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ENGINEERING DATA TRANSMITTAL

Page 1 of 1

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Tank 241-BY-112, Cores 174 and 177 Analytical Results for the Final Report

Jennifer L. Nuzum
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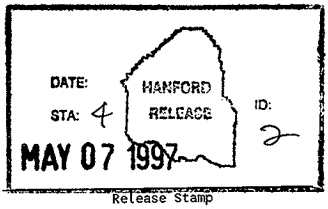

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ANALYTICAL SERVICES

TANK 241-BY-112, CORES 174 AND 177 ANALYTICAL RESULTS FOR THE FINAL REPORT

Project Coordinator: JENNIFER L. NUZUM

Prepared for the U.S. Department of Energy
Office of Environmental Restoration
and Waste Management

by

222-S Laboratory
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222-S ANALYTICAL SERVICES

TANK 241-BY-112, CORES 174 AND 177, ANALYTICAL RESULTS FOR THE FINAL REPORT

Summary

This document is the final laboratory report for Tank 241-BY-112. Push mode core segments were removed from risers 18 and 21 between October 2, 1996, and October 8, 1996. Segments were received and extruded at 222-S Analytical Laboratory. Analyses were performed in accordance with *Tank 241-BY-112 Push Mode Core Sampling and Analysis Plan* (TSAP) (Kruger, 1996) and *Safety Screening Data Quality Objective* (DQO) (Dukelow, et al., 1995).

Notifications were made in accordance with TSAP for total organic carbon (TOC) analyses. None of the subsamples submitted for total alpha activity (AT) or differential scanning calorimetry (DSC) analyses exceeded the notification limits stated in DQO.

Appearance and Sample Handling

Two cores of six segments were expected from this tank. Complete cores were obtained.

Attachment 1 illustrates subsamples generated in the laboratory for analysis and identifies their sources. This reference also relates tank farm identification numbers to their corresponding 222-S Laboratory sample numbers.

Core 174

Segments 1-6 were removed from Tank 241-BY-112 Riser 18 between October 2, 1996, and October 3, 1996. All segments were received by 222-S Analytical Laboratory on October 29, 1996. Table 1 summarizes extrusion information.

Core 177

Segments 1-6 were removed from Tank 241-BY-112 Riser 21 between October 7, 1996, and October 8, 1996. All segments were received by 222-S Analytical Laboratory between October 15, 1996, and October 31, 1996. Table 2 summarizes extrusion information.

Field Blank

A field blank was provided to 222-S Laboratory with Core 177. This sample was treated as a drainable liquid in accordance with TSAP.

Hydrostatic Head Fluid Blank

There was no indication of the use of hydrostatic head fluid (HHF) in sampling, nor a HHF blank provided to 222-S Laboratory.

Table 1. Sample Receipt and Extrusion Information for BY-112, Core 174.

Customer Id	Segment	Date Sampled	Date Received	Date Extruded	Inches Extruded*	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
96-509	1	10/2/96	10/29/96	11/4/96	5.0	0.0	62.0--Lower Half	Solids were yellow to brown and resembled a dry salt.
96-510	2	10/2/96	10/29/96	11/4/96	6.0	0.0	103.8--Lower Half	Solids were brown and resembled a dry salt.
96-511	3	10/2/96	10/29/96	11/4/96	6.0	0.0	84.5--Lower Half	Solids were brown and resembled a dry salt.
96-512	4	10/3/96	10/29/96	11/4/96	7.0	0.0	164.5--Lower Half	Solids were brown to green and resembled a moist salt.
96-513	5	10/3/96	10/29/96	11/4/96	18.0	128.5--Drainable	115.3--Lower Half 100.0--Upper Half	Solids were gray and resembled a wet salt. Drainable liquid was gray and opaque with no organic layer.
96-514	6	10/3/96	10/29/96	11/4/96	18.0	0.0	143.3--Lower Half 240.5--Upper Half	Lower half solids were gray and resembled a wet sludge. Upper half solids were gray and resembled a salt slurry.

*Approximate Inches Extruded

Table 2. Sample Receipt and Extrusion Information for BY-112, Core 177.

Customer ID	Segment	Date Sampled	Date Received	Date Extruded	Inches Extruded*	Liquid Recovered (g)	Solids Recovered (g)	Sample Description
Field Blank	FieldBlank	10/8/96	10/15/96	10/25/96	0.0	267.0--Drainable	0.0	Drainable liquid was clear and colorless.
96-533	1	10/7/96	10/31/96	11/5/96	4.0	0.0	33.1--Lower Half	Solids were white and black and resembled a dry salt.
96-534	2	10/7/96	10/31/96	11/5/96	4.0	0.0	65.4--Lower Half	Solids were yellow to brown and resembled a dry salt.
96-435	3	10/7/96	10/31/96	11/5/96	6.0	0.0	76.6--Lower Half	Solids were brown and resembled a dry salt.
96-536	4	10/7/96	10/31/96	11/6/96	10.0	0.0	166.2--Lower Half 43.0--Upper Half	Solids were dark gray and resembled a moist salt.
96-537	5	10/7/96	10/31/96	11/8/96	14.0	40.0--Drainable	157.6--Lower Half 155.6--Upper Half	Solids were dark gray and resembled a salt slurry. Drainable liquid was gray and opaque with no organic layer.
96-538	6	10/7/96	10/31/96	11/6/96	6.0	0.0	122.1--Lower Half	Solids were dark gray and resembled a moist salt.

*Approximate Inches Extruded

Analytical Results Summary

The Data Summary Table (Table 3) included in this report compiles analytical results associated with each subsample submitted in accordance with TSAP and DQO.

Liquid subsamples prepared for analysis by an acid adjustment of the direct subsample are indicated by a "D" in the A# column in Table 3. Solid subsamples prepared for analysis by performing a fusion digest are indicated by a "F" in the A# column in Table 3. Solid subsamples prepared for analysis by performing a water digest are indicated by a "W" in the A# column of Table 3.

Differential Scanning Calorimetry (DSC) Analysis

The exothermic energy, based on dry weight of subsample, was calculated for all subsamples. The average of the thermogravimetric analysis (TGA) results for each subsample was used in the dry weight correction for that subsample. Statistical evaluation of the results by calculating the 95% upper confidence limit is not performed by 222-S Laboratory Operations and, thus, not considered in this report.

Relative percent difference (RPD) between sample and duplicate exceeded 20% on eight subsamples (presented in Table 4). Poor precision is due to sample inhomogeneities. Rerun analyses were not requested.

The chemist noted the exotherms for Lower Half Segments 4 of Core 174 (S96T005876) were indicative of a relatively pure substance decomposing.

Table 4. DSC Relative Percent Differences Exceeding 20%

Sample	Sample Description	RPD
S96T005878	Core 174 Segment 5 Upper Half	65.6
S96T005907	Core 174 Segment 5 Drainable Liquid	20.7
S96T005880	Core 174 Segment 6 Upper Half	68.7
S96T005879	Core 174 Segment 6 Lower Half	127
S96T005919	Core 177 Segment 3 Lower Half	56.1
S96T005920	Core 177 Segment 4 Upper Half	54.5
S96T005950	Core177 Segment 5 Upper Half	94.6
S96T005960	Core 177 Segment 5 Drainable Liquid	66.3

Thermogravimetric Analysis (TGA)

TGA results were typically determined by summing weight loss steps below 200°C. Weight loss steps above this were not used to determine the result. More information may be obtained by examining the raw data.

A second analysis of Lower Half Segment 1 of Core 177 (S96T005917) was performed (denoted by a "1" in the replicate (R) column of Table 3) due to differences in appearance of the thermograms between the sample and duplicate. These differences were not seen in the replicate analysis. The results for both analyses are presented in Table 3.

RPD between sample and duplicate for Lower Half Segments 3 of Core 177 (S96T005919) was 28.1%. Results were near the detection limit of the method, and precision was compromised. Rerun analysis was not requested.

Density

Bulk density was requested only on lower half segments in accordance with TSAP. Bulk density could not be determined for Segment 1 of Core 177 (S96T005911) due to subsample dryness.

Results from bulk density tests ranged from 1.03 g/mL to 1.86 g/mL. The highest bulk density result of 1.86 g/mL was used to calculate the solid total alpha activity notification limit for this tank (33.1 μCi/g).

Total Alpha (AT) Analysis

Attachment 2 contains the Data Verification and Deliverable (DVD) Summary Report for AT analyses. This report summarizes results from AT analyses and provides data qualifiers and total propagated uncertainty (TPU) values for results. The TPU values are based on the uncertainties inherent in each step of the analysis process. They may be used as an additional reference to determine "reasonable" RPD values which may be used to accept valid data that do not meet the TSAP acceptance criteria. A report guide is provided with the report to assist in understanding this summary report.

AT analyses were requested for lower half segments only in accordance with TSAP. Liquid AT results were below the total alpha activity notification limit of 61.5 μCi/mL. All solid AT results were below the total alpha activity notification limit of 32.7 μCi/g (based on a bulk density of 1.88 g/mL).

RPD between sample and duplicate exceeded 20% for three subsamples. Segments 1, 3, and 5 for Core 174 (S96T005889, S96T005891, and S96T005893) had RPDs of 27.3%, 55.1%, and 42.3%, respectively. High RPD is due to low sample alpha activity. Rerun analyses were not requested. In addition, two preparations blanks showed AT activity above the detection level. The activity in these preparation blanks is inconsequential when compared to the results for the samples and is due to high counting error.

Specific Gravity (SpG)

There were no exceptions to the quality control (QC) parameters stated in TSAP for these subsamples.

Ion Chromotography (IC)

Only bromide (Br) analyte results were considered in this report. There were no exceptions to the QC parameters stated in TSAP for these subsamples. IC results for all other analytes are included in Table 3 as opportunistic. These analytes do not have customer defined QC parameters and are not discussed.

Inductively Coupled Plasma Spectrophotometry (ICP)

Only lithium (Li) analyte results were considered in this report. There were no exceptions to the QC parameters stated in TSAP for these subsamples. ICP results for all other analytes are included in Table 3 as opportunistic. These analytes do not have customer defined QC parameters and are not discussed.

Total Organic Carbon (TOC)

Lower Half Segment 4 of Core 174 (S96T005876) and Lower Half Segment 4 of Core 177 (S96T005921) results exceeded the notification limits set forth in TSAP. Notifications were made in accordance with TSAP. Sample S96T005921 was reanalyzed for QC purposes, and results were below the notification limits. Final results for each sample are shown in Table 3. Sample S96T005876 had a spike recovery result of 0.0%. The concentration of spike added to the sample was insignificant in comparison to the sample concentration.

RPD between sample and duplicate exceeded 20% for four subsamples. One of these subsamples, Lower Half Segment 5 of Core 174 (S96T005877) was performed in triplicate. The results are presented in Table 5. No rerun was requested. Lower Half Segments 2 and 3 of Core 174 (S96T005874 and S96T005875, respectively) and Upper Half Segment 5 of Core 177 had RPDs of 59.5%, 33.5%, and 27.2%, respectively. Poor precision was caused by sample heterogeneity. Rerun analyses were not requested.

Table 5. Triplicate Results for Total Organic Carbon

Sample ID	Sample Result (ug/g)	Duplicate Result (ug/g)	Triplicate Result (ug/g)	Mean (ug/g)
S96T005877	6.16E+03	7.71E+03	5.36E+03	6.41E+03

Total Inorganic Carbon (TIC)

For all TIC analyses, a "Total Inorganic Carbon Analysis Report" worksheet is included as raw data. Due to programming limitations with the TIC instrument software, the sample size listed on this worksheet is incorrect. This value is not used in the final calculations (also included) and has no bearing on the results in Table 3. Results are presented in Table 3 as opportunistic. There were no customer defined TIC QC parameters. The results are not discussed.

Procedures

Table 6 lists the analytical procedures used for performing sample analyses. Abbreviations for analyses are defined in the table notes.

