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Title/Desc:

REVISED FINAL REPORT FOR TANK 241C203 AUGER
SAMPLES 95-AUG-020 & 95-AUG-021

ENGINEERING CHANGE NOTICE

Page 1 of 21. ECN **N^o 625767**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. John M. Conner, Characterization Plans, Coordination and Reports. R2- 12, 373-2711		3a. USQ Required? ☐ Yes ☒ No	4. Date 10/26/95
	5. Project Title/No./Work Order No. Tank 241-C-203	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-112, Rev. 0	9. Related ECN No(s). N/A	10. Related PO No. N/A	
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Document Title: Revised Final Report for Tank 241-C-203, Auger
Samples 95-AUG-020 and 95-AUG-021

Release Date: 10/31/95

**This document was reviewed following the
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2. Title

Revised Final Report for Tank 241-C-203, Auger
Samples 95-AUG-020 and 95-AUG-021

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WHC-SD-WM-DP-112

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Name: John M. Conner

Signature

Organization/Charge Code 75310/N4G4C

7. Abstract

N/A

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WHC-SD-WM-DP-112, REV. 1

ANALYTICAL SERVICES

**REVISED FINAL REPORT FOR TANK 241-C-203,
AUGER SAMPLES 95-AUG-020 AND 95-AUG-021**

Date Printed:

OCTOBER 23, 1995

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PART I

WHC-SD-WM-DP-112, REV. 1

**REVISED FINAL REPORT FOR TANK 241-C-203,
AUGER SAMPLES 95-AUG-020 AND 95-AUG-021**

NARRATIVE

REVISED FINAL REPORT FOR TANK 241-C-203,
AUGER SAMPLES 95-AUG-020 AND 95-AUG-021

ANALYTICAL SUMMARY

Two auger samples from tank 241-C-203 (C-203) were received at the 222-S Laboratories and underwent safety screening analyses, consisting of differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), and total alpha activity. No notification limits were exceeded for the analyses. Two samples were submitted for a density determination at the request of Characterization Plant Engineering.

SCOPE

This document is the revised final report for the tank C-203 auger samples collected on April 5, 1995 (samples 95-AUG-20 and 95-AUG-021). This revision was necessary as two subsamples were re-digested and rerun for total alpha. Each auger sample was received, extruded, and analyzed by the 222-S Laboratories in accordance with the Tank Characterization Plan (TCP) referenced below. Part I of this report contains the updated narrative discussing the analyses, updated data summary tables, photocopies of the hot cell logbook pages, and the laboratory worklists and raw data for the additional sample preparation and total alpha analyses.

Part II of this report (beginning on page 36) consists of the original 45-day/final report in its entirety. This section contains the original narrative and data tables, photographs of the extruded auger samples, the auger sample chain-of-custody forms, and the worklists and raw data for the DSC, TGA, density, and original total alpha analyses.

SAMPLE RECEIPT, EXTRUSION, AND SUBSAMPLING

95-AUG-020

Sample 95-AUG-020 was collected from riser 7 (east coordinate) of tank C-203 using a 20-inch auger sampler. The sample was taken on April 5, 1995 at 0943 hours. It was received into the 222-S Laboratories on April 6 and extruded on April 7. The sampler was almost completely full. A total of 493.21 grams of solid material were collected, with no drainable liquid. The samples appeared to be yellow/cream colored overlaid with brown to dark brown sludge. Upon subsampling (and incidental mixing), the material appeared brown. The auger sample was divided into half segments for analyses. Archive samples of each half segment have been retained in the hot cell.

95-AUG-021

Sample 95-AUG-021 was collected from riser 7 (west coordinate) of tank C-203 using a 20-inch auger sampler. The sample was taken on April 5, 1995 at 1135 hours. It was received into the 222-S Laboratories on April 6 and extruded on April 7. The auger was completely full. A total of 627.69 grams of solid material were collected, with no drainable liquid. The solids ranged from a yellow/cream color to dark brown. More yellow material was noticed on the upper half than on the lower half of the auger. Upon subsampling (and incidental mixing), the material appeared brown. The auger sample was divided into half segments for analyses. Archive samples of each half segment have been retained in the hot cell.

ANALYTICAL RESULTS

Analytical results are presented in the data summary tables, with the applicable notification limits shaded.

DSC (Energetics Content)

DSC analyses were performed under a nitrogen atmosphere using either procedure LA-514-113, Rev. B-1 (Mettler instrument) or procedure LA-514-114, Rev. B-0 (Perkin-Elmer instrument). The results are given in the data summary tables. Exotherms were detected for all four samples and their duplicates. The exotherms ranged from 30.82 to 97.33 J/g on a dry weight basis, or approximately 6 to 20 percent of the safety screening limit of 481 J/g. The relative percent differences (RPDs) between sample and duplicate results ranged from 1.04 to 6.38 on a dry weight basis. These results are within the TCP target of 10%. The three Laboratory Measurement Control System (LMCS) control standards exhibited recoveries of between 94.27 and 99.82 percent, which were within the program's specified accuracy control limits of 90 to 110 percent recovery.

TGA (Moisture Content)

Weight percent water was performed under a nitrogen atmosphere using either procedure LA-560-112, Rev. A-2 (Mettler instrument), or procedure LA-514-114, Rev. B-0 (Perkin-Elmer instrument). Results for the four samples and their duplicates ranged in value from 30.98 to 52.12 percent water by weight. Results for sample S95T000807 exceeded the RPD target of 10%. A triplicate analysis was performed, resulting in a determination of 39.79 weight percent water, compared to 41.04% and 33.26% for the sample and duplicate. The triplicate result does not appear in the summary tables, but is included in the raw data.

There was a significant variation in results between samples, with upper half samples being drier than lower half samples. All samples were well above the safety screening minimum of 17 weight percent. Three LMCS control standards were run for these TGA analyses and exhibited recoveries ranging from 96.77 to 99.70 percent, which were within the program's specified accuracy control limits of 90 to 110 percent.

Total Alpha Activity

Analyses for total alpha activity were performed on four samples (S95T000800, S95T000804, S95T000808, and S95T000812). Samples were prepared by fusion using procedure LA-549-141, Revisions C-2 and D-0, and analyses were performed using procedure LA-508-101, Rev. D-2. A duplicate sample was performed on each sample. Due to the poor sample reproducibility and spike recovery, the samples were rerun. Rerun results for samples S95T000808 and S95T000812 were retained, with the original results being rejected. However, the results of the rerun for samples S95T000800 and S95T000804 were less satisfactory than the original results (poorer spike recovery). Therefore, the original results for these samples were retained, and the results of the rerun were rejected.

Results ranged from 0.55 to 2.83 $\mu\text{Ci/g}$. The RPDs for samples S95T000800 and S95T000804 were 9.90% and 18.5%, respectively. The TCP target value is 10%.

The RPDs for samples S95T000808 and S95T000812 from auger 95-AUG-020 were exceptionally high; 91.8% and 101% respectively. The chemist speculated that perhaps the duplicate samples were inadvertently mislabeled. If this assumption were correct, the sample and duplicate results would match much more closely (recalculated RPDs would be 4.33% and 16.8%). Given the possible error, subsamples were redigested and counted. The results appear in the summary tables as samples S95T001259 and S95T001261. The RPDs for these redigested samples were 10.7 and 2.54%, respectively.

A total of three control standards were run, with recoveries of between 91.89 and 92.57%, all within the TCP target of 90 to 110%. A spike was performed on sample S95T000800, with a recovery of 68.4%. This is outside of the TCP target recovery of 90 to 110%. Spike recoveries for alpha have typically been below the target criterion, particularly when solids can be observed on the sample mount (solids will be self-shielding to some extent). A spike was also run on sample S95T001259, with a recovery of 79.30%, which is within the method control limits.

Density

Characterization Plant Engineering requested a density determination on several auger samples. Their need was to verify that a Safety Analysis Report for Packaging (SARP-002) limit on the volume of waste allowed to be shipped in an auger sampler was not exceeded. The density was determined by procedure LO-160-103, Rev. A-7. Subsamples were centrifuged in a tared, graduated centrifuge cone. Two samples were submitted for density determination, with the results being 1.72 and 1.51 g/mL. These results are presented in the data summary tables.

Project Coordinator - John M. Conner

REFERENCE Schreiber, R. D., 1995, WHC-SD-WM-TP-306, Revision 0, "*Tank 241-C-203 Tank Characterization Plan*", dated March 6, 1995.

WHC-SD-WM-DP-112, REV. 1

SAMPLE DATA SUMMARY

Revised Final Report for Auger Samples 95-AUG-020/021
C-203

CORE NUMBER: n/a
SEGMENT #: 95-AUG-020

SEGMENT PORTION: U Upper Half of Segment

Sample#	R A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
				Lower	Upper										
S95T000811		% Water by TGA on Perkin Elmer	%	17.00	110.0	96.96	n/a	30.98	31.78	31.38	2.55	n/a	n/a	n/a	n/a
S95T000811		DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+03	431.0	94.27	n/a	34.91	33.19	34.05	5.05	n/a	n/a	n/a	n/a
S95T000811		DSC Exotherm Dry Calculated	Joules/g	-1.0e+03	431.0	n/a	n/a	50.87	48.37	49.62	5.04	n/a	n/a	n/a	n/a
S95T000812	F	Alpha of Digested Solid	uCi/g	-1.0e+03	41.0	91.89	<4.46e-03	8.87e-01	2.710	1.798	101	n/a	1.01e-02	5.1	5.1
S95T001261	F	Alpha of Digested Solid	uCi/g	-1.0e+03	41.0	92.47	<6.55e-03	2.330	2.390	2.360	2.54	n/a	1.49e-02	3.1	3.1

L Lower Half of Segment: L Lower Half of Segment

Sample#	R A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
				Lower	Upper										
S95T000807		% Water by TGA on Perkin Elmer	%	17.00	110.0	96.96	n/a	41.04	33.26	37.15	20.9	n/a	n/a	n/a	n/a
S95T000807		DSC Exotherm on Perkin Elmer	Joules/g	-1.0e+03	431.0	94.27	n/a	20.36	19.10	19.73	6.39	n/a	n/a	n/a	n/a
S95T000807		DSC Exotherm Dry Calculated	Joules/g	-1.0e+03	431.0	n/a	n/a	32.85	30.82	31.84	6.38	n/a	n/a	n/a	n/a
S95T000808	F	Alpha of Digested Solid	uCi/g	-1.0e+03	41.0	91.89	<4.46e-03	2.830	1.050	1.940	91.8	n/a	1.07e-02	3.0	3.0
S95T001259	F	Alpha of Digested Solid	uCi/g	-1.0e+03	41.0	92.47	<6.55e-03	7.08e-01	7.88e-01	7.48e-01	10.7	79.30	1.47e-02	5.8	5.8

=> Limit violated
=> Selected Limit

WHC-SD-WM-DP-112, REV. 1

Revised Final Report for Auger Samples 95-AUG-020/021
C-203

CORE NUMBER: n/a
SEGMENT #: 95-AUG-021

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S95T000798			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.720	n/a	n/a	n/a	n/a	5.00e-01	n/a
S95T000799			% Water by TGA using Mettler	%	17.00	110.0	99.54	n/a	33.67	36.66	35.16	8.50	n/a	n/a	n/a
S95T000799			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+03	481.0	n/a	n/a	66.02	64.32	65.17	2.61	n/a	n/a	n/a
S95T000799			DSC Exotherm using Mettler	Joules/g	-1.0e+03	481.0	99.82	n/a	42.80	41.70	42.25	2.60	n/a	n/a	n/a
S95T000800	F		Alpha of Digested Solid	uCi/g	-1.0e+03	41.01	92.57	<3.00e-03	1.440	1.590	1.515	9.90	68.40	6.91e-03	3.1

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
					Lower	Upper									
S95T000802			Bulk Density of Sample	g/mL	None	None	n/a	n/a	1.510	n/a	n/a	n/a	n/a	5.00e-01	n/a
S95T000803			% Water by TGA using Mettler	%	17.00	110.0	99.54	n/a	52.12	49.03	50.58	6.11	n/a	n/a	n/a
S95T000803			DSC Exotherm Dry Calculated	Joules/g Dry	-1.0e+03	481.0	n/a	n/a	97.33	96.32	96.82	1.04	n/a	n/a	n/a
S95T000803			DSC Exotherm using Mettler	Joules/g	-1.0e+03	481.0	99.82	n/a	48.10	47.60	47.85	1.04	n/a	n/a	n/a
S95T000804	F		Alpha of Digested Solid	uCi/g	-1.0e+03	41.01	92.57	<3.00e-03	6.62e-01	5.50e-01	6.06e-01	18.5	n/a	6.47e-03	4.3

=> Limit violated
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WHC-SD-WM-DP-112, REV.1

WHC-SD-WM-DP-112, REV. 1

HOT CELL LOG BOOK

NOTEBOOK/LOGBOOK UNCLASSIFIED COVERSHEET

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Author

QK Fuller

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COPY

CHAIN-OF-CUSTODY RECORD FOR AUGER SAMPLING

(1) Shipment Number 200W-08-1F (2) Sample Number 95-AUG-020 (3) Supervisor R.S. PERAZUK / 373-7757
 (4) Tank C203 (5) Riser R7, EAST (6) Cask Serial Number C1038

Radiation Survey Data:		(7) FIELD		(31) LABORATORY		(8) Shipment Description	
Over Top Dose Rate	0.5	0.5	0.5	0.5	0.5	A. Work Package Number	ES-95-00011-0
Side Dose Rate	0.8	0.5	0.5	0.5	0.5	B. Cask Seal Number	#1028
Bottom Dose Rate	<0.5	<0.5	<0.5	<0.5	<0.5	C. Date and Time Sample	4.5.95 / 0943hrs
Smearable Contamination	<20	<20	<20	<20	<20	D. Expected Liquid Content	5%
	41K	41K	41K	41K	41K	E. Expected Solid Content	95%
	(Alpha)	(Alpha)	(Alpha)	(Alpha)	(Alpha)	F. Dose Rate Through Drill String	25 mR/hr
	(Beta-Gamma)	(Beta-Gamma)	(Beta-Gamma)	(Beta-Gamma)	(Beta-Gamma)	G. Expected Sample Length	19"
	(Signature)	(Signature)	(Signature)	(Signature)	(Signature)		

(9) INFORMATION (Include statement of laboratory tests to be performed.)

