+S)	4.03E+00	4.22E+00
Sample Prep	AVERAGE or MAXIMUM $\mu\text{Ci/mL}$ in SAMPLE	4.4286E-04	
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) = $(TC / CT) - BKG$
SAMPLE + SPIKE $\mu\text{Ci/mL}$ = $Rs * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$
QC ACTUAL = SVal
QC FOUND = $((S+S \mu\text{Ci/mL} - \text{SAMPLE } \mu\text{Ci/mL}) * ((SDF/SVol)/(DF*DDF/SS)))$
PERCENT SPIKE RECOVERY = $(QC \text{ FOUND} / QC \text{ ACTUAL}) * 100$

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

RAE
1/15/96

WORKBOOK PAGE: SAM7

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

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)	6	10
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	0.228	0.183

Batch Number	
96000200	Blank Concentration in $\mu\text{Ci/L}$ < 5.43E-01
Rerun	Replicate Concentration in $\mu\text{Ci/L}$ 4.36E-01
0	Maximum Concentration in $\mu\text{Ci/L}$ < 5.4284E-01

Sample Prep	N/A	R_s (Sample Count Rate) = (TC / CT) - BKG
Sample #	S95T003905	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$
Instrument Code	WB27806	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$
Prepared By	SLF	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$
Chemlet		Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL	in $\mu\text{Ci/mL}$	< 5.43E-04	DETECTION LEVEL
Analyst	LESS THAN Value was Determined from Rmax.			
SCL				
Date Complete	RELATIVE COUNTING ERROR		500.0%	1.00E-03 $\mu\text{Ci/mL}$
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	

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

WORKBOOK PAGE: DUP8

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)	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 $\mu\text{Ci/L}$	< 3.92E-01	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	< 3.92E-01	
0	Maximum Concentration in $\mu\text{Ci/L}$	< 3.9246E-01	
Sample Prep			
N/A	Rs (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $Rs * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
S95T003905	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
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			
SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$	< 3.92E-04	DETECTION LEVEL
Analyst	LESS Than Value was Determined from Lc. <i>100% 1/12/96</i>		
SCL			
Date Complete	RELATIVE COUNTING ERROR	500.0%	1.00E-03 $\mu\text{Ci/mL}$
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: SAM9

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

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

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	16
SAMPLE	DISH SIZE (1, 2, or 6) (MS)	2	2
Work List	GROSS COUNTS (GC)	7	8
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	0.270	0.311
Batch Number			
96000200	Blank Concentration in $\mu\text{Ci/L}$	< 6.42E-01	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	< 7.40E-01	
0	Maximum Concentration in $\mu\text{Ci/L}$	< 7.4002E-01	
Sample Prep			
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/ μCi)		
S95T003906	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L}$ / 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			
SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$	< 7.40E-04	DETECTION LEVEL
Analyst	LESS THAN Value was Determined from Rmax.	RAE 1/12/96	
SCL			
Date Complete	RELATIVE COUNTING ERROR	500.0%	1.00E-03 $\mu\text{Ci/mL}$
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: DUP10

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

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

	DUP	REPLICATE
Type	DETECTOR NUMBER	16
DUP	DISH SIZE (1, 2, or 5) (MS)	2
Work List	GROSS COUNTS (GC)	9
4765	COUNT TIME in MINUTES (CT)	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.15
AT	SAMPLE SIZE in mL (SS)	1.000
Test Code	DILUTION FACTOR (DF)	1111
@ALPHA01	DIGEST DILUTION FACTOR (DDF)	1
Matrix	EFFICIENCY FACTOR (EFF)	0.2104
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.352
Batch Number		0.270
96000200	Blank Concentration in $\mu\text{Ci/L}$	< 8.37E-01
Rerun	Replicate Concentration in $\mu\text{Ci/L}$	< 8.42E-01
0	Maximum Concentration in $\mu\text{Ci/L}$	< 8.3745E-01
Sample Prep		
N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$	
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$	
S95T003906	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$	
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$	
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.	
Prepared By		
SLF		
Chemist		
SLF	ALPHA TOTAL in $\mu\text{Ci/mL}$	< 8.37E-04
Analyst	LESS THAN Value was Determined from Rmax.	
SCL		
Date Complete	RELATIVE COUNTING ERROR	265.9%
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: 11/12/96

SAMPLE.WB1 Rev. 1.0

508101ML

Westinghouse
Hanford Company

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

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
TABLE OF CONTENTS

Narrative	1
AN-101 Grab Sample Breakdown (Attachment 1)	6
Sample Data Summary	8
Chain of Custody Forms	13
Sample Preparations	16
Appearance Analysis Worklist # 2452	17
Inorganic Analyses	18
Differential Scanning Calorimetry (DSC)	
DSC Worklist # 2476	19
DSC Worklist # 2477	25
Thermogravimetric Analysis (TGA)	
TGA Worklist # 2480	29
TGA Worklist # 2481	35
Specific Gravity Analysis (SpG)	
SpG Worklist # 2522	39
pH Analysis Worklist # 2523	48
OH Analysis Worklist # 2524	49
Ion Chromatographic Analysis (IC)	
IC Worklist # 2572	59
IC Worklist # 2543	75.1
IC Worklist # 2974	75.17
Inductively Coupled Plasma Spectrographic Analysis (ICP)	
ICP Worklist # 2558	76
Total Organic Carbon (TOC)	
TOC Worklist # 2526	83
Total Inorganic Carbon (TIC)	
TIC Worklist # 2525	107

WHC-SD-WM-DP-148, REV. 0
TABLE OF CONTENTS (Continued)

Radiochemical Analyses	120
Gamma Energy Analysis (GEA)	
GEA Worklist # 2520	121
GEA Worklist # 2754	154
Strontium-90 Analysis (Sr-90)	
Sr-90 Worklist # 2933	171
Sr-90 Worklist # 3122	179
Americium-241 Analysis (Am-241)	
Am-241 Worklist # 2650	189
Plutonium Analysis (Pu-239)	
Pu-239 Worklist # 2499	258

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.

BEST AVAILABLE COPY

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 $\leq 10\%$.

Analytical Deviations

IAN-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 $5.25\text{e-}03 \mu\text{Ci/mL}$. ^{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.

IAN-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 $5.74\text{e-}03 \mu\text{Ci/mL}$. ^{60}Co results are given in Table 1 with the ^{137}Cs results.

The RPD between the sample duplicate for the F⁻ and Cl⁻ analyses were outside of the required limits of $\pm 20\%$. 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 ¹³⁷Cs. However, during the analysis a ¹³⁴Cs peak was noted and reported as 1.89e-02 $\mu\text{Ci/mL}$. ⁶⁰Co results are given in Table 1 with the ¹³⁷Cs 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 ⁶⁰Co and ¹³⁷Cs. The samples were analyzed directly. No analytical problems were noted.

Procedure LA-220-101 Rev. D-1 was used for the analysis of ⁹⁰Sr. 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.

BEST AVAILABLE COPY

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 $^{239/240}\text{Pu}$ 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

BEST AVAILABLE COPY

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

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

ATTACHMENT 1

Attachment 1

AN-101 GRAB SAMPLE BREAKDOWN

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

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

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

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

SAMPLE DATA SUMMARY

Table 1: Results for Compatibility Study
AN-101 GRAB

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

SEGMENT PORTION: Supernate

101

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S951002408		Tot. Organic Carbon by Coul.	ug/mL	101.3	6.000	3.67e+03	3.50e+03	3.58e+03	4.74	103.3	n/a	55.00
S951002408		Tot. Inorg. Carbon by Coul.	ug/mL	97.17	<5.000	2.54e+03	2.61e+03	2.58e+03	2.72	103.3	n/a	20.00
S951002408		% Water by TGA using Mettler	%	100.8	n/a	66.28	66.11	66.19	0.26	n/a	n/a	n/a
S951002408		Specific Gravity	Sp.G.	98.20	n/a	1.230	1.240	1.235	0.81	n/a	n/a	1.00e-02
S951002408		pH Direct	pH	99.86	n/a	12.95	12.96	12.96	0.08	n/a	n/a	1.00e-02
S951002408		OH- by Pot. Titration	ug/mL	96.15	<42.00	3.08e+04	3.00e+04	3.04e+04	2.63	n/a	n/a	5.00e+03
S951002408		NSC 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
S951002408	D	Aluminum-ICP-Acid Dil.	ug/mL	98.16	-1.30e-03	2.22e+04	2.19e+04	2.20e+04	1.12	n/a	n/a	20.10
S951002408	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
S951002408	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	20.10	n/a
S951002408		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
S951002408		Phosphate by IC - Dionex 4000i	ug/mL	107.3	<5.96e-01	9.65e+04	9.77e+04	9.71e+04	1.24	110.3	7.13e+03	n/a
S951002408		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
S951002408		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
S951002408		Chloride by IC - Dionex 4000i	ug/mL	101.5	<8.30e-02	3.30e+03	3.26e+03	3.20e+03	1.22	24.60	92.20	n/a
S951002411		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
S951002411		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
S951002411		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
S951002411		Cobalt-60 by GEA	uci/mL	98.94	<3.18e-03	< 4.10e-3	<3.74e-3	n/a	n/a	3.00e-03	n/a	4.84E+00
S951002411		Am-241 by Extraction	uci/mL	89.90	<1.24e-05	<1.31E-05	2.28e-05	n/a	n/a	1.31e-05	n/a	n/a

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

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

31-oct-1995 14:21:43
A-0002-1

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. 1

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

01-nov-1995 11:47:10
A-0002-1

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	1.87	n/a	1.57e-05	1.95E+00

103

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

WHC-SD-WM-OP-148, REV. 2

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

Riser 22A

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

RPD (Relative Percent Difference) = $\frac{(\text{Abs}(\text{Sample} - \text{Serial Dilution}))}{((\text{Sample} + \text{Serial Dilution})/2)} \times 10$

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 <u>1</u> of <u>1</u>	
Collector <u>JAMES SICKELS</u>		Company Contact <u>JOE JONES</u>				Telephone No. <u>373-3578</u>				Data Turnaround ☐ Priority ☒ Normal			
Project Designation <u>N/A</u>		Sampling Location <u>241-AN-101 R# 22A</u>				SAF No. <u>N/A</u>							
Ice Chest No. <u>N/A</u>		Field Logbook No. <u>N/A</u>				Method of Shipment <u>WHC TRANSPORTATION</u>							
Shipped To <u>2225 LABS</u>		Offsite Property No. <u>N/A</u>				Bill of Lading/Air Bill No. <u>N/A</u>							
Possible Sample Hazards/Remarks <u>RADIOACTIVE</u>		Preservative <u>N/A</u>											
		Type of Container <u>GLASS</u>											
		No. of Container(s) <u>1</u>											
Special Handling and/or Storage <u>N/A</u>		Volume <u>125mL</u>											
<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold;">100</div> <div> <p style="margin: 0;">SAMPLE ANALYSIS</p> <p style="margin: 0;">SCA #2 (2513) #3 (2514)</p> </div> </div>													
Sample No.	Matrix*	Date Sampled	Time Sampled										
<u>1AN-95-3</u>	<u>L</u>	<u>9-6-95</u>	<u>11:22am</u>	<u>DOSE RATE ON CONTACT 150 mR/hr</u>									
<u>1AN-95-2</u>	<u>L</u>	<u>9-6-95</u>	<u>11:10am</u>	<u>DOSE RATE ON CONTACT 100 mR/hr</u>									
CHAIN OF POSSESSION		Sign/Print Names				SPECIAL INSTRUCTIONS						Matrix*	
Relinquished By <u>JAMES SICKELS</u> Date/Time <u>9-7-95 0945</u>		Received By <u>JAMIE HENLEY</u> Date/Time <u>9-7-95 745</u>		<p>WHC-SD-WM-DP-148, REV. 1</p> <p>WHC-SD-WM-DP-148, REV. 0</p>						<ul style="list-style-type: none"> 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 			
Relinquished By <u>JAMIE HENLEY</u> Date/Time <u>9-7-95</u>		Received By <u>EE HICKS</u> Date/Time <u>9-7-95 1110</u>											
Relinquished By _____ Date/Time _____		Received By _____ Date/Time _____											
Relinquished By _____ Date/Time _____		Received By _____ Date/Time _____											
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

LABCORE Data Entry Template for Worklist#

2452

Analyst:

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	@BRKDOWN1 DOSE RATE	LIQUID	N/A	3500		by B. Clements mrad/hour
95000135	AN-101 GRAB	1 SAMPLE	S95T002405	0	@BRKDOWN1 APPEAR01	LIQUID	N/A	Complete		
95000135	AN-101 GRAB	1 SAMPLE	S95T002405	0	@BRKDOWN1 SAMPAMT2	LIQUID	N/A	125		2 mL rose 9/19/95
95000135	AN-101 GRAB	2 SAMPLE	S95T002406	0	@BRKDOWN1 DOSE RATE	LIQUID	N/A	4500		by S. Corbally mrad/hour
95000135	AN-101 GRAB	2 SAMPLE	S95T002406	0	@BRKDOWN1 APPEAR01	LIQUID	N/A	Complete		
95000135	AN-101 GRAB	2 SAMPLE	S95T002406	0	@BRKDOWN1 SAMPAMT2	LIQUID	N/A	125		2 mL rose 9/19/95
95000135	AN-101 GRAB	3 SAMPLE	S95T002407	0	@BRKDOWN1 DOSE RATE	LIQUID	N/A	4500		mrad/hour by S. Corbally
95000135	AN-101 GRAB	3 SAMPLE	S95T002407	0	@BRKDOWN1 APPEAR01	LIQUID	N/A	Complete		
95000135	AN-101 GRAB	3 SAMPLE	S95T002407	0	@BRKDOWN1 SAMPAMT2	LIQUID	N/A	125		2 mL rose 9/19/95

Final page for worklist #

2452

Analyst Signature

Date

9-19-95

Analyst Signature

Date

9-20-95

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:

all 10/21/95 ~ 20 mL ~ 30-40 mL subsampled from each for Inorg. & Redox 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 RAL L 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-D 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

Analyst Signature

Date

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.

BEST AVAILABLE COPY

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

DSC STD 12N14A

8.670 mg

Rate: 10.0 °C/min

File: 00038.001 DSC METTLER 25-Sep-95

Ident: 0.0 222-S Laboratory

EXOV

10. mW

Integration
 Delta H 263 mJ
 30.4 J/g
 Peak 157.7 °C
 -18.8 mW

120.

140.

160.

180 °C

Lucie M. Fulton 9-25-95

BEST AVAILABLE COPY

BEST AVAILABLE COPY

S95T002408 DUP N2

11.389 mg

File: 00042.001 DSC METTLER 25-Sep-95

Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

exo

Integration
Delta H17260 mJ
1515.5 J/g
Peak 118.8 °C
-58.0 mW

BEST AVAILABLE COPY

BEST AVAILABLE COPY

LABCORE Data Entry Template for Worklist#

2477

Analyst: SMF Instrument: DSC0 1 Book # 12N147

Method: LA-514-113 Rev/Mod CD

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	<u>28.45</u>	<u>31.4</u>	<u>N/A</u>	Joules/g
95000135	AN-101 GRAB	2 SAMPLE	S95T002410	0	DSC-01	LIQUID	<u>N/A</u>	<u>Ø</u>		Joules/g
95000135	AN-101 GRAB	3 DUP	S95T002410	0	DSC-01	LIQUID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist #

2477

Luis M. Fulton 9-22-95
Analyst Signature Date 2245

John 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.

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.

BEST AVAILABLE COPY

DSC STD 12N14A

6.580 mg

Rate: 10.0 °C/min

File: 00011.001

DSC METTLER 22-Sep-95

Ident: 0.0

222-S Laboratory

Susie M. Dutton 9-22-95

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

BEST AVAILABLE COPY

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

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

S95T002410 N2

16.281 mg

File: 00013.001 DSC METTLER 22-Sep-95
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

exo

100. 200. 300. 400. °C

BEST AVAILABLE COPY

S95T002410 DUP N2

17.385 mg

Rate: 10.0 °C/min

File: 00015.001

DSC METTLER

22-Sep-95

Ident: 0.0

222-S Laboratory

exo >

Integration

Delta H 113 mJ

6.5 J/g

Peak 243.3 °C

-1.9 mW

Integration

Delta H21824 mJ

1255.4 J/g

Peak 113.3 °C

-83.9 mW

50. mW

100.

200.

300.

400.

°C

120

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

LABCORE Data Entry Template for Worklist#

2480

Analyst: SMF Instrument: TGA0 1 Book # LSN8-17

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	<u>59.74</u>	<u>60.21</u>	<u>N/A</u>	%
95000135	AN-101 GRAB	2 SAMPLE	S95T002408	0		TGA-01	LIQUID	<u>N/A</u>	<u>66.28</u>		%
95000135	AN-101 GRAB	3 DUP	S95T002408	0		TGA-01	LIQUID	<u>66.28</u>	<u>66.11</u>	<u>N/A</u>	%
95000135	AN-101 GRAB	4 SAMPLE	S95T002409	0		TGA-01	LIQUID	<u>N/A</u>	<u>66.27</u>		%
95000135	AN-101 GRAB	5 DUP	S95T002409	0		TGA-01	LIQUID	<u>66.27</u>	<u>65.72</u>	<u>N/A</u>	%

Final page for worklist #

2480

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

L. Jones 9-27-95
Analyst Signature Date

Verified by Blandina Valenzuela
9-28-95

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

BEST AVAILABLE COPY

TGA STD 65N8A

15.836 mg

Rate: 10.0 °C/min

File: 00039.001

TG

METTLER

25-Sep-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -9.54 mg

-60.21 %

Resid. 6.30 mg

39.79 %

Dpeak 83.3 °C

WHCSD-WM-DP-148, REV. 1

122

5. mg

50. 100. 150. 200.