Table 6. Analytical Procedures

Analysis	Matrix	Preparation Procedure +	Analysis Procedure
DSC	Solid Liquid	N/A	LA-514-113 Rev. C-1 LA-514-114 Rev. D-0
TGA	Solid Liquid	N/A	LA-514-114 Rev. D-0 LA-560-112 Rev. C-0
Density	Solid	N/A	LO-160-103 Rev. B-0
AT	Solid Liquid	+LA-549-141 Rev. F-0 N/A	LA-508-101 Rev. E-1
Sp.G.	Liquid	N/A	LA-510-112 Rev. C-3
IC	Solid Liquid	++LA-504-101 Rev. E-0 N/A	LA-533-105 Rev. D-1
ICP	Solid Liquid	+LA-549-141 Rev. F-0 N/A	LA-505-151 Rev. E-1 LA-505-161 Rev. B-1
TOC	Liquid	N/A	LA-342-100 Rev. E-0
TIC	Liquid	N/A	LA-342-100 Rev. E-0

Notes:

N/A	not applicable (these are direct samples)
DSC	differential scanning calorimetry
TGA	thermogravimetric analysis
Density	bulk density
AT	total alpha
Sp.G.	specific gravity
IC	ion chromatography
ICP	inductively coupled plasma
TOC	total organic carbon
TIC	total inorganic carbon
+	fusion digest
++	water digest

References

Baldwin, J.H., 1997, Letter to Distribution, "Immediate Notification: Violation of Limits for Total Organic Carbon and Exothermic Reaction for Samples from Tank 241-BY-112," 74620-97-193, dated April 16, 1997.

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ATTACHMENT 1

BY-112 SAMPLE BREAKDOWN

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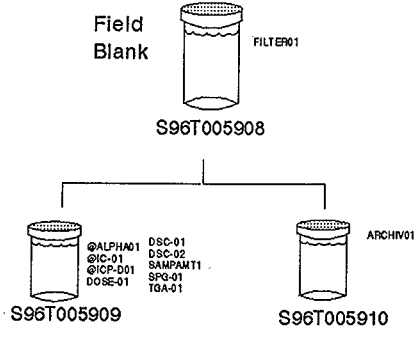
BY-112
Core:177
Seg: Field Blank
S96T005461

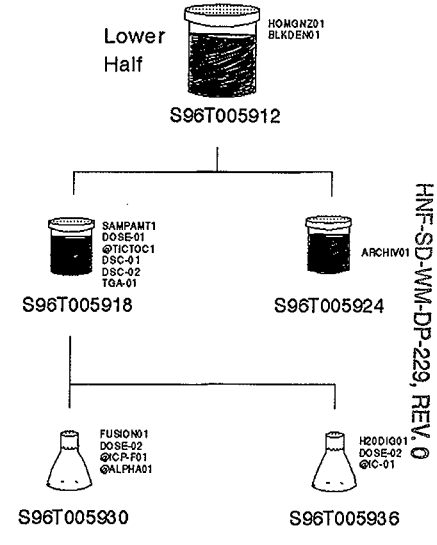
Attachment 1
1 of 13



Attachment 1
2 of 13

BY-112
Core:177
Seg: 2 (96-534)
S96T005829

Attachment 1
3 of 13



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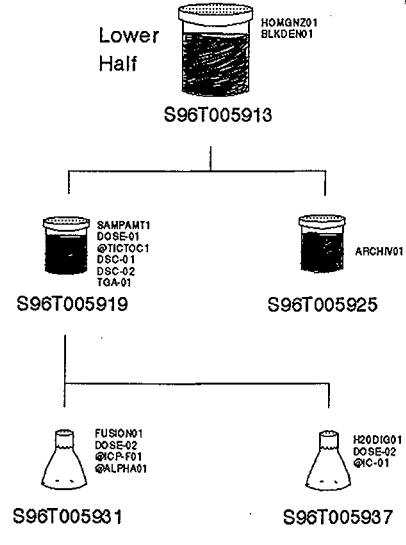
Core:177
Seg: 3 (96-535)
S96T005830

Attachment 1
4 of 13



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Core:177
Seg: 4 (96-536)
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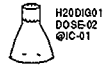
S96T005914

S96T005920

S96T005932



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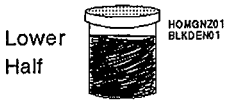

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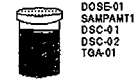

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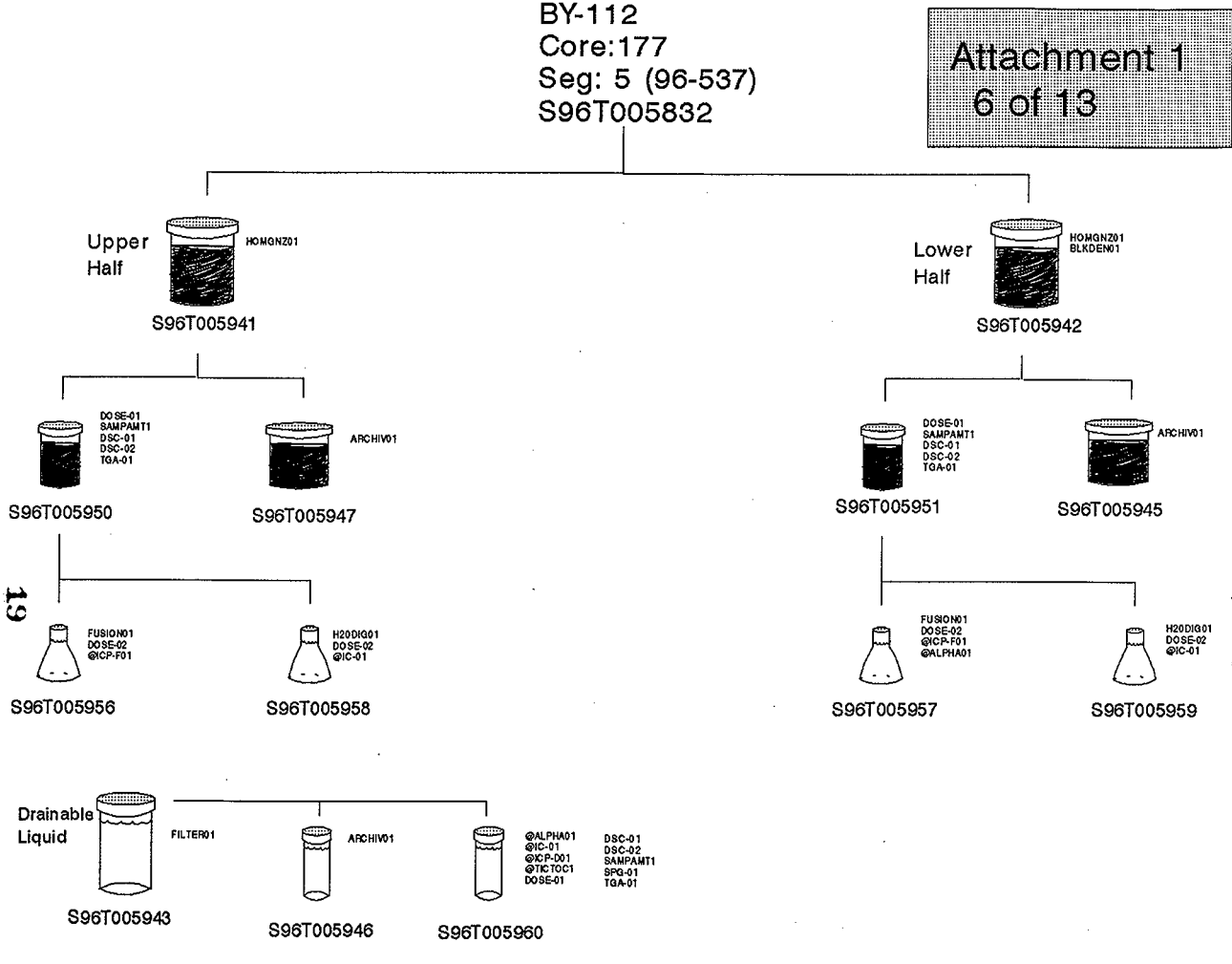
S96T005926

S96T005933

S96T005939


BY-112
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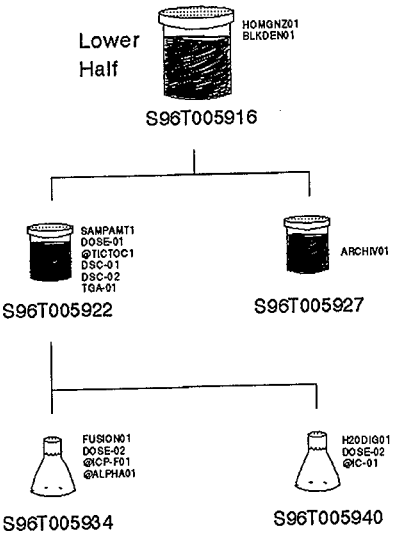
Upper Half
HOMGNZ01
S96T005941
Lower Half
HOMGNZ01
BLKDEN01
S96T005942
DOSE-01
SAMPAMT1
DSC-01
DSC-02
TGA-01
S96T005950
ARCHIV01
S96T005947
DOSE-01
SAMPAMT1
DSC-01
DSC-02
TGA-01
S96T005951
ARCHIV01
S96T005945
FUSION01
DOSE-02
@ICP-F01
S96T005956
H20DIG01
DOSE-02
@IC-01
S96T005958
FUSION01
DOSE-02
@ICP-F01
@ALPHA01
S96T005957
H20DIG01
DOSE-02
@IC-01
S96T005959
Drainable Liquid
FILTER01
S96T005943
ARCHIV01
S96T005946
@ALPHA01
@IC-01
@ICP-D01
@TICTOC1
DOSE-01
DSC-01
DSC-02
SAMPAMT1
SPG-01
TGA-01
S96T005960