(10) Field Comments		(32) Laboratory Comments	

(11) Point of Origin		(12) Destination		(13) Sender Name (Sign and PRINT)		(14) Date/Time		(15) Sender Comments	
C203 R7 core		22AS LAB		DA KRAHN		4-6-95/10:25		4-6-95/10:25	
(17) Relinquished By (Sign and PRINT)		(18) Received By (Sign and PRINT)		(19) Date/Time		(20) Receiver Comments		(21) Date/Time	
JULIE D. NELSON		DA KRAHN		4-6-95		4-6-95		4-6-95	
(22) Relinquished By (Sign and PRINT)		(23) Received By (Sign and PRINT)		(24) Date/Time		(25) Receiver Comments		(26) Date/Time	
JULIE D. NELSON		DA KRAHN		4-6-95		4-6-95		4-6-95	
(27) Relinquished By (Sign and PRINT)		(28) Received By (Sign and PRINT)		(29) Date/Time		(30) Receiver Comments		(31) Date/Time	
				4-6-95		4-6-95		4-6-95	

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WHC-SD-WM-DP-112, REV. 1

C203 95-AUG-020 Riser 7 cc

4/7/95

PC John M. Carter

LABCORE SAMPLE # S95T000702

Worklist # 1006

Tape #1 C-Farm

Balance checks:

20 g = 19.99 g

500g = 499.98 g

Hot cell temp. & humidity

Temp = 83.2 °F

Humidity 20 %

Solids Description:

All flutes mostly full of sample material. Material appeared dark brown on auger. When scraped onto tray, much of underlying material appeared yellow-cream colored.

Overall, bottom-half material was a lighter shade of brown than upper half.

Subsampled into two half segments, divided at flute #9.

Keith Fuller

8

WHC-SD-WM-DP-112, REV. 1

4/7/95

C 203

95-AUG-020

R 7

C-203 95-AUG-020 R-7 Lower HALF Solids
 Lower half subsampled into Jar 6715.

238.99 g of solids.

Flutes 9-18

Final	462.55	gm
Initial	223.56	gm
Net	238.99	gm

Upper half subsampled into Jar 6716.

254.22 g of solids

Final	478.99	gm	Flutes 1-8
Initial	224.77	gm	
Net	254.22	gm	

Totals:

JAR# 6715	238.99	grams
JAR# 6716	254.22	grams
	493.21	grams

Heith Jullu

C203 95-AUG-020 R7
PHOTOGRAPH

4/2/95

C203 95-AUG-020 (Riser 7) EC

COPY

CHAIN-OF-CUSTODY RECORD FOR AUGER SAMPLING

(1) Shipment Number 200W-08-TE (2) Sample Number 95-AUG-021 (3) Supervisor R.J. Praznik / 373-7751
 (4) Tank C203 (5) Riser 7 West COORD. (6) Cask Serial Number C1022

Radiation Survey Data:		(7) FIELD	(31) LABORATORY	(8) Shipment Description	
Over Top Dose Rate	<u><0.5</u>	<u><0.5</u>	<u><0.5</u>	A. Work Package Number	<u>ES-95-00011-D</u>
Side Dose Rate	<u><0.5</u>	<u><0.5</u>	<u><0.5</u>	B. Cask Seal Number	<u>#1029</u>
Bottom Dose Rate	<u><0.5</u>	<u><0.5</u>	<u><0.5</u>	C. Date and Time Sample	<u>4.5.95 / 1135hrs</u>
Smearable Contamination	<u><20</u>	<u><20</u>	<u><20</u>	Removed from Tank	<u>5%</u>
	(Alpha)	(Alpha)	(Alpha)	D. Expected Liquid Content	<u>95%</u>
	<u><1K</u>	<u><1K</u>	<u><1K</u>	E. Expected Solid Content	<u>17 ml/hr</u>
	(Beta-Gamma)	(Beta-Gamma)	(Beta-Gamma)	F. Dose Rate Through Drill String	<u>15"</u>
RCT*	<u>gm Bivins</u>	RCT*	<u>U. J. Vaino</u>	G. Expected Sample Length	
	(Signature)		(Signature)		

(9) INFORMATION (Include statement of laboratory tests to be performed.)

(10) Field Comments		(32) Laboratory Comments	
(11) Point of Origin	(12) Destination	(13) Sender Name (Sign and PRINT)	(14) Date/Time
<u>C103 R/L West COORD.</u>	<u>222S-LRBS</u>	<u>DA KRAHN</u>	<u>4.6.95/1102</u>
(17) Relinquished By (Sign and PRINT)	(18) Received By (Sign and PRINT)	(19) Date/Time	(15) Sender Comments
<u>DA KRAHN</u>	<u>DA KRAHN</u>	<u>4.6.95/1102</u>	
(21) Relinquished By (Sign and PRINT)	(22) Received By (Sign and PRINT)	(23) Date/Time	(20) Receiver Comments
<u>CEB Byrd</u>	<u>EE Dubes</u>	<u>4.6.95</u>	
(25) Relinquished By (Sign and PRINT)	(26) Received By (Sign and PRINT)	(27) Date/Time	(24) Receiver Comments

(16) Seal Intact Upon Release?	(29) Seal Intact Upon Receipt?	(30) Seal Date Consistent with this Record?	
☒ Yes ☐ No	☒ Yes ☐ No	Shipment No. ☒ Yes ☐ No	Cask Seal No. ☒ Yes ☐ No
		Sample No. ☒ Yes ☐ No	

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Waste Tank Sampling, F7-12 Goldenrod - Tank Farm Operations, T4-01 BC-6001-326 (03/94)

C 203

95-AUG-021

Riser 7 w.c.

4/11/95

PC: John Conner 373-5743

Labcore #: S95T000699 Worklist # 1005

Tape # 1 C Farm

Balance check: 20 = 19.99 gm 500 = 499.98 gm

Hot Cell Temp = 78.9 °F Humidity = 20%

Liner Liquid: Auger (N/A)

Sample Description:

Auger completely full. Solids were dark brown. Noted yellow material on Flute #8.

Subsampled into upper and lower half segments.

Bottom half, flutes 9-18: medium to dark brown.

Consistency is soft, wet, and damp. Homogeneous throughout.

Upper half (flutes 1-8): Dark brown, wet solids.

Underlying material is yellow interspersed w/ dark brown.

~~UPPER~~ 214
4/11/95

12

WHC-SD-WM-DP-112, REV. 1

4/11/95

C 203 95-AUG-021

Subsampling:

* C-203- 95-AUG-021 upper half solids

Jar 6781 250 mL jar

Final wt 592.49 g

Initial wt 226.26 g

Net wt 366.23 g

* C-203 95-AUG-021 lower half solids

Jar 6780 250 mL jar

Final wt 486.55 g

Initial wt 225.09 g

Net wt 261.46 g

Total:

Jar 6781 366.23 g

Jar 6780 261.46 g

Total

627.69 g

Keith Jull
4/11/95

15

WHC-SD-WM-DP-112, REV. 1

13

C-203 95-AUG-021
PHOTOGRAPH

4/11/95

C-203 95-AUG-021 Room 7 (W.C.)

April 10, 95

HOMOGENIZATION & SUBSAMPLINGC203 95 AUG-020 (UPPER HALF) R-7

- Transferred 8.11 gram into jar#6871, which was submitted to the Lab for analysis: DSC/TGA, Fusion, AT.
- Transferred 68.26 gram into jar#6920 (40ml); which is now a archive sample.

C203 95 AUG-020 (LOWER HALF) R-2

- Transferred 10.70 gram into jar#6870 (20ml); which was submitted to the Lab: DSC/TGA, Fusion, AT.
- Transferred 69.27 gram into jar#6919 (40ml) which is now a Archive sample.

April 13, 95

HOMOGENIZATION & SUBSAMPLINGC203 95-AUG-21 (LOWER HALF) R-7

- Transferred 27.97 grams into jar # 6968 (20 ml.), which was submitted to the lab for analysis: DSC/TGA, Fusion, AT.
- Transferred 61.69 grams into jar # 7160 (40 ml.), which is now an Archive sample.

C203 95-AUG-21 (UPPER HALF) R-7

- Transferred 27.29 grams into jar # 6969 (20 ml.), which was submitted to the lab for analysis: DSC/TGA, Fusion, AT.
- Transferred 78.07 grams into jar # 7161 (40 ml.), which is now an Archive sample.

May 11, 1995

Homogenization + Subsampling

C-203 95-Aug-021

Bulk Density

Jar # 6780 (250mL)

Initial WT 395.24 g

final WT 380.41 g

Net WT 14.83 g

Tube Jar # 6780 (15mL) S95T000802

Initial WT 7.75

Final WT 21.76

Net WT 14.01

note * This sample is a resample
 Transferred 14.01 gms into Centrifuge tube # 6780 And
 Centrifuged sample for 1 hr. @ 5000 rpm.
 The Volume was 9.25 mL and Bulk Density was 1.51 g/mL

Tank C-203 95-Aug-021

Bulk Density

Jar # 6780 (250mL)

Initial WT 412.81 g

Final WT 395.30 g

Net WT 17.51 g

Tube # 6780 (15mL) S95T000802

Initial WT 7.60 g

Final WT 23.01 g

Net WT 15.41 g

Transferred 15.41 into Centrifuge tube # 6780
 Centrifuged sample for 1 hr. @ 5000 rpm.
 → Centrifuge tube broke need to resample.

clean sample 5/11/95

17
May 11, 1995

Homogenization & subsampling
C-203 95-AUG-021
Bulk Density

Jar #6781 (250 mL) 895T000798
Initial WT. 513.95 g
Final WT. 495.89 g
Net WT. 18.10 g

Tube #6781 (15 mL) 895T000798
Initial WT. 7.70 g
Final WT. 24.00 g
Net WT. 16.30 g

Transferred 16.30 gm Sample
into Centrifuge Tube #6781 and Centrifuged sample for 1 hr @ 5000 rpm
The Volume was 9.5 mL and Bulk Density was 1.72 g/mL.

Alan Campbell 5/11/95

WHC-SD-WM-DP-112, REV. 1

SAMPLE PREPARATIONS

LABCORE Data Entry Template for Worklist#

1870

Analyst:

[Signature]

Instrument:

FUS01

W11066

Book #

N/A

Method: LA-549-141 Rev/Mod

0-0

Worklist Comment: C-203 FUSION - 1258->1259, 1260->1261; PUT DOSE W/COMMENTS

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK-PREP				FUSION01	SOLID	<i>250ml</i>		N/A	g/L
95000056	C-203	2	SAMPLE	S95T001259	0	F	FUSION01	SOLID	N/A	<i>2.2032</i>		g/L
			<i>.5508g → 250ml</i>									
95000056	C-203	3	DUP	S95T001259	0	F	FUSION01	SOLID	<i>2.2032</i>	<i>2.2004</i>	N/A	g/L
			<i>.5501g → 250ml</i>									
95000056	C-203	4	SAMPLE	S95T001261	0	F	FUSION01	SOLID	N/A	<i>2.1612</i>		g/L
			<i>.5403g → 250ml</i>									
95000056	C-203	5	DUP	S95T001261	0	F	FUSION01	SOLID	<i>2.1612</i>	<i>2.2112</i>	N/A	g/L
			<i>.5528g → 250ml</i>									

Final page for worklist #

1870

Analyst Signature

Date

Analyst Signature

Date

Data Entry Comments:

Blank- 20ml HCl, 20ml HNO₃, <1% solids. Sampled dup 1254- 20ml HCl, 20ml HNO₃, <1% solids. Dose rate- 3.5 mrad. Sampled dup 1261- 20ml HCl, 20ml HNO₃, <1% solids. Dose rate- 6 mrad. HPT was Scott Corbaley.

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.

Bethanne Griffin II 7-25-95

WHC-SD-WM-DP-112, REV. 1

RADIOCHEMICAL ANALYSES

LABCORE Data Entry Template for Worklist#

1902

Analyst: AKL Instrument: AB00 15 Book # 132652

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

WB26872

WHC-SD-WM-DP-112, REV1

Worklist Comment: Use .050 mL sample size. Use .100 mL A-SPK. SLF

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		1 STD			@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		2 BLNK-PREP			@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		2 BLNK-PREP			@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		3 BLNK/BKG	<u>0.15</u>		@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	4 SAMPLE	S95T001259	0 F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000056	C-203	4 SAMPLE	S95T001259	0 F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000056	C-203	5 DUP	S95T001259	0 F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	5 DUP	S95T001259	0 F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
95000056	C-203	6 SPK	S95T001259	0 F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	7 SAMPLE	S95T001261	0 F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000056	C-203	7 SAMPLE	S95T001261	0 F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000056	C-203	8 DUP	S95T001261	0 F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	8 DUP	S95T001261	0 F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error

Final page for worklist #

1902

AKL 7-25-95
Analyst Signature Date

Sharon L. Hall 7-26-95
Analyst Signature Date

Data Entry Comments:

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

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-112, REV. 1

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

LA-548-101 (A-3) LIQUIDS

LA-548-101 (A-3)		LIQUIDS	
Type	DETECTOR NUMBER	STANDARD	REPLICATE
STANDARD	DISH SIZE 1, 2, or 5 (MS)	15	15
Work List	TOTAL COUNTS (TC)	2	2
1902	COUNT TIME in MINUTES (CT)	4044	4182
AT or TS ?	BACKGROUND in cpm (BKG)	30	30
AT	SAMPLE SIZE in mL (SS)	0.8	0.8
Test Code	DILUTION FACTOR (DF)	10.000	10.000
@ALPHA01	DIGEST DILUTION FACTOR (DDF)	1	1
Matrix	EFFICIENCY FACTOR (EFF)	1	1
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	0.2380	0.2380
Sample #	Sample Concentration in $\mu\text{Ci/L}$	134.000	138.600
WORKLIST#1902	Replicate Concentration in $\mu\text{Ci/L}$	2.54E-02	BOOK#
Instrument Code		2.62E-02	132B52
WB26872	Average Concentration in $\mu\text{Ci/L}$	2.5797E-02	
Analyst			
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG		
Date	ALPHA TOTAL $\mu\text{Ci/L}$ = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/ μCi)		
07/25/95	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L}$ / 1000mL/L		
Time	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
03:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002		

▼ RESULTS ▼

ALPHA TOTAL	in $\mu\text{Ci/mL}$	(Average)	=	2.58E-05	DETECTION LEVEL
RELATIVE COUNTING ERROR			=	3.1%	1.61E-07 $\mu\text{Ci/mL}$

Data Entry by: <i>Sharon J. Holden</i>	Date: 07/26/95
Approved by: <i>[Signature]</i>	Date: 7/26/95
Form 508101_C Rev. 1.3	Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		BLANK	REPLICATE
Type	DETECTOR NUMBER	15	15
BLANK	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	3	4
1902	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.8	0.8
AT	SAMPLE SIZE in mL (SS)	0.050	0.050
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.2032	2.2032
Matrix	EFFICIENCY FACTOR (EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE	0.381	0.381
Sample #	Sample Concentration in $\mu\text{Ci/g}$	< 6.55E-03	BOOK#
S95T1259	Replicate Concentration in $\mu\text{Ci/g}$	< 6.55E-03	
Instrument Code			
WB26872	Maximum Concentration in $\mu\text{Ci/g}$	< 6.5468E-03	
Analyst			
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/ μCi)		
07/25/95			
Time	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
03:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

RESULTS

ALPHA TOTAL	in $\mu\text{Ci/g}$ (Maximum) =	< 6.55E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			1.47E-02 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR	=	51.9%	