Lusie M. Dutton 9-25-95

BEST AVAILABLE COPY

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

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

S95T002408 N2

14.911 mg

File: 00041.001 TG METTLER 25-Sep-95

Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

Step Analysis
Height -9.88 mg
-66.28 %
ResidC. 5.03 mg
33.72 %
Dpeak 81.0 °C

Step Analysis
Height -0.31 mg
-2.06 %
ResidC. 4.50 mg
30.20 %

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

BEST AVAILABLE COPY

S95T002408 DUP N2

14.829 mg

Rate: 10.0 °C/min

File: 00043.001 TG METTLER 25-Sep-95

Ident: 0.0 222-S Laboratory

Step Analysis

Height -9.80 mg

-66.11 %

Resid. 5.03 mg

33.89 %

Dpeak 79.0 °C

Step Analysis

Height -0.30 mg

-2.04 %

Resid. 4.52 mg

30.50 %

BEST AVAILABLE COPY

S95T002409 N2

14.089 mg

Rate: 10.0 °C/min

File: 00045.001

TG

METTLER

25-Sep-95

Ident: 0.0

222-S Laboratory

Step Analysis
Height -9.34 mg
-66.27 %
ResiC. 4.75 mg
33.73 %
Dpeak 75.0 °C

Step Analysis
Height -0.28 mg
-1.96 %
ResiC. 4.26 mg
30.22 %

125

5. mg

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

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

BEST AVAILABLE COPY

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

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

S95T002409 DUP N2

15.544 mg

Rate: 10.0 °C/min

File: 00047.001 TG METTLER 25-Sep-95

Ident: 0.0 222-S Laboratory

Step Analysis
Height-10.22 mg
-65.72 %
Resic. 5.33 mg
34.28 %
Dpeak 79.0 °C

Step Analysis
Height -0.35 mg
-2.25 %
Resic. 4.75 mg
30.58 %

WHC-SD-WM-DP-148, REV. 0
LABCORE Data Entry Template for Worklist#

Page: 1
2481
ct

Analyst: SMT Instrument: TGA0 1 Book # 65N81A

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

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	<u>59.74</u> <u>20.45</u>	<u>60.53</u>	<u>N/A</u>	%
95000135	AN-101 GRAB	2 SAMPLE	S95T002410	0	TGA-01	LIQUID	<u>N/A</u>	<u>65.96</u>		%
95000135	AN-101 GRAB	3 DUP	S95T002410	0	TGA-01	LIQUID	<u>65.96</u>	<u>65.81</u>	<u>N/A</u>	%

Final page for worklist # **2481**

Lucie M. Dalton 9-22-95
Analyst Signature Date
2245

RH 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.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 128 TO 130

BEST AVAILABLE COPY

TGA STD 65N8A

14.706 mg

File: 00012.001 TG METTLER 22-Sep-95

Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

Step Analysis
Height -8.90 mg
-60.53 %
Resid. 5.80 mg
39.47 %
Dpeak 76.7 °C

BEST AVAILABLE COPY

S95T002410 N2

16.718 mg

File: 00014.001 TG METTLER 22-Sep-95

Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

Step Analysis
Height-11.03 mg
-65.96 %
Resid. 5.69 mg
34.04 %
Dpeak 79.0 °C

Step Analysis
Height -0.44 mg
-2.63 %
Resid. 5.17 mg
30.91 %

BEST AVAILABLE COPY

S95T002410 DUP N2

14.381 mg

Rate: 10.0 °C/min

File: 00016.001

TG

METTLER

22-Sep-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -9.46 mg

-65.81 %

ResiC. 4.92 mg

34.19 %

Dpeak 75.0 °C

Step Analysis

Height -0.29 mg

-2.02 %

ResiC. 4.44 mg

30.91 %

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

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

LABCORE Data Entry Template for Worklist#

2522

Analyst: DPB Instrument: BA001 Book # 134N16-A
 Method: LA-510-112 Rev/Mod C-3 C-3
 Worklist Comment: SpG AN-101 - Do not have to run replicates. WHC-SD-WM-DP- 148, REV. 1

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

DPB 10/23/95 20:00
 Analyst Signature Date

STD#1 G 1.86189 1.97202 2409 G 1.97113
 T 1.86189 SAM T 1.84370
 N 1.11013 N 1.12743
 2408 G 1.93764 2409 G 1.97013
 SAM T 1.81473 DUP T 1.84561
 N 1.12291 N 1.12452
 2408 G 2.04083 2410 G 1.93660
 DUP T 1.91726 SAM T 1.81492
 N 1.12357 N 1.12168

Data Entry Comments:

Sample Size for all: 0.10002 mL

PS 10-24-95
 Analyst Signature Date

2410 G 1.99019
 DUP T 1.86502
 N 1.12517
 STD#2 G 1.98679
 T 1.87770
 N 1.10909

Heather Quast 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 μ L	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 = $[(W2-W1) \times 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} \times 1.000 \text{ g/mL}]$		
Date			
10/23/95			
Time			
08:00 PM			

v RESULT v	
Specific Gravity =	1.101

Data Entry by: *[Signature]* Date: 10/24/95
 Approved by: *[Signature]* Date: 10-25-95
 Form 510112L1 Rev. 1.1 Page 1 of 1

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 μ L	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	Specific Gravity = $[(W2-W1) \times 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} \times 1.000 \text{ g/mL}]$		
DP BROMLEY			
Date			
10/23/95			
	v RESULT v		
Time	Specific Gravity =	1.229	
08:00 PM			

Data Entry by: *RL Jones* Date: 10/24/95
 Approved by: *Shirley Anastro* Date: 10-25-95
 Form 510112L1 Rev. 1.1 Page 1 of 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 μ L	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	Specific Gravity = $[(W2-W1) \times 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} \times 1.000 \text{ g/mL}]$		
DP BROMLEY			
Date			
10/23/95			
Time			
08:00 PM			

✓ RESULT ✓

Specific Gravity = 1.235

Data Entry by: *[Signature]* Date: 10/24/95
 Approved by: *[Signature]* Date: 10-25-95
 Form 510112L1 Rev. 1.1 Page 1 of 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 μ L	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 = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
10/23/95	$\sqrt{\text{RESULT}}$		
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-148, 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 μ L	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	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
DP BROMLEY			
Date			
10/23/95			
Time	v RESULT v		
08:00 PM	Specific Gravity =	1.245	

Data Entry by: *[Signature]* Date: 10/24/95
 Approved by: *[Signature]* Date: 10-25-95
 Form 510112L1 Rev. 1.1 Page 1 of 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 μ L	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 = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
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
Form 510112L1 Rev. 1.1 Page 1 of 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)	1.9902	
Work List	Tare Weight (W1)	1.8650	
2522	Weight of Solution (W2-W1)	0.12517	0
Test Code	Volume of Solution μ L	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	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
DP BROMLEY			
Date			
10/23/95			
Time			
08:00 PM			

v RESULT v

Specific Gravity = 1.251

Data Entry by: *[Signature]* Date: 10/24/95
 Approved by: *[Signature]* Date: 10-25-95
 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
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 μ L	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	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
DP BROMLEY			
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-O WHC-SD-WM-DP-148, 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-OC	QC	7.38	7.37	N/A	7.37 pH
95000135	AN-101 GRAB	2 SAMPLE	S95T002408	0	PH-01	LIQUID	N/A	12.95	12.95	12.95 pH
95000135	AN-101 GRAB	3 DUP	S95T002408	0	PH-01	LIQUID	12.95	12.96	N/A	12.96 pH
95000135	AN-101 GRAB	4 SAMPLE	S95T002409	0	PH-01	LIQUID	N/A	13.95	13.95	13.95 pH
95000135	AN-101 GRAB	5 DUP	S95T002409	0	PH-01	LIQUID	13.95	13.94	N/A	13.94 pH
95000135	AN-101 GRAB	6 SAMPLE	S95T002410	0	PH-01	LIQUID	N/A	13.88	13.88	13.88 pH
95000135	AN-101 GRAB	7 DUP	S95T002410	0	PH-01	LIQUID	13.88	13.87	N/A	13.87 pH

Final page for worklist #

2523

Rae Ann Green 9-25-95
Analyst Signature Date

R. Jones 9-25-95
Analyst Signature Date

Reviewed Rae Ann Green 9/25/95

Buffered at 7.00 pH + 10.00 pH for STD

Buffered at 10.00 pH + 12.45 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	<u>1</u>	<u><42</u>	N/A	ug/mL
		2 STD			OH-01	LIQUID	<u>1.66e4</u>	<u>1.60e4</u>	N/A	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002408	0	OH-01	LIQUID	N/A	<u>3.08E4</u>	<u>5.00E3</u>	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	OH-01	LIQUID	<u>3.08e4</u>	<u>3.00e4</u>	N/A	ug/mL
95000135	AN-101 GRAB	5 SAMPLE	S95T002409	0	OH-01	LIQUID	N/A	<u>3.22e4</u>	<u>5.00E3</u>	ug/mL
95000135	AN-101 GRAB	6 DUP	S95T002409	0	OH-01	LIQUID	<u>3.22e4</u>	<u>3.37e4</u>	N/A	ug/mL
95000135	AN-101 GRAB	7 SAMPLE	S95T002410	0	OH-01	LIQUID	N/A	<u>3.01e4</u>	<u>5.00E3</u>	ug/mL
95000135	AN-101 GRAB	8 DUP	S95T002410	0	OH-01	LIQUID	<u>3.01e4</u>	<u>3.15e4</u>	N/A	ug/mL
		9 STD			OH-01	LIQUID	<u>1.66e4</u>	<u>1.60E4</u>	N/A	ug/mL

Final page for worklist #

2524

R. WENDLAND 9-29-95
Analyst Signature Date

Tom D. MEYER 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.

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

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 SPH=1/div
 start V .000 ml

3 6
 1

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. Wendland Date: 10/02/95
 Approved by: [Signature] Date: 10/13/95
 Form 211102_1 Rev. 1.3 Page 1 of 1

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

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 ΔpH=1/div
start V .000 ml

BEST AVAILABLE COPY

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

		STD
Type	Sample Size (mL) SS	0.050
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:	<i>R.W. Schmitt</i>	Date:	10/02/95
Approved by:	<i>[Signature]</i>	Date:	10/3/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

0.25

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
 .18ml/div Δ pH=1/div
 start V .000 ml

BEST AVAILABLE COPY

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

		SAMPLE
Type	Sample Size (mL) SS	0.025
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 μ g/mL (PPM)	3.08E+04
Matrix		
LIQUID		
Sample #	Detection Limit = 125 μ g / SS * DF	
S95T002408		
Instrument Code	Detection Limit (μ g/mL)	5.00E+03
WC06695		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
R.WENDLAND		
Date	OH in μ g/mL = (OH MOLARITY)*(17.0g/mole)*((1000000 μ g/g)/(1000mL/L))	
09/29/95		
Time		
		SAMPLE
Concentration of OH in Sample (Molarity)		1.81E+00
OH in Sample in μ g/mL (PPM)		3.08E+04

Data Entry by: *R.W. Wendland* Date: 10/02/95
 Approved by: *R.W. Wendland* Date: 10/3/95
 Form 211102_1 Rev. 1.3 Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

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

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
=====

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 (PPM)	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: *[Signature]* Date: 10/02/95
Approved by: *[Signature]* Date: 10/3/95
Form 211102_1 Rev. 1.3 Page 1 of 1

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 09:36
GET pH 12 # 30
Id.#1 89
Id.#2 .2005
pH(init) 11.78
V/ml pH
EP1 .236 10.22
EP2 .353 8.58
stop volt.reached
=====

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

BEST AVAILABLE COPY

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

		SAMPLE
Type	Sample Size (mL) SS	0.025
SAMPLE	Concentration of HNO3 (Molarity)	0.2005
Work List	HNO3 Titrant at OH end-point in mL	0.236
2524	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.89E+00
OH-01	OH in Sample in µg/mL (PPM)	3.22E+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		
		SAMPLE
Concentration of OH in Sample (Molarity)		1.89E+00
OH In Sample in µg/mL (PPM)		3.22E+04

Data Entry by: *Ros Schroeder* Date: 10/02/95
Approved by: *John W. Wendland* 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 Δ pH=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	0.247
2524	Dilution Factor DF	1
Test Code	Concentration of OH in Sample (Molarity)	1.98E+00
OH-01	OH in Sample in μ g/mL (PPM)	3.37E+04
Matrix		
LIQUID		
Sample #	Detection Limit = 125 μ g / SS * DF	
S95T002409		
Instrument Code	Detection Limit (μ g/mL)	5.00E+03
WC06695		
Analyst	OH Molarity = ((mL HNO3)*(M HNO3))/Sample Size in mL*Dilution Factor	
R.WENDLAND		
Date	OH in μ g/mL = (OH MOLARITY)*(17.0g/mole)*((1000000 μ g/g)/(1000mL/L))	
09/29/95		
Time		
		DUPLICATE
Concentration of OH in Sample (Molarity)		1.98E+00
OH in Sample in μ g/mL (PPM)		3.37E+04

Data Entry by: *R.W. Wendland* Date: 10/02/95
Approved by: *[Signature]* Date: 10/13/95
Form 211102_1 Rev. 1.3 Page 1 of 1

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

BEST AVAILABLE COPY

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

		SAMPLE
Type	Sample Size (mL) SS	0.025
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 Schneider* Date: 10/02/95
Approved by: *[Signature]* Date: 10/3/95
Form 211102_1 Rev. 1.3 Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

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

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

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
=====

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	0.231
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: *R. W. Wendland* Date: 10/02/95
Approved by: *[Signature]* Date: 10/3/95
Form 211102_1 Rev. 1.3 Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-148, 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
=====

date 95-09-29 time 10:10
GET pH 12 # 37
.10ml/div ΔpH=1/div
start V .000 ml

BEST AVAILABLE COPY

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

		STD
Type	Sample Size (mL) SS	0.050
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: Rus Schneider Date: 10/02/95
Approved by: [Signature] Date: 10/13/95
Form 211102_1 Rev. 1.3 Page 1 of 1

WHC-SD-WM-DP-148, REV. 0
LABCORE Data Entry Template for Worklist#

Analyst: KGH Instrument: IC01 IC01 Book # 106A9D

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			01C-01 F-02	LIQUID	<u>NA</u>	<u>NA</u>	N/A	ug/mL
		1 BLNK			01C-01 CL-02	LIQUID			N/A	ug/mL
		1 BLNK			01C-01 NO2-02	LIQUID			N/A	ug/mL
		1 BLNK			01C-01 BR-02	LIQUID			N/A	ug/mL
		1 BLNK			01C-01 NO3-02	LIQUID			N/A	ug/mL
		1 BLNK			01C-01 PO4-02	LIQUID			N/A	ug/mL
		1 BLNK			01C-01 SO4-02	LIQUID			N/A	ug/mL
		1 BLNK			01C-01 OXALATE2	LIQUID			N/A	ug/mL
		2 STD			01C-01 F-02	LIQUID			N/A	ug/mL
		2 STD			01C-01 CL-02	LIQUID			N/A	ug/mL
		2 STD			01C-01 NO2-02	LIQUID			N/A	ug/mL
		2 STD			01C-01 BR-02	LIQUID			N/A	ug/mL
		2 STD			01C-01 NO3-02	LIQUID			N/A	ug/mL
		2 STD			01C-01 PO4-02	LIQUID			N/A	ug/mL
		2 STD			01C-01 SO4-02	LIQUID			N/A	ug/mL
		2 STD			01C-01 OXALATE2	LIQUID	<u>✓</u>	<u>✓</u>	N/A	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002408 0		01C-01 F-02	LIQUID	<u>N/A</u>	<u><6.89e/ 6.89e/</u>		ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002408 0		01C-01 CL-02	LIQUID	<u>N/A</u>	<u>3.30e/ 9.22e/</u>		ug/mL

Data Entry Comments:

Enter BLNK & STD under CCB and CCV.

Spike Volume .100ml

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		01C-01 NO2-02	LIQUID	N/A	4.84e4	5.58e3	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002408	0		01C-01 NO3-02	LIQUID	N/A	9.65e4	7.13e3	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002408	0		01C-01 PO4-02	LIQUID	N/A	1.39e3	6.62e2	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002408	0		01C-01 SO4-02	LIQUID	N/A	1.58e3	7.53e2	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002408	0		01C-01 F-02	LIQUID	16.87e1	8.17e2	N/A	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002408	0		01C-01 CL-02	LIQUID	3.30e3	3.26e3	N/A	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002408	0		01C-01 NO2-02	LIQUID	4.84e4	4.93e4	N/A	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002408	0		01C-01 BR-02	LIQUID	N/A	N/A	N/A	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002408	0		01C-01 NO3-02	LIQUID	9.65e4	9.77e4	N/A	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002408	0		01C-01 PO4-02	LIQUID	1.39e3	1.40e3	N/A	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002408	0		01C-01 SO4-02	LIQUID	1.58e3	1.61e3	N/A	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002408	0		01C-01 OXALATE2	LIQUID	N/A	N/A	N/A	ug/mL
95000135	AN-101 GRAB	5	SPK	S95T002408	0		01C-01 F-02	LIQUID		46.2	N/A	ug/mL
95000135	AN-101 GRAB	5	SPK	S95T002408	0		01C-01 CL-02	LIQUID		24.6	N/A	ug/mL
95000135	AN-101 GRAB	5	SPK	S95T002408	0		01C-01 NO2-02	LIQUID		112.1	N/A	ug/mL
95000135	AN-101 GRAB	5	SPK	S95T002408	0		01C-01 BR-02	LIQUID	N/A	N/A	N/A	ug/mL
95000135	AN-101 GRAB	5	SPK	S95T002408	0		01C-01 NO3-02	LIQUID		110.3	N/A	ug/mL
95000135	AN-101 GRAB	5	SPK	S95T002408	0		01C-01 PO4-02	LIQUID		96.2	N/A	ug/mL
95000135	AN-101 GRAB	5	SPK	S95T002408	0		01C-01 SO4-02	LIQUID		94.9	N/A	ug/mL
95000135	AN-101 GRAB	5	SPK	S95T002408	0		01C-01 OXALATE2	LIQUID	N/A	N/A	N/A	ug/mL
		6	CCB				01C-01 F-02	LIQUID		2.062	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
		6 CCB			QIC-01 CL-02	LIQUID		2.083	N/A	ug/mL
		6 CCB			QIC-01 NO2-02	LIQUID		2.547	N/A	ug/mL
		6 CCB			QIC-01 BR-02	LIQUID	NA	NA	N/A	ug/mL
		6 CCB			QIC-01 NO3-02	LIQUID		2.699	N/A	ug/mL
		6 CCB			QIC-01 PO4-02	LIQUID		2.596	N/A	ug/mL
		6 CCB			QIC-01 SO4-02	LIQUID		2.678	N/A	ug/mL
		6 CCB			QIC-01 OXALATE2	LIQUID	NA	NA	N/A	ug/mL
		7 CCV			QIC-01 F-02	LIQUID		64.6	N/A	ug/mL
		7 CCV			QIC-01 CL-02	LIQUID		80.2	N/A	ug/mL
		7 CCV			QIC-01 NO2-02	LIQUID		545.1	N/A	ug/mL
		7 CCV			QIC-01 BR-02	LIQUID	NA	NA	N/A	ug/mL
		7 CCV			QIC-01 NO3-02	LIQUID		62.7	N/A	ug/mL
		7 CCV			QIC-01 PO4-02	LIQUID		586.1	N/A	ug/mL
		7 CCV			QIC-01 SO4-02	LIQUID		652.3	N/A	ug/mL
		7 CCV			QIC-01 OXALATE2	LIQUID	NA	NA	N/A	ug/mL

Final page for worklist #

2572

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

Analyst Signature Date
10-11-95

Data Entry Comments:

There appears to be matrix interference with F
and Cl causing poor spike recoveries on both and
poor PRD on F. JML 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: SLH Instrument: IC01 IC01 Book # 110119-D

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			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.

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.

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

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

Page: 3

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

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

Page: 4

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	01C-01 BR-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	9 DUP	S95T002410	0	01C-01 NO3-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	9 DUP	S95T002410	0	01C-01 PO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	9 DUP	S95T002410	0	01C-01 SO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	9 DUP	S95T002410	0	01C-01 OXALATE2	LIQUID			N/A	ug/mL

Final page for worklist #

2572

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.

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

ANION ANALYSIS ON DIONEX

SAMPLE #: S95T002408 &
TEST CODE: @ic-01
INSTRUMENT: ic-01
WORK LIST #: 2572
BATCH ID:

ANALYST: Kristin Higbee
ANALYSIS DATE: 09/29/95
SAMPLE POINT: AN-101
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: *[Signature]* Date: 10/10/95
Chemist Approval: *[Signature]* Date: 10/10/95

LAB LEADER INFO	
Method:	La-533-105 d-1
Matrix:	liquid
Test Code:	@lc-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:	lc-01
Run:	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)	84.6	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 = $\frac{((\text{Spike} - \text{Sample}) - (\text{Sample}) \cdot (\text{Total Volume}))}{((\text{Spike Vol.}) \cdot (\text{Spike Std.}) \cdot (\text{Sample DF}))} \cdot 100\%$
 Note: (For spike recovery when the sample conc. is less than detection limit you do NOT subtract sample conc.)
 Duplicate Relative % Difference = $\frac{((\text{Sample} - \text{Duplicate}))}{((\text{Sample} + \text{Duplicate}) / 2)} \cdot 100\%$
 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	<561.06
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	<561.06
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:

Date: 10/10/95

Approved by:

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]* 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                      Date: 09/29/1995 13:35:45
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
=====

```

```

-----
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                      Date: 09/29/1995 14:23:01
Data File  : C:\DX\DATA\95092921.D07
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 7                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	0.90		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# 109109.4

Method: 4533-105 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

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

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 _____

James M. L... 10/25/95
Reviewer Signature _____ Date _____

LABCORE Data Entry Template for Worklist#

2743

Analyst:

EAL

Enter ALC and matrix

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			QIC-01 F-02	LIQUID	<u>1</u>	<u>4.013</u>	<u>N/A</u>	ug/mL
		1 CCB			QIC-01 CL-02	LIQUID	<u>1</u>	<u>4.017</u>	<u>N/A</u>	ug/mL
		1 CCB			QIC-01 NO2-02	LIQUID	<u>1</u>	<u>4.167</u>	<u>N/A</u>	ug/mL
		1 CCB			QIC-01 BR-02	LIQUID	<u>NA</u>	<u>NA</u>	<u>N/A</u>	ug/mL
		1 CCB			QIC-01 NO3-02	LIQUID	<u>1</u>	<u>4.140</u>	<u>N/A</u>	ug/mL
		1 CCB			QIC-01 PO4-02	LIQUID	<u>1</u>	<u>4.296</u>	<u>N/A</u>	ug/mL
		1 CCB			QIC-01 SO4-02	LIQUID	<u>1</u>	<u>4.136</u>	<u>N/A</u>	ug/mL
		1 CCB			QIC-01 OXALATE2	LIQUID	<u>NA</u>	<u>NA</u>	<u>N/A</u>	ug/mL
		2 CCV			QIC-01 F-02	LIQUID	<u>59</u>	<u>59.5</u>	<u>N/A</u>	ug/mL
		2 CCV			QIC-01 CL-02	LIQUID	<u>79</u>	<u>76.8</u>	<u>N/A</u>	ug/mL
		2 CCV			QIC-01 NO2-02	LIQUID	<u>533</u>	<u>503</u>	<u>N/A</u>	ug/mL
		2 CCV			QIC-01 BR-02	LIQUID	<u>NA</u>	<u>NA</u>	<u>N/A</u>	ug/mL
		2 CCV			QIC-01 NO3-02	LIQUID	<u>614</u>	<u>574.7</u>	<u>N/A</u>	ug/mL
		2 CCV			QIC-01 PO4-02	LIQUID	<u>546</u>	<u>520.3</u>	<u>N/A</u>	ug/mL
		2 CCV			QIC-01 SO4-02	LIQUID	<u>631</u>	<u>595.2</u>	<u>N/A</u>	ug/mL
		2 CCV			QIC-01 OXALATE2	LIQUID	<u>NA</u>	<u>NA</u>	<u>N/A</u>	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0	QIC-01 F-02	LIQUID	<u>N/A</u>	<u>6.04⁺²</u>	<u>6.70⁺¹</u>	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0	QIC-01 CL-02	LIQUID	<u>N/A</u>	<u>3.30⁺³</u>	<u>1.73⁺²</u>	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