BY-112
Core:177
Seg: 6 (96-538)
S96T005833

Attachment 1
7 of 13



Attachment 1
8 of 13

BY-112
Core:174
Seg: 1 (96-509)
S96T005756

HOMGNU201
BLKGEN01

Lower
Half

S96T005865

ARCHIV01

S96T005881

SAMPAMT1
DOSE-01
@TICTOC1
DSC-01
DSC-02
TGA-01

S96T005873

H20DIG01
DOSE-02
@IC-01

S96T005897

FUSION01
DOSE-02
@ICP-F01
@ALPHA01

S96T005889

Attachment 1
9 of 13

BY-112
Core:174
Seg: 2 (96-510)
S96T005757

HOMGN201
BLKDEN01

Lower
Half

S96T005866

ARCHIV01

S96T005882

SAMPAMT1
DOSE-01
@TIC/TOC1
DSC-01
DSC-02
TGA-01

S96T005874

H20DIG01
DOSE-02
@IC-01

S96T005898

FUSION01
DOSE-02
@ICP-01
@ALPHA01

S96T005890

Attachment 1
10 of 13

BY-112
Core:174
Seg: 3 (96-511)
S96T005758

HOMGEN201
BLKDEN01

Lower
Half

S96T005867

ARCHIV01

S96T005883

SAMPAMT1
DOSE-01
@TICTOC1
DSC-01
DSC-02
TGA-01

S96T005875

H20DIG01
DOSE-02
@IC-01

S96T005899

FUSION01
DOSE-02
@ICP-F01
@ALPHA01

S96T005891

Attachment 1
11 of 13

BY-112
Core:174
Seg: 4 (96-512)
S96T005759

HOMGN201
BLKDEN01

Lower
Half

S96T005868

ARCHV01

S96T005884

SAMPAMT1
DOSE-01
@TICTOC1
DSC-01
DSC-02
TGA-01

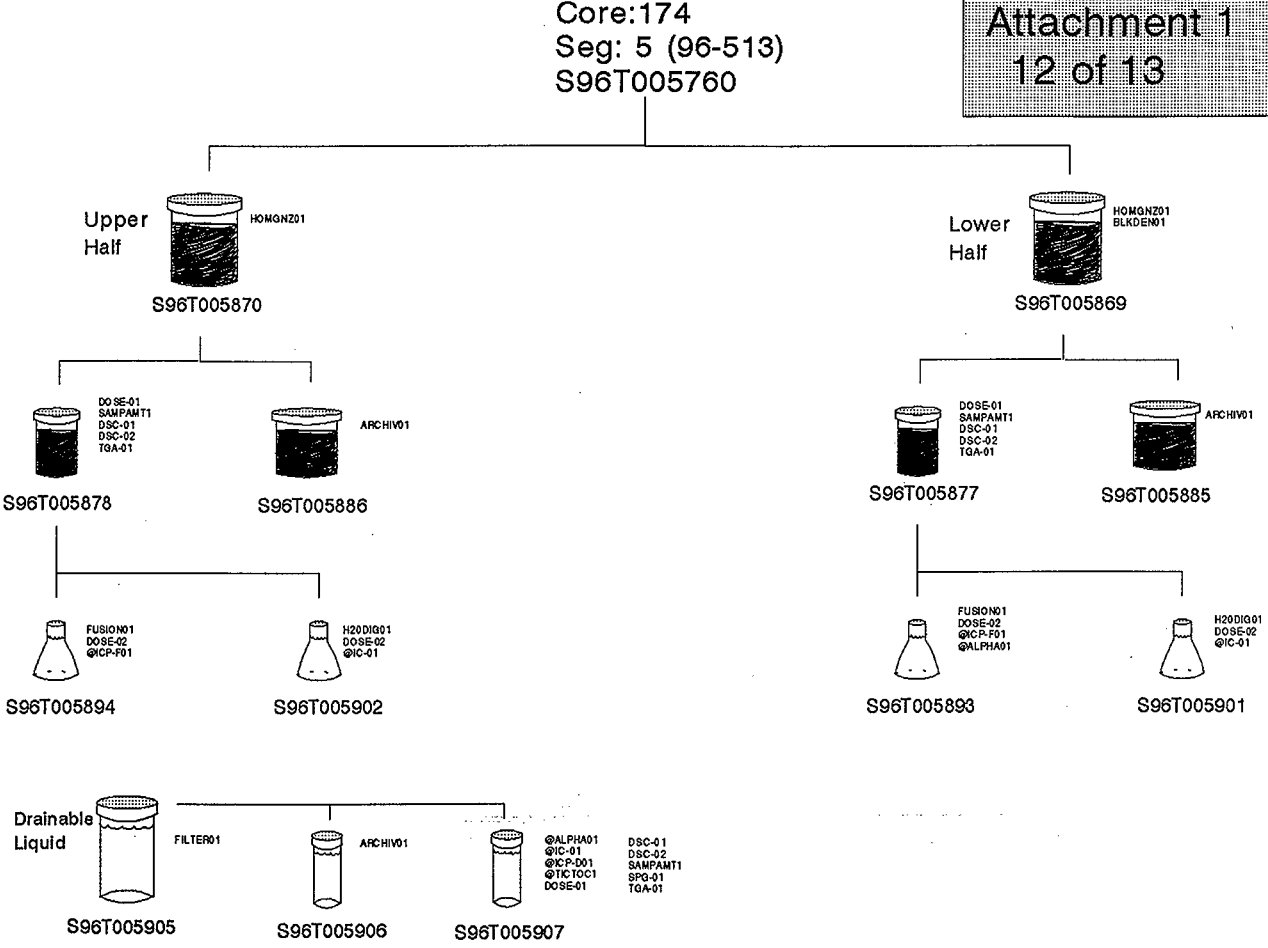
S96T005876

H2ODI001
DOSE-02
@IC-01

S96T005900

FUSION01
DOSE-02
@ICP-F01
@ALPHA01

S96T005892


BY-112
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Upper Half
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S96T005870
Lower Half
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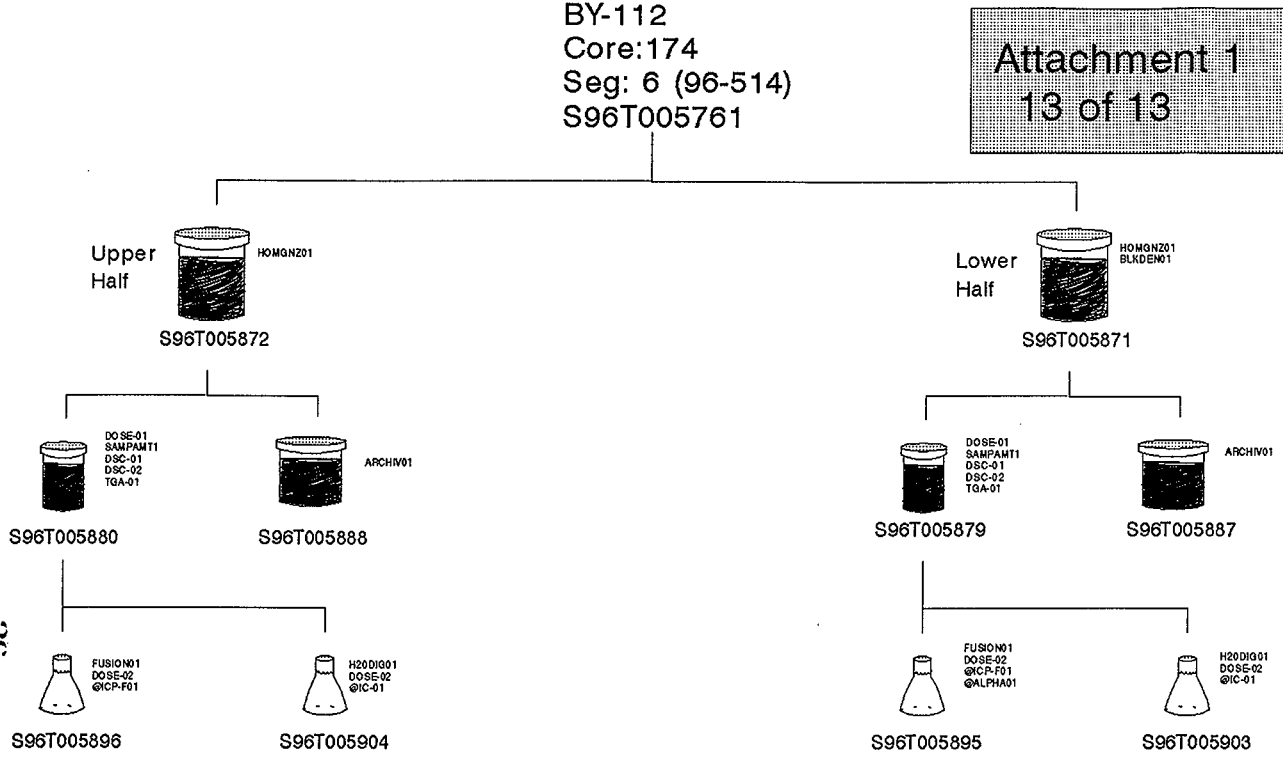
BLKDEN01
S96T005869
DOSE-01
SAMPAMT1
DSC-01
DSC-02
TGA-01
ARCHIV01
S96T005878
S96T005886
DOSE-01
SAMPAMT1
DSC-01
DSC-02
TGA-01
ARCHIV01
S96T005877
S96T005885
FUSION01
DOSE-02
@ICP-F01
H20DIG01
DOSE-02
@IC-01
S96T005894
S96T005902
FUSION01
DOSE-02
@ICP-F01
@ALPHA01
H20DIG01
DOSE-02
@IC-01
S96T005893
S96T005901
Drainable Liquid
FILTER01
ARCHIV01
@ALPHA01
@IC-01
@ICP-D01
@TICTOC1
DOSE-01
DSC-01
DSC-02
SAMPAMT1
SPG-01
TGA-01
S96T005905
S96T005906
S96T005907


BY-112
Core:174
Seg: 6 (96-514)
S96T005761
Upper Half
HOMGNZ01
S96T005872
Lower Half
HOMGNZ01
BLKDEN01
S96T005871
DOSE-01
SAMPAMT1
DSC-01
DSC-02
TGA-01
S96T005880
ARCHIV01
S96T005888
DOSE-01
SAMPAMT1
DSC-01
DSC-02
TGA-01
S96T005879
ARCHIV01
S96T005887
FUSION01
DOSE-02
@ICP-F01
S96T005896
H20DIG01
DOSE-02
@IC-01
S96T005904
FUSION01
DOSE-02
@ICP-F01
@ALPHA01
S96T005895
H20DIG01
DOSE-02
@IC-01
S96T005903

SAMPLE DATA SUMMARY

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Table 3. Data Summary Table
BY-112

CORE NUMBER: 174
SEGMENT #: 1

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005865			Bulk Density of Sample	g/mL	n/a	n/a	1.030	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T005873			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T005873			DSC Exotherm on Perkin Elmer	Joules/g	99.82	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T005873			% Water by TGA on Perkin Elmer	%	98.75	n/a	22.29	25.14	23.71	12.0	n/a	n/a	n/a
S96T005873			TIC by Acid/Coulometry	ug/g	100.0	6.00e-01	4.74e+04	4.44e+04	4.59e+04	6.54	n/a	5.000	n/a
S96T005873			TOC by Persulfate/Coulometry	ug/g	95.67	9.400	1.14e+03	1.23e+03	1.18e+03	7.59	90.30	40.00	n/a
S96T005889		F	Potassium -ICP-Fusion	ug/g	101.6	<5.00e-01	8.92e+06	n/a	n/a	n/a	n/a	1.05e+04	n/a
S96T005889		F	Nickel -ICP-Fusion	ug/g	98.40	4.60e-02	1.20e+03	1.95e+03	1.58e+03	47.6	n/a	420.0	n/a
S96T005889		F	Silver -ICP-Fusion	ug/g	98.00	<1.00e-02	<2.11e+02	<1.97e2	n/a	n/a	n/a	211.0	n/a
S96T005889		F	Aluminium -ICP-Fusion	ug/g	99.80	<5.00e-02	5.90e+04	6.74e+04	6.32e+04	13.3	n/a	1.05e+03	n/a
S96T005889		F	Arsenic -ICP-Fusion	ug/g	104.4	<1.00e-01	<2.11e+03	<1.97e3	n/a	n/a	n/a	2.11e+03	n/a
S96T005889		F	Boron -ICP-Fusion	ug/g	102.6	<5.00e-02	<1.05e+03	<9.87e2	n/a	n/a	n/a	1.05e+03	n/a
S96T005889		F	Barium -ICP-Fusion	ug/g	101.0	<5.00e-02	<1.05e+03	<9.87e2	n/a	n/a	n/a	1.05e+03	n/a
S96T005889		F	Beryllium -ICP-Fusion	ug/g	100.6	<5.00e-03	<1.05e+02	<9.87e1	n/a	n/a	n/a	105.0	n/a
S96T005889		F	Bismuth -ICP-Fusion	ug/g	104.0	<1.00e-01	<2.11e+03	<1.97e3	n/a	n/a	n/a	2.11e+03	n/a
S96T005889		F	Calcium -ICP-Fusion	ug/g	96.60	<1.00e-01	<2.11e+03	<1.97e3	n/a	n/a	n/a	2.11e+03	n/a
S96T005889		F	Cadmium -ICP-Fusion	ug/g	99.80	<5.00e-03	<1.05e+02	<9.87e1	n/a	n/a	n/a	105.0	n/a
S96T005889		F	Cerium -ICP-Fusion	ug/g	102.0	<1.00e-01	<2.11e+03	<1.97e3	n/a	n/a	n/a	2.11e+03	n/a
S96T005889		F	Cobalt -ICP-Fusion	ug/g	104.2	<2.00e-02	<4.21e+02	<3.95e2	n/a	n/a	n/a	420.0	n/a
S96T005889		F	Chromium -ICP-Fusion	ug/g	98.60	<1.00e-02	4.64e+03	4.61e+03	4.62e+03	0.65	n/a	211.0	n/a
S96T005889		F	Copper -ICP-Fusion	ug/g	104.6	<1.00e-02	<2.11e+02	<1.97e2	n/a	n/a	n/a	211.0	n/a
S96T005889		F	Iron -ICP-Fusion	ug/g	98.60	<5.00e-02	4.27e+03	5.56e+03	4.92e+03	26.2	n/a	1.05e+03	n/a
S96T005889		F	Lanthanum -ICP-Fusion	ug/g	99.00	<5.00e-02	<1.05e+03	<9.87e2	n/a	n/a	n/a	1.05e+03	n/a
S96T005889		F	Lithium -ICP-Fusion	ug/g	98.60	<1.00e-02	<2.11e+02	<1.97e2	n/a	n/a	n/a	211.0	n/a
S96T005889		F	Magnesium -ICP-Fusion	ug/g	98.80	<1.00e-01	<2.11e+03	<1.97e3	n/a	n/a	n/a	2.11e+03	n/a
S96T005889		F	Manganese -ICP-Fusion	ug/g	99.00	<1.00e-02	<2.11e+02	<1.97e2	n/a	n/a	n/a	211.0	n/a
S96T005889		F	Molybdenum -ICP-Fusion	ug/g	104.8	<5.00e-02	<1.05e+03	<9.87e2	n/a	n/a	n/a	1.05e+03	n/a
S96T005889		F	Sodium -ICP-Fusion	ug/g	104.8	2.800	3.34e+05	3.55e+05	3.44e+05	6.10	n/a	2.11e+03	n/a
S96T005889		F	Neodymium -ICP-Fusion	ug/g	99.60	<1.00e-01	<2.11e+03	<1.97e3	n/a	n/a	n/a	2.11e+03	n/a
S96T005889		F	Phosphorus -ICP-Fusion	ug/g	102.8	<2.00e-01	3.00e+04	1.69e+04	2.34e+04	55.9	n/a	4.20e+03	n/a
S96T005889		F	Lead -ICP-Fusion	ug/g	99.20	<1.00e-01	<2.11e+03	<1.97e3	n/a	n/a	n/a	2.11e+03	n/a
S96T005889		F	Sulfur -ICP-Fusion	ug/g	103.6	<1.00e-01	<2.11e+03	<1.97e3	n/a	n/a	n/a	2.11e+03	n/a
S96T005889		F	Antimony -ICP-Fusion	ug/g	101.8	<6.00e-02	<1.26e+03	<1.18e3	n/a	n/a	n/a	1.26e+03	n/a
S96T005889		F	Selenium -ICP-Fusion	ug/g	110.2	<1.00e-01	<2.11e+03	<1.97e3	n/a	n/a	n/a	2.11e+03	n/a
S96T005889		F	Silicon -ICP-Fusion	ug/g	100.2	<5.00e-02	2.24e+03	2.14e+03	2.19e+03	4.57	n/a	1.05e+03	n/a
S96T005889		F	Samarium -ICP-Fusion	ug/g	97.60	<1.00e-01	<2.11e+03	<1.97e3	n/a	n/a	n/a	2.11e+03	n/a
S96T005889		F	Strontium -ICP-Fusion	ug/g	100.4	<1.00e-02	<2.11e+02	203.0	n/a	n/a	n/a	211.0	n/a
S96T005889		F	Titanium-ICP-Fusion	ug/g	101.6	<1.00e-02	<2.11e+02	<1.97e2	n/a	n/a	n/a	211.0	n/a
S96T005889		F	Thallium -ICP-Fusion	ug/g	101.6	<2.00e-01	<4.21e+03	<3.95e3	n/a	n/a	n/a	4.20e+03	n/a
S96T005889		F	Uranium -ICP-Fusion	ug/g	107.0	<5.00e-01	<1.05e+04	<9.87e3	n/a	n/a	n/a	1.05e+04	n/a
S96T005889		F	Vanadium -ICP-Fusion	ug/g	103.2	<5.00e-02	<1.05e+03	<9.87e2	n/a	n/a	n/a	1.05e+03	n/a
S96T005889		F	Zinc -ICP-Fusion	ug/g	105.0	2.60e-02	<2.11e+02	<1.97e2	n/a	n/a	n/a	211.0	n/a
S96T005889		F	Zirconium -ICP-Fusion	ug/g	101.2	<1.00e-02	<2.11e+02	<1.97e2	n/a	n/a	n/a	211.0	n/a
S96T005889		F	Alpha of Digested Solid	uCi/g	84.78	<8.08e-03	1.15e-01	8.74e-02	1.01e-01	27.3	n/a	1.90e-02	2.41E+01