Data Entry by: <i>Sharon L. Haddad</i>	Date: 07/26/95
Approved by: <i>[Signature]</i>	Date: 7/26/95
Form 508101_C Rev. 1.3	Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP- 112 REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	15	15
SAMPLE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	1327	1195
1902	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.8	0.8
AT	SAMPLE SIZE in mL (SS)	0.050	0.050
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.2032	2.2032
Matrix	EFFICIENCY FACTOR (EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	43.433	39.033
Sample #	Sample Concentration in $\mu\text{Ci/g}$	7.46E-01	BOOK#
S95T1259	Replicate Concentration in $\mu\text{Ci/g}$	6.71E-01	
Instrument Code			
WB26872	Average Concentration in $\mu\text{Ci/g}$	7.0843E-01	
Analyst			
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/ μCi)		
07/25/95			
Time	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
03:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

▼ RESULTS ▼

ALPHA TOTAL	in $\mu\text{Ci/g}$	(Average)	=	7.08E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR			=	5.8%	1.47E-02 $\mu\text{Ci/g}$

Data Entry by: <u>Sharon H. Haddad</u>	Date: 07/26/95
Approved by: <u>[Signature]</u>	Date: 7/26/95
Form 508101_C Rev. 1.3	Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP- 112, REV. 1

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

LA-548-101 (A-3) SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	15	15
DUPLICATE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	1332	1463
1902	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.8	0.8
AT	SAMPLE SIZE in mL (SS)	0.050	0.050
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.2004	2.2004
Matrix	EFFICIENCY FACTOR (EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs.(SAMPLE RATE) as APPROPRIATE	43.600	47.967
Sample #	Sample Concentration in $\mu\text{Ci/g}$	7.50E-01	BOOK#
S95T1259	Replicate Concentration in $\mu\text{Ci/g}$	8.25E-01	
Instrument Code			
WB26872	Average Concentration in $\mu\text{Ci/g}$	7.8760E-01	
Analyst			
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/ μCi)		
07/25/95			
Time	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
03:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

▼ RESULTS ▼

ALPHA TOTAL				in $\mu\text{Ci/g}$	(Average)	=	7.88E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR						=	5.5%	

Data Entry by: <u>Sharon J. Hodel</u>	Date: 07/26/95
Approved by: <u>[Signature]</u>	Date: 7/26/95
Form 508101_C Rev. 1.3	

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP- 112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SPIKE	REPLICATE
Type	DETECTOR NUMBER	15	15
SPIKE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	58332	56794
1902	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.8	0.8
AT	SAMPLE VOLUME in mL (Spiked Vial) (SS)	0.050	0.050
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.2032	2.2032
Matrix	SPIKE VOLUME in mL (SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR (SDF)	1	1
Sample #	SPIKE VALUE in $\mu\text{Ci/L}$ (SVal)	44.785	44.785
S95T1259	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.238	0.238
Instrument Code	SAMPLE + SPIKE $\mu\text{Ci/g}$ (S+S)	3.34E+01	3.25E+01
WB26872	AVERAGE or MAXIMUM $\mu\text{Ci/g}$ from FORM C	7.0843E-01	
Analyst	BOOK#	112B43	
AKL	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	$SAMPLE + SPIKE \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
07/25/95	$PERCENT \text{ SPIKE RECOVERY} = ((S+S \mu\text{Ci/g} - SAMPLE \mu\text{Ci/g}) * ((SDF/SVol)/(DF/SS/Dg/L)))/(SVal) * 100$		
Time			
03:00 PM			

RESULT **AVG. PERCENT SPIKE RECOVERY** = **79.3%**

Data Entry by: Sharon L. Hadden Date: 26-Jul-95
 Approved by: ST-274 Date: 7/26/95
 Form 508101_X Rev. 1.3 Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP- 112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	15	15
SAMPLE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	3978	4040
1902	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.8	0.8
AT	SAMPLE SIZE in mL (SS)	0.050	0.050
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.1612	2.1612
Matrix	EFFICIENCY FACTOR (EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	131.800	133.867
Sample #	Sample Concentration in $\mu\text{Ci/g}$	2.31E+00	BOOK#
S95T1261	Replicate Concentration in $\mu\text{Ci/g}$	2.34E+00	
Instrument Code			
WB26872	Average Concentration in $\mu\text{Ci/g}$	2.3265E+00	
Analyst			
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/ μCi)		
07/25/95			
Time	Relative Counting Error = $\left[\frac{\sqrt{(\text{The Square Root of TC} + \text{BKG} * \text{CT})}}{(\text{TC} - \text{BKG} * \text{CT})} \right] * 1.96 * 100$		
03:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

RESULTS

ALPHA TOTAL	in $\mu\text{Ci/g}$ (Average)	=	2.33E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	3.1%		1.49E-02 $\mu\text{Ci/g}$

Data Entry by: <i>Sharon J. Webb</i>	Date: 07/26/95
Approved by: <i>St. J. Webb</i>	Date: 7/26/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	15	15
DUPLICATE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	4282	4156
1902	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.8	0.8
AT	SAMPLE SIZE in mL (SS)	0.050	0.050
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.2112	2.2112
Matrix	EFFICIENCY FACTOR (EFF)	0.2380	0.2380
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	141.933	137.733
Sample #	Sample Concentration in $\mu\text{Ci/g}$	2.43E+00	BOOK#
S95T1261	Replicate Concentration in $\mu\text{Ci/g}$	2.36E+00	
Instrument Code			
WB26872	Average Concentration in $\mu\text{Ci/g}$	2.3938E+00	
Analyst			
AKL	Rs (Sample Count Rate) = (TC / CT) - BKG		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/ μCi)		
07/25/95			
Time	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
03:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

RESULTS

ALPHA TOTAL	in $\mu\text{Ci/g}$	(Average)	=	2.39E+00	DETECTION LEVEL
					1.46E-02
RELATIVE COUNTING ERROR					$\mu\text{Ci/g}$
					3.1%

Data Entry by: <i>Sharon J. Hatcher</i>	Date: 07/26/95
Approved by: <i>W. J. Hatcher</i>	Date: 7/26/95
Form 508101_C Rev. 1.3	

Westinghouse
Hanford Company

WHC-SD-WM-DP-112, REV. 1

P.O. Box 1970 Richland, WA 99352

PART II

WHC-SD-WM-DP-112, REV. 0

ANALYTICAL SERVICES

45-DAY SAFETY SCREEN RESULTS AND FINAL REPORT FOR TANK 241-C-203,
AUGER SAMPLES 95-AUG-020 AND 95-AUG-021

Date Printed:

MAY 17, 1995

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WHC-SD-WM-DP-112, REV. 1

WHC-SD-WM-DP-112, REV. 0

NARRATIVE

45-DAY SAFETY SCREEN RESULTS AND FINAL REPORT FOR TANK 241-C-203,
AUGER SAMPLES 95-AUG-020 AND 95-AUG-021ANALYTICAL SUMMARY

Two core samples from tank 241-C-203 (C-203) were received at the 222-S Laboratories and underwent safety screening analysis, consisting of differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), and total alpha activity. No notification limits were exceeded for the analyses. Two samples were submitted for a density determination at the request of Characterization Plant Engineering.

SCOPE

This document serves as the 45-day report deliverable for the tank C-203 auger samples collected on April 5, 1995 (samples 95-AUG-20 and 95-AUG-021). As no secondary analyses were required and no other analyses have been requested, this document also serves as the final report for C-203 auger sampling. Each sample was received, extruded, and analyzed by the 222-S Laboratories in accordance with the Tank Characterization Plan (TCP) referenced below. Included in this report are the primary safety screening results (DSC, TGA, and alpha) and density results. The worklists and raw data are included in this report. Photographs of the auger samples were taken during extrusion and, although not included in this report, are available.

SAMPLE RECEIPT, EXTRUSION, AND SUBSAMPLING95-AUG-020

Sample 95-AUG-020 was collected from riser 7 (east coordinate) of tank C-203 using a 20-inch auger sampler. The sample was taken on April 5, 1995 at 0943 hours. It was received into the 222-S Laboratories on April 6 and extruded on April 7. The sampler was almost completely full. A total of 493.21 grams of solid material were collected, with no drainable liquid. The samples appeared to be yellow/cream colored overlaid with brown to dark brown sludge. Upon subsampling (and incidental mixing), the material appeared brown. The auger sample was divided into half segments for analyses. Archive samples of each half segment have been retained in the hot cell. The subsamples are identified in Table 1.

95-AUG-021

Sample 95-AUG-021 was collected from riser 7 (west coordinate) of tank C-203 using a 20-inch auger sampler. The sample was taken on April 5, 1995 at 1135 hours. It was received into the 222-S Laboratories on April 6 and extruded on April 7. The auger was completely full. A total of 627.69 grams of solid

material were collected, with no drainable liquid. The solids ranged from a yellow/cream color to dark brown. More yellow material was noticed on the upper half than on the lower half of the auger. Upon subsampling (and incidental mixing), the material appeared brown. The auger sample was divided into half segments for analyses. Archive samples of each half segment have been retained in the hot cell. The subsamples are identified in Table 1.

Table 1. Sample Identification

LABCORE #	Sample Description	Analysis
S95T000699	95-AUG-020 (riser 7-east) auger sample	extrusion
S95T000702	95-AUG-021 (riser 7-west) auger sample	extrusion
S95T000798	95-AUG-021 upper half	density
S95T000799	95-AUG-021 upper half, direct analysis	DSC/TGA
S95T000800	95-AUG-021 upper half, fusion/digest	Total alpha
S95T000801	95-AUG-021 upper half, archive	archive
S95T000802	95-AUG-021 lower half	density
S95T000803	95-AUG-021 lower half, direct analysis	DSC/TGA
S95T000804	95-AUG-021 lower half, fusion/digest	Total alpha
S95T000805	95-AUG-021 lower half, archive	archive
S95T000806	95-AUG-020 lower half	n/a
S95T000807	95-AUG-020 lower half, direct analysis	DSC/TGA
S95T000808	95-AUG-020 lower half, fusion/digest	Total alpha
S95T000809	95-AUG-020 lower half, archive	archive
S95T000810	95-AUG-020 upper half	n/a
S95T000811	95-AUG-020 upper half, direct analysis	DSC/TGA
S95T000812	95-AUG-020 upper half, fusion/digest	Total alpha
S95T000813	95-AUG-020 upper half, archive	archive

ANALYTICAL RESULTS

Analytical results are presented in Tables 2 and 3, with the applicable notification limits shaded.

DSC (Energetics Content)

DSC analyses were performed under a nitrogen atmosphere using either procedure LA-514-113, Rev. B-1 (Mettler instrument) or procedure LA-514-114, Rev. B-0 (Perkin-Elmer instrument). The results are given in Tables 2 and 3. Exotherms were detected for all four samples and their duplicates. The exotherms ranged from 30.82 to 97.33 J/g on a dry weight basis, or approximately 6 to 20 percent of the safety screening limit of 481 J/g. The relative percent differences (RPDs) between sample and duplicate results ranged from 1.04 to 6.38 on a dry weight basis. These results are within the TCP target of 10%. The three Laboratory Measurement Control System (LMCS) control standards exhibited recoveries of between 94.27 and 99.82 percent, which were within the program's specified accuracy control limits of 90 to 110 percent recovery.

TGA (Moisture Content)

Weight percent water was performed under a nitrogen atmosphere using either procedure LA-560-112, Rev. A-2 (Mettler instrument), or procedure LA-514-114, Rev. B-0 (Perkin-Elmer instrument). Results for the four samples and their duplicates ranged in value from 30.98 to 52.12 percent water by weight. Results for sample S95T000807 exceeded the RPD target of 10%. A triplicate analysis was performed, resulting in a determination of 39.79 weight percent water, compared to 41.04% and 33.26%. The triplicate result does not appear in the summary tables, but is included in the raw data.

There was a significant variation in results between samples, with upper half samples being drier than lower half samples. All samples were well above the safety screening minimum of 17 weight percent. Three LMCS control standards were run for these TGA analyses and exhibited recoveries ranging from 96.77 to 99.70 percent, which were within the program's specified accuracy control limits of 90 to 110 percent.

Total Alpha Activity

Analyses for total alpha activity were performed on four samples (S95T000800, S95T000804, S95T000808, and S95T000812). Samples were prepared by fusion using procedure LA-549-141, Rev. C-2, and analyses were performed using procedure LA-508-101, Rev. D-2. A sample duplicate was performed on each sample. Due to the poor sample reproducibility and spike recovery, the samples were rerun. Rerun results for samples S95T000808 and S95T000812 were retained, with the original results being rejected. However, the results of the rerun for samples S95T000800 and S95T000804 were less satisfactory than the original results (poorer spike recovery). Therefore, the original results for these samples were retained, and the results of the rerun were rejected.

Sample and duplicate results ranged from 0.55 to 2.83 $\mu\text{Ci/g}$. The RPDs for samples S95T000800 and S95T000804 were 9.90% and 18.5%, respectively. The TCP

target value is 10%. The RPDs for samples S95T000808 and S95T000812 were exceptionally high; 91.8% and 101% respectively. The chemist speculated that perhaps the duplicate samples were inadvertently mislabeled. If this assumption were correct, the sample and duplicate results would match much more closely (recalculated RPDs would be 4.33% and 16.8%).

Two control standards were run, with recoveries of 92.57 and 91.89%, within the TCP target of 90 to 110%. A spike was performed on sample S95T000800, with a recovery of 68.4%. This is outside of the TCP target recovery of 90 to 110%. Spike recoveries for alpha have typically been below the target criterion, particularly when solids can be observed on the sample mount (solids will be self-shielding to some extent).

The above problems were considered, but deemed not significant enough to warrant another set of digestions and analyses since the results were far below the safety screening limit of 41 $\mu\text{Ci/g}$ (highest sample result is only 7% of the limit).

Density

Characterization Plant Engineering requested a density determination on several auger samples. Their need was to verify that a Safety Analysis Report for Packaging (SARP-002) limit on the volume of waste allowed to be shipped in an auger sampler was not exceeded. The density was determined by procedure LO-160-103, Rev. A-7. Subsamples were centrifuged in a tared, graduated centrifuge cone. Two samples were submitted for density determination, with the results being 1.72 and 1.51 g/mL. These results are presented in Tables 2 and 3.

REFERENCE   Schreiber, R. D., 1995, WHC-SD-WM-TP-306, Revision 0, "*Tank 241-C-203 Tank Characterization Plan*", dated March 6, 1995.