Does not needed on this WKL, however the BL requires info, 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, JMF
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	01C-01	NO2-02	LIQUID	N/A	5.10 ⁺⁴	1.09 ⁺³	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0	01C-01	NO3-02	LIQUID	N/A	1.00 ⁺⁵	1.43 ⁺³	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0	01C-01	PO4-02	LIQUID	N/A	2.88 ⁺³	1.52 ⁺³	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0	01C-01	SO4-02	LIQUID	N/A	4.25 ⁺³	7.01 ⁺²	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	01C-01	F-02	LIQUID	6.04 ⁺²	5.10 ⁺²	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	01C-01	CL-02	LIQUID	3.30 ⁺³	3.23 ⁺³	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	01C-01	NO2-02	LIQUID	5.10 ⁺⁴	4.93 ⁺⁴	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	01C-01	BR-02	LIQUID	N/A	N/A	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	01C-01	NO3-02	LIQUID	1.00 ⁺⁵	1.00 ⁺⁵	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	01C-01	PO4-02	LIQUID	2.88 ⁺³	2.72 ⁺³	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	01C-01	SO4-02	LIQUID	4.25 ⁺³	3.91 ⁺³	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0	01C-01	OXALATE2	LIQUID	N/A	N/A	N/A	ug/mL

Final page for worklist #

2743

See original WKL 2743 for signatures
Analyst Signature Date
John Fuge
Verified 10/25/95 JM Fuge
10/17/95

Analyst Signature Date
10-22-95

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist#

2743

Analyst:

W. L. KGH

Instrument: IC01

Book # 109W9-A

Method: LA-533-105 Rev/Mod

D-1

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

Worklist Comment: Was originally part of WKL 2572. JMP

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK			01C-01 F-02	LIQUID			N/A	ug/mL
		1 BLNK			01C-01 CL-02	LIQUID			N/A	ug/mL
		1 BLNK			01C-01 NO2-02	LIQUID			N/A	ug/mL
		1 BLNK			01C-01 BR-02	LIQUID			N/A	ug/mL
		1 BLNK			01C-01 NO3-02	LIQUID			N/A	ug/mL
		1 BLNK			01C-01 PO4-02	LIQUID			N/A	ug/mL
		1 BLNK			01C-01 SO4-02	LIQUID			N/A	ug/mL
		1 BLNK			01C-01 OXALATE2	LIQUID			N/A	ug/mL
		2 STD			01C-01 F-02	LIQUID			N/A	ug/mL
		2 STD			01C-01 CL-02	LIQUID			N/A	ug/mL
		2 STD			01C-01 NO2-02	LIQUID			N/A	ug/mL
		2 STD			01C-01 BR-02	LIQUID			N/A	ug/mL
		2 STD			01C-01 NO3-02	LIQUID			N/A	ug/mL
		2 STD			01C-01 PO4-02	LIQUID			N/A	ug/mL
		2 STD			01C-01 SO4-02	LIQUID			N/A	ug/mL
		2 STD			01C-01 OXALATE2	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0	01C-01 F-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0	01C-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		QIC-01 NO2-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0		QIC-01 NO3-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0		QIC-01 PO4-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002409	0		QIC-01 SO4-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0		QIC-01 F-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0		QIC-01 CL-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0		QIC-01 NO2-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0		QIC-01 BR-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0		QIC-01 NO3-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0		QIC-01 PO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0		QIC-01 SO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002409	0		QIC-01 OXALATE2	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	5 SAMPLE	S95T002410	0		QIC-01 F-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	5 SAMPLE	S95T002410	0		QIC-01 CL-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	5 SAMPLE	S95T002410	0		QIC-01 NO2-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	5 SAMPLE	S95T002410	0		QIC-01 NO3-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	5 SAMPLE	S95T002410	0		QIC-01 PO4-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	5 SAMPLE	S95T002410	0		QIC-01 SO4-02	LIQUID	N/A			ug/mL
95000135	AN-101 GRAB	6 DUP	S95T002410	0		QIC-01 F-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	6 DUP	S95T002410	0		QIC-01 CL-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	6 DUP	S95T002410	0		QIC-01 NO2-02	LIQUID			N/A	ug/mL

Data Entry Comments:

WHC-SD-WM-DP- 248, 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		QIC-01 BR-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	6	DUP	S95T002410	0		QIC-01 NO3-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	6	DUP	S95T002410	0		QIC-01 PO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	6	DUP	S95T002410	0		QIC-01 SO4-02	LIQUID			N/A	ug/mL
95000135	AN-101 GRAB	6	DUP	S95T002410	0		QIC-01 OXALATE2	LIQUID			N/A	ug/mL
		7	CCB				QIC-01 F-02	LIQUID			N/A	ug/mL
		7	CCB				QIC-01 CL-02	LIQUID			N/A	ug/mL
		7	CCB				QIC-01 NO2-02	LIQUID			N/A	ug/mL
		7	CCB				QIC-01 BR-02	LIQUID			N/A	ug/mL
		7	CCB				QIC-01 NO3-02	LIQUID			N/A	ug/mL
		7	CCB				QIC-01 PO4-02	LIQUID			N/A	ug/mL
		7	CCB				QIC-01 SO4-02	LIQUID			N/A	ug/mL
		7	CCB				QIC-01 OXALATE2	LIQUID			N/A	ug/mL
		8	CCV				QIC-01 F-02	LIQUID			N/A	ug/mL
		8	CCV				QIC-01 CL-02	LIQUID			N/A	ug/mL
		8	CCV				QIC-01 NO2-02	LIQUID			N/A	ug/mL
		8	CCV				QIC-01 BR-02	LIQUID			N/A	ug/mL
		8	CCV				QIC-01 NO3-02	LIQUID			N/A	ug/mL
		8	CCV				QIC-01 PO4-02	LIQUID			N/A	ug/mL
		8	CCV				QIC-01 SO4-02	LIQUID			N/A	ug/mL
		8	CCV				QIC-01 OXALATE2	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
-------	---------	--------	---------	-----	------	--------	--------	-------	----	------

Final page for worklist # 2743

[Signature] 10-17-95
Analyst Signature Date

[Signature] 10/16-17/95
Analyst Signature Date

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

Data Entry Comments:

Second set of Standards ran for second day of analysis. 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	ANALYST: EAL/KGH
TEST CODE: @IC-01	ANALYSIS DATE: 10/17/95
INSTRUMENT: IC01	SAMPLE POINT: AN-101
WORK LIST #: 2743	SAMPLE PREP: DIRECT
BATCH ID: N/A	

see 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%	100.0%	94.3%	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:	Date: 10-22-95
Chemist Approval:	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	109N9A
SAMPLE 1	S95T002409
DUPLICATE 1	S95T002409DUP
SAMPLE 2	
DUPLICATE 2	
SAMPLE 3	
DUPLICATE 3	
SAMPLE 4	
DUPLICATE 4	
SPIKE	
SPIKE DUPLICATE	

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	555.6
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)								

[illegible]

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

[illegible]

Data Entry by: [Signature] Date: 10/22/95
Approved by: [Signature] Date: 10/23/95
Form DIONEX W81 Rev. 1.2

Sample Name: 109N9-A *SLD* 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 : *Alan Tomlin* Column: AG4A/AS4A anion column/SRS
10-17-95

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

```

=====
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 : Ellen J. Smith 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 : [Signature] 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 : *Gustavo 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 *****

Pl. 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

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

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

```

=====
Sample Name: S95T002409 DUP Date: 10/17/1995 21:38:54
Data File : C:\DX\DATA\95101531.D12
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 12 Detector: CDM-1
Analyst : Ellen J. Smith 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	
<i>7/15</i> 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

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

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

LABCORE Completed Worklist Report for Worklist# 2974

Analyst: eal

Instrument: IC01

Book# 109119A

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

95000135

AN-101

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	④IC-QC	F-QC	QC	1	<.013	ug/mL
1 CCB		0	④IC-QC	CL-QC	QC	1	<.017	ug/mL
1 CCB		0	④IC-QC	NO2-QC	QC	1	<.107	ug/mL
1 CCB		0	④IC-QC	BR-QC	QC	n/a	n/a	ug/mL
1 CCB		0	④IC-QC	NO3-QC	QC	1	<.140	ug/mL
1 CCB		0	④IC-QC	PO4-QC	QC	1	<.296	ug/mL
1 CCB		0	④IC-QC	SO4-QC	QC	1	<.136	ug/mL
1 CCB		0	④IC-QC	OXALATQC	QC	n/a	n/a	ug/mL
2 CCV		0	④IC-QC	F-QC	QC	59	58.5	99.150 % Recovery
2 CCV		0	④IC-QC	CL-QC	QC	79	76.5	96.840 % Recovery
2 CCV		0	④IC-QC	NO2-QC	QC	533	500.1	93.830 % Recovery
2 CCV		0	④IC-QC	BR-QC	QC	n/a	n/a	% Recovery
2 CCV		0	④IC-QC	NO3-QC	QC	614	584.5	95.200 % Recovery
2 CCV		0	④IC-QC	PO4-QC	QC	546	524.2	96.010 % Recovery
2 CCV		0	④IC-QC	SO4-QC	QC	631	598.7	94.880 % Recovery
2 CCV		0	④IC-QC	OXALATQC	QC	n/a	n/a	% Recovery
3 SAMPLE	S95T002410	0	④IC-01	F-02	LIQUID	N/A	4.25e2	67.000 ug/mL
3 SAMPLE	S95T002410	0	④IC-01	CL-02	LIQUID	N/A	3.04e3	173.000 ug/mL
3 SAMPLE	S95T002410	0	④IC-01	NO2-02	LIQUID	N/A	4.60e4	1.090e+003 ug/mL
3 SAMPLE	S95T002410	0	④IC-01	NO3-02	LIQUID	N/A	9.42e4	1.430e+003 ug/mL
3 SAMPLE	S95T002410	0	④IC-01	PO4-02	LIQUID	N/A	2.17e3	1.520e+003 ug/mL
3 SAMPLE	S95T002410	0	④IC-01	SO4-02	LIQUID	N/A	3.46e3	701.000 ug/mL
4 DUP	S95T002410	0	④IC-01	F-02	LIQUID	4.25e2	4.23e2	0.470 RPD
4 DUP	S95T002410	0	④IC-01	CL-02	LIQUID	3.04e3	3.70e3	19.580 RPD
4 DUP	S95T002410	0	④IC-01	NO2-02	LIQUID	4.60e4	4.54e4	1.310 RPD
4 DUP	S95T002410	0	④IC-01	BR-02	LIQUID	n/a	n/a	RPD
4 DUP	S95T002410	0	④IC-01	NO3-02	LIQUID	9.42e4	9.40e4	0.210 RPD
4 DUP	S95T002410	0	④IC-01	PO4-02	LIQUID	2.17e3	2.17e3	0.000 RPD
4 DUP	S95T002410	0	④IC-01	SO4-02	LIQUID	3.46e3	3.43e3	0.870 RPD
4 DUP	S95T002410	0	④IC-01	OXALATE2	LIQUID	n/a	n/a	RPD

Final page for worklist# 2974

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

James Lyle 10/25/95
Reviewer Signature Date

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

WHC-SD-WM-DP-148, REV. 0
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				①IC-QC F-QC	QC	<u>1</u>	<u>4.013</u>	<u>N/A</u>	ug/mL
		1	CCB				①IC-QC CL-QC	QC	<u>1</u>	<u>4.017</u>	<u>N/A</u>	ug/mL
		1	CCB				①IC-QC NO2-QC	QC	<u>1</u>	<u>4.107</u>	<u>N/A</u>	ug/mL
		1	CCB				①IC-QC BR-QC	QC	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	ug/mL
		1	CCB				①IC-QC NO3-QC	QC	<u>1</u>	<u>4.140</u>	<u>N/A</u>	ug/mL
		1	CCB				①IC-QC PO4-QC	QC	<u>1</u>	<u>4.296</u>	<u>N/A</u>	ug/mL
		1	CCB				①IC-QC SO4-QC	QC	<u>1</u>	<u>4.136</u>	<u>N/A</u>	ug/mL
		1	CCB				①IC-QC OXALATQC	QC	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	ug/mL
		2	CCV				①IC-QC F-QC	QC	<u>59</u>	<u>58.5</u>	<u>N/A</u>	ug/mL
		2	CCV				①IC-QC CL-QC	QC	<u>79</u>	<u>76.5</u>	<u>N/A</u>	ug/mL
		2	CCV				①IC-QC NO2-QC	QC	<u>533</u>	<u>520.1</u>	<u>N/A</u>	ug/mL
		2	CCV				①IC-QC BR-QC	QC	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	ug/mL
		2	CCV				①IC-QC NO3-QC	QC	<u>614</u>	<u>584.5</u>	<u>N/A</u>	ug/mL
		2	CCV				①IC-QC PO4-QC	QC	<u>546</u>	<u>524.2</u>	<u>N/A</u>	ug/mL
		2	CCV				①IC-QC SO4-QC	QC	<u>631</u>	<u>598.7</u>	<u>N/A</u>	ug/mL
		2	CCV				①IC-QC OXALATQC	QC	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002410	0		①IC-01 F-02	LIQUID	<u>N/A</u>	<u>4.25⁺²</u>	<u>6.70⁺¹</u>	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002410	0		①IC-01 CL-02	LIQUID	<u>N/A</u>	<u>3.04⁺³</u>	<u>1.73⁺²</u>	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#

2974

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
95000135	AN-101 GRAB	3 SAMPLE	S95T002410	0		01C-01 NO2-02	LIQUID	N/A	4.60 ⁺⁴	1.09 ⁺³	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002410	0		01C-01 NO3-02	LIQUID	N/A	9.42 ⁺⁴	1.43 ⁺³	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002410	0		01C-01 PO4-02	LIQUID	N/A	2.17 ⁺³	1.52 ⁺³	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002410	0		01C-01 SO4-02	LIQUID	N/A	3.46 ⁺³	7.01 ⁺²	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0		01C-01 F-02	LIQUID	4.25 ⁺²	4.23 ⁺²	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0		01C-01 CL-02	LIQUID	3.04 ⁺³	3.70 ⁺³	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0		01C-01 NO2-02	LIQUID	4.60 ⁺⁴	4.54 ⁺⁴	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0		01C-01 BR-02	LIQUID	N/A	N/A	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0		01C-01 NO3-02	LIQUID	9.42 ⁺⁴	9.40 ⁺⁴	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0		01C-01 PO4-02	LIQUID	2.17 ⁺³	2.17 ⁺³	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0		01C-01 SO4-02	LIQUID	3.46 ⁺³	3.43 ⁺³	N/A	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002410	0		01C-01 OXALATE2	LIQUID	N/A	N/A	N/A	ug/mL

Final page for worklist #

2974

Was originally signed by
Analyst Signature Ann Lambel & Kristin Higbee Date 10/17/95
Edited by Jerry Faye 10/19/95
Verified 10/25/95 J.M. Faye

R. 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.

WESTINGHOUSE HANFORD COMPANY
222-S LABORATORY
INORGANIC ANALYTICAL BATCH AND SUMMARY SHEET
ANION ANALYSIS ON DIONEX

SAMPLE #: S95T002410	ANALYST: EAL/KGH
TEST CODE: @IC-01	ANALYSIS DATE: 10/17/95
INSTRUMENT: IC01	SAMPLE POINT: AN-101
WORK LIST #: 2974	SAMPLE PREP: DIRECT
BATCH ID: N/A	

94.88% *see 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: <i>[Signature]</i>	Date: 10-22-95
Chemist Approval: <i>[Signature]</i>	Date: 10/23/95

187

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	
(ug/g or ug/mL):	ug/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 (ug/mL)	<0.013	<0.017	<0.107	<0.140	<0.296	<0.136	<0.126	<0.105
Standard Data (ug/mL)	58.5	76.5	500.1	584.5	524.2	598.7	554.6	560.9
Sample 1 Data (ug/mL)	4.25E+02	3.04E+03	4.60E+04	9.42E+04	2.17E+03	3.46E+03	<0.126	<0.105
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 (ug/mL)	4.23E+02	3.70E+03	4.54E+04	9.40E+04	2.17E+03	3.43E+03	<0.126	<0.105
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 (ug/mL)								
Sample 2 Dilution Factor								
Sample 2 Prep DF								
Duplicate 2 Data (ug/mL)								
Duplicate 2 Dilution Factor								
Duplicate 2 Prep DF								
Sample 3 Data (ug/mL)								
Sample 3 Dilution Factor								
Sample 3 Prep DF								
Duplicate 3 Data (ug/mL)								
Duplicate 3 Dilution Factor								
Duplicate 3 Prep DF								
Sample 4 Data (ug/mL)								
Sample 4 Dilution Factor								
Sample 4 Prep DF								
Duplicate 4 Data (ug/mL)								
Duplicate 4 Dilution Factor								
Duplicate 4 Prep DF								
Spike + Sample (ug/mL)								
Spike + Dup (ug/mL)								

Spike Volume (mL)								
Total Volume (mL)								
Std. Conc. (ug/mL)	59	79	533	614	546	631	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 = $\frac{((\text{Spike} + \text{Sample}) - \text{Sample}) \cdot (\text{Total Volume})}{((\text{Spike Vol.}) \cdot (\text{Spike Std.}) \cdot (\text{Sample DF}))} \cdot 100\%$
 Note: (For spike recovery when the sample conc. is less than detection limit you do NOT subtract sample conc.)
 Duplicate Relative % Difference = $\frac{((\text{Sample} - \text{Duplicate}) / ((\text{Sample} + \text{Duplicate}) / 2)) \cdot 100\%}{\text{Less than Values are Calculated from the Detection Limit Dilution Factor}}$

v RESULTS v	Fluoride	Chloride	Nitrite	Nitrate	Phosphate	Sulfate	Bromide	Oxalate
Standard % Recovery	99.2%	96.8%	93.8%	95.2%	96.9%	99.2%	96.5%	106.6%
Sample 1 in ug/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 ug/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 ug/mL	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00	<0.00
Duplicate 2 in ug/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: 1 Inject#: 11 Detector: CDM-1
 Analyst : *[Signature]* 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    : [Signature] 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