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005897		W	Fluoride-IC-Dionex 4000/4500	ug/g	99.15	<1.20e-02	6.32e+03	6.21e+03	6.26e+03	1.76	n/a	27.14	n/a
S96T005897		W	Chloride-IC-Dionex 4000/4500	ug/g	99.75	<1.70e-02	2.68e+02	211.0	239.6	23.8	n/a	38.45	n/a
S96T005897		W	Nitrite-IC - Dionex 4000/4500	ug/g	98.71	<1.08e-01	5.28e+03	4.26e+03	4.77e+03	21.4	n/a	244.2	n/a
S96T005897		W	Bromide by Ion Chromatograph	ug/g	100.8	<1.25e-01	4.66e+02	402.0	434.2	14.7	n/a	282.7	n/a
S96T005897		W	Nitrate by IC-Dionex 4000/4500	ug/g	100.7	<1.39e-01	1.18e+04	9.49e+03	1.06e+04	21.7	n/a	314.4	n/a
S96T005897		W	Phosphate-IC-Dionex 4000/4500	ug/g	99.63	<1.20e-01	3.78e+04	3.91e+04	3.85e+04	3.38	n/a	271.4	n/a
S96T005897		W	Sulfate by IC-Dionex 4000/4500	ug/g	104.3	<1.38e-01	3.95e+03	2.62e+03	3.29e+03	40.5	n/a	312.1	n/a
S96T005897		W	Oxalate by IC-Dionex 4000/4500	ug/g	109.3	<1.05e-01	8.56e+03	3.04e+03	5.80e+03	95.2	n/a	237.5	n/a

Table 3. Data Summary Table
BY-112

CORE NUMBER: 174
SEGMENT #: 2

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005866			Bulk Density of Sample	g/mL	n/a	n/a	1.100	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T005874			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T005874			DSC Exotherm on Perkin Elmer	Joules/g	99.82	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T005874			% Water by TGA on Perkin Elmer	%	98.75	n/a	14.42	14.39	14.41	0.21	n/a	n/a	n/a
S96T005874			TIC by Acid/Coulometry	ug/g	100.0	6.00e-01	8.52e+04	8.26e+04	8.39e+04	3.10	n/a	5.000	n/a
S96T005874			TOC by Persulfate/Coulometry	ug/g	95.67	9.400	3.78e+02	698.0	538.0	59.5	n/a	40.00	n/a
S96T005890		F	Potassium -ICP-Fusion	ug/g	101.6	<5.00e-01	6.37e+06	n/a	n/a	n/a	n/a	9.80e+03	n/a
S96T005890		F	Nickel -ICP-Fusion	ug/g	98.40	4.60e-02	9.13e+02	959.0	936.0	4.91	91.80	393.0	n/a
S96T005890		F	Silver -ICP-Fusion	ug/g	98.00	<1.00e-02	<1.96e+02	<1.92e2	n/a	n/a	30.80	196.0	n/a
S96T005890		F	Aluminium -ICP-Fusion	ug/g	99.80	<5.00e-02	1.82e+03	1.58e+03	1.70e+03	14.1	94.80	980.0	n/a
S96T005890		F	Arsenic -ICP-Fusion	ug/g	104.4	<1.00e-01	<1.96e+03	<1.92e3	n/a	n/a	98.20	1.96e+03	n/a
S96T005890		F	Boron -ICP-Fusion	ug/g	102.6	<5.00e-02	<9.82e+02	<9.62e2	n/a	n/a	95.20	980.0	n/a
S96T005890		F	Barium -ICP-Fusion	ug/g	101.0	<5.00e-02	<9.82e+02	<9.62e2	n/a	n/a	95.00	980.0	n/a
S96T005890		F	Beryllium -ICP-Fusion	ug/g	100.6	<5.00e-03	< 98.20	<9.62e1	n/a	n/a	93.90	98.00	n/a
S96T005890		F	Bismuth -ICP-Fusion	ug/g	104.0	<1.00e-01	<1.96e+03	<1.92e3	n/a	n/a	101.0	1.96e+03	n/a
S96T005890		F	Calcium -ICP-Fusion	ug/g	96.60	<1.00e-01	<1.96e+03	<1.92e3	n/a	n/a	93.20	1.96e+03	n/a
S96T005890		F	Cadmium -ICP-Fusion	ug/g	99.80	<5.00e-03	< 98.20	<9.62e1	n/a	n/a	93.00	98.00	n/a
S96T005890		F	Cerium -ICP-Fusion	ug/g	102.0	<1.00e-01	<1.96e+03	<1.92e3	n/a	n/a	93.90	1.96e+03	n/a
S96T005890		F	Cobalt -ICP-Fusion	ug/g	104.2	<2.00e-02	<3.93e+02	<3.85e2	n/a	n/a	97.90	393.0	n/a
S96T005890		F	Chromium -ICP-Fusion	ug/g	98.60	<1.00e-02	9.53e+03	8.78e+03	9.16e+03	8.19	92.20	196.0	n/a
S96T005890		F	Copper -ICP-Fusion	ug/g	104.6	<1.00e-02	<1.96e+02	<1.92e2	n/a	n/a	99.80	196.0	n/a
S96T005890		F	Iron -ICP-Fusion	ug/g	98.60	<5.00e-02	<9.82e+02	<9.62e2	n/a	n/a	96.70	980.0	n/a
S96T005890		F	Lanthanum -ICP-Fusion	ug/g	99.00	<5.00e-02	<9.82e+02	<9.62e2	n/a	n/a	95.50	980.0	n/a
S96T005890		F	Lithium -ICP-Fusion	ug/g	98.60	<1.00e-02	<1.96e+02	<1.92e2	n/a	n/a	88.20	196.0	n/a
S96T005890		F	Magnesium -ICP-Fusion	ug/g	98.80	<1.00e-01	<1.96e+03	<1.92e3	n/a	n/a	91.00	1.96e+03	n/a
S96T005890		F	Manganese -ICP-Fusion	ug/g	99.00	<1.00e-02	<1.96e+02	<1.92e2	n/a	n/a	94.10	196.0	n/a
S96T005890		F	Molybdenum -ICP-Fusion	ug/g	104.8	<5.00e-02	<9.82e+02	<9.62e2	n/a	n/a	96.80	980.0	n/a
S96T005890		F	Sodium -ICP-Fusion	ug/g	104.8	2.800	4.53e+05	4.64e+05	4.58e+05	2.40	94.50	1.96e+03	n/a
S96T005890		F	Neodymium -ICP-Fusion	ug/g	99.60	<1.00e-01	<1.96e+03	<1.92e3	n/a	n/a	95.00	1.96e+03	n/a
S96T005890		F	Phosphorus -ICP-Fusion	ug/g	102.8	<2.00e-01	<3.93e+03	<3.85e3	n/a	n/a	103.0	3.93e+03	n/a
S96T005890		F	Lead -ICP-Fusion	ug/g	99.20	<1.00e-01	<1.96e+03	<1.92e3	n/a	n/a	94.60	1.96e+03	n/a
S96T005890		F	Sulfur -ICP-Fusion	ug/g	103.6	<1.00e-01	8.04e+03	7.25e+03	7.64e+03	10.3	97.70	1.96e+03	n/a
S96T005890		F	Antimony -ICP-Fusion	ug/g	101.8	<6.00e-02	<1.18e+03	<1.15e3	n/a	n/a	98.60	1.18e+03	n/a
S96T005890		F	Selenium -ICP-Fusion	ug/g	110.2	<1.00e-01	<1.96e+03	<1.92e3	n/a	n/a	107.0	1.96e+03	n/a
S96T005890		F	Silicon -ICP-Fusion	ug/g	100.2	<5.00e-02	1.30e+03	1.22e+03	1.26e+03	6.35	95.30	980.0	n/a
S96T005890		F	Samarium -ICP-Fusion	ug/g	97.60	<1.00e-01	<1.96e+03	<1.92e3	n/a	n/a	95.50	1.96e+03	n/a
S96T005890		F	Strontium -ICP-Fusion	ug/g	100.4	<1.00e-02	<1.96e+02	<1.92e2	n/a	n/a	95.90	196.0	n/a
S96T005890		F	Titanium-ICP-Fusion	ug/g	101.6	<1.00e-02	<1.96e+02	<1.92e2	n/a	n/a	n/a	196.0	n/a
S96T005890		F	Thallium -ICP-Fusion	ug/g	101.6	<2.00e-01	<3.93e+03	<3.85e3	n/a	n/a	96.90	3.93e+03	n/a
S96T005890		F	Uranium -ICP-Fusion	ug/g	107.0	<5.00e-01	<9.82e+03	<9.62e3	n/a	n/a	104.0	9.80e+03	n/a
S96T005890		F	Vanadium -ICP-Fusion	ug/g	103.2	<5.00e-02	<9.82e+02	<9.62e2	n/a	n/a	97.90	980.0	n/a
S96T005890		F	Zinc -ICP-Fusion	ug/g	105.0	2.60e-02	<1.96e+02	<1.92e2	n/a	n/a	98.00	196.0	n/a
S96T005890		F	Zirconium -ICP-Fusion	ug/g	101.2	<1.00e-02	<1.96e+02	<1.92e2	n/a	n/a	97.60	196.0	n/a
S96T005890		F	Alpha of Digested Solid	uCi/g	84.78	<8.08e-03	3.26e-02	2.75e-02	3.01e-02	17.0	82.45	9.00e-03	3.05E+01