WHC-SD-WM-DP- 112, REV 1

WHC-SD-WM-DP-112, REV. 0

SAMPLE DATA SUMMARY

SAFETY SCREENING AND FINAL RESULTS FOR AUGERS 95-AUG-020/21

C-203

TABLE 2

CORE NUMBER: n/a
SEGMENT #: 95-AUG-020

SEGMENT PORTION: Upper Half of Segment

SEGMENT PORTION: U Upper Half of Segment														
Sample#	R #	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
				Lower	Upper									
S9510000811		% Water by TGA on Perkin Elmer	%	17.000	110.000	97.65	n/a	30.98	31.78	31.38	2.55	n/a	n/a	n/a
S9510000811		DSC Exotherm on Perkin Elmer	Joules/g	None	None	97.27	n/a	34.91	33.19	34.05	5.05	n/a	n/a	n/a
S9510000811		DSC Exotherm Dry Calculated	Joules/g Dry	-999.000	481.010	n/a	n/a	50.87	48.37	49.62	5.06	n/a	n/a	n/a
S9510000812	F	Alpha of digested solid	ug/g	-999.000	41.010	91.89	<4.46e-03	8.87e-01	2.71e+0	1.80e+00	101	n/a	1.00e-02	5.1

Lower Half of Segment: L Lower Half of Segment														
Sample#	R #	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
				Lower	Upper									
S9510000807		% Water by TGA on Perkin Elmer	%	7.000	110.000	97.65	n/a	41.06	33.26	37.15	20.9	n/a	n/a	n/a
S9510000807		DSC Exotherm on Perkin Elmer	Joules/g	None	None	97.27	n/a	20.36	19.1	19.73	6.39	n/a	n/a	n/a
S9510000807		DSC Exotherm Dry Calculated	Joules/g Dry	-999.000	481.010	n/a	n/a	32.85	30.82	31.84	6.38	n/a	n/a	n/a
S9510000808	F	Alpha of Digested Solid	ug/g	-999.000	41.010	91.89	<4.46e-03	2.830	1.05e+0	1.94e+00	91.8	n/a	1.10e-02	3.0

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<= selected !is!>
<= violated !is!>
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CH

WHC-SD-WM-DP-112, REV. 1

SAFETY SCREENING AND FINAL RESULTS FOR AUGERS 95-AUG-020/21
C-203

TABLE 3

CORE NUMBER: n/a
SEGMENT #: 95-AUG-021

SEGMENT PORTION: U Upper Half of Segment

Sample#	R A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S951000798		Bulk Density of Sample	g/mL	None	Upper	n/a	n/a	1.720	n/a	n/a	n/a	n/a	5.00e-01	n/a
S951000799		% Water by TGA using Mettler	%	17.000	110.000	99.54	n/a	33.67	36.66	35.16	8.50	n/a	n/a	n/a
S951000799		DSC Exotherm DRY Calculated	Joules/g Dry	-999.000	481.010	n/a	n/a	66.02	64.32	65.17	2.61	n/a	n/a	n/a
S951000799		DSC Exotherm using Mettler	Joules/g	-999.000	481.010	99.82	n/a	42.80	41.7	42.25	2.60	n/a	n/a	n/a
S951000800	F	Alpha of Digested Solid	uCi/g	-999.000	41.010	92.57	<3.00e-03	1.440	1.59	1.52e+00	9.90	68.40	7.00e-03	3.1

Lower Half of Segment: L Lower Half of Segment

Sample#	R A#	Analyte	Unit	Action Limits		Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S951000802		Bulk Density of Sample	g/mL	None	Upper	n/a	n/a	1.510	n/a	n/a	n/a	n/a	5.00e-01	n/a
S951000803		% Water by TGA using Mettler	%	17.000	110.000	99.54	n/a	52.12	49.03	50.58	6.11	n/a	n/a	n/a
S951000803		DSC Exotherm DRY Calculated	Joules/g Dry	-999.000	481.010	n/a	n/a	97.33	96.32	96.82	1.04	n/a	n/a	n/a
S951000803		DSC Exotherm using Mettler	Joules/g	-999.000	481.010	99.82	n/a	48.10	47.6	47.85	1.04	n/a	n/a	n/a
S951000804	F	Alpha of Digested Solid	uCi/g	-999.000	41.010	92.57	<3.00e-03	6.62e-01	5.50e-1	6.06e-01	18.5	n/a	6.00e-03	4.3

=> Limit violated
=> Selected Limit

WHC-SD-WM-DP-112, REV. 1

WHC-SD-WM-DP-112, REV. 1

WHC-SD-WM-DP-112, REV. 0

PHOTOGRAPHS

C-203 95-AUG-020 (Hiser 7) EC

C-203 95-AUG-021 Riser 7 (W.C.)

WHC-SD-WM-DP-112, REV. 1

WHC-SD-WM-DP-112, REV. 1

WHC-SD-WM-DP-112, REV. 0

CHAIN OF CUSTODY FORMS

CHAIN-OF-CUSTODY RECORD FOR AUGER SAMPLING

R.J. Ranznik / 373-7751

(3) Supervisor

95-BUG-021

(2) Sample Number

200W-08-IE

(1) Shipment Number

2203

(4) Tank

(5) Riser

7 west

(6) Cask Serial Number

C1022

(8) Shipment Description

ES-95-00011-D

A. Work Package Number

#1029

B. Cask Seal Number

4.5.95/1135hrs

C. Date and Time Sample

D. Expoted Liquid Content

5%

E. Expoted Solid Content

17 m³/hr

F. Dose Rate Through Drill String

15 u

G. Expoted Sample Length

(9) INFORMATION (Include statement of laboratory tests to be performed.)

(10) Field Comments

(12) Laboratory Comments

(15) Sender Comments

(14) Date/Time

4.6.95/103

(20) Receiver Comments

(19) Date/Time

4.6.95/103

(24) Receiver Comments

(27) Date/Time

4.6.95

(28) Receiver Comments

(30) Seal Data Consistent with this Record?

(12) Destination

2203 R/L west coast

(17) Relinquished By (Sign and PRINT)

DA KENNA

(21) Relinquished By (Sign and PRINT)

DA KENNA

(25) Relinquished By (Sign and PRINT)

DA KENNA

(29) Seal Intact Upon Receipt?

☒ Yes ☐ No

Shipment No.

☒ Yes ☐ No

Cask Seal No.

☒ Yes ☐ No

Sample No.

☒ Yes ☐ No

(16) Seal Intact Upon Release?

☒ Yes ☐ No

DC-0001-326 (03/7)

WHC-SD-VIM-DP-112-REV-1

CHAIN-OF-CUSTODY RECORD FOR AUGER SAMPLING

COPY

(1) Shipment Number 200W-08-TF (2) Sample Number 95-AUG-020 (3) Supervisor R.J. Penzik / 373-7751
 (4) Tank C203 (5) Riser R7, EAST (6) Cask Serial Number C1038

Radiation Survey Data:		(7) FIELD	(8) LABORATORY	(9) Shipment Description	
Over Top Dose Rate	<u><0.5</u>	<u><0.5</u>	A. Work Package Number	<u>ES-95-00011-0</u>	
Side Dose Rate	<u>.8</u>	<u>.5</u>	B. Cask Seal Number	<u>#1028</u>	
Bottom Dose Rate	<u><0.5</u>	<u><0.5</u>	C. Date and Time Sample	<u>4.5.95 / 0943hrs</u>	
Smearable Contamination	<u><20</u>	<u><20</u>	Removed from Tank	<u>5%</u>	
	(Alpha)	(Alpha)	D. Expected Liquid Content	<u>95%</u>	
	<u><1K</u>	<u><1K</u>	E. Expected Solid Content	<u>25 m R/hr</u>	
	(Beta-Gamma)	(Beta-Gamma)	F. Dose Rate Through Drill String	<u>19"</u>	
RCT*	<u>Emmeyer</u>	RCT*	G. Expected Sample Length		
	(Signature)				

(9) INFORMATION (Include statement of laboratory tests to be performed.)

(10) Field Comments		(32) Laboratory Comments	
(11) Point of Origin <u>C203 R7 coon</u>	(12) Destination <u>2225 LAB</u>	(13) Sender Name (Sign and PRINT) <u>DA KRAHN</u>	(14) Date/Time <u>4-6-95/10:25</u>
(17) Relinquished By (Sign and PRINT) <u>DA Krah</u>	(18) Received By (Sign and PRINT) <u>DA KRAHN</u>	(19) Date/Time <u>4-6-95/10:25</u>	(15) Sender Comments
(21) Relinquished By (Sign and PRINT) <u>Jubal D Helms</u>	(22) Received By (Sign and PRINT) <u>DA KRAHN</u>	(23) Date/Time <u>4-6-95 11:10</u>	(20) Receiver Comments
(25) Relinquished By (Sign and PRINT)	(26) Received By (Sign and PRINT)	(27) Date/Time	(24) Receiver Comments
			(28) Receiver Comments
(16) Seal Intact Upon Release?	(29) Seal Intact Upon Receipt?	(30) Seal Data Consistent with this Record?	
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	
Shipment No.		Cask Seal No.	Sample No.
☒ Yes ☐ No		☒ Yes ☐ No	☒ Yes ☐ No

WHC-SD-WM-DP-112, REV. 1

WHC-SD-WM-DP-112, REV. 0

SAMPLE ANALYSES RESULTS

LABCORE Data Entry Template for Worklist# 1005

Analyst: EC Instrument: BA000 Book # NA

Method: LO-160-103 Rev/Mod A-7 WHO-SD-WM-DP- 112, REV. 1

Worklist Comment: C-203 95-AUG-021 Riser 7 Extrusion

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20</u>	<u>19.99</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500</u>	<u>499.98</u>	<u>N/A</u>	
95000056	C-203	3 SAMPLE	S95T000699	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>0</u>		mL
95000056	C-203	4 SAMPLE	S95T000699	0	DLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
95000056	C-203	5 SAMPLE	S95T000699	0	EST.G/ML	SOLID	<u>N/A</u>	<u>0</u>		g/mL
95000056	C-203	6 SAMPLE	S95T000699	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
95000056	C-203	7 SAMPLE	S95T000699	0	LLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
95000056	C-203	8 SAMPLE	S95T000699	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>WHL-N-1141</u>		
95000056	C-203	9 SAMPLE	S95T000699	0	SLDVOL01	SOLID	<u>N/A</u>	<u>6.27</u>		mL
95000056	C-203	10 SAMPLE	S95T000699	0	SLDWT-01	SOLID	<u>N/A</u>	<u>6.27</u>		g
95000056	C-203	11 SAMPLE	S95T000699	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		mL

Final page for worklist # 1005

EC 4-12-95
Analyst Signature Date

EC 4-12-95
Analyst Signature Date

Data Entry Comments:

Reviewed by
zkr 4/14/95

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

LABCORE Data Entry Template for Worklist# 1006

Analyst: EC Instrument: BA000 Book # 114

Method: LO-160-103 Rev/Mod A-7 WHC-SD-WM-DP-112, REV. 1

Worklist Comment: C-203 95-AUG-020 Riser 7 Extrusion

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	<u>20g</u>	<u>19.99</u>	<u>N/A</u>	
		2	INSTCHK02				EXTRUD01	SOLID	<u>500g</u>	<u>499.98</u>	<u>N/A</u>	
95000056	C-203	3	SAMPLE	S95T000702	0		DLIQVOL1	SOLID	<u>N/A</u>	<u>0</u>		mL
95000056	C-203	4	SAMPLE	S95T000702	0		DLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
95000056	C-203	5	SAMPLE	S95T000702	0		EST.G/ML	SOLID	<u>N/A</u>	<u>0</u>		g/mL
95000056	C-203	6	SAMPLE	S95T000702	0		EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
95000056	C-203	7	SAMPLE	S95T000702	0		LLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
95000056	C-203	8	SAMPLE	S95T000702	0		NOTEBOOK	SOLID	<u>N/A</u>	<u>WHC-N-1141</u>		
95000056	C-203	9	SAMPLE	S95T000702	0		SLDVOL01	SOLID	<u>N/A</u>	<u>493</u>		mL
95000056	C-203	10	SAMPLE	S95T000702	0		SLDWT-01	SOLID	<u>N/A</u>	<u>493</u>		g
95000056	C-203	11	SAMPLE	S95T000702	0		ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		mL

Final page for worklist # 1006

EC
Analyst Signature Date 4-10-95

EC
Analyst Signature Date 4-10-95

Data Entry Comments:

Reviewed by
PK Fuller
4/12/95

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# 1276

Analyst: Sc Instrument: BA000 Book # NA

Method: LO-160-103 Rev/Mod A-7

WHC-SD-WM-DP-112, REV. 1

Worklist Comment: U-202, C-101, and C-203 Archives

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	<u>20</u>	<u>19.99</u>	<u>N/A</u>	
		2	INSTCHK02				EXTRUD01	SOLID	<u>500</u>	<u>499.72</u>	<u>N/A</u>	
95000043	U-202	3	SAMPLE	S95T000604 603	0	X	ARCHIVO1 6913	SOLID	<u>N/A</u>	<u>77.12</u>		9
95000048	C-101	4	SAMPLE	S95T000825	0	X	ARCHIVO1 7151	SOLID	<u>N/A</u>	<u>8.47</u>		9
95000048	C-101	5	SAMPLE	S95T000829	0	X	ARCHIVO1 6909	SOLID	<u>N/A</u>	<u>63.56</u>		9
95000048	C-101	6	SAMPLE	S95T000833	0	X	ARCHIVO1 6408	SOLID	<u>N/A</u>	<u>57.86</u>		9
95000048	C-101	7	SAMPLE	S95T000821	0	X	ARCHIVO1 6893	LIQUID	<u>N/A</u>	<u>28.23</u>		9
95000056	C-203	8	SAMPLE	S95T000801	0	X	ARCHIVO1 7161	SOLID	<u>N/A</u>	<u>18.51</u>		9
95000056	C-203	9	SAMPLE	S95T000805	0	X	ARCHIVO1 7160	SOLID	<u>N/A</u>	<u>61.69</u>		9
95000056	C-203	10	SAMPLE	S95T000809	0	X	ARCHIVO1 6919	SOLID	<u>N/A</u>	<u>69.27</u>		9
95000056	C-203	11	SAMPLE	S95T000813	0	X	ARCHIVO1 6920	SOLID	<u>N/A</u>	<u>68.26</u>		9

Final page for worklist # 1276

Sc 5-1-95
Analyst Signature Date

Sc 5-1-95
Analyst Signature Date

Data Entry Comments:

*revised by [signature]
5/2/95*

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# 1322

Analyst: ABB Instrument: BA000 Book # NA

Method: LO-160-103 Rev/Mod A-7

WHC-SD-WM-DP-112 REV. 1

Worklist Comment: C-101 and C-203 Bulk Density Determinations

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	<u>20</u>	<u>19.99</u>	<u>N/A</u>	
		2	INSTCHK02				EXTRUD01	SOLID	<u>500</u>	<u>499.98</u>	<u>N/A</u>	
95000056	C-203	3	SAMPLE	S95T000798	0	6751	BLKDEN01	SOLID	<u>N/A</u>	<u>1.72</u>		g/mL
95000056	C-203	4	SAMPLE	S95T000802	0	6780	BLKDEN01	SOLID	<u>N/A</u>	<u>1.51</u>	<u>AGG 5/4/95</u>	g/mL
95000048	C-101	5	SAMPLE	S95T000826	0	6936	BLKDEN01	SOLID	<u>N/A</u>	<u>1.84</u>		g/mL
95000048	C-101	6	SAMPLE	S95T000830	0	6937	BLKDEN01	SOLID	<u>N/A</u>	<u>1.73</u>		g/mL