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

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

```

=====
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    : Anna Smith 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

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

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

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 : *Kirk H. Hagan* 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

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

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

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

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

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

=====

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 : *[Signature]* 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

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

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

09/25/95 06:58

A-0004-1

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

Page:

LABCORE Data Entry Template for Worklist# 2558

Analyst: D. GOELKE Instrument: ICP01 ^{ICP02 SL}₉₋₂₆₋₉₅ Book# 9F84E1Method: LA-505-151 ^{151 SL}₉₋₂₆₋₉₅ Rev/Mod B-O

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.

09/25/95 06:58
A-0004-1

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

Page:

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

[Signature]
Analyst Signature 9-26-95
Date

Reviewed by:
[Signature]
Analyst Signature 09/27/95
Date

SSST002408-L	.025mL - 10mL - 2mL - 8mL	2005
SSST002408	.025mL - 10mL	401
SSST002408-D	.025mL - 10mL	401
SSST002408-A	.025mL - 2mL - 8mL	401
SSST002409-L	.025mL - 10mL - 2mL - 8mL	2005
SSST002409	.025mL - 10mL	401
SSST002409-D	.025mL - 10mL	401
SSST002409-A	.025mL - 2mL - 8mL	401
SSST002410-L	.025mL - 10mL - 2mL - 8mL	2005
SSST002410	.025mL - 10mL	401
SSST002410-D	.025mL - 10mL	401
SSST002410-A	.025mL - 2mL - 8mL	401

BEST AVAILABLE COPY

Data Entry Comments:

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

#	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

BEST AVAILABLE COPY

by Gaudin
9-26-95
AN-101
S95T002408-10
AL, FC, AL - only
025 ml - 10 - C

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST, THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 197 TO 201

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

#	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

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

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

BEST AVAILABLE COPY

#	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

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

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

BEST AVAILABLE COPY

#	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. 0

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

BEST AVAILABLE COPY

#	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

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

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

BEST AVAILABLE COPY

WHC-SD-WM-DP-148, REV. 0
LABCORE Data Entry Template for Worklist#

2526

Analyst: RAW Instrument: TOC01 WC 39937 Book # 16N12-B

Method: LA-344-105 Rev/Mod C-O

Worklist Comment: TOC combustion AN-101

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK				TOC-01	LIQUID	<u>1</u>	<u>6.00e0</u>	<u>N/A</u>	ug/mL
		2	STD				TOC-01	LIQUID	<u>3.00e3</u>	<u>3.04e3</u>	<u>N/A</u>	ug/mL
95000135	AN-101 GRAB	3	SAMPLE	S95T002408	0		TOC-01	LIQUID	<u>N/A</u>	<u>3.67e3</u>	<u>5.50e1</u>	ug/mL
95000135	AN-101 GRAB	4	DUP	S95T002408	0		TOC-01	LIQUID	<u>3.67e3</u>	<u>3.50e3</u>	<u>N/A</u>	ug/mL
95000135	AN-101 GRAB	5	SAMPLE	S95T002409	0		TOC-01	LIQUID	<u>N/A</u>	<u>2.15e3</u>	<u>5.50e1</u>	ug/mL
95000135	AN-101 GRAB	6	DUP	S95T002409	0		TOC-01	LIQUID	<u>2.15e3</u>	<u>2.16e3</u>	<u>N/A</u>	ug/mL
95000135	AN-101 GRAB	7	SPK	S95T002409	0		TOC-01	LIQUID	<u>100</u>	<u>99.5</u>	<u>N/A</u>	ug/mL
95000135	AN-101 GRAB	8	SAMPLE	S95T002410	0		TOC-01	LIQUID	<u>N/A</u>	<u>2.15e3</u>	<u>5.50e1</u>	ug/mL
95000135	AN-101 GRAB	9	DUP	S95T002410	0		TOC-01	LIQUID	<u>2.15e3</u>	<u>2.17e3</u>	<u>N/A</u>	ug/mL

For Robby Wendland

Final page for worklist #

2526

Robert W. Schroeder 9/26/95
Analyst Signature Date

R/S 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.

202

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	g of Carbon/L	=	$\frac{(C1-C2) * DF * DDF}{VI * 1000}$
Instrument Code			
WC39937			
Analyst	µg of Carbon/mL	=	g of Carbon/L * 1000000 µg/g / 1000 mL/L
R. WENDLAND			
Date	Detection Level (µg/mL)	=	$\frac{1 \mu g C * DF * DDF}{VI}$
09/26/95			
Time			

µg Carbon/mL =

6.00E+00

DETECTION LEVEL

in µg/mL

5.00E+00

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

203

Page 1 of 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

		STANDARD
Type	Sample Volume in mL (SS)	0.200
STANDARD	H2SO4 Volume in mL (VR)	2.000
Work List	Volume Injected in mL (VI)	0.200
2526	Dilution Factor (DF)	11
Test Code	Digest Dilution Factor (DDF)	1
TOC	µg of Carbon in Sample (C1)	57
Matrix	µg of Carbon in Blank (C2)	1.8
LIQUID	g of Carbon/L =	3.04E+00
Sample #		
STD	g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{VI * 1000}$	
Instrument Code		
WC39937		
Analyst	µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 mL/L	
R. WENDLAND		
Date		
09/26/95	Detection Level (µg/mL) = $\frac{1 \mu g C * DF * DDF}{VI}$	
Time		

µg Carbon/mL = 3.04E+03	DETECTION LEVEL
	in µg/mL 5.50E+01

Data Entry by: *RW Schneider* Date: 09/27/95
 Approved by: *RW Schneider* Date: 9/28/95
 Form 344105_C Rev. 1.1 Page 1 of 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

		SAMPLE
Type	Sample Volume in mL (SS)	0.200
SAMPLE	H2SO4 Volume in mL (VR)	2.000
Work List	Volume Injected in mL (VI)	0.200
2526	Dilution Factor (DF)	11
Test Code	Digest Dilution Factor (DDF)	1
TOC	µg of Carbon in Sample (C1)	68.6
Matrix	µg of Carbon in Blank (C2)	1.8
LIQUID	g of Carbon/L =	3.67E+00
Sample #	g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{VI * 1000}$	
S95T002408		
Instrument Code	µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 mL/L	
WC39937		
Analyst	Detection Level (µg/mL) = $\frac{1 \mu\text{g C} * DF * DDF}{VI}$	
R. WENDLAND		
Date		
09/26/95		
Time		

µg Carbon/mL =	3.67E+03	DETECTION LEVEL
		in µg/mL
		5.50E+01

Data Entry by:	<i>R. W. Wendland</i>	Date:	09/27/95
Approved by:	<i>R. W. Wendland</i>	Date:	9/28/95

Form 344105_C Rev. 1.1

Page 1 of 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

		DUPLICATE
Type	Sample Volume in mL (SS)	0.200
DUPLICATE	H2SO4 Volume in mL (VR)	2.000
Work List	Volume Injected in mL (VI)	0.200
2526	Dilution Factor (DF)	11
Test Code	Digest Dilution Factor (DDF)	1
TOC	µg of Carbon in Sample (C1)	65.4
Matrix	µg of Carbon in Blank (C2)	1.8
LIQUID	g of Carbon/L =	3.50E+00
Sample #		
S95T002408		
Instrument Code		
WC39937		
Analyst		
R. WENDLAND		
Date		
09/26/95		
Time		

$$\text{g of Carbon/L} = \frac{(C1-C2) * DF * DDF}{VI * 1000}$$

$$\mu\text{g of Carbon/mL} = \text{g of Carbon/L} * 1000000 \mu\text{g/g} / 1000 \text{ mL/L}$$

$$\text{Detection Level } (\mu\text{g/mL}) = \frac{1 \mu\text{g C} * DF * DDF}{VI}$$

		DETECTION LEVEL
µg Carbon/mL =	3.50E+03	In µg/mL
		5.50E+01

Data Entry by:	<i>Rw Schneider</i>	Date:	09/27/95
Approved by:	<i>Rw Schneider</i>	Date:	9/28/95
Form 344105_C Rev. 1.1		Page 1 of 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

		SAMPLE
Type	Sample Volume in mL (SS)	0.200
SAMPLE	H2SO4 Volume in mL (VR)	2.000
Work List	Volume Injected in mL (VI)	0.200
2526	Dilution Factor (DF)	11
Test Code	Digest Dilution Factor (DDF)	1
TOC	µg of Carbon in Sample (C1)	40.8
Matrix	µg of Carbon in Blank (C2)	1.8
LIQUID	g of Carbon/L =	2.15E+00
Sample #	$\text{g of Carbon/L} = \frac{(C1-C2) \cdot DF \cdot DDF}{VI \cdot 1000}$	
S95T002409		
Instrument Code	$\mu\text{g of Carbon/mL} = \text{g of Carbon/L} \cdot 1000000 \mu\text{g/g} / 1000 \text{ mL/L}$	
WC39937		
Analyst	$\text{Detection Level } (\mu\text{g/mL}) = \frac{1 \mu\text{g C} \cdot DF \cdot DDF}{VI}$	
R. WENDLAND		
Date		
09/26/95		
Time		

µg Carbon/mL =	2.15E+03	DETECTION LEVEL
		in µg/mL
		5.50E+01

Data Entry by:	<i>RW Schroeder</i>	Date:	09/27/95
Approved by:	<i>RW Schroeder</i>	Date:	9/28/95
Form 344105_C Rev. 1.1		Page 1 of 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		DUPLICATE
Type	Sample Volume in mL (SS)	0.200
DUPLICATE	H2SO4 Volume in mL (VR)	2.000
Work List	Volume Injected in mL (VI)	0.200
2526	Dilution Factor (DF)	11
Test Code	Digest Dilution Factor (DDF)	1
TOC	µg of Carbon in Sample (C1)	41.4
Matrix	µg of Carbon in Blank (C2)	1.8
LIQUID	g of Carbon/L =	2.18E+00
Sample #	g of Carbon/L = $\frac{(C1-C2) \cdot DF \cdot DDF}{VI \cdot 1000}$	
S95T002409		
Instrument Code	µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 mL/L	
WC39937		
Analyst	Detection Level (µg/mL) = $\frac{1 \mu\text{g C} \cdot DF \cdot DDF}{VI}$	
R. WENDLAND		
Date		
09/26/95		
Time		

µg Carbon/mL = 2.18E+03	DETECTION LEVEL
	in µg/mL 5.50E+01

Data Entry by: <i>RW Schmeder</i>	Date: 09/27/95
Approved by: <i>RW Schmeder</i>	Date: 9/28/95

Form 344105_C Rev. 1.1 Page 1 of 1

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	PERCENT SPIKE REC = $\frac{\mu\text{g Carbon Recovered from Spike} \times 100}{\mu\text{g Carbon in Spike}}$			
Analyst	R. WENDLAND			
Date	09/28/95			
Time				

WHERE : $\mu\text{g Carbon Recovered from Spike} = [(\mu\text{gC in sample} + \text{spike} - \mu\text{gC in blank}) \times (\text{Spike Correction Factor})]$
 $-(\mu\text{gC sample} - \mu\text{gC blank}) \times (\text{Sample Correction Factor}) \times (\text{Sample Size Correction Factor}) \times (\text{PDF})]$

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 : $\mu\text{g Carbon in Spike} = \text{Spike Value } (\mu\text{g/mL}) \times \text{Spike Volume (mL)}$

Percent Spike Recovery 99.5%

Data Entry by:	<i>R. Wendland</i>	Date: 29-Sep-95
Approved by:	<i>R. Wendland</i>	Date: 9/29/95

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

		SAMPLE
Type	Sample Volume in mL (SS)	0.200
SAMPLE	H2SO4 Volume in mL (VR)	2.000
Work List	Volume Injected in mL (VI)	0.200
2526	Dilution Factor (DF)	11
Test Code	Digest Dilution Factor (DDF)	1
TOC	µg of Carbon in Sample (C1)	40.8
Matrix	µg of Carbon in Blank (C2)	1.8
LIQUID	g of Carbon/L =	2.15E+00
Sample #	g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{VI * 1000}$	
S95T002410		
Instrument Code		
WC39937		
Analyst	µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 mL/L	
R. WENDLAND		
Date	Detection Level (µg/mL) = $\frac{1 \mu\text{g C} * DF * DDF}{VI}$	
09/26/95		
Time		

µg Carbon/mL =		DETECTION LEVEL
2.15E+03		In µg/mL
		5.50E+01

Data Entry by: Rui Schneider Date: 09/27/95
 Approved by: Rui Schneider Date: 9/28/95
 Form 344105_C Rev. 1.1 Page 1 of 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		DUPLICATE
Type	Sample Volume in mL (SS)	0.200
DUPLICATE	H2SO4 Volume in mL (VR)	2.000
Work List	Volume Injected in mL (VI)	0.200
2526	Dilution Factor (DF)	11
Test Code	Digest Dilution Factor (DDF)	1
TOC	µg of Carbon in Sample (C1)	41.2
Matrix	µg of Carbon in Blank (C2)	1.8
LIQUID	g of Carbon/L =	2.17E+00
Sample #	g of Carbon/L = $\frac{(C1-C2) * DF * DDF}{VI * 1000}$	
S95T002410		
Instrument Code	µg of Carbon/mL = g of Carbon/L * 1000000 µg/g / 1000 mL/L	
WC39937		
Analyst	Detection Level (µg/mL) = $\frac{1 \mu g C * DF * DDF}{VI}$	
R. WENDLAND		
Date		
09/26/95		
Time		

µg Carbon/mL =	2.17E+03	DETECTION LEVEL
		in µg/mL
		5.50E+01

Data Entry by:	<i>R. W. Schaefer</i>	Date:	09/27/95
Approved by:	<i>R. W. Schaefer</i>	Date:	9/28/95

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:

RA WENDLAND

00000

WHC-SD-WM-DP-148, REV. 1
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
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	0.60	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

WHC-SD-WM-DP-148, REV. 0
213

WHC-SD-WM-DP-148, REV. 1
 TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
 TICTOC REV 2.0

Sample: BASE

Date: 09/26/95

Time: 06:20:55

Sample Size = 200 uL

Dil Factor = 1

Blank ID # =

Blank Value = 0 ug/minute C

Analyst : RA WENDLAND

Min Readings = 10

Max Readings = 10

% 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

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

214

WHC-SD-WM-DP-148, REV. 1
 TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
 TICTOC REV 2.0

Sample: 8

Date: 09/26/95

Time: 08:34:19

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	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

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

WHC-SD-WM-DP-148, REV. 1
 TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
 TICTOC REV 2.0

Sample: 8D

Date: 09/26/95

Time: 08:40:22

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	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

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

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

WHC-SD-WM-DP-148, REV. 1
 TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
 TICTOC REV 2.0

Sample: 9D

Date: 09/26/95

Time: 08:51:41

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	1.90	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

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

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

RA WENDLAND

00000

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

WHC-SD-WM-DP-148, REV. 1
 TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
 TICTOC REV 2.0

Sample: BASE

Date: 09/28/95

Time: 10:09:28

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BLK

Blank Value = .5994366 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	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

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

WHC-SD-WM-DP-148, REV. 1
 TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
 TICTOC REV 2.0

Sample: STD

Date: 09/28/95

Time: 10:15:54

Sample Size = 200 uL

Dil Factor = 11

Blank ID # = BLK

Blank Value = .5994366 ug/minute C

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	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) =
 (57.1 - 3) (11) / (200) (12) =

+2.98E+00 g/L Carbon
 +2.48E-01 Molar Carbon

Sample Run By:

RA WENDLAND

00000

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

WHC-SD-WM-DP-148, REV. 1
 TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
 TICTOC REV 2.0

Sample: 2409SPK

Date: 09/28/95

Time: 10:22:12

Sample Size = 200 uL

Dil Factor = 1

Blank ID # = BLK

Blank Value = .5994366 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	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

Dil Factor = 11

Blank ID # = BLK

Blank Value = .5994366 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	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

WHC-SD-WM-DP-148, REV. 1
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) =
(40.8 - 2.99989) (11) / (200) (12) =

+2.08E+00 g/L Carbon
+1.73E-01 Molar Carbon

Sample Run By:

RA WENDLAND

00000

WHC-SD-WM-DP-148, REV. 1
 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) =
 (41.2 - 2.999524) (11)/(200) (12) =

+2.10E+00 g/L Carbon
 +1.75E-01 Molar Carbon

Sample Run By:

RA WENDLAND

00000

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

LABCORE Data Entry Template for Worklist#

2525

Analyst: RAW Instrument: TIC01 WC39937 Book # 17N12-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	<u>1</u>	<u>< 5.0</u>	<u>N/A</u>	ug/mL
		2 STD			TIC-01	LIQUID	<u>6.00E02</u>	<u>5.83E02</u>	<u>N/A</u>	ug/mL
95000135	AN-101 GRAB	3 SAMPLE	S95T002408	0	TIC-01	LIQUID	<u>N/A</u>	<u>2.54E03</u>	<u>2.00E1</u>	ug/mL
95000135	AN-101 GRAB	4 DUP	S95T002408	0	TIC-01	LIQUID	<u>2.54E03</u>	<u>2.61E03</u>	<u>N/A</u>	ug/mL
95000135	AN-101 GRAB	5 SPK	S95T002408	0	TIC-01	LIQUID	<u>100</u>	<u>103.3</u>	<u>N/A</u>	ug/mL
95000135	AN-101 GRAB	6 SAMPLE	S95T002409	0	TIC-01	LIQUID	<u>N/A</u>	<u>2.41E03</u>	<u>2.00E1</u>	ug/mL
95000135	AN-101 GRAB	7 DUP	S95T002409	0	TIC-01	LIQUID	<u>2.41E03</u>	<u>2.39E03</u>	<u>N/A</u>	ug/mL
95000135	AN-101 GRAB	8 SAMPLE	S95T002410	0	TIC-01	LIQUID	<u>N/A</u>	<u>2.38E03</u>	<u>2.00E1</u>	ug/mL
95000135	AN-101 GRAB	9 DUP	S95T002410	0	TIC-01	LIQUID	<u>2.38E03</u>	<u>2.35E03</u>	<u>N/A</u>	ug/mL

Final page for worklist #

2525

R. WENDLAND 9-22-95
Analyst Signature Date

[Signature] 9-26-95
Analyst Signature Date

Reviewed by Rohitw Shroedh
9/27/95

Data Entry Comments:

SAMPLE - .050 mL

SPK - .200 SPK - .200 SAM - .050 INT

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	>>>>> Sample Vial Data <<<<<		>>>>> Spiked Vial Data <<<<<	
SPIKE	Sample Volume in mL	0.050	Sample Volume in mL	0.200
Work List	µg of Carbon in Sample	129.8	Spike Volume in mL	0.200
2525	µg of Carbon in Blank	2.6	Volume Injected in mL	0.050
Test Code			Spike Value (µg/mL)	600
TIC-01			µg C in Sample + Spike	81.7
Matrix			µg C in Blank	2.6
LIQUID				
Sample #				
S95T002408				
Instrument Code				
TIC01				
Analyst				
R WENDLAND				
Date				
09/22/95				
Time				
09:08 AM				

PERCENT SPIKE RECOVERY = $\frac{\mu\text{g Carbon Recovered from Spike} * 100}{\mu\text{g Carbon in Spike}}$

WHERE : $\mu\text{g Carbon Recovered from Spike} =$
 $[(\mu\text{gC in sample} + \text{spike} - \mu\text{gC in blank}) * (\text{Spike Correction Factor})]$
 $- [(\mu\text{gC sample} - \mu\text{gC blank}) * (\text{Sample Size Correction Factor})]$

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 : $\mu\text{g Carbon in Spike} =$
 $[\text{Spike Value } (\mu\text{g/mL}) * \text{Spike Volume (mL)}]$

Percent Spike Recovery = 103.3%

Data Entry by: [Signature] Date: 09/22/95
 Approved by: [Signature] 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
RA WENDLAND9/22/95

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

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	0.20	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

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

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

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

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) =
(129.8 - 2.600127) (1) / (50) (12) =

+2.544E+00 g/L Carbon
+2.120E-01 Molar Carbon

Sample Run By:

RA WENDLAND

00000

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

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

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

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

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	0.60	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

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

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

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

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

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

235

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

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

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

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

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) =
(120.3 - 2.599556) (1) / (50) (12) =

+2.354E+00 g/L Carbon
+1.962E-01 Molar Carbon

Sample Run By:

RA WENDLAND

00000

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

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

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

RADIOCHEMICAL ANALYSES

09/27/95 10:13
A-0004-1

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

Page: 1

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

CL. Green 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
                               WHC-SD-WM-DP-148, REV. 1
                               Removed by: Raymond

>>>>>>>> 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%
                               Verified by: B. Schelcher 10/3/95

>>>>>>>> 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
*****

```

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

Page : 2
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

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

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

Minimum Detectable Activity Report

Sample ID : WRKLST2520-STD

Page : 3

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

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

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

Minimum Detectable Activity Report (continued)

Page : 4

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

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

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

```

*****
* 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

Removed by:
[Signature]

>>>>>>>> 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%

Verified by:
[Signature] 10/3/95

>>>>>>>> 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
*****

```

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

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

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

Summary of Nuclide Activity
Sample ID : WRKLIST#2520-BLNK

Page : 2
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	BK9
Total Activity :			1.747E+01	2.446E+01			10/3/95

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

Co-137 8.524 E-3

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

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

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

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

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

Minimum Detectable Activity Report (continued)

Page : 4

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

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

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

```

*****
* 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
*****

```

Removed by:

[Signature]

Verified by:

[Signature] 10/13/95

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			

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

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

Summary of Nuclide Activity

Sample ID : S95T2411-SAM

Page : 2

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-148, REV. 1

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

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

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

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

Minimum Detectable Activity Report (continued)

Page : 4

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

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

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

 * 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

Removed by:

ARJ

>>>>>>> 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%

Verified by:

BMachelor 10/3/95

>>>>>>> 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

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			

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

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

Summary of Nuclide Activity

Sample ID : S95T2411-DUP

Page : 2

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

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

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

Minimum Detectable Activity Report
Sample ID : S95T2411-DUP

Page : 3
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

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

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

Sample ID : S95T2411-DUP

Acquisition date : 2-OCT-1995 10:17:20

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

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

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

 * 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

Removed by:

[Signature]

>>>>>>> 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%

Verified by:

[Signature] 10/3/95

>>>>>>> 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

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. 1

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

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

uCi/ml
Co-60 < 4.1829 E-3
Cs-137 1.230 E+2

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

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

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

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

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

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:

[Signature]

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	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			