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005898		W	Fluoride-IC-Dionex 4000/4500	ug/g	99.15	<1.20e-02	7.36e+03	6.96e+03	7.16e+03	5.59	116.8	25.46	n/a
S96T005898		W	Chloride-IC-Dionex 4000/4500	ug/g	99.75	<1.70e-02	1.71e+02	188.0	179.7	9.47	97.72	36.08	n/a
S96T005898		W	Nitrite-IC - Dionex 4000/4500	ug/g	98.71	<1.08e-01	3.11e+03	3.10e+03	3.10e+03	0.32	99.26	229.2	n/a
S96T005898		W	Bromide by Ion Chromatograph	ug/g	100.8	<1.25e-01	<2.65e+02	<2.83e2	n/a	n/a	94.06	265.3	n/a
S96T005898		W	Nitrate by IC-Dionex 4000/4500	ug/g	100.7	<1.39e-01	5.37e+04	6.30e+04	5.84e+04	15.9	106.2	295.0	n/a
S96T005898		W	Phosphate-IC-Dionex 4000/4500	ug/g	99.63	<1.20e-01	4.87e+03	9.78e+03	7.32e+03	67.0	250.0	254.6	n/a
S96T005898		W	Sulfate by IC-Dionex 4000/4500	ug/g	104.3	<1.38e-01	1.76e+04	1.73e+04	1.74e+04	1.72	105.5	292.9	n/a
S96T005898		W	Oxalate by IC-Dionex 4000/4500	ug/g	109.3	<1.05e-01	4.86e+02	486.0	486.1	0.00	102.5	222.9	n/a

Table 3. Data Summary Table
BY-112

CORE NUMBER: 174
SEGMENT #: 3

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005867			Bulk Density of Sample	g/mL	n/a	n/a	1.080	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T005875			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T005875			DSC Exotherm on Perkin Elmer	Joules/g	99.82	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T005875			% Water by TGA on Perkin Elmer	%	98.75	n/a	13.69	15.65	14.67	13.4	n/a	n/a	n/a
S96T005875			TIC by Acid/Coulometry	ug/g	101.5	1.400	7.97e+04	8.20e+04	8.08e+04	2.84	107.0	5.000	n/a
S96T005875			TOC by Persulfate/Coulometry	ug/g	96.33	8.800	9.13e+02	1.28e+03	1.10e+03	33.5	101.0	40.00	n/a
S96T005891		F	Potassium -ICP-Fusion	ug/g	101.6	<5.00e-01	8.87e+06	n/a	n/a	n/a	n/a	9.80e+03	n/a
S96T005891		F	Nickel -ICP-Fusion	ug/g	98.40	4.60e-02	1.24e+03	1.32e+03	1.28e+03	6.25	n/a	392.0	n/a
S96T005891		F	Silver -ICP-Fusion	ug/g	98.00	<1.00e-02	<1.96e+02	<2.18e2	n/a	n/a	n/a	196.0	n/a
S96T005891		F	Aluminium -ICP-Fusion	ug/g	99.80	<5.00e-02	1.87e+03	1.84e+03	1.86e+03	1.62	n/a	980.0	n/a
S96T005891		F	Arsenic -ICP-Fusion	ug/g	104.4	<1.00e-01	<1.96e+03	<2.18e3	n/a	n/a	n/a	1.96e+03	n/a
S96T005891		F	Boron -ICP-Fusion	ug/g	102.6	<5.00e-02	<9.79e+02	<1.09e3	n/a	n/a	n/a	980.0	n/a
S96T005891		F	Barium -ICP-Fusion	ug/g	101.0	<5.00e-02	<9.79e+02	<1.09e3	n/a	n/a	n/a	980.0	n/a
S96T005891		F	Beryllium -ICP-Fusion	ug/g	100.6	<5.00e-03	< 97.90	<1.09e2	n/a	n/a	n/a	98.00	n/a
S96T005891		F	Bismuth -ICP-Fusion	ug/g	104.0	<1.00e-01	<1.96e+03	<2.18e3	n/a	n/a	n/a	1.96e+03	n/a
S96T005891		F	Calcium -ICP-Fusion	ug/g	96.60	<1.00e-01	<1.96e+03	<2.18e3	n/a	n/a	n/a	1.96e+03	n/a
S96T005891		F	Cadmium -ICP-Fusion	ug/g	99.80	<5.00e-03	< 97.90	<1.09e2	n/a	n/a	n/a	98.00	n/a
S96T005891		F	Cerium -ICP-Fusion	ug/g	102.0	<1.00e-01	<1.96e+03	<2.18e3	n/a	n/a	n/a	1.96e+03	n/a
S96T005891		F	Cobalt -ICP-Fusion	ug/g	104.2	<2.00e-02	<3.92e+02	<4.36e2	n/a	n/a	n/a	392.0	n/a
S96T005891		F	Chromium -ICP-Fusion	ug/g	98.60	<1.00e-02	1.31e+04	1.49e+04	1.40e+04	12.9	n/a	196.0	n/a
S96T005891		F	Copper -ICP-Fusion	ug/g	104.6	<1.00e-02	<1.96e+02	<2.18e2	n/a	n/a	n/a	196.0	n/a
S96T005891		F	Iron -ICP-Fusion	ug/g	98.60	<5.00e-02	<9.79e+02	<1.09e3	n/a	n/a	n/a	980.0	n/a
S96T005891		F	Lanthanum -ICP-Fusion	ug/g	99.00	<5.00e-02	<9.79e+02	<1.09e3	n/a	n/a	n/a	980.0	n/a
S96T005891		F	Lithium -ICP-Fusion	ug/g	98.60	<1.00e-02	<1.96e+02	<2.18e2	n/a	n/a	n/a	196.0	n/a
S96T005891		F	Magnesium -ICP-Fusion	ug/g	98.80	<1.00e-01	<1.96e+03	<2.18e3	n/a	n/a	n/a	1.96e+03	n/a
S96T005891		F	Manganese -ICP-Fusion	ug/g	99.00	<1.00e-02	<1.96e+02	<2.18e2	n/a	n/a	n/a	196.0	n/a
S96T005891		F	Molybdenum -ICP-Fusion	ug/g	104.8	<5.00e-02	<9.79e+02	<1.09e3	n/a	n/a	n/a	980.0	n/a
S96T005891		F	Sodium -ICP-Fusion	ug/g	104.8	2.800	4.52e+05	4.35e+05	4.44e+05	3.83	n/a	1.96e+03	n/a
S96T005891		F	Neodymium -ICP-Fusion	ug/g	99.60	<1.00e-01	<1.96e+03	<2.18e3	n/a	n/a	n/a	1.96e+03	n/a
S96T005891		F	Phosphorus -ICP-Fusion	ug/g	102.8	<2.00e-01	<3.92e+03	6.54e+03	n/a	n/a	n/a	3.92e+03	n/a
S96T005891		F	Lead -ICP-Fusion	ug/g	99.20	<1.00e-01	<1.96e+03	<2.18e3	n/a	n/a	n/a	1.96e+03	n/a
S96T005891		F	Sulfur -ICP-Fusion	ug/g	103.6	<1.00e-01	5.87e+03	7.01e+03	6.44e+03	17.7	n/a	1.96e+03	n/a
S96T005891		F	Antimony -ICP-Fusion	ug/g	101.8	<6.00e-02	<1.17e+03	<1.31e3	n/a	n/a	n/a	1.18e+03	n/a
S96T005891		F	Selenium -ICP-Fusion	ug/g	110.2	<1.00e-01	<1.96e+03	<2.18e3	n/a	n/a	n/a	1.96e+03	n/a
S96T005891		F	Silicon -ICP-Fusion	ug/g	100.2	<5.00e-02	2.34e+03	1.72e+03	2.03e+03	30.5	n/a	980.0	n/a
S96T005891		F	Samarium -ICP-Fusion	ug/g	97.60	<1.00e-01	<1.96e+03	<2.18e3	n/a	n/a	n/a	1.96e+03	n/a
S96T005891		F	Strontium -ICP-Fusion	ug/g	100.4	<1.00e-02	<1.96e+02	<2.18e2	n/a	n/a	n/a	196.0	n/a
S96T005891		F	Titanium-ICP-Fusion	ug/g	101.6	<1.00e-02	<1.96e+02	<2.18e2	n/a	n/a	n/a	196.0	n/a
S96T005891		F	Thallium -ICP-Fusion	ug/g	101.6	<2.00e-01	<3.92e+03	<4.36e3	n/a	n/a	n/a	3.92e+03	n/a
S96T005891		F	Uranium -ICP-Fusion	ug/g	107.0	<5.00e-01	<9.79e+03	<1.09e4	n/a	n/a	n/a	9.80e+03	n/a
S96T005891		F	Vanadium -ICP-Fusion	ug/g	103.2	<5.00e-02	<9.79e+02	<1.09e3	n/a	n/a	n/a	980.0	n/a
S96T005891		F	Zinc -ICP-Fusion	ug/g	105.0	2.60e-02	3.18e+02	<2.18e2	n/a	n/a	n/a	196.0	n/a
S96T005891		F	Zirconium -ICP-Fusion	ug/g	101.2	<1.00e-02	<1.96e+02	<2.18e2	n/a	n/a	n/a	196.0	n/a
S96T005891		F	Alpha of Digested Solid	uCi/g	84.78	<8.08e-03	3.73e-02	6.57e-02	5.15e-02	55.1	n/a	9.00e-03	3.05E+01

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005899		W	Fluoride-IC-Dionex 4000/4500	ug/g	99.15	<1.20e-02	4.66e+03	5.49e+03	5.07e+03	16.4	n/a	25.53	n/a
S96T005899		W	Chloride-IC-Dionex 4000/4500	ug/g	99.75	<1.70e-02	2.45e+02	331.0	288.1	29.9	n/a	36.17	n/a
S96T005899		W	Nitrite-IC - Dionex 4000/4500	ug/g	98.71	<1.08e-01	4.07e+03	5.17e+03	4.62e+03	23.8	n/a	229.8	n/a
S96T005899		W	Bromide by Ion Chromatograph	ug/g	100.8	<1.25e-01	<2.66e+02	<2.81e2	n/a	n/a	n/a	266.0	n/a
S96T005899		W	Nitrate by IC-Dionex 4000/4500	ug/g	100.7	<1.39e-01	2.65e+04	2.47e+04	2.56e+04	7.03	n/a	295.8	n/a
S96T005899		W	Phosphate-IC-Dionex 4000/4500	ug/g	99.63	<1.20e-01	1.84e+03	953.0	1.40e+03	63.5	n/a	255.3	n/a
S96T005899		W	Sulfate by IC-Dionex 4000/4500	ug/g	104.3	<1.38e-01	1.75e+04	2.07e+04	1.91e+04	16.8	n/a	293.6	n/a
S96T005899		W	Oxalate by IC-Dionex 4000/4500	ug/g	109.3	<1.05e-01	4.11e+03	1.16e+04	7.86e+03	95.4	n/a	223.4	n/a