Final page for worklist # 1322

Abb 5-4-95
Analyst Signature Date

Abb 5-4-95
Analyst Signature Date

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 1173

Analyst: QAM Instrument: FUS01 C-2 Book # _____

Method: LA-549-141 Rev/Mod C-2

WHC-SD-WM-DP- 112, REV. 1

Worklist Comment: C-203 FUSION - 799->800, 803->804

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	<u>250ml</u>		N/A	g/L
95000056	C-203	2 SAMPLE	S95T000800 O F		FUSION01	SOLID	N/A	<u>1.9860</u>		g/L
		<u>.4965g → 250ml</u>								
95000056	C-203	3 DUP	S95T000800 O F		FUSION01	SOLID	<u>1.9860</u>	<u>1.9180</u>	N/A	g/L
		<u>.4745g → 250ml</u>								
95000056	C-203	4 SAMPLE	S95T000804 O F		FUSION01	SOLID	N/A	<u>2.1224</u>		g/L
		<u>.5306g → 250ml</u>								
95000056	C-203	5 DUP	S95T000804 O F		FUSION01	SOLID	<u>2.1224</u>	<u>2.1548</u>	N/A	g/L
		<u>.5387g → 250ml</u>								

Final page for worklist # 1173

Vered Murphy 5-2-95
Analyst Signature Date

Li Jones 5-2-95
Analyst Signature Date

Data Entry Comments:

Scale calibrated 200/100/100. Samples & dups have
<.190 solids. Dose rate is 2mrad/hr HPT is Passel
Bertrand Griffin II 5-2-95 Nones

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# 1174

Analyst: lmh Instrument: FUS01 AL11066 Book #

Method: LA-549-141 Rev/Mod C-Q WHC-SD-WM-DP- 112, REV. 1

Worklist Comment: C-203 FUSION - 807->808, 811->812

GROUP	PROJECT	S TYPE	SAMPLE#	R A -----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP		FUSION01	SOLID	<u>250ml</u>	<u>250ml</u>	<u>N/A</u>	<u>g/L</u>
95000056	C-203	2 SAMPLE	S95T000808 O F	FUSION01 .5178g → 250 ml	SOLID	<u>N/A</u>	<u>2.0712</u>		<u>g/L</u>
95000056	C-203	3 DUP	S95T000808 O F	FUSION01 .5461g → 250 ml	SOLID	<u>2.0712</u>	<u>2.1844</u>	<u>N/A</u>	<u>g/L</u>
95000056	C-203	4 SAMPLE	S95T000812 O F	FUSION01 .5475g → 250 ml	SOLID	<u>N/A</u>	<u>2.1900</u>		<u>g/L</u>
95000056	C-203	5 DUP	S95T000812 O F	FUSION01 .5413g → 250 ml	SOLID	<u>2.1900</u>	<u>2.1652</u>	<u>N/A</u>	<u>g/L</u>

Final page for worklist # 1174

Analyst Signature

Date

4-27-95

Analyst Signature

Date

Bertand J. II 5-1-95

Data Entry Comments:

OTB: 1 mrad/hr

HPT: Jim Evens

B. J. II 5-1-95

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.

WHC-SD-WM-DP-112, REV. 1

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LABCORE Data Entry Template for Worklist# 1216

Analyst: KRM Instrument: DSC01 Book # 12N14-A

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

Worklist Comment: Please run C-203 DSC under N2. bdv

WHC-SD-WM-DP- 112, REV. 1

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID	<u>28.45</u>	<u>28.4</u>	<u>N/A</u>	Joules/g
95000056	C-203	2	SAMPLE	S95T000799	0		DSC-01	SOLID	<u>N/A</u>	<u>42.8</u>		Joules/g
95000056	C-203	3	DUP	S95T000799	0		DSC-01	SOLID	<u>42.8</u>	<u>41.7</u>	<u>N/A</u>	Joules/g
95000056	C-203	4	SAMPLE	S95T000803	0		DSC-01	SOLID	<u>N/A</u>	<u>48.1</u>		Joules/g
95000056	C-203	5	DUP	S95T000803	0		DSC-01	SOLID	<u>48.1</u>	<u>47.6</u>	<u>N/A</u>	Joules/g

Final page for worklist # 1216

Analyst Signature Date 5-8-95

Analyst Signature Date 5-8-95

Verified by Blandina Valenzuela 5/9/95

S95T000799 - produced two endotherms one at 106.2°C with a delta H of 845.5 J/g and the second at 283.2°C with a delta H of 43.7 J/g.

Data Entry Comments: S95T000803 produced two endotherms one at 112.8°C with a delta H of 761.8 J/g and the second at 283.1°C with a delta H of 48.1 J/g.

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

BEST AVAILABLE COPY

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 60 TO 64.

DSC STD 12N14-A

6.632 mg

Rate: 10.0 °C/min

File: 00014.001

Ident: 0.0

DSC METTLER 08-May-95

222-S Laboratory

EXO

20. mW

Integration

Delta H 188 mJ

28.4 J/g

Peak 158.7 °C

-12.9 mW

WHC-SD-WM-DP-112, REV. 1

120.

140.

160.

180. °C

[Signature] 5-8-95

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S95T000799 N2

8.983 mg

Rate: 10.0 °C/min

File: 00021.001 DSC METTLER 08-May-95

Ident: 0.0 222-S Laboratory

exo

100. 200. 300. 400. °C

BEST AVAILABLE COPY

S95T000799 (DUP) N2

23.284 mg

Rate: 10.0 °C/min

File: 00023.001

Ident: 0.0

DSC METTLER

08-May-95

222-S Laboratory

WHC-SD-VM-DP-112, REV. 1

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S95T000803 N2

18.803 mg

Rate: 10.0 °C/min

File: 00016.001

DSC METTLER

08-May-95

Ident: 0.0

222-S Laboratory

WHC-SD-WM-DP-112, REV. 1

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S95T000803 (DUP) N2

13.608 mg

Rate: 10.0 °C/min

File: 00019.001 DSC METTLER 08-May-95

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-112 REV. 1

exo

20. mW

Integration

Delta H 312 mJ

22.9 J/g

Peak

283.1 °C

-2.4 mW

Integration

Delta H 648 mJ

47.6 J/g

Peak

345.5 °C

3.2 mW

Integration

Delta H 13269 mJ

975.1 J/g

Peak

107.5 °C

-38.1 mW

100.

200.

300.

400.

°C

LABCORE Data Entry Template for Worklist# 1217

Analyst: KRM Instrument: DSC01 03 Book # 12N14-A
 Method: LA-514-114 Rev/Mod B-0 ^{5/11/95} _{BDV}

Worklist Comment: Please run C-203 DSC under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.95</u>	<u>26.82</u>	<u>N/A</u>	Joules/g
95000056	C-203	2 SAMPLE	S95T000807	0	DSC-03	SOLID	<u>N/A</u>	<u>20.36</u>		Joules/g
95000056	C-203	3 DUP	S95T000807	0	DSC-03	SOLID	<u>20.36</u>	<u>19.1</u>	<u>N/A</u>	Joules/g
95000056	C-203	4 SAMPLE	S95T000811	0	DSC-03	SOLID	<u>N/A</u>	<u>34.91</u>		Joules/g
95000056	C-203	5 DUP	S95T000811	0	DSC-03	SOLID	<u>34.91</u>	<u>33.19</u>	<u>N/A</u>	Joules/g

Final page for worklist # 1217

See attached for signatures 5/11/95
 Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

S95T000807 produced two endotherms one at 105.7°C with a delta H of 807.9 J/g and the second at 283.3°C with a delta H of 11.8 J/g.

Data Entry Comments:

S95T000811 produced two endotherms one at 117.10°C with
a delta H of ^{5/11/95} ~~32.7~~ _{BDV} 522.2 J/g and the second at 288.8 ^{5/11/95} _{BDV} °C
with a delta H of 32.7 J/g.

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

worklistrpt Version 2.0 02/21/95
05/04/95 14:42

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LABCORE Data Entry Template for Worklist# 1217

Analyst: KRM Instrument: DSC01 Book # 1214AMethod: ~~LA 514-113 Rev/Mod~~ LA 514-114/B-D

Worklist Comment: Please run C-203 DSC under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID			N/A	Joules/g
95000056	C-203	2 SAMPLE	S95T000807	0	DSC-01	SOLID	N/A			Joules/g
95000056	C-203	3 DUP	S95T000807	0	DSC-01	SOLID			N/A	Joules/g
95000056	C-203	4 SAMPLE	S95T000811	0	DSC-01	SOLID	N/A			Joules/g
95000056	C-203	5 DUP	S95T000811	0	DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 1217

Analyst Signature

Date

Analyst Signature

Date

Data Entry Comments:

Other instrument was used.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: ind050801 Mon May 8 16:38:15 1995

Sample Weight: 6.687 mg

Indium at 10c/min

12N14-A 5/9/95 gdx

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SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 67 TO 71.

N2 exotherm down

TEMP: 150.0 °C TIME: 0.0 min RATE: 10.0 °C/min

Temperature (°C)

KR Monteith
Westinghouse Hanford Co.
222-S Lab
Mon May 8 16:58:19 1995

[Signature] 5-8-95

Curve 1: DSC

File info: sam050801 Mon May 8 18:08:24 1995

Sample Weight: 19.280 mg

S95T000807, 10C/min

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exotherm down, nitrogen purge gas

TEMP1: 35.0 °C TIME1: 0.0 min RATE1: 10.0 °C/min
TEMP2: 500.0 °C

Temperature (°C)

KR Monteith
Westinghouse Hanford Co.
222-S Lab
Tue May 9 07:54:38 1995

WHC-SD-WM-DP-112, REV. 1

Curve 1: DSC

File info: sam050802 Mon May 8 19:05:44 1995

Sample Weight: 15.470 mg

S95T000807 (dup). 10C/min

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WHC-SD-WM-DR-112 REV. 1

exotherm down, nitrogen purge gas

TEMP1: 30.0 °C TIME1: 0.0 min RATE1: 10.0 °C/min
TEMP2: 500.0 °C

Temperature (°C)

KR Monteith
Westinghouse Hanford Co.
222-S Lab
Tue May 9 07:46:10 1995

Curve 1: DSC

File info: sam050803 Mon May 8 20:19:51 1995

Sample Weight: 15.819 mg

S95T000811, 10C/min

BEST AVAILABLE COPY

exotherm down, nitrogen purge gas
 TEMPERATURE: 35.0 °C
 TIME: 00.0 min RATE: 10.0 °C/min

Temperature (°C)

exotherm down, nitrogen purge gas

TEMP: 35.0 °C TIME: 00.0 min RATE: 10.0 °C/min

KR Monteith
 Westinghouse Hanford Co.
 222-S Lab
 Wed May 10 13:52:38 1995

Curve 1: DSC

File info: sam050804 Mon May 8 22:10:41 1995

Sample Weight: 20.110 mg

S95T000811 (dup). 10C/min

BEST AVAILABLE COPY

exotherm down, nitrogen purge gas

TEMP1: 35.0 °C TIME1: 0.0 min RATE1: 10.0 °C/min

Temperature (°C)

KH Monteith
Westinghouse Hanford Co.
222-S Lab
Wed May 10 13:59:14 1995

WHC-SD-WM-DP-112 REV. 1

worklistrpt Version 2.0 02/21/95
05/15/95 13:42

Page: 1

LABCORE Data Entry Template for Worklist# 1401

Analyst: BDV Instrument: DSC0 2 Book # —Method: LA-514-113 Rev/Mod —

Worklist Comment: Calculated dry DSC for C-203. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
95000056	C-203	1 SAMPLE	S95T000799	0	DSC-02	SOLID	<u>N/A</u>	<u>66.02</u>		Joules/g Dry
95000056	C-203	2 DUP	S95T000799	0	DSC-02	SOLID	<u>66.02</u> <u>64.32</u>	<u>64.32</u>	<u>N/A</u>	Joules/g Dry
95000056	C-203	3 SAMPLE	S95T000803	0	DSC-02	SOLID	<u>N/A</u>	<u>97.33</u>		Joules/g Dry
95000056	C-203	4 DUP	S95T000803	0	DSC-02	SOLID	<u>97.33</u>	<u>96.32</u>	<u>N/A</u>	Joules/g Dry
95000056	C-203	5 SAMPLE	S95T000807	0	DSC-02	SOLID	<u>N/A</u>	<u>32.85</u>		Joules/g Dry
95000056	C-203	6 DUP	S95T000807	0	DSC-02	SOLID	<u>32.85</u>	<u>30.82</u>	<u>N/A</u>	Joules/g Dry
95000056	C-203	7 SAMPLE	S95T000811	0	DSC-02	SOLID	<u>N/A</u>	<u>50.87</u>		Joules/g Dry
95000056	C-203	8 DUP	S95T000811	0	DSC-02	SOLID	<u>50.87</u>	<u>48.37</u>	<u>N/A</u>	Joules/g Dry

Data entered + verified by

Final page for worklist # 1401

Blandina Valenzuela 5/15/95
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.

[illegible]

worklistrpt Version 2.0 02/21/95
04/27/95 09:14

Page: 1

LABCORE Data Entry Template for Worklist# 1237

Analyst: KRM Instrument: TGA01 Book # 42N8AMethod: LA-560-112 Rev/Mod A-2

Worklist Comment: Please run C-203 TGA under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.19</u>	<u>58.92</u>	<u>N/A</u>	%
95000056	C-203	2 SAMPLE	S95T000799	0	TGA-01	SOLID	<u>N/A</u>	<u>33.67</u>		%
95000056	C-203	3 DUP	S95T000799	0	TGA-01	SOLID	<u>33.67</u>	<u>36.66</u>	<u>N/A</u>	%
95000056	C-203	4 SAMPLE	S95T000803	0	TGA-01	SOLID	<u>N/A</u>	<u>52.12</u>		%
95000056	C-203	5 DUP	S95T000803	0	TGA-01	SOLID	<u>52.12</u>	<u>49.03</u>	<u>N/A</u>	%

Final page for worklist # 1237

5-8-95
 Analyst Signature Date

 Analyst Signature Date

Verified by Blandina Valenzuela 5/7/95

Data Entry Comments: S95T000799 produced another weight loss step of 10.31% at 327.0
S95T000803 produced a second weight loss step of 6.91% at 331.0°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 75 TO

TGA STD 42N8-A

16.553 mg

Rate: 10.0 °C/min

File: 00015.001

TG METTLER

09-May-95

Ident: 0.0 222-S Laboratory

Step Analysis
Height -9.76 mg
-58.92 %
Resic. 6.80 mg
41.08 %
Dpeak 79.2°C

56-8-5 *[Signature]*

BEST AVAILABLE COPY

S95T000799 N2

10.466 mg

Rate: 10.0 °C/min

File: 00020.001

TG METTLER

09-May-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -3.52 mg

-33.67 %

Resid. 6.92 mg

66.16 %

Dpeak 47.0 °C

Step Analysis

Height -1.08 mg

-10.31 %

Resid. 5.84 mg

55.78 %

Dpeak 327.0 °C

WHC-SD-WM-DP-112 REV. 1

BEST AVAILABLE COPY

S95T000799 (DUP) N2

20.182 mg

Rate: 10.0 °C/min

File: 00022.001

TG

METTLER

09-May-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -7.40 mg

-36.66 %

ResiC. 12.76 mg

63.23 %

Dpeak 115.0 °C

Step Analysis

Height -1.68 mg

-8.35 %

ResiC. 11.08 mg

54.88 %

Dpeak 317.0 °C

5. mg

100.