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

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

Summary of Nuclide Activity
Sample ID : S95T2412-DUP

Page : 2
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

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

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

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

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

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

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

Removed by:

[Signature]

>>>>>>>> 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%

Verified by:

[Signature] 10/3/95

>>>>>>>> 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

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

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
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

uCi/mL
Co60 < 4.4602 E-3 ^{12/3/95}
Cs137 1.176 E+2

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

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

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

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

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

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

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

 * 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

Removed by:

Sed Logg

>>>>>>> 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%

Verified by:

Dr. Machelor 10/3/95

>>>>>>> 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

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

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
Total Activity :			1.971E+05	1.971E+05			

13/03/95

Grand Total Activity : 1.971E+05 1.971E+05

Flags: "K" = Keyline not found
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

uCi/ml
Co-60 < 5.9090 E-3
Cs137 1.961 E+2

WHC-SD-WM-DP-1148, REV. 1

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

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

Minimum Detectable Activity Report (continued)

Page : 4

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

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

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

LABCORE Data Entry Template for Worklist# 2754

Analyst: SMF Instrument: GEA00 ³~~to C38731~~ Book# 144B52

Method: LA-548-121 Rev/Mod D-1 _{date 10/30/95}

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	<u>1.0 ml</u>		@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

SMF
Analyst Signature
Date 10-13-95
1525

D. H. M. L. L. L.
Analyst Signature
Date 10-16-95

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

Data Entry Comments:

Samples - .100ml → 10 ml → 1.0ml

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

Removed by:

Raymond

>>>>>>>> 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%

Verified by:

R. Jones

>>>>>>>> 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

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

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

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

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
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

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

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

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

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

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

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

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

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

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

Worklist #: 2754
Sample ID: WORKLIST2754-BLK
Sample Size: 1.00000E-03 L
Dilution Factor: 1.01000E+02

Removed by:

D. A. G. Miller

>>>>>>>> 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%

Verified by:

R. A. Jones

>>>>>>>> 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

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			

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

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

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
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

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

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

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

Minimum Detectable Activity Report (continued)

Page : 4

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

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

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

 * 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

Removed by:

D. Hamilton

>>>>>>> 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%

Verified by:

R. Jones

>>>>>>> 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

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			

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

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

Summary of Nuclide Activity
Sample ID : S95T2413-SAM

Page : 2
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
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

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

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

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

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

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

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

D. H. M. 111111

Pat Jensen

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			

286

Summary of Nuclide Activity

Sample ID : S95T2413-DUP

Page : 2

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
"E" = Manually edited

"M" = Manually accepted
"A" = Nuclide specific abn. limit

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

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

Minimum Detectable Activity Report

Sample ID : S95T2413-DUP

Page : 3

Acquisition date : 13-OCT-1995 05:33:20

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

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

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

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

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

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

LABCORE Data Entry Template for Worklist#

2933

Analyst: AK Instrument: AB00 12 Book # 51852

Method: LA-220-101 Rev/Mod D-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	LIQUID			N/A	uCi/mL
		1	STD				SR90-01C	LIQUID			N/A	% Recovery
		1	STD				SR90-01E	LIQUID			N/A	% Ct. Error
		2	BLNK-PREP				SR90-01	LIQUID			N/A	uCi/mL
		2	BLNK-PREP				SR90-01C	LIQUID			N/A	% Recovery
		2	BLNK-PREP				SR90-01E	LIQUID			N/A	% Ct. Error
		3	BLNK/BKG				SR90-01	LIQUID			N/A	uCi/mL
95000135	AN-101 GRAB	4	SAMPLE	S95T002411	0		SR90-01	LIQUID	N/A			uCi/mL
95000135	AN-101 GRAB	4	SAMPLE	S95T002411	0		SR90-01C	LIQUID	N/A			% Recovery
95000135	AN-101 GRAB	4	SAMPLE	S95T002411	0		SR90-01E	LIQUID	N/A			% Ct. Error
95000135	AN-101 GRAB	5	DUP	S95T002411	0		SR90-01	LIQUID			N/A	uCi/mL
95000135	AN-101 GRAB	5	DUP	S95T002411	0		SR90-01C	LIQUID			N/A	% Recovery
95000135	AN-101 GRAB	5	DUP	S95T002411	0		SR90-01E	LIQUID			N/A	% Ct. Error
95000135	AN-101 GRAB	6	SAMPLE	S95T002412	0		SR90-01	LIQUID	N/A			uCi/mL
95000135	AN-101 GRAB	6	SAMPLE	S95T002412	0		SR90-01C	LIQUID	N/A			% Recovery
95000135	AN-101 GRAB	6	SAMPLE	S95T002412	0		SR90-01E	LIQUID	N/A			% Ct. Error
95000135	AN-101 GRAB	7	DUP	S95T002412	0		SR90-01	LIQUID			N/A	uCi/mL
95000135	AN-101 GRAB	7	DUP	S95T002412	0		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.

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

Not King 10/16/95
Analyst Signature Date

MGR 10/17/95
Analyst Signature Date

Data Entry Comments:

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

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

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

Type	DETECTOR NUMBER	12	CARRIER ADDED in mL (CVA)	STANDARD
STD	TOTAL COUNTS (TC)	10200	GROSS WEIGHT (W2)	1.000
Work List	COUNT TIME in MINUTES (CT)	10	TARE WEIGHT (W1)	7.9794
2933	BACKGROUND in cpm (BKG)	1.6	NET WEIGHT (W3)	7.8866
Test Code	SAMPLE VOLUME in mL (SS)	1.000	DELTA TIME (HOURS) (DT)	0.0928
@SR90-01	DILUTION FACTOR (DF)	1		4.85
Matrix	DIGEST DILUTION FACTOR DDF	1		
LIQUID	SAMPLE COUNT RATE (Rs)	1018.40	SR-90 EFFICIENCY FACTO (C1)	0.4180
Batch Number	CRITICAL LEVEL (Lc)	0.76	Y-90 EFFICIENCY FACTOR (C2)	0.4660
95003205	TIME OF SEPARATION (ST)	20:04	Rmax	N/A
Rerun	DATE OF SEPARATION (SD)	10/16/95	DETECTION LIMIT (Ld)	1.61
0	TIME OF COUNT (TOC)	00:55	Sr-89/90 CONC. in µCi/L	1.1190E+00
Sample Prep	DATE OF COUNT (DOC)	10/17/95		
N/A	STANDARD BOOK #	51B52		
Sample #	STANDARD VALUE in µCi/mL	1.0909E-03		
WRKLST#2399				
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	Sr-89/90 CONCENTRATION			DETECTION LEVEL 1.77E-06 µCi/L
10/16/95	1.12E-03 µCi/mL			
Analysis Time	RELATIVE COUNTING ERROR			
10:00 PM	1.9%			
Sample Point	PERCENT CARRIER RECOVERY			
AN-101 GRAB	92.8%			

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

STANDARD.WB1 REV 1.2

2201DNML

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		12	CARRIER ADDED In mL	(CVA)	BLNK-PREP
BLNK-PREP	TOTAL COUNTS	(TC)	33	GROSS WEIGHT	(W2)	1.000
Work List	COUNT TIME In MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9094
2933	BACKGROUND In cpm	(BKG)	1.6	NET WEIGHT	(W3)	7.8267
Test Code	SAMPLE VOLUME In mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	0.0827
@SR90-01	DILUTION FACTOR	(DF)	101			5.13
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 $\mu\text{Ci/L}$		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 $\mu\text{Ci/L}$ Replace RS with RMAX if $RS \leq Lc$ and $RS > 0$ or Replace RS with Lc if $RS < 0$					
Prepared By	$RS * DF * DDF / ((C1 + C2 * (1 - e \text{ to the power of } ((-\text{natural log } 2) / 64.2 * DT)))) * SS * REC * 22200000$					
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	Sr-89/90 CONCENTRATION		2.11E-04	$\mu\text{Ci/m}$		DETECTION LEVEL 2.00E-04 $\mu\text{Ci/mL}$
Analysis Time						
10:00 PM	RELATIVE COUNTING ERROR		80.7%			
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)

					SAMPLE	
Type	DETECTOR NUMBER		12	CARRIER ADDED In mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	51656	GROSS WEIGHT	(W2)	7.9990
Work List	COUNT TIME In MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9094
2933	BACKGROUND In cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0896
Test Code	SAMPLE VOLUME In mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	5.35
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	5164.00	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)	01:20	Sr-89/90 CONC In $\mu\text{Ci/L}$		5.9035E+02
Sample Prep	DATE OF COUNT	(DOC)	10/17/95			
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 $\mu\text{Ci/L}$ Replace RS with RMAX if $RS \leq Lc$ and $RS \geq 0$ or Replace RS with Lc if $RS < 0$					
Prepared By	$RS * DF * DDF / ((C1 + C2 * (1 - e^{-((-\text{natural log } 2) / 64.2 * DT))}) * SS * REC * 2220000)$					
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 1.85E-04 $\mu\text{Ci/mL}$
10/16/95	Sr-89/90 CONCENTRATION		5.90E-01	$\mu\text{Ci/mL}$		
Analysis Time						
10:00 PM	RELATIVE COUNTING ERROR		0.9%			
Sample Point						
AN-101 GRAB	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

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	DETECTOR NUMBER		12	CARRIER ADDED In mL	(CVA)	DUP
DUP	TOTAL COUNTS	(TC)	52400	GROSS WEIGHT	(W2)	1.000
Work List	COUNT TIME In MINUTES	(CT)	10	TARE WEIGHT	(W1)	8.0121
2933	BACKGROUND In cpm	(BKG)	1.6	NET WEIGHT	(W3)	7.9218
Test Code	SAMPLE VOLUME In mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	0.0903
@SR90-01	DILUTION FACTOR	(DF)	101			5.52
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	5238.40	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)	01:30	Sr-89/90 CONC In µCi/L		5.9316E+02
Sample Prep	DATE OF COUNT	(DOC)	10/17/95			
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)					
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	Sr-89/90 CONCENTRATION		5.93E-01	µCi/mL		DETECTION LEVEL
Analysis Time						
10:00 PM	RELATIVE COUNTING ERROR		0.9%			1.83E-04
Sample Point						µCi/mL
AN-101 GRAB	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

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

Type	DETECTOR NUMBER		12	CARRIER ADDED In mL	(CVA)	SAMPLE
SAMPLE	TOTAL COUNTS	(TC)	23419	GROSS WEIGHT	(W2)	1.000
Work List	COUNT TIME In MINUTES	(CT)	10	TARE WEIGHT	(W1)	8.0105
2933	BACKGROUND In cpm	(BKG)	1.6	NET WEIGHT	(W3)	7.9213
Test Code	SAMPLE VOLUME In mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	0.0892
@SR90-01	DILUTION FACTOR	(DF)	101			5.77
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	2340.30	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)	01:45	Sr-89/90 CONC In $\mu\text{Ci/L}$		2.6756E+02
Sample Prep	DATE OF COUNT	(DOC)	10/17/95			
N/A						
Sample #						
S95T002412						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB27811	Sr-89/90 CONC in $\mu\text{Ci/L}$ Replace RS with RMAX if $RS \leq Lc$ and $RS > 0$ or Replace RS with Lc if $RS < 0$					
Prepared By	$RS * DF * DDF / ((C1 + C2 * (1 - e^{-((-\text{natural log } 2) / 64.2 * DT))}) * SS * REC * 2220000)$					
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	Sr-89/90 CONCENTRATION		2.68E-01	$\mu\text{Ci/mL}$		DETECTION LEVEL 1.85E-04 $\mu\text{Ci/mL}$
Analysis Time						
10:00 PM	RELATIVE COUNTING ERROR		1.3%			
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

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

WORKBOOK PAGE: DUP7

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

						DUP	
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000	
DUP	TOTAL COUNTS	(TC)	22476	GROSS WEIGHT	(W2)	7.9385	
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.8503	
2933	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0882	
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	5.93	
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	2246.00	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)	20:04	Rmax		N/A	
Rerun	DATE OF SEPARATION	(SD)	10/16/95	DETECTION LIMIT	(Ld)	1.61	
0	TIME OF COUNT	(TOC)	02:00	Sr-89/90 CONC in $\mu\text{Ci/L}$		2.5923E+02	
Sample Prep	DATE OF COUNT	(DOC)	10/17/95				
N/A							
Sample #							
S95T002412							
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)						
WB27811	Sr-89/90 CONC in $\mu\text{Ci/L}$ Replace RS with RMAX if $RS \leq Lc$ and $RS \geq 0$ or Replace RS with Lc if $RS < 0$						
Prepared By	$RS * DF * DDF / ((C1 + C2 * (1 - e^{-((-\text{natural log } 2) / 64.2 * DT))}) * SS * REC * 2220000)$						
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	Sr-89/90 CONCENTRATION		2.59E-01	$\mu\text{Ci/mL}$	DETECTION LEVEL 1.86E-04 $\mu\text{Ci/mL}$		
Analysis Time							
10:00 PM	RELATIVE COUNTING ERROR		1.3%				
Sample Point							
AN-101 GRAB	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

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

[Signature] 10/30/95
Analyst Signature Date

[Signature] 10/31/95
Analyst Signature Date

Data Entry Comments:

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

WORKBOOK PAGE: STD1

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

				STANDARD
Type	DETECTOR NUMBER	10	CARRIER ADDED in mL (CVA)	1.000
STD	TOTAL COUNTS (TC)	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 $\mu\text{Ci/L}$	1.1559E+00
Sample Prep	DATE OF COUNT (DOC)	10/30/95		
N/A	STANDARD BOOK #	51B52		
Sample #	STANDARD VALUE in $\mu\text{Ci/mL}$	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 $\mu\text{Ci/mL}$ REPLACE RS WITH RMAX IF RS <= Lc AND 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 4.37E-06 $\mu\text{Ci/L}$
10/30/95	Sr-89/90 CONCENTRATION	1.16E-03	$\mu\text{Ci/mL}$	
Analysis Time				
10:15 PM	RELATIVE COUNTING ERROR	2.0%		
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)	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 $\mu\text{Ci/L}$		2.2645E-01
Sample Prep	DATE OF COUNT	(DOC)	10/30/95			
N/A						
Sample #						
WRKLST#3122						
Instrument Code	Sample Count Rate (Rs) = (Total Counts (TC) / Count Time (CT)) - Background in cpm (BKG)					
WB26870	Sr-89/90 CONC in $\mu\text{Ci/L}$ Replace RS with RMAX if $RS \leq Lc$ and $RS \geq 0$ or Replace RS with Lc if $RS < 0$					
Prepared By	$RS * DF * DDF / ((C1 + C2 * (1 - e^{(-\text{natural log } 2) / (64.2 * DT))}) * SS * REC * 2220000)$					
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						
10/30/95	Sr-89/90 CONCENTRATION		2.26E-04	$\mu\text{Ci/m}$	DETECTION LEVEL 4.49E-04 $\mu\text{Ci/mL}$	
Analysis Time						
10:15 PM	RELATIVE COUNTING ERROR		147.7%			
Sample Point						
AN-101 GRAB	PERCENT CARRIER RECOVERY		93.3%			

Analyst:	EAL	Date:	31-Oct-95
Signature of Chemist:	SLF	Date:	OCT 31 1995

BLANK.WB1 REV 1.2

22010NML

WORKBOOK PAGE: SAM4

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

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	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							
10/30/95	Sr-89/90 CONCENTRATION		2.89E-01		µCi/mL	DETECTION LEVEL 4.58E-04 µCi/mL	
Analysis Time							
10:15 PM	RELATIVE COUNTING ERROR		1.3%				
Sample Point							
AN-101 GRAB	PERCENT CARRIER RECOVERY		91.3%				

Analyst:	EAL	Date:	31-Oct-95
Signature of Chemist:	SLF	Date:	OCT 31

SAMPLE.WB1 REV 1.2

22010NML

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

					DUP		
Type	DETECTOR NUMBER		10	CARRIER ADDED in mL	(CVA)	1.000	
DUP	TOTAL COUNTS	(TC)	24608	GROSS WEIGHT	(W2)	8.0599	
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9591	
3122	BACKGROUND In cpm	(BKG)	9.3	NET WEIGHT	(W3)	0.1008	
Test Code	SAMPLE VOLUME in mL	(SS)	1.000	DELTA TIME (HOURS)	(DT)	1.75	
@SR90-01	DILUTION FACTOR	(DF)	101				
Matrix	DIGEST DILUTION FACTOR	(DDF)	1				
LIQUID	SAMPLE COUNT RATE	(Rs)	2451.50	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)	23:37	Sr-89/90 CONC In µCi/L		2.6757E+02	
Sample Prep	DATE OF COUNT	(DOC)	10/30/95				
N/A							
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*22200000						
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							
10/30/95	Sr-89/90 CONCENTRATION		2.68E-01	µCi/mL	DETECTION LEVEL 4.11E-04 µCi/mL		
Analysis Time							
10:15 PM	RELATIVE COUNTING ERROR		1.3%				
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. 1

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. Lai Instrument: AB00 12 Book # 51012

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

Data Entry Comments:

Results from S95T002413 used from this worklist. Re
Results from S95T002413 put out for review 10/31/95 see 10/30/95
Blank value indicates possible contamination

also The RPD for 2411 + 2412 is out of control limits.

Batch will be rerun. H. J. H.

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. Lani
Analyst Signature Date 10-5-95

SEthoran
Analyst Signature Date 10/6/95

DATA
NOT USED
IN PACKAGE
Rae
10/31/95

DATA
NOT USED
IN PACKAGE
Stamped 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				
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)			DETECTION LEVEL
Sr-89/90 CONC in µCi/mL REPLACE RS WITH RMAX IF RS<=Lc AND RS>=0 OR REPLACE RS WITH Lc IF RS<0			
RS*DF*DDF*1000/((C1+C2*(1-e to the power of ((-natural log 2)/64.2*DT))) * SS*REC*2220000)			
NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery ((W2-W1) / (CVA * 0.1000))			
Relative Counting Error = The Square Root of ((TC + BKG * CT) / (TC - BKG * CT) * 1.96)			
Percent Carrier Recovery = (Net Weight / Expected weight) * 100			1.80E-06 µCi/L
NOTE: Expected weight = CVA * 0.1			
Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
Delta Time (hours) = ((DOC - SD) * 24) + (TOC - ST) / 100			
Sr-89/90 CONCENTRATION			
1.06E-03 µCi/mL			
RELATIVE COUNTING ERROR			
2.0%			
PERCENT CARRIER RECOVERY			
91.2%			

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
etc 10/31/95

DATA
NOT USED
IN PACKAGE
stamped in 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			CARRIER ADDED In mL	(CVA)	BLNK-PREP
BLNK-PREP	TOTAL COUNTS	(TC)	114	GROSS WEIGHT	(W2)	1.000
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	8.1212
2492	BACKGROUND In cpm	(BKG)	1.6	NET WEIGHT	(W3)	8.0291
Test Code	SAMPLE VOLUME In mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	0.0921
@SR90-01	DILUTION FACTOR	(DF)	101			5.55
Main	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 $\mu\text{Ci/L}$		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 $\mu\text{Ci/L}$ 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	Sr-89/90 CONCENTRATION		1.09E-02	$\mu\text{Ci/m}$		DETECTION LEVEL 1.79E-03 $\mu\text{Ci/mL}$
Analysis Time						
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

DATA
NOT USED
IN PACKAGE

120E 10/31/95

DATA
NOT USED
IN PACKAGE

Stamped in
env
JWW 10/30/95

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)

Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	3762	GROSS WEIGHT	(W2)	8.0035
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9133
2492	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0902
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	5.75
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	374.60	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)	17:00	Sr-89/90 CONC in $\mu\text{Ci/L}$		4.2359E+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 $\mu\text{Ci/L}$ 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	Sr-89/90 CONCENTRATION		4.24E-01	$\mu\text{Ci/mL}$		
Analysis Time						
11:15 AM	RELATIVE COUNTING ERROR		3.2%			
Sample Point						
AN-101	PERCENT CARRIER RECOVERY		90.2%			

DETECTION LEVEL
1.83E-03 $\mu\text{Ci/mL}$

Analyst:	SCL	Date:	06-Oct-95
Signature of Chemist:	SLF	Date:	10/10/95

SAMPLE.WB1 REV 1.2

22010NML

DATA
NOT USED
IN PACKAGE

10/31/95

DATA
NOT USED
IN PACKAGE

Stamped in
run 10/30/95
Jm

308

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)