Table 3. Data Summary Table
BY-112

CORE NUMBER: 174
SEGMENT #: 4

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005868			Bulk Density of Sample	g/mL	n/a	n/a	1.860	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T005876			DSC Exotherm using Mettler	Joules/g	106.2	n/a	1.34e+02	128.6	131.6	4.48	n/a	n/a	n/a
S96T005876			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	1.75e+02	168.0	171.5	4.08	n/a	n/a	n/a
S96T005876			% Water by TGA using Mettler	%	98.77	n/a	23.17	23.40	23.29	0.99	n/a	n/a	n/a
S96T005876			TIC by Acid/Coulometry	ug/g	97.67	2.300	1.72e+04	1.28e+04	1.50e+04	29.3	0.00e+00	5.000	n/a
S96T005876			TOC by Persulfate/Coulometry	ug/g	91.67	7.900	3.07e+04	3.43e+04	3.25e+04	11.1	0.00e+00	40.00	n/a
S96T005892		F	Silver -ICP-Fusion	ug/g	92.20	<1.00e-02	<1.96e+02	<1.84e2	n/a	n/a	78.60	196.0	n/a
S96T005892		F	Aluminium -ICP-Fusion	ug/g	95.60	<5.00e-02	1.78e+04	1.71e+04	1.74e+04	4.01	96.60	980.0	n/a
S96T005892		F	Arsenic -ICP-Fusion	ug/g	97.40	<1.00e-01	<1.96e+03	<1.84e3	n/a	n/a	98.30	1.96e+03	n/a
S96T005892		F	Boron -ICP-Fusion	ug/g	99.00	<5.00e-02	<9.81e+02	<9.22e2	n/a	n/a	94.60	980.0	n/a
S96T005892		F	Barium -ICP-Fusion	ug/g	98.60	<5.00e-02	<9.81e+02	<9.22e2	n/a	n/a	96.20	980.0	n/a
S96T005892		F	Beryllium -ICP-Fusion	ug/g	98.20	<5.00e-03	< 98.10	<9.22e1	n/a	n/a	94.10	98.00	n/a
S96T005892		F	Bismuth -ICP-Fusion	ug/g	99.20	<1.00e-01	<1.96e+03	<1.84e3	n/a	n/a	97.70	1.96e+03	n/a
S96T005892		F	Calcium -ICP-Fusion	ug/g	93.60	<1.00e-01	<1.96e+03	<1.84e3	n/a	n/a	96.90	1.96e+03	n/a
S96T005892		F	Cadmium -ICP-Fusion	ug/g	92.00	<5.00e-03	1.27e+02	164.0	145.5	25.4	91.50	98.00	n/a
S96T005892		F	Cerium -ICP-Fusion	ug/g	100.6	<1.00e-01	<1.96e+03	<1.84e3	n/a	n/a	92.90	1.96e+03	n/a
S96T005892		F	Cobalt -ICP-Fusion	ug/g	94.00	<2.00e-02	<3.92e+02	<3.69e2	n/a	n/a	97.10	392.0	n/a
S96T005892		F	Chromium -ICP-Fusion	ug/g	89.20	<1.00e-02	4.76e+04	4.90e+04	4.83e+04	2.90	96.60	196.0	n/a
S96T005892		F	Copper -ICP-Fusion	ug/g	103.0	<1.00e-02	<1.96e+02	<1.84e2	n/a	n/a	101.0	196.0	n/a
S96T005892		F	Iron -ICP-Fusion	ug/g	95.00	<5.00e-02	6.41e+03	8.22e+03	7.32e+03	24.7	95.50	980.0	n/a
S96T005892		F	Lanthanum -ICP-Fusion	ug/g	95.40	<5.00e-02	<9.81e+02	<9.22e2	n/a	n/a	94.20	980.0	n/a
S96T005892		F	Lithium -ICP-Fusion	ug/g	97.60	<1.00e-02	<1.96e+02	<1.84e2	n/a	n/a	89.20	196.0	n/a
S96T005892		F	Magnesium -ICP-Fusion	ug/g	90.60	<1.00e-01	<1.96e+03	<1.84e3	n/a	n/a	90.50	1.96e+03	n/a
S96T005892		F	Manganese -ICP-Fusion	ug/g	92.40	<1.00e-02	6.86e+02	793.0	739.5	14.5	92.60	196.0	n/a
S96T005892		F	Molybdenum -ICP-Fusion	ug/g	95.40	<5.00e-02	<9.81e+02	<9.22e2	n/a	n/a	96.20	980.0	n/a
S96T005892		F	Sodium -ICP-Fusion	ug/g	102.4	1.820	3.42e+05	3.77e+05	3.60e+05	9.74	85.40	1.96e+03	n/a
S96T005892		F	Neodymium -ICP-Fusion	ug/g	101.4	<1.00e-01	<1.96e+03	<1.84e3	n/a	n/a	97.50	1.96e+03	n/a
S96T005892		F	Phosphorus -ICP-Fusion	ug/g	97.20	<2.00e-01	4.90e+03	<3.69e3	n/a	n/a	94.40	3.92e+03	n/a
S96T005892		F	Lead -ICP-Fusion	ug/g	93.40	<1.00e-01	<1.96e+03	<1.84e3	n/a	n/a	96.90	1.96e+03	n/a
S96T005892		F	Sulfur -ICP-Fusion	ug/g	95.60	<1.00e-01	1.55e+04	1.55e+04	1.55e+04	0.00	96.60	1.96e+03	n/a
S96T005892		F	Antimony -ICP-Fusion	ug/g	98.80	<6.00e-02	<1.18e+03	<1.11e3	n/a	n/a	105.0	1.18e+03	n/a
S96T005892		F	Selenium -ICP-Fusion	ug/g	106.2	<1.00e-01	6.74e+03	6.18e+03	6.46e+03	8.67	104.0	1.96e+03	n/a
S96T005892		F	Silicon -ICP-Fusion	ug/g	93.00	<5.00e-02	3.99e+03	4.65e+03	4.32e+03	15.3	94.70	980.0	n/a
S96T005892		F	Samarium -ICP-Fusion	ug/g	98.20	<1.00e-01	<1.96e+03	<1.84e3	n/a	n/a	96.10	1.96e+03	n/a
S96T005892		F	Strontium -ICP-Fusion	ug/g	98.00	<1.00e-02	<1.96e+02	<1.84e2	n/a	n/a	97.40	196.0	n/a
S96T005892		F	Titanium-ICP-Fusion	ug/g	93.20	<1.00e-02	<1.96e+02	<1.84e2	n/a	n/a	93.00	196.0	n/a
S96T005892		F	Thallium -ICP-Fusion	ug/g	98.80	<2.00e-01	<3.92e+03	<3.69e3	n/a	n/a	92.40	3.92e+03	n/a
S96T005892		F	Uranium -ICP-Fusion	ug/g	107.0	<5.00e-01	<9.81e+03	<9.22e3	n/a	n/a	94.00	9.80e+03	n/a
S96T005892		F	Vanadium -ICP-Fusion	ug/g	97.20	<5.00e-02	<9.81e+02	<9.22e2	n/a	n/a	97.70	980.0	n/a
S96T005892		F	Zinc -ICP-Fusion	ug/g	95.60	1.20e-02	<1.96e+02	438.0	n/a	n/a	98.50	196.0	n/a
S96T005892		F	Zirconium -ICP-Fusion	ug/g	99.20	<1.00e-02	<1.96e+02	<1.84e2	n/a	n/a	98.80	196.0	n/a
S96T005892		F	Alpha of Digested Solid	uCi/g	94.78	<2.17e-02	2.36e-01	2.79e-01	2.58e-01	16.7	87.19	4.00e-02	3.30E+01
S96T005900		W	Fluoride-IC-Dionex 4000/4500	ug/g	100.3	<1.20e-02	2.65e+03	6.39e+03	4.52e+03	82.7	435.6	2.355	n/a
S96T005900		W	Chloride-IC-Dionex 4000/4500	ug/g	98.86	<1.70e-02	7.73e+02	1.19e+03	981.5	42.5	114.3	3.337	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005900		W	Nitrite-IC - Dionex 4000/4500	ug/g	97.04	<1.08e-01	1.43e+04	2.04e+04	1.74e+04	35.2	139.4	21.20	n/a
S96T005900		W	Bromide by Ion Chromatograph	ug/g	97.28	<1.25e-01	< 24.53	<5.46e2	n/a	n/a	98.98	24.53	n/a
S96T005900		W	Nitrate by IC-Dionex 4000/4500	ug/g	98.15	<1.39e-01	6.78e+04	1.87e+05	1.27e+05	93.6	284.5	27.28	n/a
S96T005900		W	Phosphate-IC-Dionex 4000/4500	ug/g	96.32	<1.20e-01	2.76e+03	4.04e+03	3.40e+03	37.6	113.8	23.55	n/a
S96T005900		W	Sulfate by IC-Dionex 4000/4500	ug/g	98.73	<1.38e-01	1.95e+04	2.83e+04	2.39e+04	36.8	209.2	27.09	n/a
S96T005900		W	Oxalate by IC-Dionex 4000/4500	ug/g	104.2	<1.05e-01	3.02e+04	1.05e+05	6.76e+04	111	527.6	20.61	n/a