200.

300.

400.

°C

WHICSD-WM-DP-112 REV. 1

BEST AVAILABLE COPY

S95T000803 N2

11.305 mg

Rate: 10.0 °C/min

File: 00017.001 TG METTLER 09-May-95

Ident: 0.0 222-S Laboratory

Step Analysis
Height -5.89 mg
-52.12 %
Resid. 5.39 mg
47.65 %
Dpeak 55.0 °C

Step Analysis
Height -0.78 mg
-6.91 %
Resid. 4.61 mg
40.77 %
Dpeak 331.0 °C

WHC-SD-WM-DP-112 REV. 1

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S95T000803 (DUP) N2

15.131 mg

Rate: 10.0 °C/min

File: 00018.001

TG

METTLER

09-May-95

Ident: 0.0

222-S Laboratory

Step Analysis
Height -7.42 mg
-49.03 %
ResiC. 7.69 mg
50.80 %
Dpeak 61.0 °C

Step Analysis
Height -0.96 mg
-6.34 %
ResiC. 6.71 mg
44.33 %
Dpeak 311.0 °C

62

WHO-SD-WM-DP-112, REV. 1

worklistrpt Version 2.0 02/21/95
05/10/95 06:54

Page: 1

LABCORE Data Entry Template for Worklist# 1238

Analyst: KRM Instrument: TGA01 03 Book # 42N8-A
5/11/95
 Method: LA-514-114 Rev/Mod B-0 BDV

Worklist Comment: Please run C-203 TGA under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	SOLID	<u>59.19</u>	<u>57.39</u>	<u>N/A</u>	%
95000056	C-203	2 SAMPLE	S95T000807	0	TGA-03	SOLID	<u>N/A</u>	<u>41.04</u>		%
95000056	C-203	3 DUP	S95T000807	0	TGA-03	SOLID	<u>41.04</u>	<u>33.26</u>	<u>N/A</u>	%
		4 STD			TGA-03	SOLID	<u>59.19</u>	<u>57.68</u>	<u>N/A</u>	%
95000056	C-203	5 TRIPL	S95T000807	0	TGA-03	SOLID	<u>41.04</u>	<u>39.79</u>	<u>N/A</u>	%
95000056	C-203	6 SAMPLE	S95T000811	0	TGA-03	SOLID	<u>N/A</u>	<u>30.98</u>		%
95000056	C-203	7 DUP	S95T000811	0	TGA-03	SOLID	<u>30.98</u>	<u>31.78</u>	<u>N/A</u>	%

Final page for worklist # 1238

See attached for other signatures 5/10/95
 Analyst Signature Date

Lusie M. Dalton 5-10-95
 Analyst Signature Date

BDV 5-11-95
 Verified by Blandina Valenzuela 5/10/95 5/11/95
BDV

S95T000807 produced a second weight loss step of 5.95% at approximately 310°C. The triplicate for this sample was analyzed a couple of days after initial analysis, once chemist was able to look at the data.

S95T000811 produced a second weight loss step of 5.72% at approximately 310°C

Data Entry Comments:

S95000807 - Dark Brown, thick, creamy material

S95000811 - Dark Brown, thick, stiff material

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# 1238

Analyst: KRM Instrument: TGA01 Book # 42NBA

Method: LA-560-112 Rev/Mod LA 514-114 / B-0

Worklist Comment: Please run C-203 TGA under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID			N/A	%
95000056	C-203	2 SAMPLE	S95T000807	0	TGA-01	SOLID	N/A			%
95000056	C-203	3 DUP	S95T000807	0	TGA-01	SOLID			N/A	%
95000056	C-203	4 SAMPLE	S95T000811	0	TGA-01	SOLID	N/A			%
95000056	C-203	5 DUP	S95T000811	0	TGA-01	SOLID			N/A	%

Final page for worklist # 1238

Analyst Signature

Date

Analyst Signature

Date

Data Entry Comments:

Other instrument was used.

Curve 1: TGA

File info: ter050801 Mon May 8 16:54:45 1995

Sample Weight: 16.157 mg

42N8A Terliq

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SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 82 TO 88.

N2

TEMP1: 35.0 °C
TEMP2: 250.0 °C
TIME1: 0.0 min RATE1: 10.0 °C/min

Temperature (°C)

KR Monteith
PERKIN-ELMER
7 Series Thermal Analysis System
Mon May 8 17:17:01 1995

KR Monteith
5-8-95

WHC-CD-TM-DP-112, REV. 1

Curve 1: TGA

File info: sam050801 Mon May 8 18:11:48 1995

Sample Weight: 14.481 mg

S95T000576 (DUP). 10C/min

207

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5.0
Weight (Wt. %)

WHC-SD-WM-DP-112.FEV.1

N2

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

Temperature (°C)

KR Monteith
PERKIN-ELMER
7 Series Thermal Analysis System
Mon May 8 18:22:54 1995

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Curve 1: TGA
File info: sam050802 Mon May 8 19:18:11 1995
Sample Weight: 12.083 mg
S95T000064 (dup), 10C/min

N2
TEMP: 35.0 C
TIME: 500.0 S
0.0 min RATE: 10.0 C/min
KJ Monteith
PERKIN-ELMER
7 Series Thermal Analysis System
Mon May 8 19:27:23 1995

Curve 1: TGA

File info: TER051001 Wed May 10 08:19:56 1995

Sample Weight: 14.049 mg

42N8A Ter11q

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TEMP1: 35.0 °C TIME1: 0.0 min RATE1: 10.0 °C/min

TEMP2: 250.0 °C

SM Fulton
PERKIN ELMER
222-S Lab
Wed May 10 08:40:45 1995

WHO-SD-VIA-DP-112-REV.1

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Curve 1: TGA
 File Info: SAM051001 Wed May 10 09:48:38 1995
 Sample Weight: 11.901 mg
 S95T000807 (TRIPL), 10C/min

N2
 TEMP: 30.0 C
 TIME: 0.0 min RATE: 10.0 C/min
 SM Fulton
 PERKIN ELMER
 222-S Lab
 Wed May 10 10:08:25 1995

Curve 1: TGA

File info: sam050803 Mon May 8 20:25:35 1995

Sample Weight: 14.450 mg

S95T000811, 10C/min

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WHC-SD-WM-DP-112, REV. 1

N2

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

KR Monteith
PERKIN-ELMER
7 Series Thermal Analysis System
Mon May 8 21:11:26 1995

Curve 1: TGA

File Info: sam050804 Mon May 8 22:08:15 1995

Sample Weight: 15.985 mg

S95T000811 (dup). 10C/min

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N2

TEMP: 35.0 C TIME: 0.0 min RATE: 10.0 C/min

Temperature (°C)

KR Monteith
PERKIN-ELMER
7 Series Thermal Analysis System
Mon May 8 22:21:23 1995

LABCORE Data Entry Template for Worklist# 1318

Analyst: TRM Instrument: AB00 14 Book # 107B52

Method: LA-508-101 Rev/Mod A-2 UB57807

Worklist Comment: Run under RWP 273 if dose rate warrants. SLF

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		1 STD			@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		2 BLNK-PREP			@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		2 BLNK-PREP			@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		3 BLNK/BKG	<u>73</u>		@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	4 SAMPLE	S95T000800	0 F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000056	C-203	4 SAMPLE	S95T000800	0 F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000056	C-203	5 DUP	S95T000800	0 F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	5 DUP	S95T000800	0 F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
95000056	C-203	6 SPK	S95T000800	0 F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	7 SAMPLE	S95T000804	0 F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000056	C-203	7 SAMPLE	S95T000804	0 F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000056	C-203	8 DUP	S95T000804	0 F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	8 DUP	S95T000804	0 F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error

Final page for worklist # 1318

Spring Mix 5/5/95
Analyst Signature Date

Shawn L. Hall 5.8.95
Analyst Signature Date

Data Entry Comments:

SPK recovery is out of limits. Batch will
be rerun. At 7:44 5/9/95

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

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

LA-548-101 (A-3)

LIQUIDS

Type	DETECTOR NUMBER	STANDARD	REPLICATE
STANDARD	DISH SIZE 1, 2, or 5 (MS)	14	14
Work List	TOTAL COUNTS (TC)	2	2
1318	COUNT TIME in MINUTES (CT)	4145	4193
AT or TB ?	BACKGROUND in cpm (BKG)	30	30
AT	SAMPLE SIZE in mL (SS)	0.5	0.5
Test Code	DILUTION FACTOR (DF)	10.000	10.000
@ALPHA01	DIGEST DILUTION FACTOR (DDF)	1	1
Matrix	EFFICIENCY FACTOR (EFF)	1	1
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.2274	0.2274
Sample #	Sample Concentration in $\mu\text{Ci/L}$	137.667	139.267
WRKLST#1318	Replicate Concentration in $\mu\text{Ci/L}$	2.73E-02	BOOK#
Instrument Code		2.76E-02	107B52
WB27807	Average Concentration in $\mu\text{Ci/L}$	2.7428E-02	
Analyst			
TLM	Rs (Sample Count Rate) = $(TC / CT) - BKG$		
Date	ALPHA TOTAL $\mu\text{Ci/L}$ = $Rs * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
05/05/95	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
Time	Relative Counting Error = $[(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
10:30 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

v RESULTS v

ALPHA TOTAL	in $\mu\text{Ci/mL}$	(Average)	=	2.74E-05	DETECTION LEVEL
RELATIVE COUNTING ERROR			=	3.1%	1.37E-07 $\mu\text{Ci/mL}$

Data Entry by: <i>[Signature]</i>	Date: 05/08/95
Approved by: <i>[Signature]</i>	Date: 5/8/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

LA-548-101 (A-3)

SOLIDS

Type	DETECTOR NUMBER	BLANK	REPLICATE
BLANK	DISH SIZE 1, 2, or 5 (MS)	14	14
Work List	TOTAL COUNTS (TC)	2	2
1318	COUNT TIME in MINUTES (CT)	11	11
AT or TB ?	BACKGROUND in cpm (BKG)	30	30
AT	SAMPLE SIZE in mL (SS)	0.5	0.5
Test Code	DILUTION FACTOR (DF)	0.100	0.100
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	1	1
Matrix	EFFICIENCY FACTOR (EFF)	1.986	1.986
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.2274	0.2274
Sample #	Sample Concentration in $\mu\text{Ci/g}$	0.301	0.301
S95T800	Replicate Concentration in $\mu\text{Ci/g}$	< 3.00E-03	BOOK#
Instrument Code			
WB27807	Maximum Concentration in $\mu\text{Ci/g}$	< 3.0047E-03	
Analyst			
TLM	Rs (Sample Count Rate) = (TC / CT) - BKG		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/ μCi)		
05/05/95			
Time	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
10:30 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

v RESULTS v

ALPHA TOTAL	in $\mu\text{Ci/g}$ (Maximum) =	< 3.00E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			6.91E-03 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR	=	249.9%	

Data Entry by: <i>Sharon G. Hall</i>	Date: 05/08/95
Approved by: <i>Sharon G. Hall</i>	Date: 5/8/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

LA-548-101 (A-3)

SOLIDS

Type	DETECTOR NUMBER	SAMPLE	REPLICATE
SAMPLE	DISH SIZE 1, 2, or 5 (MS)	14	14
Work List	TOTAL COUNTS (TC)	2	2
1318	COUNT TIME in MINUTES (CT)	4106	4582
AT or TB ?	BACKGROUND in cpm (BKG)	30	30
AT	SAMPLE SIZE in mL (SS)	0.5	0.5
Test Code	DILUTION FACTOR (DF)	0.100	0.100
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	1	1
Matrix	EFFICIENCY FACTOR (EFF)	1.986	1.986
SOLID	Lc, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE	0.2274	0.2274
Sample #	Sample Concentration in $\mu\text{Ci/g}$	136.367	152.233
S95T800	Replicate Concentration in $\mu\text{Ci/g}$	1.36E+00	BOOK#
Instrument Code		1.52E+00	
WB27807	Average Concentration in $\mu\text{Ci/g}$	1.4393E+00	
Analyst			
TLM	Rs (Sample Count Rate) = (TC / CT) - BKG		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/ μCi)		
05/05/95			
Time	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
10:30 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

v RESULTS v

ALPHA TOTAL	in $\mu\text{Ci/g}$ (Average)	=	1.44E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	3.1%	6.91E-03 $\mu\text{Ci/g}$

Data Entry by: *[Signature]* Date: 05/08/95
 Approved by: *[Signature]* Date: 5/18/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	14	14
DUPLICATE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	4761	4494
1318	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.5	0.5
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	1.918	1.918
Matrix	EFFICIENCY FACTOR (EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	158.200	149.300
Sample #	Sample Concentration in $\mu\text{Ci/g}$	1.63E+00	BOOK#
S95T800	Replicate Concentration in $\mu\text{Ci/g}$	1.54E+00	
Instrument Code			
WB27807	Average Concentration in $\mu\text{Ci/g}$	1.5879E+00	
Analyst			
TLM	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/05/95			
Time	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
10:30 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

RESULTS

ALPHA TOTAL	in $\mu\text{Ci/g}$ (Average)	=	1.59E+00	DETECTION LEVEL
				7.16E-03 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR		=	2.9%	

Data Entry by: <i>sh...</i>	Date: 05/08/95
Approved by: <i>...</i>	Date: 5/8/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHO-SD-WM-DP- 112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SPIKE	REPLICATE
Type	DETECTOR NUMBER	14	14
SPIKE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	41929	42062
1318	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.5	0.5
AT	SAMPLE VOLUME in mL (Spiked Vial) (SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	1.986	1.986
Matrix	SPIKE VOLUME in mL (SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR (SDF)	1	1
Sample #	SPIKE VALUE in $\mu\text{Ci/L}$ (SVal)	36.372	36.372
S95T800	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2274	0.2274
Instrument Code	SAMPLE + SPIKE $\mu\text{Ci/g}$ (S+S)	1.39E+01	1.40E+01
WB27807	AVERAGE or MAXIMUM $\mu\text{Ci/g}$ from FORM C	1.4393E+00	
Analyst	BOOK#	94B43	
TLM	$R_s (\text{Sample Count Rate}) = (TC / CT) - BKG$		
Date	$\text{SAMPLE} + \text{SPIKE } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * \text{Dg/L} * 2220000\text{dpm}/\mu\text{Ci})$		
05/05/95	$\text{PERCENT SPIKE RECOVERY} = (((S+S \mu\text{Ci/g} - \text{SAMPLE } \mu\text{Ci/g}) * ((SDF/SVol)/(DF/SS/Dg/L)))/SVal) * 100$		
Time			
10:30 AM			

RESULT **AVG. PERCENT SPIKE RECOVERY** = **68.4%**

Data Entry by: Sharon H. H. H. Date: 08-May-95
 Approved by: [Signature] Date: 5/8/95
 Form 508101_X Rev. 1.3 Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	14	14
SAMPLE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	2200	2089
1318	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.5	0.5
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.1224	2.1224
Matrix	EFFICIENCY FACTOR (EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	72.833	69.133
Sample #	Sample Concentration in $\mu\text{Ci/g}$	6.80E-01	BOOK#
S95T804	Replicate Concentration in $\mu\text{Ci/g}$	6.45E-01	
Instrument Code			
WB27807	Average Concentration in $\mu\text{Ci/g}$	6.6250E-01	
Analyst			
TLM	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/05/95			
Time	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
10:30 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