DUP					
Type	DETECTOR NUMBER	12	CARRIER ADDED in mL	(CVA)	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
Retun	DATE OF SEPARATION (SD)	10/05/95	DETECTION LIMIT	(Ld)	1.61
0	TIME OF COUNT (TOC)	17:30	Sr-89/90 CONC in $\mu\text{Ci/L}$		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 $\mu\text{Ci/L}$ Replace RS with RMAX if $RS \leq Lc$ and $RS \geq 0$ or Replace RS with Lc if $RS < 0$				
Prepared By	$RS \cdot DF \cdot DDF / ((C1 + C2) \cdot (1 - e^{-\ln(2) / (64.2 \cdot DT)})) \cdot SS \cdot REC \cdot 2220000$				
SEH	NOTE: 64.2 = Half Life for Y-90 and Rec. = Fractional Carrier Recovery $((W2 - W1) / (CVA \cdot 0.1000))$				
Chemist	Relative Counting Error = The Square Root of $((TC + BKG \cdot CT) / (TC - BKG \cdot CT)) \cdot 1.96$				
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) = $((DOC - SD) \cdot 24) + (TOC - ST) / 100$				
10/06/95					
Analysis Date					
10/05/95	Sr-89/90 CONCENTRATION	5.02E-01	$\mu\text{Ci/mL}$	DETECTION LEVEL	
Analysis Time					1.81E-03 $\mu\text{Ci/mL}$
11:15 AM	RELATIVE COUNTING ERROR	2.9%			
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

DATA
NOT USED
IN PACKAGE
RSE 10/31/95

DATA
NOT USED
IN PACKAGE

Stamped in
10/30/95
JHW

						SAMPLE
Type	DETECTOR NUMBER		12	CARRIER ADDED in mL	(CVA)	1.000
SAMPLE	TOTAL COUNTS	(TC)	1519	GROSS WEIGHT	(W2)	8.0579
Work List	COUNT TIME in MINUTES	(CT)	10	TARE WEIGHT	(W1)	7.9694
2492	BACKGROUND in cpm	(BKG)	1.6	NET WEIGHT	(W3)	0.0885
Test Code	SAMPLE VOLUME in mL	(SS)	0.100	DELTA TIME (HOURS)	(DT)	6.75
@SR90-01	DILUTION FACTOR	(DF)	101			
Matrix	DIGEST DILUTION FACTOR	(DDF)	1			
LIQUID	SAMPLE COUNT RATE	(Rs)	150.30	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)	18:00	Sr-89/90 CONC in µCi/L		1.7141E+02
Sample Prep	DATE OF COUNT	(DOC)	10/05/95			
N/A						
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						
10/05/95	Sr-89/90 CONCENTRATION		1.71E-01	µCi/mL	DETECTION LEVEL	
Analysis Time						1.84E-03 µCi/mL
11:15 AM	RELATIVE COUNTING ERROR		5.1%			
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

DATA
NOT USED
IN PACKAGE
see id 11/95

DATA
NOT USED
IN PACKAGE

Stamped
SLF
10/30/95

					DUP	
Type	DETECTOR NUMBER		12	CARRIER ADDED In mL	(CVA)	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	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	Sr-89/90 CONCENTRATION	2.20E-01		µCi/mL	DETECTION LEVEL	
Analysis Time						1.83E-03 µCi/mL
11:15 AM	RELATIVE COUNTING ERROR	4.5%				
Sample Point						
AN-101	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

DATA
NOT USED
IN PACKAGE

DATA
NOT USED
IN PACKAGE

WORKBOOK PAGE: SAM8

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

Type	DETECTOR NUMBER	12	CARRIER ADDED in mL	(CVA)	SAMPLE
SAMPLE	TOTAL COUNTS (TC)	1765	GROSS WEIGHT	(W2)	8.0750
Work List	COUNT TIME in MINUTES (CT)	10	TARE WEIGHT	(W1)	7.9852
2492	BACKGROUND in cpm (BKG)	1.8	NET WEIGHT	(W3)	0.0898
Test Code	SAMPLE VOLUME in mL (SS)	0.100	DELTA TIME (HOURS)	(DT)	8.17
@SR90-01	DILUTION FACTOR (DF)	101			
Matrix	DIGEST DILUTION FACTOR (DDF)	1			
LIQUID	SAMPLE COUNT RATE (Rs)	174.90	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)	19:25	Sr-89/90 CONC in µCi/L 1.9376E+02		
Sample Prep	DATE OF COUNT (DOC)	10/05/95			
N/A					
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					
10/05/95	Sr-89/90 CONCENTRATION	1.94E-01	µCi/mL	DETECTION LEVEL	
Analysis Time					
11:15 AM	RELATIVE COUNTING ERROR	4.7%	1.79E-03		
Sample Point					
AN-101	PERCENT CARRIER RECOVERY	89.8%	µCi/mL		

Analyst:	SCL	Date:	06-Oct-95
Signature of Chemist:	SLF	Date:	10/16/95

SAMPLE WB1 REV 1.2

22010NML

DATA
NOT USED
IN PACKAGE
RSC 10/21/95

DATA
NOT USED
IN PACKAGE
Stamped in error
JAW 10/30/96

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

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	DETECTOR NUMBER	12	CARRIER ADDED in mL	(CVA)	DUP
DUP	TOTAL COUNTS (TC)	1795	GROSS WEIGHT	(W2)	1.000
Work List	COUNT TIME in MINUTES (CT)	10	TARE WEIGHT	(W1)	8.0401
2492	BACKGROUND in cpm (BKG)	1.6	NET WEIGHT	(W3)	7.9531
Test Code	SAMPLE VOLUME in mL (SS)	0.100	DELTA TIME (HOURS)	(DT)	0.0870
@SR90-01	DILUTION FACTOR (DF)	101			8.33
Matrix	DIGEST DILUTION FACTOR (DDF)	1			
LIQUID	SAMPLE COUNT RATE (Rs)	177.90	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)	19:35	Sr-89/90 CONC in µCi/L		2.0308E+02
Sample Prep	DATE OF COUNT (DOC)	10/05/95			
N/A					
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					
10/05/95	Sr-89/90 CONCENTRATION	2.03E-01	µCi/mL		DETECTION LEVEL 1.84E-03 µCi/mL
Analysis Time	RELATIVE COUNTING ERROR	4.7%			
11:15 AM					
Sample Point					
AN-101	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

DATA NOT USED IN PACKAGE

DATA NOT USED IN PACKAGE

313

LABCORE Completed Worklist Report for Worklist# 2650

Analyst: ak1

Instrument: AM01

Book# 124643

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	0	AM24101	AM24101 LIQUID	3.07E-02	2.76E-2	89.900 % Recovery	
1 STD	0	0	AM24101	AM24101E LIQUID	1.00	1.33E+00	1.330 % Ct. Error	
1 STD	0	0	AM24101	AM24101T LIQUID	100	8.12E+01	81.200 % Recovery	
2 BLNK	0	0	AM24101	AM24101 LIQUID	1	<1.24E-5	uCi/mL	
2 BLNK	0	0	AM24101	AM24101E LIQUID	1.00	1.00E+02	100.000 % Ct. Error	
2 BLNK	0	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	<1.37E-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

AK1 6 Oct 95
Reviewer Signature Date

S95T2412 and S95T2413 show Cm-243/244 activity at levels that are too low for quantification.

AK1 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 _____

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

Worklist Comment: Use a 1.0 mL sample size. --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 # 2650

gll 10/5/95
Analyst Signature Date

C. J. Oliver 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

Am 241 and Cm 243/244: LA-953-103 (A-4)			LIQUID		STD		
Type	Date Counted	OCT-05-95	Am 241 AEA Frac.	(C241)	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 $\mu\text{Ci/mL}$	0.03067	Am 241 $\mu\text{Ci/L}$ =		2.7584E+01		
0			Cm 243/244 $\mu\text{Ci/L}$ =	<	3.0442E+00		
Sample Prep							
N/A							
Sample Number							
Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))							
WORKLIST#2650							
Cm-243/244 $\mu\text{Ci/L}$ = (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 $\mu\text{Ci/mL}$ =		2.76E-02	DETECTION LEVELS in $\mu\text{Ci/mL}$				
Analyst		Relative Counting Error =					1.3%
AKL							
Date Complete							
10/06/95		Cm 243/244 $\mu\text{Ci/mL}$	< 3.04E-03	Am 241			
Analysis Date		Relative Counting Error =	100.0%	3.04E-03			
10/05/95		Am 243 Tracer Recovery =	81.2%	Cm 243/244			
				3.04E-03			
Analysis Time							
02:00 PM							
Sample Point							
AN-101							

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
Match	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 $\mu\text{Ci/L}$ =	< 1.2437E-02
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 1.2437E-02
Sample Prep				
N/A				

Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))
 Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))
 Instrument Code
 AL10540
 Prepared By
 CJO
 Chemist
 NOTE: Am-241 Result is a LESS THAN Value.
 LLF
 Am 241 $\mu\text{Ci/mL}$ = < 1.24E-05
 Analysis
 Relative Counting Error = 100.0%
 AKL
 Date Complete
 NOTE: Cm-243/244 Result is a LESS THAN Value.
 10/06/95
 Cm 243/244 $\mu\text{Ci/mL}$ = < 1.24E-05
 Analysis Date
 Relative Counting Error = 100.0%
 10/05/95
 Am 243 Tracer Recovery = 89.9%
 Analysis Time
 02:00 PM
 Sample Point
 AN-101

Am 241 $\mu\text{Ci/mL}$	=	< 1.24E-05	DETECTION LEVELS in $\mu\text{Ci/mL}$
Relative Counting Error	=	100.0%	
Am 241			1.24E-05
Cm 243/244			1.24E-05

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

				SAMPLE				
Type	Date Counted	OCT-05-95	Am 241 AEA Frac. (C241)		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 $\mu\text{Ci/L}$ =	<	1.3148E-02			
0			Cm 243/244 $\mu\text{Ci/L}$ =	<	1.3148E-02			
Sample Prep								
N/A								
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))							
S95T002411	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))							
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) * (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100							
AL10541	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV							
Prepared By	CJO							
Chemist	NOTE: Am-241 Result is a LESS THAN Value.							
LLF	Am 241 $\mu\text{Ci/mL}$ =	< 1.31E-05	DETECTION LEVELS in $\mu\text{Ci/mL}$					
Analyst	Relative Counting Error =	4.8%						
AKL								
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.							
10/06/95	Cm 243/244 $\mu\text{Ci/mL}$	< 1.31E-05	Am 241					
Analysis Date	Relative Counting Error =	100.0%	1.31E-05					
10/05/95	Am 243 Tracer Recovery =	91.8%	Cm 243/244					
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: 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	
DUP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.088	
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)	8	
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 (DetEm)	0.5000	Cm 243/244 cpm	0	
95002844			AEA Count Time (min)	480	
Retain			Am 241 $\mu\text{Ci/L}$ =	2.2825E-02	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 1.2462E-02	
Sample Prep					
N/A					
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
S95T002411	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
AL10539	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEm) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
CJO					
Chemist					
LLF	Am 241 $\mu\text{Ci/mL}$ =	2.28E-05	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	2.9%			
AKL					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
10/06/95	Cm 243/244 $\mu\text{Ci/mL}$	< 1.25E-05		Am 241 1.25E-05	
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244 1.25E-05		
10/05/95	Am 243 Tracer Recovery =	93.5%			
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

				SAMPLE				
Type	Date Counted	OCT-05-95	Am 241 AEA Frac. (C241)		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.	114343	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			
Return			Am 241 $\mu\text{Ci/L}$ =		6.8982E-02			
0			Cm 243/244 $\mu\text{Ci/L}$ =	<	2.2393E-02			
Sample Prep								
N/A								
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))							
S95T002412	Cm-243/244 $\mu\text{Ci/L}$ = (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							
CJO								
Chemist								
LLF	Am 241 $\mu\text{Ci/mL}$ =	6.90E-05	DETECTION LEVELS in $\mu\text{Ci/mL}$					
Analyst	Relative Counting Error =	1.8%						
AKL								
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.							
10/06/95	Cm 243/244 $\mu\text{Ci/mL}$	< 2.24E-05	Am 241					
Analysis Date	Relative Counting Error =	7.2%	2.24E-05					
10/05/95	Am 243 Tracer Recovery =	64.4%	Cm 243/244					
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: DUP6

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

LIQUID / SOLID

DUP

Type	Date Counted	OCT-05-95	Am 241 AEA Frac. (C241)	DUP	
DUP	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)	0.255	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0.727	
2650	Tracer Volume in mL (SPKV)	0.050	Total AT Counts	0.012	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	9658	
@AM24101	Tracer Book No.	114B43	Background in cpm (Bkg)	30	
Matrix	Am-243 Tracer Value (dpm/mL)	9214	Am 241 cpm	5	
LIQUID	Detector Number	3	Am 243 cpm	20.76	
Batch Number	Detector Efficiency (DetEff)	0.5000	Cm 243/244 cpm	59.29	
95002844			AEA Count Time (min)	1.02	
Rerun			Am 241 $\mu\text{Ci/L}$ =	480	
0			Cm 243/244 $\mu\text{Ci/L}$ =	7.2790E-02	
Sample Prep				< 1.4273E-02	
N/A					
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
S95T002412	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
AL10541	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
CJO					
Chemist					
LLF	Am 241 $\mu\text{Ci/mL}$ =	7.28E-05	DETECTION LEVELS in $\mu\text{Ci/mL}$	Am 241 1.43E-05	
Analyst	Relative Counting Error =	2.3%			
AKL					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
10/06/95	Cm 243/244 $\mu\text{Ci/mL}$	< 1.43E-05			
Analysis Date	Relative Counting Error =	8.9%			
10/05/95	Am 243 Tracer Recovery =	100.1%			
Analysis Time					
02:00 PM					
Sample Point					
AN-101					

Analyst:	AKL	Date:	10/06/95
Signature of Chemist: <i>AKL</i>	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

		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.	114843	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 (DetEm)	0.5000	Cm 243/244 cpm	1.29		
95002844			AEA Count Time (min)	480		
Retain			Am 241 $\mu\text{Ci/L}$ =	6.5156E-02		
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 1.5734E-02		
Sample Prep						
N/A						
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))					
S95T002413	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))					
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100					
AL10539	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEm) * C243 * 100 / Am-243 Tracer Value * SPKV					
Prepared By						
CJO						
Chemist						
LLF	Am 241 $\mu\text{Ci/mL}$ =	6.52E-05	DETECTION LEVELS in $\mu\text{Ci/mL}$			
Analyst	Relative Counting Error =	1.9%				
AKL						
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.					
10/06/95	Cm 243/244 $\mu\text{Ci/mL}$	< 1.57E-05	Am 241			
Analysis Date	Relative Counting Error =	7.9%	1.57E-05			
10/05/95	Am 243 Tracer Recovery =	91.2%	Cm 243/244			
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: DUP8

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

LIQUID / SOLID

DUP

Type	Date Counted	OCT-05-95	Am 241 AEA Frac. (C241)	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	9970
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30
@AM24101	Tracer Book No.	114543	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 $\mu\text{Ci/L}$ =	6.5894E-02
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 1.6484E-02
Sample Prep				
N/A				

Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))
S95T002413	Cm-243/244 $\mu\text{Ci/L}$ = (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
CJO	
Chemist	

LLF	Am 241 $\mu\text{Ci/mL}$ =	6.59E-05	DETECTION LEVELS in $\mu\text{Ci/mL}$
Analysis	Relative Counting Error =	1.9%	Am 241
AKL			1.65E-05
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.		Cm 243/244
10/06/95	Cm 243/244 $\mu\text{Ci/mL}$	< 1.65E-05	1.65E-05
Analysis Date	Relative Counting Error =	7.6%	
10/05/95	Am 243 Tracer Recovery =	90.4%	
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		

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
WORKLIST#2650-ST
File ID: 2a2943.CNFCounted on: 10/ 5/95 @19: 8
Detector: AEA2
Geometry number: 1
Count time: 28805. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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		Count Rate	%err @95	d/m	Activity uCi/ea	
			Exp.	Obs. Diff.	c/m				
1	Am241	0.558	5.479	5.480 -0.001	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 -0.119	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

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

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 13733.6

3
3
3
3
3
3
3
3
3
3.
.
.
2.
.2.
....2
.....2
.....2
.....2
1.....2...
.1.....2....
...1.....2....
...1.....2.....
..2.....1...
.....1
.....1..
.....1..
.....1
..1.WHC-SD-WM-DP-148, REV. 1

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

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.								

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

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

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
WORKLIST2650-BLK
File ID: 3a3424.CNFCounted on: 10/ 5/95 @19: 8
Detector: AEA3
Geometry number: 1
Count time: 28806. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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	Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Am243	0.928	5.270	5.269	0.0010	10.04	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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 15162.5

3
3
3
3
3
3
3
3

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

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.								

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

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

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
S95T2411
File ID: 4a4513.CNFCounted on: 10/ 5/95 @19: 9
Detector: AEA4
Geometry number: 1
Count time: 28806. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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	Count	%err	Activity	
			Exp. Obs. Diff. FWHM	Rate c/m	@95	uCi/ea	
1	Am241	0.052	5.479 5.472 0.007	0.05	3.62	4.7	21.6
	Pu238		5.487 5.472 0.015				28.3
2	Am243	0.860	5.270 5.265 0.005	0.04	59.99	1.2	340.6
Totals:		0.912	<--valid peaks only-->		63.61		

DETECTOR CALIBRATION

Energy (MEV) = $4.091 + (0.0046) \times \text{Channel}$
 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

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

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

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.								

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

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

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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	Count Rate	%err	d/m	Activity
			Exp. Obs. Diff. FWHM	c/m @95			uCi/ea
1	Am241	0.098	5.479 5.485 -.006	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	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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 12391.4

3
 3
 3
 3
 3
 3
 4
 4
 3
 3
 3
 3
 3
 32
 3.2
 3...2
 1.....2
 1.....2
 1.....2.
 1.....2.....
 1.....2....
 1.....2..
 .1.....2.
 .12..
 ..1
 ..1
 ...1
 .1
 1

WHC-SD-WM-DP-148, 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.								

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

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

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
S95T2412-SAM
File ID: 6a6248.CNFCounted on: 10/ 5/95 @19:10
Detector: AEA6
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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	Count	%err	Activity	
			Exp. Obs. Diff. FWHM	Rate c/m	@95	d/m uCi/ea	
1	Cm244	0.011	5.795 5.792 0.003	30.03	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	40.05	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	90.04	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:

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

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

1 Legend: Spectrum 6a6248.CNF
Raw = Modeled Peaks = 1,2,..., etc Display Max.: 19444.1

1
1
1
1
1

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

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

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.	0.	1.	0.	0.	0.
31	1.	0.	0.	1.	0.	0.	1.	0.	1.	0.
41	0.	1.	0.	1.	0.	1.	0.	0.	0.	0.
51	1.	0.	0.	1.	1.	1.	0.	0.	1.	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.	1.
411	0.	0.	2.	0.	0.	0.	1.	1.	0.	0.
421	1.	2.	2.	2.	2.	1.	3.	0.	0.	1.
431	0.	1.	2.	4.	3.	1.	2.	1.	2.	0.
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.								

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

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

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
S95T2412-DUP
File ID: 7a7853.CNFCounted on: 10/ 5/95 @19:11
Detector: AEA7
Geometry number: 1
Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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 Exp.	Centroid Obs.	Diff.	FWHM	Count Rate	%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

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

Analyzed by:

ALJ

10-6-95

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

Spectrum 7a7853.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 8786.7

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

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

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.	2.	1.	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	2.	0.								

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

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

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
S95T2413-SAM
File ID: 8a8028.CNFCounted on: 10/ 5/95 @19:11
Detector: AEA8
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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	Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Cm244	0.011	5.795	5.791	0.004	0.03	1.29	7.9	25.3	0.114E-04
	Cm243		5.779	5.791	-0.012				34.7	0.156E-04
2	Am241	0.227	5.479	5.476	0.003	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	0.007	0.05	88.45	1.0	1751.8	0.789E-03
Totals:		0.960	<--valid peaks only-->				117.47			

DETECTOR CALIBRATION

Energy (MEV) = $4.073 + (0.0046) \times \text{Channel}$
 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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 15876.0

```

.
..
3..
...3.
.....3
.....3
.....3
.....3
.....3
.....3
3.....3..
3.....
..2
.....2
.....2
.....2
.....2
.....2

```

```

1
1
1
1
1

```

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

WHC-SD-WM-DP-148, REV. 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.	0.	0.
21	0.	0.	1.	0.	0.	0.	1.	0.	2.	3.
31	1.	1.	1.	0.	1.	0.	1.	0.	0.	0.
41	0.	1.	0.	0.	0.	2.	0.	1.	0.	0.
51	2.	2.	4.	0.	3.	2.	0.	1.	1.	1.
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.	0.	0.	0.
421	0.	0.	1.	0.	0.	0.	0.	1.	0.	1.
431	0.	0.	2.	1.	2.	2.	2.	1.	1.	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.	0.	0.	0.	0.	0.	0.	0.	0.