Table 3. Data Summay Table
BY-112

CORE NUMBER: 174
SEGMENT #: 5

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005878			DSC Exotherm using Mettler	Joules/g	106.2	n/a	1.18e+02	233.4	175.8	65.6	n/a	n/a	n/a
S96T005878			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	1.79e+02	354.0	266.5	65.7	n/a	n/a	n/a
S96T005878			% Water by TGA using Mettler	%	98.77	n/a	33.78	34.17	33.98	1.15	n/a	n/a	n/a
S96T005878			TIC by Acid/Coulometry	ug/g	101.7	1.200	2.29e+04	2.56e+04	2.42e+04	11.1	n/a	5.000	n/a
S96T005878			TOC by Persulfate/Coulometry	ug/g	97.00	3.700	1.42e+04	1.41e+04	1.42e+04	0.71	108.0	40.00	n/a
S96T005894	F		Silver -ICP-Fusion	ug/g	92.20	<1.00e-02	<2.12e+02	<1.97e2	n/a	n/a	n/a	212.0	n/a
S96T005894	F		Aluminium -ICP-Fusion	ug/g	95.60	<5.00e-02	3.20e+04	3.60e+04	3.40e+04	11.8	n/a	1.06e+03	n/a
S96T005894	F		Arsenic -ICP-Fusion	ug/g	97.40	<1.00e-01	<2.12e+03	<1.97e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005894	F		Boron -ICP-Fusion	ug/g	99.00	<5.00e-02	<1.06e+03	<9.87e2	n/a	n/a	n/a	1.06e+03	n/a
S96T005894	F		Barium -ICP-Fusion	ug/g	98.60	<5.00e-02	<1.06e+03	<9.87e2	n/a	n/a	n/a	1.06e+03	n/a
S96T005894	F		Beryllium -ICP-Fusion	ug/g	98.20	<5.00e-03	<1.06e+02	<9.87e1	n/a	n/a	n/a	106.0	n/a
S96T005894	F		Bismuth -ICP-Fusion	ug/g	99.20	<1.00e-01	<2.12e+03	<1.97e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005894	F		Calcium -ICP-Fusion	ug/g	93.60	<1.00e-01	<2.12e+03	<1.97e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005894	F		Cadmium -ICP-Fusion	ug/g	92.00	<5.00e-03	1.14e+02	142.0	128.0	21.9	n/a	106.0	n/a
S96T005894	F		Cerium -ICP-Fusion	ug/g	100.6	<1.00e-01	<2.12e+03	<1.97e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005894	F		Cobalt -ICP-Fusion	ug/g	94.00	<2.00e-02	<4.25e+02	<3.95e2	n/a	n/a	n/a	424.0	n/a
S96T005894	F		Chromium -ICP-Fusion	ug/g	89.20	<1.00e-02	2.67e+04	2.92e+04	2.80e+04	8.94	n/a	212.0	n/a
S96T005894	F		Copper -ICP-Fusion	ug/g	103.0	<1.00e-02	<2.12e+02	<1.97e2	n/a	n/a	n/a	212.0	n/a
S96T005894	F		Iron -ICP-Fusion	ug/g	95.00	<5.00e-02	3.39e+03	4.00e+03	3.70e+03	16.5	n/a	1.06e+03	n/a
S96T005894	F		Lanthanum -ICP-Fusion	ug/g	95.40	<5.00e-02	<1.06e+03	<9.87e2	n/a	n/a	n/a	1.06e+03	n/a
S96T005894	F		Lithium -ICP-Fusion	ug/g	97.60	<1.00e-02	<2.12e+02	<1.97e2	n/a	n/a	n/a	212.0	n/a
S96T005894	F		Magnesium -ICP-Fusion	ug/g	90.60	<1.00e-01	<2.12e+03	<1.97e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005894	F		Manganese -ICP-Fusion	ug/g	92.40	<1.00e-02	4.64e+02	504.0	484.0	8.26	n/a	212.0	n/a
S96T005894	F		Molybdenum -ICP-Fusion	ug/g	95.40	<5.00e-02	<1.06e+03	<9.87e2	n/a	n/a	n/a	1.06e+03	n/a
S96T005894	F		Sodium -ICP-Fusion	ug/g	102.4	1.820	3.73e+05	3.88e+05	3.80e+05	3.94	n/a	2.12e+03	n/a
S96T005894	F		Neodymium -ICP-Fusion	ug/g	101.4	<1.00e-01	<2.12e+03	<1.97e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005894	F		Phosphorus -ICP-Fusion	ug/g	97.20	<2.00e-01	<4.25e+03	5.66e+03	n/a	n/a	n/a	4.24e+03	n/a
S96T005894	F		Lead -ICP-Fusion	ug/g	93.40	<1.00e-01	<2.12e+03	<1.97e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005894	F		Sulfur -ICP-Fusion	ug/g	95.60	<1.00e-01	6.76e+03	7.63e+03	7.20e+03	12.1	n/a	2.12e+03	n/a
S96T005894	F		Antimony -ICP-Fusion	ug/g	98.80	<6.00e-02	<1.27e+03	<1.18e3	n/a	n/a	n/a	1.28e+03	n/a
S96T005894	F		Selenium -ICP-Fusion	ug/g	106.2	<1.00e-01	2.32e+03	3.66e+03	2.99e+03	44.8	n/a	2.12e+03	n/a
S96T005894	F		Silicon -ICP-Fusion	ug/g	93.00	<5.00e-02	1.83e+03	2.38e+03	2.10e+03	26.1	n/a	1.06e+03	n/a
S96T005894	F		Samarium -ICP-Fusion	ug/g	98.20	<1.00e-01	<2.12e+03	<1.97e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005894	F		Strontium -ICP-Fusion	ug/g	98.00	<1.00e-02	<2.12e+02	<1.97e2	n/a	n/a	n/a	212.0	n/a
S96T005894	F		Titanium-ICP-Fusion	ug/g	93.20	<1.00e-02	<2.12e+02	<1.97e2	n/a	n/a	n/a	212.0	n/a
S96T005894	F		Thallium -ICP-Fusion	ug/g	98.80	<2.00e-01	<4.25e+03	<3.95e3	n/a	n/a	n/a	4.24e+03	n/a
S96T005894	F		Uranium -ICP-Fusion	ug/g	107.0	<5.00e-01	<1.06e+04	<9.87e3	n/a	n/a	n/a	1.06e+04	n/a
S96T005894	F		Vanadium -ICP-Fusion	ug/g	97.20	<5.00e-02	<1.06e+03	<9.87e2	n/a	n/a	n/a	1.06e+03	n/a
S96T005894	F		Zinc -ICP-Fusion	ug/g	95.60	1.20e-02	<2.12e+02	442.0	n/a	n/a	n/a	212.0	n/a
S96T005894	F		Zirconium -ICP-Fusion	ug/g	99.20	<1.00e-02	<2.12e+02	<1.97e2	n/a	n/a	n/a	212.0	n/a
S96T005902	W		Fluoride-IC-Dionex 4000/4500	ug/g	100.3	<1.20e-02	4.71e+03	3.61e+03	4.16e+03	26.4	n/a	49.16	n/a
S96T005902	W		Chloride-IC-Dionex 4000/4500	ug/g	98.86	<1.70e-02	2.08e+03	2.17e+03	2.13e+03	4.24	n/a	69.64	n/a
S96T005902	W		Nitrite-IC - Dionex 4000/4500	ug/g	97.04	<1.08e-01	3.98e+04	4.08e+04	4.03e+04	2.48	n/a	442.3	n/a
S96T005902	W		Bromide by Ion Chromatograph	ug/g	97.28	<1.25e-01	<5.12e+02	<5.46e2	n/a	n/a	n/a	512.0	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005902		W	Nitrate by IC-Dionex 4000/4500	ug/g	98.15	<1.39e-01	8.41e+04	7.34e+04	7.87e+04	13.6	n/a	569.3	n/a
S96T005902		W	Phosphate-IC-Dionex 4000/4500	ug/g	96.32	<1.20e-01	9.98e+03	2.75e+03	6.36e+03	114	n/a	491.6	n/a
S96T005902		W	Sulfate by IC-Dionex 4000/4500	ug/g	98.73	<1.38e-01	1.89e+04	1.71e+04	1.80e+04	10.0	n/a	565.3	n/a
S96T005902		W	Oxalate by IC-Dionex 4000/4500	ug/g	104.2	<1.05e-01	4.98e+04	5.02e+04	5.00e+04	0.80	n/a	430.1	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005869			Bulk Density of Sample	g/mL	n/a	n/a	1.660	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T005877			DSC Exotherm using Mettler	Joules/g	106.2	n/a	61.30	63.70	62.50	3.84	n/a	n/a	n/a
S96T005877			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	1.07e+02	111.0	109.0	3.67	n/a	n/a	n/a
S96T005877			% Water by TGA using Mettler	%	98.77	n/a	43.53	41.79	42.66	4.08	n/a	n/a	n/a
S96T005877			TIC by Acid/Coulometry	ug/g	97.67	2.300	2.68e+04	1.79e+04	2.24e+04	39.8	n/a	5.000	n/a
S96T005877			TOC by Persulfate/Coulometry	ug/g	91.67	7.900	6.16e+03	7.71e+03	6.94e+03	22.4	70.50	40.00	n/a
S96T005893		F	Silver -ICP-Fusion	ug/g	92.20	<1.00e-02	<2.00e+02	<2.01e2	n/a	n/a	n/a	200.0	n/a
S96T005893		F	Aluminium -ICP-Fusion	ug/g	95.60	<5.00e-02	3.13e+04	3.33e+04	3.23e+04	6.19	n/a	1.00e+03	n/a
S96T005893		F	Arsenic -ICP-Fusion	ug/g	97.40	<1.00e-01	<2.00e+03	<2.01e3	n/a	n/a	n/a	2.00e+03	n/a
S96T005893		F	Boron -ICP-Fusion	ug/g	99.00	<5.00e-02	<9.98e+02	<1.00e3	n/a	n/a	n/a	1.00e+03	n/a
S96T005893		F	Barium -ICP-Fusion	ug/g	98.60	<5.00e-02	<9.98e+02	<1.00e3	n/a	n/a	n/a	1.00e+03	n/a
S96T005893		F	Beryllium -ICP-Fusion	ug/g	98.20	<5.00e-03	< 99.80	<1.00e2	n/a	n/a	n/a	100.0	n/a
S96T005893		F	Bismuth -ICP-Fusion	ug/g	99.20	<1.00e-01	<2.00e+03	<2.01e3	n/a	n/a	n/a	2.00e+03	n/a
S96T005893		F	Calcium -ICP-Fusion	ug/g	93.60	<1.00e-01	<2.00e+03	<2.01e3	n/a	n/a	n/a	2.00e+03	n/a
S96T005893		F	Cadmium -ICP-Fusion	ug/g	92.00	<5.00e-03	< 99.80	<1.00e2	n/a	n/a	n/a	100.0	n/a
S96T005893		F	Cerium -ICP-Fusion	ug/g	100.6	<1.00e-01	<2.00e+03	<2.01e3	n/a	n/a	n/a	2.00e+03	n/a
S96T005893		F	Cobalt -ICP-Fusion	ug/g	94.00	<2.00e-02	<3.99e+02	<4.01e2	n/a	n/a	n/a	399.0	n/a
S96T005893		F	Chromium -ICP-Fusion	ug/g	89.20	<1.00e-02	1.95e+04	1.57e+04	1.76e+04	21.6	n/a	200.0	n/a
S96T005893		F	Copper -ICP-Fusion	ug/g	103.0	<1.00e-02	<2.00e+02	<2.01e2	n/a	n/a	n/a	200.0	n/a
S96T005893		F	Iron -ICP-Fusion	ug/g	95.00	<5.00e-02	1.30e+03	<1.00e3	n/a	n/a	n/a	1.00e+03	n/a
S96T005893		F	Lanthanum -ICP-Fusion	ug/g	95.40	<5.00e-02	<9.98e+02	<1.00e3	n/a	n/a	n/a	1.00e+03	n/a
S96T005893		F	Lithium -ICP-Fusion	ug/g	97.60	<1.00e-02	<2.00e+02	<2.01e2	n/a	n/a	n/a	200.0	n/a
S96T005893		F	Magnesium -ICP-Fusion	ug/g	90.60	<1.00e-01	<2.00e+03	<2.01e3	n/a	n/a	n/a	2.00e+03	n/a
S96T005893		F	Manganese -ICP-Fusion	ug/g	92.40	<1.00e-02	2.17e+02	<2.01e2	n/a	n/a	n/a	200.0	n/a
S96T005893		F	Molybdenum -ICP-Fusion	ug/g	95.40	<5.00e-02	<9.98e+02	<1.00e3	n/a	n/a	n/a	1.00e+03	n/a
S96T005893		F	Sodium -ICP-Fusion	ug/g	102.4	1.820	3.33e+05	3.35e+05	3.34e+05	0.60	n/a	2.00e+03	n/a
S96T005893		F	Neodymium -ICP-Fusion	ug/g	101.4	<1.00e-01	<2.00e+03	<2.01e3	n/a	n/a	n/a	2.00e+03	n/a
S96T005893		F	Phosphorus -ICP-Fusion	ug/g	97.20	<2.00e-01	<3.99e+03	<4.01e3	n/a	n/a	n/a	3.99e+03	n/a
S96T005893		F	Lead -ICP-Fusion	ug/g	93.40	<1.00e-01	<2.00e+03	<2.01e3	n/a	n/a	n/a	2.00e+03	n/a
S96T005893		F	Sulfur -ICP-Fusion	ug/g	95.60	<1.00e-01	7.21e+03	4.88e+03	6.04e+03	38.5	n/a	2.00e+03	n/a
S96T005893		F	Antimony -ICP-Fusion	ug/g	98.80	<6.00e-02	<1.20e+03	<1.20e3	n/a	n/a	n/a	1.20e+03	n/a
S96T005893		F	Selenium -ICP-Fusion	ug/g	106.2	<1.00e-01	2.09e+03	<2.01e3	n/a	n/a	n/a	2.00e+03	n/a
S96T005893		F	Silicon -ICP-Fusion	ug/g	93.00	<5.00e-02	1.57e+03	1.53e+03	1.55e+03	2.58	n/a	1.00e+03	n/a
S96T005893		F	Samarium -ICP-Fusion	ug/g	98.20	<1.00e-01	<2.00e+03	<2.01e3	n/a	n/a	n/a	2.00e+03	n/a
S96T005893		F	Strontium -ICP-Fusion	ug/g	98.00	<1.00e-02	<2.00e+02	<2.01e2	n/a	n/a	n/a	200.0	n/a
S96T005893		F	Titanium-ICP-Fusion	ug/g	93.20	<1.00e-02	<2.00e+02	<2.01e2	n/a	n/a	n/a	200.0	n/a
S96T005893		F	Thallium -ICP-Fusion	ug/g	98.80	<2.00e-01	<3.99e+03	<4.01e3	n/a	n/a	n/a	3.99e+03	n/a
S96T005893		F	Uranium -ICP-Fusion	ug/g	107.0	<5.00e-01	<9.98e+03	<1.00e4	n/a	n/a	n/a	1.00e+04	n/a
S96T005893		F	Vanadium -ICP-Fusion	ug/g	97.20	<5.00e-02	<9.98e+02	<1.00e3	n/a	n/a	n/a	1.00e+03	n/a
S96T005893		F	Zinc -ICP-Fusion	ug/g	95.60	1.20e-02	<2.00e+02	<2.01e2	n/a	n/a	n/a	200.0	n/a
S96T005893		F	Zirconium -ICP-Fusion	ug/g	99.20	<1.00e-02	<2.00e+02	<2.01e2	n/a	n/a	n/a	200.0	n/a
S96T005893		F	Alpha of Digested Solid	uCi/g	94.78	<2.17e-02	6.65e-02	4.33e-02	5.49e-02	42.3	n/a	9.00e-03	2.98E+01
S96T005901		W	Fluoride-IC-Dionex 4000/4500	ug/g	100.3	<1.20e-02	2.91e+02	134.0	212.7	73.9	n/a	2.367	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005901		W	Chloride-IC-Dionex 4000/4500	ug/g	98.86	<1.70e-02	52.86	115.0	83.93	74.0	n/a	3.353	n/a
S96T005901		W	Nitrite-IC - Dionex 4000/4500	ug/g	97.04	<1.08e-01	9.44e+02	2.16e+03	1.55e+03	78.4	n/a	21.30	n/a
S96T005901		W	Bromide by Ion Chromatograph	ug/g	97.28	<1.25e-01	< 24.65	<2.49e1	n/a	n/a	n/a	24.65	n/a
S96T005901		W	Nitrate by IC-Dionex 4000/4500	ug/g	98.15	<1.39e-01	8.34e+03	3.06e+03	5.70e+03	92.6	n/a	27.42	n/a
S96T005901		W	Phosphate-IC-Dionex 4000/4500	ug/g	96.32	<1.20e-01	2.21e+02	388.0	304.6	54.8	n/a	23.67	n/a
S96T005901		W	Sulfate by IC-Dionex 4000/4500	ug/g	98.73	<1.38e-01	1.28e+03	540.0	909.5	81.3	n/a	27.22	n/a
S96T005901		W	Oxalate by IC-Dionex 4000/4500	ug/g	104.2	<1.05e-01	4.71e+03	1.10e+03	2.90e+03	124	n/a	20.71	n/a