RESULTS

ALPHA TOTAL	in $\mu\text{Ci/g}$	(Average)	=	6.62E-01	DETECTION LEVEL
					6.47E-03
RELATIVE COUNTING ERROR			=	4.3%	$\mu\text{Ci/g}$

Data Entry by: <i>Sharon H. Huggins</i>	Date: 05/08/95
Approved by: <i>TH</i>	Date: 5/8/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHO-CD-WM-DP-112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	14	14
DUPLICATE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	1867	1750
1318	COUNT TIME in MINUTES (CT)	30	30
AT or TB?	BACKGROUND in cpm (BKG)	0.5	0.5
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.1548	2.1548
Matrix	EFFICIENCY FACTOR (EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs.(SAMPLE RATE) as APPROPRIATE	61.733	57.833
Sample #	Sample Concentration in $\mu\text{Ci/g}$	5.68E-01	BOOK#
S95T804	Replicate Concentration in $\mu\text{Ci/g}$	5.32E-01	
Instrument Code			
WB27807	Average Concentration in $\mu\text{Ci/g}$	5.4958E-01	
Analyst			
TLM	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/05/95			
Time	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
10:30 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

v RESULTS v

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	5.50E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.7%	6.37E-03 $\mu\text{Ci/g}$

Data Entry by: <i>[Signature]</i>	Date: 05/08/95
Approved by: <i>[Signature]</i>	Date: 5/8/95

RUSH

LABCORE Data Entry Template for Worklist# 1366

Analyst: LM Instrument: AB00 16 Book # 107B52
WS 27806Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Use a .050 mL sample size. Rerun #1. SLF

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			QALPHA01 ALPHA01	SOLID			N/A	uCi/g
		1 STD			QALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		2 BLNK-PREP			QALPHA01 ALPHA01	SOLID			N/A	uCi/g
		2 BLNK-PREP			QALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		3 BLNK/BKG	<u>13</u>		QALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	4 SAMPLE	S95T000800	0 F	QALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000056	C-203	4 SAMPLE	S95T000800	0 F	QALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000056	C-203	5 DUP	S95T000800	0 F	QALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	5 DUP	S95T000800	0 F	QALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
95000056	C-203	6 SPK	S95T000800	0 F	QALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	7 SAMPLE	S95T000804	0 F	QALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000056	C-203	7 SAMPLE	S95T000804	0 F	QALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000056	C-203	8 DUP	S95T000804	0 F	QALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	8 DUP	S95T000804	0 F	QALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error

Final page for worklist # 1366

Reena Mijl 5-10-95
Analyst Signature Date

Sharon L. Uchida 5-11-95
Analyst Signature Date

Data Entry Comments:

Data from 1st run (worklist 1318) will be
used instead of this data. SLF 5/15/95

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-112, REV. 1

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

LA-548-101 (A-3) LIQUIDS

		STANDARD	REPLICATE
Type	DETECTOR NUMBER	16	16
STANDARD	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	3931	3718
1366	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.4	0.4
AT	SAMPLE SIZE in mL (SS)	10.000	10.000
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR (DDF)	1	1
Matrix	EFFICIENCY FACTOR (EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE	130.633	123.533
Sample #	Sample Concentration in $\mu\text{Ci/L}$	2.80E-02	BOOK#
WORKLIST#1366	Replicate Concentration in $\mu\text{Ci/L}$	2.64E-02	107B52
Instrument Code			
WB27806	Average Concentration in $\mu\text{Ci/L}$	2.7208E-02	
Analyst			
TLM	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
05/10/95	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
Time	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
10:15 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

RESULTS

ALPHA TOTAL	in $\mu\text{Ci/mL}$	(Average) =	2.72E-05	DETECTION LEVEL
				1.35E-07 $\mu\text{Ci/mL}$
RELATIVE COUNTING ERROR		=	3.2%	

Data Entry by:	<i>[Signature]</i>	Date:	05/11/95
Approved by:	<i>[Signature]</i>	Date:	5/11/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-112 REV. 1

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

LA-548-101 (A-3)

SOLIDS

Type	DETECTOR NUMBER	BLANK.	REPLICATE
BLANK.	DISH SIZE 1, 2, or 5 (MS)	16	16
Work List	TOTAL COUNTS (TC)	2	2
1366	COUNT TIME in MINUTES (CT)	1	2
AT or TB ?	BACKGROUND in cpm (BKG)	30	30
AT	SAMPLE SIZE in mL (SS)	0.4	0.4
Test Code	DILUTION FACTOR (DF)	0.050	0.050
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	1	1
Matrix	EFFICIENCY FACTOR (EFF)	1.986	1.986
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.2104	0.2104
Sample #	Sample Concentration in $\mu\text{Ci/g}$	0.269	0.269
S95T800	Replicate Concentration in $\mu\text{Ci/g}$	< 5.81E-03	BOOK#
Instrument Code			
WB27806	Maximum Concentration in $\mu\text{Ci/g}$	< 5.8093E-03	
Analyst			
TLM	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/10/95			
Time	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
10:15 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

▼ RESULTS ▼

ALPHA TOTAL in $\mu\text{Ci/g}$ (Maximum) =	< 5.81E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.		1.36E-02 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR =	73.3%	

Data Entry by: <i>Sharon K. Miller</i>	Date: 05/11/95
Approved by: <i>[Signature]</i>	Date: 5/11/95
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PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	16
SAMPLE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	1727	1872
1366	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.4	0.4
AT	SAMPLE SIZE in mL (SS)	0.050	0.050
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	1.986	1.986
Matrix	EFFICIENCY FACTOR (EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs.(SAMPLE RATE) as APPROPRIATE	57.167	62.000
Sample #	Sample Concentration in $\mu\text{Ci/g}$	1.23E+00	BOOK#
S95T800	Replicate Concentration in $\mu\text{Ci/g}$	1.34E+00	
Instrument Code			
WB27806	Average Concentration in $\mu\text{Ci/g}$	1.2846E+00	
Analyst			
TLM	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/10/95			
Time	Relative Counting Error = $[(The\ Square\ Root\ of\ TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
10:15 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

▼ RESULTS ▼

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	1.28E+00	DETECTION LEVEL
			1.36E-02 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR	=	4.8%	

Data Entry by: <i>Sharon L. Hogg</i>	Date: 05/11/95
Approved by: <i>RJ</i>	Date: 5/11/95
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PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	16
DUPLICATE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	1944	2309
1366	COUNT TIME in MINUTES (CT)	30	30
AT or TB?	BACKGROUND in cpm (BKG)	0.4	0.4
AT	SAMPLE SIZE in mL (SS)	0.050	0.050
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	1.918	1.918
Matrix	EFFICIENCY FACTOR (EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE	64.400	76.567
Sample #	Sample Concentration in $\mu\text{Ci/g}$	1.44E+00	BOOK#
S95T800	Replicate Concentration in $\mu\text{Ci/g}$	1.71E+00	
Instrument Code			
WB27806	Average Concentration in $\mu\text{Ci/g}$	1.5735E+00	
Analyst			
TLM	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/10/95			
Time	Relative Counting Error = $[(The\ Square\ Root\ of\ TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
10:15 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

RESULTS

ALPHA TOTAL	in $\mu\text{Ci/g}$ (Average)	=	1.57E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR		=	4.5%	1.41E-02 $\mu\text{Ci/g}$

Data Entry by:	<i>[Signature]</i>	Date:	05/11/95
Approved by:	<i>[Signature]</i>	Date:	5/11/95
Form 508101_C Rev. 1.3			Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-112, REV. 1

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

LA-548-101 (A-3) SOLIDS

		SPIKE	REPLICATE
Type	DETECTOR NUMBER	16	16
SPIKE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	27059	32081
1366	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.4	0.4
AT	SAMPLE VOLUME in mL (Spiked Vial) (SS)	0.050	0.050
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	1.986	1.986
Matrix	SPIKE VOLUME in mL (SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR (SDF)	1	1
Sample #	SPIKE VALUE in $\mu\text{Ci/L}$ (SVal)	36.372	36.372
S95T800	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2104	0.2104
Instrument Code	SAMPLE + SPIKE $\mu\text{Ci/g}$ (S+S)	1.94E+01	2.30E+01
WB27806	AVERAGE or MAXIMUM $\mu\text{Ci/g}$ from FORM C	1.2846E+00	
Analyst	BOOK#	94B43	
TLM	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	SAMPLE + SPIKE $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/10/95	PERCENT SPIKE RECOVERY = $((S+S \mu\text{Ci/g} - \text{SAMPLE } \mu\text{Ci/g}) * ((SDF/SVol)/(DF/SS/Dg/L)))/(SVal)*100$		
Time			
10:15 AM			

RESULT AVG. PERCENT SPIKE RECOVERY = 54.5%

Data Entry by: *[Signature]* Date: 11-May-95
 Approved by: *[Signature]* Date: 5/11/95
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PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-CD-WM-DP- 112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	16
SAMPLE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	1041	1093
1366	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.4	0.4
AT	SAMPLE SIZE in mL (SS)	0.050	0.050
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.1224	2.1224
Matrix	EFFICIENCY FACTOR (EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	34.300	36.033
Sample #	Sample Concentration in $\mu\text{Ci/g}$	6.92E-01	BOOK#
S95T804	Replicate Concentration in $\mu\text{Ci/g}$	7.27E-01	
Instrument Code			
WB27806	Average Concentration in $\mu\text{Ci/g}$	7.0947E-01	
Analyst			
TLM	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/10/95			
Time	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
10:15 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

RESULTS

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	7.09E-01	DETECTION LEVEL
			1.27E-02 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR	=	6.2%	

Data Entry by: <i>Sharon L. Hays</i>	Date: 05/11/95
Approved by: <i>[Signature]</i>	Date: 5/11/95
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PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WMO-SD-WM-DP-112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	16
DUPLICATE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	1009	957
1366	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.4	0.4
AT	SAMPLE SIZE in mL (SS)	0.050	0.050
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.1548	2.1548
Matrix	EFFICIENCY FACTOR (EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs.(SAMPLE RATE) as APPROPRIATE	33.233	31.500
Sample #	Sample Concentration in $\mu\text{Ci/g}$	6.60E-01	BOOK#
S95T804	Replicate Concentration in $\mu\text{Ci/g}$	6.26E-01	
Instrument Code			
WB27806	Average Concentration in $\mu\text{Ci/g}$	6.4316E-01	
Analyst			
TLM	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/10/95			
Time	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
10:15 AM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

RESULTS

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	6.43E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	6.5%	1.25E-02 $\mu\text{Ci/g}$

Data Entry by: <i>Sharon H. H. H.</i>	Date: 05/11/95
Approved by: <i>Sharon H. H. H.</i>	Date: 5/11/95

RUSHworklistrpt Version 2.0 02/21/95
05/09/95 13:59

HC-SD-WM-DP-112 REV. 1

Page: 1

LABCORE Data Entry Template for Worklist# 1367 Analyst: ZNT Instrument: AB00 14 Book # 107B52
WB 27807Method: LA-508-101 Rev/Mod D-2

Worklist Comment: Use a .050 mL sample size. Rerun #1. SLF

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			αALPHA01 ALPHA01	SOLID			N/A	uCi/g
		1 STD			αALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		2 BLNK-PREP			αALPHA01 ALPHA01	SOLID			N/A	uCi/g
		2 BLNK-PREP			αALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		3 BLNK/BKG	<u>.33</u>		αALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	4 SAMPLE	S95T000808	0 F	αALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000056	C-203	4 SAMPLE	S95T000808	0 F	αALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000056	C-203	5 DUP	S95T000808	0 F	αALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	5 DUP	S95T000808	0 F	αALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
95000056	C-203	6 SAMPLE	S95T000812	0 F	αALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000056	C-203	6 SAMPLE	S95T000812	0 F	αALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000056	C-203	7 DUP	S95T000812	0 F	αALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	7 DUP	S95T000812	0 F	αALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error

Final page for worklist # 1367 Peera Mix 5-10-95
Analyst Signature DateSharon White 5-11-95
Analyst Signature Date

Data Entry Comments:

High RPD values are consistent with original run.Indicates a problem with sample prep (possibly that the
duplicates were interchanged). at 5/15/95Units 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-112, REV. 1

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

LA-548-101 (A-3)

LIQUIDS

		STANDARD	REPLICATE
Type	DETECTOR NUMBER	14	14
STANDARD	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	4212	4042
1367	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	DIGEST DILUTION FACTOR (DDF)	1	1
Matrix	EFFICIENCY FACTOR (EFF)	0.2274	0.2274
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	140.100	134.433
Sample #	Sample Concentration in $\mu\text{Ci/L}$	2.78E-02	BOOK#
WORKLIST#1367	Replicate Concentration in $\mu\text{Ci/L}$	2.66E-02	107B52
Instrument Code			
WB27807	Average Concentration in $\mu\text{Ci/L}$	2.7191E-02	
Analyst			
TLM	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
05/10/95	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
Time	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
12:30 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

RESULTS

ALPHA TOTAL in $\mu\text{Ci/mL}$ (Average)	=	2.72E-05	DETECTION LEVEL
			1.10E-07 $\mu\text{Ci/mL}$
RELATIVE COUNTING ERROR	=	3.1%	

Data Entry by: <i>Sharon L. Galt</i>	Date: 05/11/95
Approved by: <i>[Signature]</i>	Date: 5/11/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-112 REV. 1

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

LA-548-101 (A-3)

SOLIDS

		BLANK	REPLICATE
Type	DETECTOR NUMBER	14	14
BLANK	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	3	3
1367	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)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.0712	2.0712
Matrix	EFFICIENCY FACTOR (EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.233	0.233
Sample #	Sample Concentration in $\mu\text{Ci/g}$ <	4.46E-03	BOOK#
S95T808	Replicate Concentration in $\mu\text{Ci/g}$ <	4.46E-03	
Instrument Code			
WB27807	Maximum Concentration in $\mu\text{Ci/g}$ <	4.4634E-03	
Analyst			
TLM	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/10/95			
Time	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
12:30 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

▼ RESULTS ▼

ALPHA TOTAL	in $\mu\text{Ci/g}$	(Maximum) =	< 4.46E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.				1.07E-02
RELATIVE COUNTING ERROR	=	113.2%		$\mu\text{Ci/g}$

Data Entry by: <i>[Signature]</i>	Date: 05/11/95
Approved by: <i>[Signature]</i>	Date: 5/11/95

Form 508101_C Rev. 1.3

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PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHG-SD-WM-DP-112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	14	14
SAMPLE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	4615	4287
1367	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)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.0712	2.0712
Matrix	EFFICIENCY FACTOR (EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE	153.533	142.600
Sample #	Sample Concentration in $\mu\text{Ci/g}$	2.94E+00	BOOK#
S95T808	Replicate Concentration in $\mu\text{Ci/g}$	2.73E+00	
Instrument Code			
WB27807	Average Concentration in $\mu\text{Ci/g}$	2.8322E+00	
Analyst			
TLM	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/10/95			
Time	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
12:30 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

v RESULTS v

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	2.83E+00	DETECTION LEVEL
			1.07E-02 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR	=	3.0%	