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

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

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
S95T2413-DUP
File ID: 9a9116.CNFCounted on: 10/ 5/95 @19:12
Detector: AEA9
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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	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

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 13941.4

```

.
.
..
3..
.3..
..3...
.....3...
.....3..
.....3.
.....3
.....3.
.....3.
2.....3
.2.....3
...2..
.....2
.....2
.....2
.....2
2..

```

```

1
1
1
1
1
1
1

```

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

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

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. 1

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

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

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: ak1

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

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		QAM24101 AM24101 LIQUID		3.07E-02	2.64E-2	85.990 % Recovery	
1 STD	0		QAM24101 AM24101E LIQUID		1.00	1.06E+00	1.060 % Ct. Error	
1 STD	0		QAM24101 AM24101T LIQUID		100	8.94E+01	89.400 % Recovery	
2 BLNK	0		QAM24101 AM24101 LIQUID		1	<2.49E-4		uCi/mL
2 BLNK	0		QAM24101 AM24101E LIQUID		1.00	6.41E+00	6.410 % Ct. Error	
2 BLNK	0		QAM24101 AM24101T LIQUID		100	8.92E+01	89.200 % Recovery	
3 SAMPLE	S95T002411	0	QAM24101 AM24101 LIQUID		N/A	<2.48E-04	2.480e-004	uCi/mL
3 SAMPLE	S95T002411	0	QAM24101 AM24101E LIQUID		N/A	5.90E+00	0.000 % Ct. Error	
3 SAMPLE	S95T002411	0	QAM24101 AM24101T LIQUID		N/A	9.04E+01	1.000e-007 % Recovery	
4 DUP	S95T002411	0	QAM24101 AM24101 LIQUID		<2.48E-4	<2.16E-4		RPD
4 DUP	S95T002411	0	QAM24101 AM24101E LIQUID		1.00	1.00E+02	100.000 % Ct. Error	
4 DUP	S95T002411	0	QAM24101 AM24101T LIQUID		100	9.80E+01	98.000 % Recovery	
5 SAMPLE	S95T002412	0	QAM24101 AM24101 LIQUID		N/A	<2.37E-04	2.370e-004	uCi/mL
5 SAMPLE	S95T002412	0	QAM24101 AM24101E LIQUID		N/A	4.49E+00	0.000 % Ct. Error	
5 SAMPLE	S95T002412	0	QAM24101 AM24101T LIQUID		N/A	9.25E+01	1.000e-007 % Recovery	
6 DUP	S95T002412	0	QAM24101 AM24101 LIQUID		<2.37E-4	2.68E-4		RPD
6 DUP	S95T002412	0	QAM24101 AM24101E LIQUID		1.00	2.87E+00	2.870 % Ct. Error	
6 DUP	S95T002412	0	QAM24101 AM24101T LIQUID		100	9.50E+01	95.000 % Recovery	
7 SAMPLE	S95T002413	0	QAM24101 AM24101 LIQUID		N/A	<2.39E-04	2.390e-004	uCi/mL
7 SAMPLE	S95T002413	0	QAM24101 AM24101E LIQUID		N/A	4.08E+00	0.000 % Ct. Error	
7 SAMPLE	S95T002413	0	QAM24101 AM24101T LIQUID		N/A	9.28E+01	1.000e-007 % Recovery	
8 DUP	S95T002413	0	QAM24101 AM24101 LIQUID		<2.39E-4	5.79E-4		RPD
8 DUP	S95T002413	0	QAM24101 AM24101E LIQUID		1.00	1.89E+00	1.890 % Ct. Error	
8 DUP	S95T002413	0	QAM24101 AM24101T LIQUID		100	8.86E+01	88.600 % Recovery	

Final page for worklist# 2500

Analyst Signature

Date

Analyst Signature

Date

Reviewer Signature

Date

This data is not used in final results. All samples were rerun on worklist # 2650. Rec
10/16/95

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

09/20/95 13:11
A-0004-1

WHC-SD-WM-DP-148, REV. 0
LABCORE Data Entry Template for Worklist# 2500

Page: 1

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

Q Lewis
Analyst Signature

9-25-95
Date

M B Stein
Analyst Signature

9/26/95
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

				STD	
Type	Date Counted	SEP-25-95	Am 241 AEA Frac. (C241)		0.364
STD	Sample Volume in mL (SS)	1.000	Am 243 AEA Frac. (C243)		0.577
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
QAM24101	Tracer Book No.	114B43	Background in cpm (Bkg)		6
Matrix	Am-243 Tracer Value (dpm/mL)	9214	Am 241 cpm		118.55
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 $\mu\text{Ci/mL}$	0.03067	Am 241 $\mu\text{Ci/L}$ =		2.6445E+01
0			Cm 243/244 $\mu\text{Ci/L}$ =	<	4.0625E+00
Sample Prep					
N/A					
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
WRKLIST#2500	Cm-243/244 $\mu\text{Ci/L}$ = (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				
MCB					
Chemist					
LLF	Am 241 $\mu\text{Ci/mL}$ =	2.64E-02	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	1.1%			
AKL					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
09/26/95	Cm 243/244 $\mu\text{Ci/mL}$	< 4.06E-03	Am 241		
Analysis Date	Relative Counting Error =	100.0%	4.06E-03		
09/25/95	Am 243 Tracer Recovery =	89.4%	Cm 243/244		
Analysis Time			4.06E-03		
02:00 PM					
Sample Point					
AN-101 GRAB					

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

BLNK

Type	Date Counted	SEP-25-95	Am 241 AEA Frac. (C241)	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 $\mu\text{Ci/L}$ =	< 2.4879E-01
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 2.4879E-01
Sample Prep				
N/A				
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
WRKLST#2500	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100			
AL10540	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
Prepared By				
MCB				
Chemist	NOTE: Am-241 Result is a LESS THAN Value.			
LLF	Am 241 $\mu\text{Ci/mL}$ =	< 2.49E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$	
Analyst	Relative Counting Error =	6.4%		
AKL				
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			Am 241
09/26/95	Cm 243/244 $\mu\text{Ci/mL}$	< 2.49E-04		2.49E-04
Analysis Date	Relative Counting Error =	100.0%		Cm 243/244
09/25/95	Am 243 Tracer Recovery =	89.2%		2.49E-04
Analysis Time				
02:00 PM				
Sample Point				
AN-101 GRAB				

Analyst:	AKL	Date:	09/26/95
Signature of Chemist:	<i>AKL</i>	Date:	26 Sep 95

BLANK.WB1 REV 1.2

953103ML

WORKBOOK PAGE: SAM3

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

LIQUID / SOLID

				SAMPLE							
Type	Date Counted	SEP-25-95	Am 241 AEA Frac. (C241)	0.011							
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	13633							
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30							
@AM24101	Tracer Book No.	114943	Background in cpm (Bkg)	5							
Labels	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 $\mu\text{Ci/L}$ =	< 2.4755E-01							
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 2.4755E-01							
Sample Prep											
N/A											
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))										
S95T002411	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))										
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100										
AL10541	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV										
Prepared By											
MCB											
Chemist	NOTE: Am-241 Result is a LESS THAN Value.										
LLF	Am 241 $\mu\text{Ci/mL}$ =	< 2.48E-04	<table border="1"> <thead> <tr> <th colspan="2">DETECTION LEVELS in $\mu\text{Ci/mL}$</th> </tr> </thead> <tbody> <tr> <td>Am 241</td> <td>2.48E-04</td> </tr> <tr> <td>Cm 243/244</td> <td>2.48E-04</td> </tr> </tbody> </table>			DETECTION LEVELS in $\mu\text{Ci/mL}$		Am 241	2.48E-04	Cm 243/244	2.48E-04
DETECTION LEVELS in $\mu\text{Ci/mL}$											
Am 241	2.48E-04										
Cm 243/244	2.48E-04										
Analyst	Relative Counting Error =	5.9%									
AKL											
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.										
09/26/95	Cm 243/244 $\mu\text{Ci/mL}$	< 2.48E-04									
Analysis Date	Relative Counting Error =	100.0%									
09/25/95	Am 243 Tracer Recovery =	90.4%									
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	

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

WORKBOOK PAGE: DUP4

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	
DUP	Sample Volume (mL) (SS)	0.100	Am 243 AEA Frac. (C243)	0.982	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0	
2500	Tracer Volume (mL) (SPKV)	0.100	Total AT Counts	13973	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	30	
@AM24101	Tracer Book No.	114843	Background in cpm (Bkg)	6	
Matrix	Am-243 Tracer Value (dpm/mL)	9214	Am 241 cpm	0	
LIQUID	Detector Number	1	Am 243 cpm	203.19	
Batch Number	Detector Efficiency (DetEm)	0.5000	Cm 243/244 cpm	0	
95002647			AEA Count Time (min)	480	
Retain			Am 241 $\mu\text{Ci/L}$ =	< 2.1561E-01	
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 2.1561E-01	
Sample Prep					
N/A					
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
S95T002411	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
AL10539	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEm) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
MCB					
Chemist	NOTE: Am-241 Result is a LESS THAN Value.				
LLF	Am 241 $\mu\text{Ci/mL}$ =	< 2.16E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	100.0%			
AKL					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
09/26/95	Cm 243/244 $\mu\text{Ci/mL}$	< 2.16E-04	Am 241		
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244		
09/25/95	Am 243 Tracer Recovery =	98.0%	2.16E-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: 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	
SAMPLE	Sample Volume in mL (SS)	0.100	Am 243 AEA Frac. (C243)	0.022	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0.948	
2500	Tracer Volume in mL (SPKV)	0.100	Total AT Counts	0	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	13547	
@AM24101	Tracer Book No.	114943	Background In cpm (Bkg)	30	
Matrix	Am-243 Tracer Value (dpm/mL)	9214	Am 241 cpm	2	
LIQUID	Detector Number	2	Am 243 cpm	4.06	
Batch Number	Detector Efficiency (DetEff)	0.5000	Cm 243/244 cpm	175.23	
95002647			Cm 243/244 cpm	0	
Rerun			AEA Count Time (min)	480	
0			Am 241 $\mu\text{Ci/L}$ =	< 2.3663E-01	
Sample Prep			Cm 243/244 $\mu\text{Ci/L}$ =	< 2.3663E-01	
N/A					
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
S95T002412	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
AL10540	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By					
MCB					
Chemist	NOTE: Am-241 Result is a LESS THAN Value.				
LLF	Am 241 $\mu\text{Ci/mL}$ =	< 2.37E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$		
Analyst	Relative Counting Error =	4.5%			
AKL					
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.				
09/26/95	Cm 243/244 $\mu\text{Ci/mL}$	< 2.37E-04	Am 241		
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244		
09/25/95	Am 243 Tracer Recovery =	92.5%			
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

DUP

Type	Date Counted	SEP-25-95	Am 241 AEA Frac. (C241)	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.	114843	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
Result			Am 241 $\mu\text{Ci/L}$ =	2.6848E-01
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 2.3154E-01
Sample Prep				
N/A				
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
S95T002412	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100			
AL10541	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
Prepared By				
MCB				
Chemist				
LLF	Am 241 $\mu\text{Ci/mL}$ =	2.68E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$	
Analyst	Relative Counting Error =	2.9%		
AKL	NOTE: Cm-243/244 Result is a LESS THAN Value.			
Date Complete	Am 241	2.32E-04		
09/26/95	Cm 243/244 $\mu\text{Ci/mL}$	< 2.32E-04	Cm 243/244	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				

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	
SAMPLE	Sample Volume in mL (SS)	0.100	Am 243 AEA Frac. (C243)	0.024	
Work List	Sample D.F. (DF)	1	Cm 243/244 AEA Frac. (Cm)	0.937	
2500	Tracer Volume in mL (SPKV)	0.100	Total AT Counts	0	
Test Code	Digest D.F. (DDF)	1.000	AT Count Time (min) (TC)	13563	
@AM24101	Tracer Book No.	114843	Background in cpm (Bkg)	30	
Matrix	Am-243 Tracer Value (dpm/mL)	9214	Am 241 cpm	6	
LIQUID	Detector Number	1	Am 243 cpm	4.94	
Batch Number	Detector Efficiency (DetEff)	0.5000	Cm 243/244 cpm	191.76	
95002647			Cm 243/244 AEA Frac. (Cm)	0	
Rerun			AEA Count Time (min)	480	
0			Am 241 $\mu\text{Ci/L}$ =	< 2.3875E-01	
Sample Prep			Cm 243/244 $\mu\text{Ci/L}$ =	< 2.3875E-01	
N/A					
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
S95T002413	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))				
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1/(Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100				
AL10539	Am 243 Tracer Recovery = (Total AT Counts / TC * Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV				
Prepared By	NOTE: Am-241 Result is a LESS THAN Value.				
MCB	LLF	Am 241 $\mu\text{Ci/mL}$ =	< 2.39E-04	DETECTION LEVELS in $\mu\text{Ci/mL}$	
Chemist	Analysis	Relative Counting Error =	4.1%		
AKL	Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			
09/26/95	Analysis Date	Cm 243/244 $\mu\text{Ci/mL}$	< 2.39E-04		
09/25/95	Analysis Time	Relative Counting Error =	100.0%	Am 241	
02:00 PM	Sample Point	Am 243 Tracer Recovery =	92.8%	2.39E-04	
AN-101 GRAB				Cm 243/244	

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

DUP

Type	Date Counted	SEP-25-95	Am 241 AEA Frac. (C241)	DUP
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.	114843	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 $\mu\text{Ci/L}$ =	5.7934E-01
0			Cm 243/244 $\mu\text{Ci/L}$ =	< 2.5540E-01
Sample Prep				
N/A				
Sample Number	Am-241 $\mu\text{Ci/L}$ = (C241 * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
S95T002413	Cm-243/244 $\mu\text{Ci/L}$ = (Cm * Am-243 Tracer Value * SPKV * DF * DDF * (1000mL/L)) / (C243 * SS * (2220000dpm/ μCi))			
Instrument Code	Relative Counting Error = Square Root of [(1/(Am-243 cpm * min)) + (1 / (Am-241 or Cm-243/244 cpm * min))] * 1.96 * 100			
AL10540	Am 243 Tracer Recovery = (Total AT Counts / TC - Bkg) * (1/DetEff) * C243 * 100 / Am-243 Tracer Value * SPKV			
Prepared By				
MCB				
Chemist				
LLF	Am 241 $\mu\text{Ci/mL}$ =	5.79E-04	DETECTION LEVELS In $\mu\text{Ci/mL}$	
Analyst	Relative Counting Error =	1.9%		
AKL				
Date Complete	NOTE: Cm-243/244 Result is a LESS THAN Value.			
09/26/95	Cm 243/244 $\mu\text{Ci/mL}$	< 2.55E-04	Am 241	2.55E-04
Analysis Date	Relative Counting Error =	100.0%	Cm 243/244	2.55E-04
09/25/95	Am 243 Tracer Recovery =	88.6%		
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

McEwen

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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	0.0010	10.03	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	-.0040	10.03	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

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

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 34052.5

```

.
.
2..
.2..
....2..
.....2.
.....2
.....2
.....2
1.....2.....2
..1.....
.....1
.....1
.....1
.....1
...1...

```

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

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

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.								

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

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

Mr. Bueh

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
2500-BLNK
File ID: 11a3367.CNF

Counted on: 9/25/95 @18:42
Detector: AEAll
Geometry number: 1
Count time: 28803. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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

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

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 34943.9

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

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

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.	0.	0.	0.	0.	0.	0.	0.	0.

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

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

Westinghouse Hanford Co.

Em Buel

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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	-.0060	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	-.0060	0.03	195.56	0.6	698.8	0.315E-03
Totals:		0.938	<--valid peaks only-->				197.90			

DETECTOR CALIBRATION
Energy (MEV) = $4.106 + (0.0046) * \text{Channel}$
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

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

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 40229.4

.
.
2.
.2.
....2.
.....2
1.....2.
1.....2.
1.....2
2.....
1
1
1
1
1
1

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

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

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.	0.	2.	1.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	0.	2.	1.	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.								

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

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

McBee

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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 Exp.	Centroid Obs.	Diff.	FWHM	Count Rate	%err c/m @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) = $4.091 + (0.0046) \times \text{Channel}$
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

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 29907.5

2
.2
...2
..... 2
..... 2
1..... 2
1.....2.
1.....2...
1.....2
1.....
1.
1
1
1
1

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

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

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.	0.	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.								

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

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

Em. Basler

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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	10.05	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	40.05	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

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

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 31210.3

```

.
2.
...2
.....2
.....2
.....2
.....2..
.....2
.....2
2...
1
1
1
1
1
1

```

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

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

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.								

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

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

Em Buller

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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 Exp.	Centroid Obs.	Diff.	FWHM	Count Rate	%err c/m @95	d/m	Activity uCi/ea	
1	Am241	0.061	5.479	5.490	-.011	10.09	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	20.10	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

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

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

Spectrum 7a7841.CNF

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 23178.9

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

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

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.								

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

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

McBucke

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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	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

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

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 32900.6

3
3
3
3
3
3
3
3
3
3
3

.
2.
.2.
....2
.....2
.....2
.....2.
.....2.
.....2.
1.....2
1...2...
1
1
1
1
1
1

WHC-SD-WM-DP- 1168, REV. 1

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

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.								

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

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

Encl. Baele

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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			Count Rate c/m	%err @95	d/m	Activity uCi/ea	
			Exp.	Obs.	Diff.					
1	Am241	0.128	5.479	5.485	-0.006	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	-0.122	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

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 26848.0

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

WHC-SD-WM-DP-148, REV. 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-D 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 _____

RFH 2 Oct 95
Reviewer Signature _____ Date _____

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

WHC-SD-WM-DP-148, REV. 0
LABCORE Data Entry Template for Worklist# 2499

Analyst: NK 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

NK 9/29/95
Analyst Signature Date

MCBrel m 10/2/95
Analyst Signature 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	DATE COUNTED	SEP-29-95	PU 236 AEA FRAC (C236)	STD
STD	SAMPLE VOLUME in mL	SS	0.100	0.439
Work List	SAMPLE DILUTION FACTOR	DF	101.000	0.000
2499	TRACER VOLUME in mL	SPKV	0.100	0.564
Test Code	DIGEST DILUTION FACTOR	DDF	1.000	3608
@PU23901	TRACER BOOK NO	117B43	AT COUNT TIME (MIN)	30
Matrix	DETECTOR NUMBER	1	BACKGROUND in cpm (Bkg)	6.000
LIQUID	EFFICIENCY FACTOR	EFF	0.500	17.970
Batch Number	TRACER PREPARATION DATE	09/12/95	PU 238 cpm	0.000
95002646	TRACER PREPARATION VALUE (dpm/mL)	2265.000	PU 239 cpm	23.070
Retun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2239.505	AEA COUNT TIME	480
0	PU-238 TRACER VALUE (dpm/mL)	0.000	Pu 239/240 μ Ci/L	1.3090E+02
Sample Prep	STANDARD BOOK NO	104B43		
N/A	STANDARD VALUE in μ Ci/mL	0.128		
Sample #				
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 μ Ci/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(2220000 dpm/ μ Ci)]			
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 μ Ci/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-238 Tracer Recovery / 100)(2220000 dpm/ μ Ci)(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 μ Ci/mL	1.31E-01	DETECTION LEVELS in μ Ci/mL	
Analysis Date	Relative Counting Error =	2.8%	Pu 239/240	1.55E-02
09/29/95				
Analysis Time				
06:00 AM				
Sample Point				
AN-101 GRAB	Pu 236 Tracer Recovery =	44.8%		

Analyst:	RWK	Date:	02-Oct-95
Signature of Chemist: <i>LLF</i>	LLF	Date:	2 Oct 95

STANDARD WB1 REV 1.2

943127ML

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 μ Ci/L =	< 1.593E-02
0	PU-238 TRACER VALUE (dpm/mL)	0.00		

Sample Prep

N/A

Sample #

WRKLST#2499

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 * 1/EFF * C236) / ((C236)(SS)(D g/L)(2220000 dpm/ μ Ci))

Pu 239/240 μ Ci/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / ((C236)(SS)(D g/L)(2220000 dpm/ μ Ci))

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)

Pu 238 μ Ci/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery / 100)(2220000 dpm/ μ Ci)(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 μ Ci/mL < 1.59E-05

Relative Counting Error = 100.0%

NOTE: Pu 238 Result is a LESS THAN Value.