Data Entry by: <i>Sharon J. Hinkle</i>	Date: 05/11/95
Approved by: <i>[Signature]</i>	Date: 5/11/95
Form 508101_C Rev. 1.3	Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP- 112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	14	14
DUPLICATE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	1777	1719
1367	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)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.1844	2.1844
Matrix	EFFICIENCY FACTOR (EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	58.933	57.000
Sample #	Sample Concentration in $\mu\text{Ci/g}$	1.07E+00	BOOK#
S95T808	Replicate Concentration in $\mu\text{Ci/g}$	1.03E+00	
Instrument Code			
WB27807	Average Concentration in $\mu\text{Ci/g}$	1.0513E+00	
Analyst			
TLM	$R_s \text{ (Sample Count Rate)} = (TC / CT) - BKG$		
Date	$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/10/95			
Time	$\text{Relative Counting Error} = [(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
12:30 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

▼ RESULTS ▼

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	1.05E+00	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	4.8%	1.01E-02 $\mu\text{Ci/g}$

Data Entry by: <i>Sharon L. Gifford</i>	Date: 05/11/95
Approved by: <i>[Signature]</i>	Date: 5/11/95
Form 508101_C Rev. 1.3	Page 1 of 1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-CD-WM-DP- 112 REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	14	14
SAMPLE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	1482	1477
1367	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)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.19	2.19
Matrix	EFFICIENCY FACTOR (EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE	49.100	48.933
Sample #	Sample Concentration in $\mu\text{Ci/g}$	8.88E-01	BOOK#
S95T812	Replicate Concentration in $\mu\text{Ci/g}$	8.85E-01	
Instrument Code			
WB27807	Average Concentration in $\mu\text{Ci/g}$	8.8672E-01	
Analyst			
TLM	$R_s \text{ (Sample Count Rate)} = (TC / CT) - BKG$		
Date	$ALPHA \text{ TOTAL } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/10/95			
Time	$\text{Relative Counting Error} = [((\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT))] * 1.96 * 100$		
12:30 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

v RESULTS v

ALPHA TOTAL	in $\mu\text{Ci/g}$	(Average)	=	8.87E-01	DETECTION LEVEL
RELATIVE COUNTING ERROR			=	5.1%	1.01E-02 $\mu\text{Ci/g}$

Data Entry by:	<i>Sharon L. Ugley</i>	Date:	05/11/95
Approved by:	<i>[Signature]</i>	Date:	5/11/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP- 112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	14	14
DUPLICATE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	4411	4480
1367	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)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.1652	2.1652
Matrix	EFFICIENCY FACTOR (EFF)	0.2274	0.2274
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	146.733	149.033
Sample #	Sample Concentration in $\mu\text{Ci/g}$	2.68E+00	BOOK#
S95T812	Replicate Concentration in $\mu\text{Ci/g}$	2.73E+00	
Instrument Code			
WB27807	Average Concentration in $\mu\text{Ci/g}$	2.7059E+00	
Analyst			
TLM	Rs (Sample Count Rate) = (TC / CT) - BKG		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s \cdot 1000\text{mL/L} \cdot \text{DF} / (\text{EFF} \cdot \text{SS} \cdot \text{Dg/L} \cdot 2220000\text{dpm}/\mu\text{Ci})$		
05/10/95			
Time	Relative Counting Error = $[(\text{The Square Root of TC} + \text{BKG} \cdot \text{CT}) / (\text{TC} - \text{BKG} \cdot \text{CT})] \cdot 1.96 \cdot 100$		
12:30 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

RESULTS

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	2.71E+00	DETECTION LEVEL
			1.02E-02 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR	=	3.0%	

Data Entry by: <i>Sharon H. Caffrey</i>	Date: 05/11/95
Approved by: <i>[Signature]</i>	Date: 5/11/95
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worklistrpt Version 2.0 02/21/95
05/15/95 14:49

Page: 1

LABCORE Data Entry Template for Worklist# 1402

Analyst: _____ Instrument: AB00 _____ Book # _____

Method: LA-508-101 Rev/Mod 221318 SLF
5/15/95Worklist Comment: Re-entry of original data (Worklist ~~1366~~). SLF

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		1 STD			@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		2 BLNK-PREP			@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
		2 BLNK-PREP			@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		3 BLNK/BKG			@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	4 SAMPLE	S95T000800	0 F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000056	C-203	4 SAMPLE	S95T000800	0 F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000056	C-203	5 DUP	S95T000800	0 F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	5 DUP	S95T000800	0 F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
95000056	C-203	6 SPK	S95T000800	0 F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	7 SAMPLE	S95T000804	0 F	@ALPHA01 ALPHA01	SOLID	N/A			uCi/g
95000056	C-203	7 SAMPLE	S95T000804	0 F	@ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000056	C-203	8 DUP	S95T000804	0 F	@ALPHA01 ALPHA01	SOLID			N/A	uCi/g
95000056	C-203	8 DUP	S95T000804	0 F	@ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error

Final page for worklist # 1402

Analyst Signature _____ Date _____

 5/15/95
 Analyst Signature _____ Date _____

Data Entry Comments:

Re-entry of data from WL 1318 (see
attached).
5/15/95

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.

WHC-SD-WM-DP-112, REV. 1

WHC-SD-WM-DP-112, 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# 1287

Analyst: BCH Instrument: AB00 16 Book # 107053Method: LA-508-101 Rev/Mod D-2 WB 27806

Worklist Comment: If dose rate warrants, run under RWP 273. SLF

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			0ALPHA01 ALPHA01	SOLID			N/A	UCi/g
		1 STD			0ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		2 BLNK-PREP			0ALPHA01 ALPHA01	SOLID			N/A	UCi/g
		2 BLNK-PREP			0ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
		3 BLNK/BKG	<u>.36</u>		0ALPHA01 ALPHA01	SOLID			N/A	UCi/g
95000056	C-203	4 SAMPLE	S95T000808	0 F	0ALPHA01 ALPHA01	SOLID	N/A			UCi/g
95000056	C-203	4 SAMPLE	S95T000808	0 F	0ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000056	C-203	5 DUP	S95T000808	0 F	0ALPHA01 ALPHA01	SOLID			N/A	UCi/g
95000056	C-203	5 DUP	S95T000808	0 F	0ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error
95000056	C-203	6 SAMPLE	S95T000812	0 F	0ALPHA01 ALPHA01	SOLID	N/A			UCi/g
95000056	C-203	6 SAMPLE	S95T000812	0 F	0ALPHA01 ALPHA01E	SOLID	N/A			% Ct. Error
95000056	C-203	7 DUP	S95T000812	0 F	0ALPHA01 ALPHA01	SOLID			N/A	UCi/g
95000056	C-203	7 DUP	S95T000812	0 F	0ALPHA01 ALPHA01E	SOLID			N/A	% Ct. Error

Final page for worklist # 1287

Analyst Signature

Date

DATA
NOT USED
IN PACKAGE

Analyst Signature

Date

Data Entry Comments:

RPD's for samples are out of control limits. Batch
will be rerun. 5/19/95

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

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

LA-548-101 (A-3)

LIQUIDS

		STANDARD	REPLICATE
Type	DETECTOR NUMBER	16	16
STANDARD	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	4443	4116
1287	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.6	0.6
AT	SAMPLE SIZE in mL (SS)	10.000	10.000
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR (DDF)	1	1
Matrix	EFFICIENCY FACTOR (EFF)	0.2104	0.2104
LIQUID	Lc, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE	147.500	136.600
Sample #	Sample Concentration in $\mu\text{Ci/L}$	3.16E-02	BOOK#
WRKLIST#1287	Replicate Concentration in $\mu\text{Ci/L}$	2.92E-02	107B52
Instrument Code			
WB27806	Average Concentration in $\mu\text{Ci/L}$	3.0412E-02	
Analyst			
KGH	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	ALPHA TOTAL $\mu\text{Ci/L}$ = $R_s * 1000\text{mL/L} * DF * DDF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
05/05/95	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
Time	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

v RESULTS v

ALPHA TOTAL	In $\mu\text{Ci/mL}$	(Average) =	3.04E-05	DETECTION LEVEL
				1.61E-07 $\mu\text{Ci/mL}$
RELATIVE COUNTING ERROR		=	3.1%	

Data Entry by: <i>S. Harrison</i>	Date: 05/08/95
Approved by: <i>[Signature]</i>	Date: 5/8/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

LA-548-101 (A-3)

SOLIDS

Type	DETECTOR NUMBER	BLANK	REPLICATE
BLANK	DISH SIZE 1, 2, or 5 (MS)	16	16
Work List	TOTAL COUNTS (TC)	2	2
1287	COUNT TIME in MINUTES (CT)	11	2
AT or TB ?	BACKGROUND in cpm (BKG)	30	30
AT	SAMPLE SIZE in mL (SS)	0.6	0.6
Test Code	DILUTION FACTOR (DF)	0.050	0.050
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	1	1
Matrix	EFFICIENCY FACTOR (EFF)	2.0712	2.0712
SOLID	Lc, Rmax, or Rs.(SAMPLE RATE) as APPROPRIATE	0.2104	0.2104
Sample #	Sample Concentration in $\mu\text{Ci/g}$	0.330	0.330
S95T808	Replicate Concentration in $\mu\text{Ci/g}$	< 6.82E-03	BOOK#
Instrument Code	Maximum Concentration in $\mu\text{Ci/g}$	< 6.82E-03	
WB27806	Maximum Concentration in $\mu\text{Ci/g}$	< 6.8222E-03	
Analyst			
KGH	Rs (Sample Count Rate) = (TC / CT) - BKG		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/ μCi)		
05/05/95			
Time	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

v RESULTS v

ALPHA TOTAL in $\mu\text{Ci/g}$ (Maximum) =	< 6.82E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.		1.55E-02 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR =	150.8%	

Data Entry by: <i>[Signature]</i>	Date: 05/08/95
Approved by: <i>[Signature]</i>	Date: 5/8/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	16
SAMPLE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	4815	4620
1287	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.6	0.6
AT	SAMPLE SIZE in mL (SS)	0.050	0.050
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.0712	2.0712
Matrix	EFFICIENCY FACTOR (EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	159.900	153.400
Sample #	Sample Concentration in $\mu\text{Ci/g}$	3.31E+00	BOOK#
S95T808	Replicate Concentration in $\mu\text{Ci/g}$	3.17E+00	
Instrument Code			
WB27806	Average Concentration in $\mu\text{Ci/g}$	3.2385E+00	
Analyst			
KGH	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/05/95			
Time	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

v RESULTS v

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	3.24E+00	DETECTION LEVEL
			1.55E-02 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR	=	2.9%	

Data Entry by: <i>Sharon L. Latta</i>	Date: 05/08/95
Approved by: <i>at xpl</i>	Date: 5/8/95
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PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

LA-548-101 (A-3)

SOLIDS

Type	DETECTOR NUMBER	SAMPLE	REPLICATE
DUPLICATE	DISH SIZE 1, 2, or 5 (MS)	16	16
Work List	TOTAL COUNTS (TC)	2	2
1287	COUNT TIME in MINUTES (CT)	1786	1896
AT or TB ?	BACKGROUND in cpm (BKG)	30	30
AT	SAMPLE SIZE in mL (SS)	0.6	0.6
Test Code	DILUTION FACTOR (DF)	0.050	0.050
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	1	1
Matrix	EFFICIENCY FACTOR (EFF)	2.1844	2.1844
SOLID	Lc, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE	0.2104	0.2104
Sample #	Sample Concentration in $\mu\text{Ci/g}$	58.933	62.600
S95T808	Replicate Concentration in $\mu\text{Ci/g}$	1.16E+00	BOOK#
Instrument Code		1.23E+00	
WB27806	Average Concentration in $\mu\text{Ci/g}$	1.1911E+00	
Analyst			
KGH	Rs (Sample Count Rate) = (TC / CT) - BKG		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/ μCi)		
05/05/95			
Time	Relative Counting Error = [((The Square Root of TC + BKG * CT) / (TC - BKG * CT))] * 1.96 * 100		
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

v RESULTS v

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	1.19E+00	DETECTION LEVEL
			1.47E-02 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR	=	4.7%	

Data Entry by: <i>Sharon H. H. H.</i>	Date: 05/08/95
Approved by: <i>[Signature]</i>	Date: 5/8/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	16
SAMPLE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	1566	1529
1287	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.6	0.6
AT	SAMPLE SIZE in mL (SS)	0.050	0.050
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.19	2.19
Matrix	EFFICIENCY FACTOR (EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE	51.600	50.367
Sample #	Sample Concentration in $\mu\text{Ci/g}$	1.01E+00	BOOK#
S95T812	Replicate Concentration in $\mu\text{Ci/g}$	9.85E-01	
Instrument Code			
WB27806	Average Concentration in $\mu\text{Ci/g}$	9.9682E-01	
Analyst			
KGH	Rs (Sample Count Rate) = (TC / CT) - BKG		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/ μCi)		
05/05/95			
Time	Relative Counting Error = $\left[\frac{\sqrt{(\text{TC} + \text{BKG} * \text{CT})}}{(\text{TC} - \text{BKG} * \text{CT})} \right] * 1.96 * 100$		
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

v RESULTS v

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	9.97E-01	DETECTION LEVEL
			1.47E-02 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR	=	5.1%	

Data Entry by: <i>Sharon J. Harkin</i>	Date: 05/08/95
Approved by: <i>[Signature]</i>	Date: 5/8/95

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

WHC-SD-WM-DP-112, REV. 1

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

LA-548-101 (A-3)

SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	16
DUPLICATE	DISH SIZE 1, 2, or 5 (MS)	2	2
Work List	TOTAL COUNTS (TC)	4666	4395
1287	COUNT TIME in MINUTES (CT)	30	30
AT or TB ?	BACKGROUND in cpm (BKG)	0.6	0.6
AT	SAMPLE SIZE in mL (SS)	0.050	0.050
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS/L (Dg/L)	2.1652	2.1652
Matrix	EFFICIENCY FACTOR (EFF)	0.2104	0.2104
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	154.933	145.900
Sample #	Sample Concentration in $\mu\text{Ci/g}$	3.06E+00	BOOK#
S95T812	Replicate Concentration in $\mu\text{Ci/g}$	2.89E+00	
Instrument Code			
WB27806	Average Concentration in $\mu\text{Ci/g}$	2.9746E+00	
Analyst			
KGH	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Date	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
05/05/95			
Time	Relative Counting Error = $[(The\ Square\ Root\ of\ TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
02:00 PM	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		

v RESULTS v

ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	2.97E+00	DETECTION LEVEL
			1.48E-02 $\mu\text{Ci/g}$
RELATIVE COUNTING ERROR	=	3.0%	

Data Entry by: <i>Sharon J. Hatcher</i>	Date: 05/08/95
Approved by: <i>St. J. Hatcher</i>	Date: 5/8/95
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