Pu 238 μ Ci/mL < 1.59E-05

Relative Counting Error = 100.0%

Pu 236 Tracer Recovery = 38.5%

DETECTION

LEVELS

in μ Ci/mL

Pu 239/240

1.59E-05

Pu 238

1.59E-05

Analyst:

RWK

Date:

02-Oct-95

Signature of Chemist:

LLF

Date:

2 Oct 95

BLANK.WB1 REV 1.2

943127ML

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

VHC-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 μ Ci/L	8.1629E-02
0	PU-238 TRACER VALUE (dpm/mL)	0.000		

Sample Prep

N/A

Sample #

S95T002411

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * $e^{(-\ln 2 * \text{Decay Time}/1040.95)}$

Instrument Code

AL10541

Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)

Pu 239/240 μ Ci/L = (C239) * (Pu 236 Decay Corr'd Value) * (SPKV) * (1000 mL/L) * (DF) * (DDF) / [(C236) * (SS) * (D g/L) * (2220000 dpm/ μ Ci)]

Prepared By

MCB

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)

Pu 238 μ Ci/L = [(Pu 238 dpm) * (DF) * (DDF) * (1000 mL/L)] / [(Pu-236 Tracer Recovery / 100) * (2220000 dpm/ μ Ci) * (D g/L) * (SS)]

Chemist

Relative Counting Error = Square Root of $\{[1 / (\text{Pu 236 cpm} * \text{min})] + [1 / (\text{Pu 238 or 239/240 cpm} * \text{min})]\} * 1.96 * 100$

LLF

Analyst

RWK

Date Complete

10/02/95

v RESULTS v

Pu 239/240 μ Ci/mL = 8.16E-05

DETECTION

LEVELS

In μ Ci/mL

Pu 239/240

1.17E-05

Pu 238

1.17E-05

Analysis Time

06:00 AM

Sample Point

AN-101 GRAB

Pu 238 μ Ci/mL = 1.42E-05

Relative Counting Error = 6.7%

Pu 236 Tracer Recovery = 74.3%

Analyst:

RWK

Date:

02-Oct-95

Signature of Chemist:

LLF

Date:

2 Oct 95

SAMPLE.WB1 REV 1.2

943127ML

387

WORKBOOK PAGE: DUP4

Pu 238 and 239/240 : LA-943-127 (B-0)

LIQUID / SOLID

Type	DATE COUNTED	SEP-29-95	Pu 238 AEA FRAC (C236)	DUP
DUP	SAMPLE VOLUME in mL	SS	0.500	0.702
Work List	SAMPLE DILUTION FACTOR	DF	1.000	0.044
2499	TRACER VOLUME in mL	SPKV	0.100	0.287
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	3767
@PU23901	TRACER BOOK NO	117B43	TOTAL AT COUNTS	30
Matrix	DETECTOR NUMBER	3	AT COUNT TIME (MIN)	4.000
LIQUID	EFFICIENCY FACTOR	EFF	0.500	35.160
Batch Number	TRACER PREPARATION DATE	09/12/95	Pu 238 cpm	2.210
95002646	TRACER PREPARATION VALUE (dpm/mL)	2265.000	Pu 239 cpm	14.380
Rerun	PU-236 DECAY CORR'D VALUE (dpm/mL)	2239.505	AEA COUNT TIME	480
0	PU-238 TRACER VALUE (dpm/mL)	0.000	Pu 239/240 μ Ci/L	8.2485E-02

Sample Prep

N/A

Sample #

S95T002411

Instrument Code

AL10541

Prepared By

MCB

Chemist

LLF

Analyst

RWK

Date Complete

10/02/95

v RESULTS v

Analysis Date	Pu 239/240 μ Ci/mL	8.25E-05	DETECTION LEVELS In μ Ci/mL
09/29/95	Relative Counting Error =	2.8%	
Analysis Time	Pu 238 μ Ci/mL	1.26E-05	Pu 239/240
06:00 AM	Relative Counting Error =	6.2%	1.13E-05
Sample Point	Pu 236 Tracer Recovery =	76.2%	Pu 238
AN-101 GRAB			1.13E-05

Analyst:

RWK

Date: 02-Oct-95

Signature of Chemist:

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

Pu 238 and 239/240 : LA-943-127 (B-0)			LIQUID / SOLID		SAMPLE
Type	DATE	LA	SEP-29-95	PU 236 AEA FRAC (C236)	0.789
SAMPLE	SAMPLE VOLUME in mL	SS	0.500	PU 238 AEA FRAC (C238)	0.057
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.194
2499	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	3946
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO		117B43	BACKGROUND in cpm (Bkg)	6.000
Matrix	DETECTOR NUMBER		1	PU 236 cpm	34.190
LIQUID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm	2.470
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm	8.420
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 μ Ci/L	4.9608E-02
0	PU-238 TRACER VALUE (dpm/mL)		0.000		

Sample Prep

N/A

Sample #

S95T002412

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value $\times [e \text{ to the power of } \{(-\ln 2 \times \text{Decay Time})/1040.95\}]$

Instrument Code

AL10539

Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) $\times$ C236 $\times$ 100 / (Pu-236 Decay Corr'd Value $\times$ SPKV $\times$ EFF)Pu 239/240 μ Ci/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(D g/L)(2220000 dpm/ μ Ci)]

Prepared By

MCB

Pu 238 dpm = [(Total AT Counts / TC) - Bkg $\times$ 1/EFF $\times$ C238] - (Pu-238 Tracer Value $\times$ SPKV $\times$ Pu 236 Tracer Recovery / 100)Pu 238 μ Ci/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery / 100)(2220000 dpm/ μ Ci)(D g/L)(SS)]

Chemist

LLF

Relative Counting Error = Square Root of $\{[1/(\text{Pu 236 cpm} \times \text{min})] + [1/(\text{Pu 238 or 239/240 cpm} \times \text{min})]\} \times 1.96 \times 100$

Analyst

RWK

Date Complete

10/02/95

v RESULTS v

Analysis Date	10/02/95	Pu 239/240 μ Ci/mL	4.96E-05	DETECTION LEVELS in μ Ci/mL
Analysis Time	09/29/95	Relative Counting Error	= 3.4%	
Sample Point	06:00 AM	Pu 238 μ Ci/mL	1.46E-05	
AN-101 GRAB		Relative Counting Error	= 5.9%	
		Pu 236 Tracer Recovery	= 88.5%	Pu 239/240 8.67E-06
				Pu 238 8.67E-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

WORKBOOK PAGE: DUP6

Pu 238 and 239/240 : LA-943-127 (B-0)

LIQUID / SOLID

Pu 238 and 239/240 : LA-943-127 (B-0)				LIQUID / SOLID		DUP	
Type	DATE COUNTED		SEP-29-95	PU 236 AEA FRAC (C236)		0.794	
DUP	SAMPLE VOLUME in mL SS		0.500	PU 238 AEA FRAC (C238)		0.058	
Work List	SAMPLE DILUTION FACTOR DF		1.000	PU 239 AEA FRAC (C239)		0.189	
2499	TRACER VOLUME in mL SPKV		0.100	TOTAL AT COUNTS		4355	
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		39.150	
LIQUID	EFFICIENCY FACTOR EFF		0.500	PU 238 cpm		2.870	
Batch Number	TRACER PREPARATION DATE		09/12/95	PU 239 cpm		9.320	
95002646	TRACER PREPARATION VALUE (dpm/mL)		2265.000	AEA COUNT TIME		480	
Re-run	PU-236 DECAY CORR'D VALUE (dpm/mL)		2239.505	Pu 239/240 μ Ci/L		4.8025E-02	
0	PU-238 TRACER VALUE (dpm/mL)		0.000				

Sample Prep

N/A

Sample #

S95T002412

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of $\{(-\ln 2 * \text{Decay Time}) / 1040.95\}$]

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 μ Ci/L = (C239) (Pu 236 Decay Corr'd Value) (SPKV) (1000mL/L) (DF) (DDF) / [(C236) (SS) (D g/L) (2220000 dpm/ μ Ci)]

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 μ Ci/L = [(Pu 238 dpm) (DF) (DDF) (1000mL/L)] / [(Pu-236 Tracer Recovery / 100) (2220000 dpm/ μ Ci) (D g/L) (SS)]

Chemist

Relative Counting Error = Square Root of $\{[1 / (\text{Pu 236 cpm} * \text{min})] + [1 / (\text{Pu 238 or 239/240 cpm} * \text{min})]\} * 1.96 * 100$

LLF

Analyst

RWK

Data Complete

v RESULTS v

10/02/95	Pu 239/240 μ Ci/mL	4.80E-05	DETECTION LEVELS in μ Ci/mL
Analysis Date	Relative Counting Error	= 3.3%	
09/29/95			
Analysis Time	Pu 238 μ Ci/mL	1.47E-05	Pu 239/240
06:00 AM	Relative Counting Error	= 5.5%	7.62E-06
Sample Point			Pu 238
AN-101 GRAB	Pu 236 Tracer Recovery	= 100.8%	7.62E-06

Analyst:	RWK	Date:	02-Oct-95
Signature of Chemist: <i>[Signature]</i>	LLF	Date:	2 Oct 95

SAMPLE WB1 REV 1.2

943127ML

WORKBOOK PAGE: SAM7

Pu 238 and 239/240 : LA-943-127 (B-0)

LIQUID / SOLID

Type	DATE COUNTED	SEP-29-95	PU 236 AEA FRAC (C236)	SAMPLE	0.805
SAMPLE	SAMPLE VOLUME in mL	SS	0.500	PU 238 AEA FRAC (C238)	0.053
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.194
2499	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	2323
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		20.660
LIQUID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm	1.370
Batch Number	TRACER PREPARATION DATE	09/12/95	PU 239 cpm		4.970
95002646	TRACER PREPARATION VALUE (dpm/mL)	2265.000	AEA COUNT TIME		480
Run	PU-236 DECAY CORR'D VALUE (dpm/mL)	2239.505	Pu 239/240 μ Ci/L		4.8622E-02
0	PU-238 TRACER VALUE (dpm/mL)	0.000			
Sample Prep					
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 μ Ci/L = (C239)(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(D g/L)(2220000 dpm/ μ Ci)]				
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 μ Ci/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery / 100)(2220000 dpm/ μ Ci)(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					
10/02/95	∇ RESULTS ∇				
Analysis Date	Pu 239/240 μ Ci/mL	4.86E-05		DETECTION LEVELS	
09/29/95	Relative Counting Error =	4.5%		in μ Ci/mL	
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.			Pu 239/240	
06:00 AM	Pu 238 μ Ci/mL	< 1.41E-05		1.41E-05	
Sample Point	Relative Counting Error =	7.9%		Pu 238	
AN-101 GRAB	Pu 236 Tracer Recovery =	53.5%		1.41E-05	

Analyst:	RWK	Date:	02-Oct-95
Signature of Chemist: <i>LLF</i>	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	DATE COUNTED	SEP-29-95	PU 236 AEA FRAC (C236)	DUP
DUP	SAMPLE VOLUME in mL	SS	0.500	PU 238 AEA FRAC (C238)
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)
2499	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS
Test Code	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)
@PU23901	TRACER BOOK NO	117B43	BACKGROUND in cpm (Bkg)	4.000
Matrix	DETECTOR NUMBER	3	PU 236 cpm	33.280
LIQUID	EFFICIENCY FACTOR	EFF	0.500	PU 238 cpm
Batch Number	TRACER PREPARATION DATE	09/12/95	PU 239 cpm	7.960
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 $\mu\text{Ci/L}$	4.8246E-02
0	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 $\times [e \text{ to the power of } ((-\ln 2 \times \text{Decay Time})/1040.95)]$ Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) $\times$ C236 $\times$ 100 / (Pu-236 Decay Corr'd Value $\times$ SPKV $\times$ EFF)Pu 239/240 $\mu\text{Ci/L}$ = (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 $\times$ 1/EFF $\times$ C238] - (Pu-238 Tracer Value $\times$ SPKV $\times$ Pu 236 Tracer Recovery / 100)Pu 238 $\mu\text{Ci/L}$ = [(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 $[(1 / (\text{Pu 236 cpm} \times \text{min})) + (1 / (\text{Pu 238 or 239/240 cpm} \times \text{min}))] \times 1.96 \times 100$

v RESULTS v

10/02/95	Pu 239/240 $\mu\text{Ci/mL}$	4.82E-05	DETECTION LEVELS in $\mu\text{Ci/mL}$
Analysis Date	Relative Counting Error =	3.5%	
09/29/95			
Analysis Time			Pu 239/240
06:00 AM	Pu 238 $\mu\text{Ci/mL}$	1.57E-05	9.60E-06
Sample Point	Relative Counting Error =	5.8%	Pu 238
AN-101 GRAB	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

GENERAL ALPHA ENERGY ANALYSIS
Rev. 2.01

DATA REDUCTION REPORT

SAMPLE
WORKLIST#2499
File ID: 19a1915.CNFCounted on: 9/29/95 @11:50
Detector: AEA19
Geometry number: 1
Count time: 28808. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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	Exp.	Obs.	Diff.	FWHM	Count Rate	%err @95	d/m	Activity uCi/ea
1	Pu236	0.439	5.755	5.750	0.0050	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	0.0040	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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 6405.2

3
... 3
.....3.
.....3..
.....3

2
2
2

1
. 1
.....1
.....1
.....1
1..

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

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

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.								

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

Raymond
9.29.95

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 3876.7

1
.....1.
.....1
.....1
.....1
.....1

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

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

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.	0.	0.	0.	0.	0.	0.	0.	0.

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

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

Raymond
9.29.95

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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.	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	-0.003				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:

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

ALJ

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 5568.5

3
3
3.
3
3

2
 .2
2
 2.
 1
 1
 1
 1
1....
1....
1
 1.

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

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

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.								

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

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

Raymond
9.29.95

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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	-0.0060	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	-0.0030	0.02	2.21	6.3	378.7	0.171E-03
	Am241		5.479	5.490	-0.011				290.1	0.131E-03
3	Pu239	0.287	5.147	5.147	0.0000	0.02	14.38	2.4	1774.8	0.799E-03
	Pu240		5.144	5.147	-0.003				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

WHC-SD-WM-DP-148, REV. 0 analyzed by:

ALJ

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 6319.8

3
 3
3..
3.
3

2
 .2
2
 .2.
 1
 1
 1
 1
1.
1.....
1.....
 ...1..

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

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

Raw Data Dump for AEA Spectrum: 22a2277.CNF

1	0.	0.	0.	0.	0.	1.	0.	0.	0.
11	1.	0.	0.	0.	0.	0.	0.	0.	0.
21	1.	0.	0.	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.	1.	0.	0.
41	0.	0.	0.	0.	0.	0.	0.	0.	2.
51	0.	0.	1.	0.	0.	1.	0.	0.	0.
61	0.	1.	0.	0.	0.	0.	0.	0.	1.
71	0.	0.	1.	0.	0.	0.	1.	0.	0.
81	0.	0.	0.	0.	0.	0.	0.	0.	0.
91	0.	2.	0.	0.	0.	1.	0.	1.	0.
101	0.	0.	0.	0.	0.	0.	0.	1.	1.
111	1.	0.	1.	0.	0.	0.	0.	0.	1.
121	0.	2.	1.	1.	0.	1.	0.	1.	1.
131	0.	0.	0.	1.	0.	1.	1.	0.	0.
141	1.	0.	1.	1.	2.	1.	0.	2.	2.
151	0.	2.	1.	0.	3.	0.	0.	0.	1.
161	0.	1.	0.	0.	1.	1.	1.	0.	1.
171	0.	1.	0.	0.	1.	1.	0.	0.	0.
181	1.	1.	2.	0.	0.	2.	0.	1.	1.
191	0.	1.	0.	1.	0.	4.	3.	2.	2.
201	4.	7.	3.	8.	12.	16.	18.	30.	14.
211	41.	52.	65.	82.	91.	100.	153.	141.	193.
221	263.	291.	310.	376.	462.	404.	514.	526.	558.
231	490.	374.	237.	115.	65.	13.	4.	2.	0.
241	1.	1.	1.	0.	0.	1.	1.	1.	3.
251	3.	4.	3.	0.	3.	3.	3.	4.	2.
261	0.	0.	0.	0.	2.	0.	0.	0.	2.
271	2.	1.	1.	0.	0.	0.	2.	3.	2.
281	2.	1.	1.	6.	6.	9.	13.	12.	20.
291	18.	34.	36.	55.	40.	45.	50.	56.	61.
301	64.	79.	100.	76.	76.	82.	39.	16.	5.
311	1.	0.	2.	2.	1.	0.	2.	1.	1.
321	3.	2.	1.	2.	5.	3.	3.	4.	5.
331	7.	12.	10.	11.	11.	18.	23.	32.	33.
341	67.	74.	90.	116.	153.	192.	276.	283.	340.
351	506.	618.	676.	755.	715.	731.	712.	854.	933.
361	1121.	1226.	1234.	1147.	842.	455.	146.	28.	4.
371	1.	2.	0.	0.	0.	0.	0.	0.	0.
381	0.	0.	0.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	1.	0.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	0.	0.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	0.	0.	0.	0.	0.	0.
471	0.	0.	0.	0.	0.	0.	0.	0.	0.
481	0.	0.	0.	0.	0.	0.	0.	0.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	0.	0.							

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

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

Raymond
9/29/95

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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	Exp.	Obs.	Diff.	FWHM	Count Rate c/m	%err @95	d/m	Activity uCi/ea
1	Pu236	0.789	5.755	5.755	0.0000	0.02	34.19	1.5	2684.0	0.121E-02
2	Pu238	0.057	5.487	5.486	0.0010	0.02	2.47	5.9	264.3	0.119E-03
	Am241		5.479	5.486	-0.007				202.4	0.912E-04
3	Pu239	0.194	5.147	5.145	0.0020	0.02	8.42	3.1	647.5	0.292E-03
	Pu240		5.144	5.145	-0.001				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

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

Analyzed by:

ALJ

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 6055.4

3
 ..3
3.
3.
3

$$\begin{array}{ccccccc} 2 & & & & & & \\ .2. & & & & & & \\ . & . & . & . & . & 2 & \\ .2. & & & & & & \end{array}$$

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

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

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.								

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

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

Raymond
9.29.95

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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

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

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 6968.3

3
 ..3
3
3.
3

2
 .2
2.
 ..2
 1
 1
 1
 1
1
1.....
1
 ..1..

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

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

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.								

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

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

Raymond
9.29.95

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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				Count Rate c/m	%err @95	d/m	Activity uCi/ea
			Exp.	Obs.	Diff.	FWHM				
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-148, REV. 1

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

1 Legend: Raw = Modeled Peaks = 1,2,..., etc

Display Max.: 3634.8

3
...3
.....3.
.....3
....3

2
.2.
....2.
2.
1
. 1
... 1
..... 1
.....1..
.....1....
.....1
.1.

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

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

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.								

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

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

Keymark
9.24.95

Westinghouse Hanford Co.

GENERAL ALPHA ENERGY ANALYSIS
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		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	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	-0.013	0.02	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	-0.013	0.01	2.61	5.7	36.5	0.165E-04
	Am241		5.479	5.500	-0.021				28.0	0.126E-04
3	Pu239	0.187	5.147	5.156	-0.009	0.02	7.96	3.2	80.3	0.362E-04
	Pu240		5.144	5.156	-0.012				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

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..

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

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

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.								

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

WHC-SD-WM-DP-148, REV. 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 IAN-95-1 through IAN-95-7."		EDT NO.: 614771 n/a		
		ECN NO.: N/A ECN-627068		
Name	MSIN	Text With all Attach	EDT/ECN ONLY	
<u>Pacific Northwest Laboratory</u>				
J. R. Gormsen	K7-28		X	
S. J. Harris	K7-22	X		
K. L. Silvers	P7-27		X	
<u>U.S. Department of Energy, RL</u>				
C. A. Babel	S7-54	X		
<u>Westinghouse Hanford Company</u>				
J. N. Appel	G3-21		X	
H. Babad	S7-30	X		
T. M. Blaak	S5-15	X		
R. A. Esch	T6-06	X		
S. D. Estey	R2-11	X		
G. D. Forehand	S7-31		X	
V. W. Hall	T6-03	X		
D. C. Hetzer	S6-31		X	
L. Jensen	R2-12	X		
J. M. Jones	S5-13	X		
N. W. Kirch	R2-11	X		
M. J. Kupfer	H5-49	X		
J. E. Meacham	S7-15	X		
K. L. Powell	T6-04		X	
L. W. Shelton	H5-49	X		
B. C. Simpson	R2-12		X	
M. J. Sutey	T4-07	X		
L. A. Tusler	R2-11	X		
J. A. Voogd	H5-03		X	
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	
<u>Washington State Department of Ecology</u>				
Single-Shell Tank Unit Manager				
A. B. Stone	B5-18	X		
<u>U. S. Department of Energy</u>				
Jim Poppiti			X	
12800 Middlebrook Rd. Trevion II, EM-36 Germantown, MD 20874				
<u>Los Alamos Technical Associates</u>				
T. T. Tran		X		
309 Bradley Blvd. Richland, WA 99352				