Drainable Liquid: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005907			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	1.92e+02	156.0	174.0	20.7	n/a	n/a	n/a
S96T005907			DSC Exotherm on Perkin Elmer	Joules/g	102.1	n/a	99.19	80.44	89.81	20.9	n/a	n/a	n/a
S96T005907			Specific Gravity	Sp.G.	100.0	n/a	1.474	1.478	1.476	0.27	n/a	1.00e-03	n/a
S96T005907			% Water by TGA on Perkin Elmer	%	98.81	n/a	48.69	48.06	48.38	1.30	n/a	n/a	n/a
S96T005907			TIC by Acid/Coulometry	ug/mL	100.8	3.300	1.59e+03	1.65e+03	1.62e+03	3.70	104.0	5.000	n/a
S96T005907			TOC by Persulfate/Coulometry	ug/mL	96.67	4.900	1.89e+03	1.94e+03	1.92e+03	2.61	101.0	40.00	n/a
S96T005907		D	Silver-ICP-Acid Dil.	ug/mL	97.60	<1.00e-02	17.40	17.20	17.30	1.16	87.30	6.010	n/a
S96T005907		D	Aluminium-ICP-Acid Dil.	ug/mL	97.60	<5.00e-02	5.67e+04	5.65e+04	5.66e+04	0.35	-4.100e1	30.10	n/a
S96T005907		D	Arsenic-ICP-Acid Dil.	ug/mL	103.2	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	99.70	60.10	n/a
S96T005907		D	Boron-ICP-Acid Dil.	ug/mL	102.2	<5.00e-02	35.10	35.10	35.10	0.00	102.0	30.10	n/a
S96T005907		D	Barium-ICP-Acid Dil.	ug/mL	99.20	<5.00e-02	< 30.10	<3.01e1	n/a	n/a	99.50	30.10	n/a
S96T005907		D	Beryllium-ICP-Acid Dil.	ug/mL	101.8	<5.00e-03	< 3.000	<3.00e0	n/a	n/a	104.0	3.000	n/a
S96T005907		D	Bismuth-ICP-Acid Dil.	ug/mL	100.2	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	104.0	60.10	n/a
S96T005907		D	Calcium-ICP-Acid Dil.	ug/mL	99.40	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	103.0	60.10	n/a
S96T005907		D	Cadmium-ICP-Acid Dil.	ug/mL	100.4	<5.00e-03	< 3.000	<3.00e0	n/a	n/a	102.0	3.000	n/a
S96T005907		D	Cerium-ICP-Acid Dil.	ug/mL	100.8	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	103.0	60.10	n/a
S96T005907		D	Cobalt-ICP-Acid Dil.	ug/mL	103.2	<2.00e-02	< 12.00	<1.20e1	n/a	n/a	105.0	12.00	n/a
S96T005907		D	Chromium-ICP-Acid Dil.	ug/mL	100.2	<1.00e-02	8.82e+03	8.84e+03	8.83e+03	0.23	94.40	6.010	n/a
S96T005907		D	Copper-ICP-Acid Dil.	ug/mL	107.2	<1.00e-02	< 6.010	<6.01e0	n/a	n/a	107.0	6.010	n/a
S96T005907		D	Iron-ICP-Acid Dil.	ug/mL	100.6	<5.00e-02	< 30.10	<3.01e1	n/a	n/a	101.0	30.10	n/a
S96T005907		D	Potassium-ICP-Acid Dil.	ug/mL	105.8	<5.00e-01	1.02e+04	1.02e+04	1.02e+04	0.00	104.0	300.0	n/a
S96T005907		D	Lanthanum-ICP-Acid Dil.	ug/mL	99.40	<5.00e-02	< 30.10	<3.01e1	n/a	n/a	102.0	30.10	n/a
S96T005907		D	Lithium-ICP-Acid Dil.	ug/mL	96.80	<1.00e-02	< 6.010	<6.01e0	n/a	n/a	97.80	6.010	n/a
S96T005907		D	Magnesium-ICP-Acid Dil.	ug/mL	100.8	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	99.20	60.10	n/a
S96T005907		D	Manganese-ICP-Acid Dil.	ug/mL	98.40	<1.00e-02	< 6.010	<6.01e0	n/a	n/a	97.60	6.010	n/a
S96T005907		D	Molybdenum-ICP-Acid Dil.	ug/mL	103.4	<5.00e-02	1.00e+02	99.50	99.75	0.50	105.0	30.10	n/a
S96T005907		D	Sodium-ICP-Acid Dil.	ug/mL	104.0	<1.00e-01	2.44e+05	2.44e+05	2.44e+05	0.00	-4.870e2	60.10	n/a
S96T005907		D	Neodymium-ICP-Acid Dil.	ug/mL	100.0	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	102.0	60.10	n/a
S96T005907		D	Nickel-ICP-Acid Dil.	ug/mL	100.4	<2.00e-02	< 12.00	<1.20e1	n/a	n/a	102.0	12.00	n/a
S96T005907		D	Phosphorus-ICP-Acid Dil.	ug/mL	102.8	<2.00e-01	3.82e+02	389.0	385.5	1.82	107.0	120.0	n/a
S96T005907		D	Lead-ICP-Acid Dil.	ug/mL	98.40	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	105.0	60.10	n/a
S96T005907		D	Sulfur-ICP-Acid Dil.	ug/mL	101.0	<1.00e-01	3.31e+02	328.0	329.5	0.91	102.0	60.10	n/a
S96T005907		D	Antimony-ICP-Acid Dil.	ug/mL	98.20	<6.00e-02	< 36.10	<3.61e1	n/a	n/a	102.0	36.10	n/a
S96T005907		D	Selenium-ICP-Acid Dil.	ug/mL	96.20	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	104.0	60.10	n/a
S96T005907		D	Silicon-ICP-Acid Dil.	ug/mL	99.40	<5.00e-02	4.38e+02	453.0	445.5	3.37	101.0	30.10	n/a
S96T005907		D	Samarium-ICP-Acid Dil.	ug/mL	98.20	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	100.0	60.10	n/a
S96T005907		D	Strontium-ICP-Acid Dil.	ug/mL	98.60	<1.00e-02	< 6.010	<6.01e0	n/a	n/a	100.0	6.010	n/a
S96T005907		D	Titanium-ICP-Acid Dil.	ug/mL	99.60	<1.00e-02	< 6.010	<6.01e0	n/a	n/a	101.0	6.010	n/a
S96T005907		D	Thallium-ICP-Acid Dil.	ug/mL	96.80	<2.00e-01	<1.20e+02	<1.20e2	n/a	n/a	96.50	120.0	n/a
S96T005907		D	Uranium-ICP-Acid Dil.	ug/mL	97.70	<5.00e-01	<3.00e+02	<3.00e2	n/a	n/a	100.0	300.0	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005907		D	Vanadium-ICP-Acid Dil.	ug/mL	102.4	<5.00e-02	< 30.10	<3.01e1	n/a	n/a	104.0	30.10	n/a
S96T005907		D	Zinc-ICP-Acid Dil.	ug/mL	104.4	<1.00e-02	< 6.010	<6.01e0	n/a	n/a	107.0	6.010	n/a
S96T005907		D	Zirconium-ICP-Acid Dil.	ug/mL	101.0	<1.00e-02	< 6.010	<6.01e0	n/a	n/a	104.0	6.010	n/a
S96T005907			Fluoride-IC-Dionex 500	ug/mL	111.4	<1.20e-02	6.24e+02	618.0	621.0	0.97	98.31	122.4	n/a
S96T005907			Chloride-IC-Dionex 4000/4500	ug/mL	96.83	<1.70e-02	1.04e+04	1.04e+04	1.04e+04	0.00	54.43	173.4	n/a
S96T005907			Nitrite-IC - Dionex 4000/4500	ug/mL	95.93	<1.08e-01	1.31e+05	1.31e+05	1.31e+05	0.00	106.7	1.10e+03	n/a
S96T005907			Bromide by Ion Chromatograph	ug/mL	99.83	<1.25e-01	<1.28e+03	<1.28e3	n/a	n/a	95.76	1.28e+03	n/a
S96T005907			Nitrate by IC-Dionex 4000/4500	ug/mL	101.3	<1.39e-01	1.72e+05	1.70e+05	1.71e+05	1.17	109.9	1.42e+03	n/a
S96T005907			Phosphate-IC-Dionex 4000/4500	ug/mL	97.79	<1.20e-01	<1.22e+03	1.81e+03	n/a	n/a	95.04	1.22e+03	n/a
S96T005907			Sulfate by IC-Dionex 4000/4500	ug/mL	101.6	<1.38e-01	2.70e+03	2.92e+03	2.81e+03	7.83	93.50	1.41e+03	n/a
S96T005907			Oxalate by IC-Dionex 4000/4500	ug/mL	107.4	<1.05e-01	<1.07e+03	1.06e+04	n/a	n/a	96.95	1.07e+03	n/a
S96T005907			Alpha in Liquid Samples	uCi/mL	84.78	<1.22e-02	<1.22e-02	<1.22E-2	n/a	n/a	85.52	3.10e-02	5.00E+02

Table 3. Data Summary Table
BY-112

CORE NUMBER: 174
SEGMENT #: 6

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005880			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	1.08e+02	221.0	164.5	68.7	n/a	n/a	n/a
S96T005880			DSC Exotherm on Perkin Elmer	Joules/g	101.1	n/a	67.90	139.0	103.5	68.7	n/a	n/a	n/a
S96T005880			% Water by TGA on Perkin Elmer	%	99.04	n/a	37.56	36.86	37.21	1.88	n/a	n/a	n/a
S96T005880			TIC by Acid/Coulometry	ug/g	99.17	5.100	2.02e+04	1.18e+04	1.60e+04	52.5	n/a	5.000	n/a
S96T005880			TOC by Persulfate/Coulometry	ug/g	93.33	9.00e-01	6.64e+03	7.99e+03	7.32e+03	18.5	n/a	80.00	n/a
S96T005896		F	Potassium -ICP-Fusion	ug/g	102.0	<5.00e-01	7.57e+06	n/a	n/a	n/a	n/a	1.02e+04	n/a
S96T005896		F	Nickel -ICP-Fusion	ug/g	99.80	6.20e-02	7.45e+02	1.51e+03	1.13e+03	67.8	n/a	406.0	n/a
S96T005896		F	Silver -ICP-Fusion	ug/g	97.60	<1.00e-02	<2.03e+02	<2.01e2	n/a	n/a	n/a	203.0	n/a
S96T005896		F	Aluminium -ICP-Fusion	ug/g	97.40	<5.00e-02	2.67e+04	2.60e+04	2.64e+04	2.66	n/a	1.02e+03	n/a
S96T005896		F	Arsenic -ICP-Fusion	ug/g	103.4	<1.00e-01	<2.03e+03	<2.01e3	n/a	n/a	n/a	2.03e+03	n/a
S96T005896		F	Boron -ICP-Fusion	ug/g	102.2	<5.00e-02	<1.02e+03	<1.01e3	n/a	n/a	n/a	1.02e+03	n/a
S96T005896		F	Barium -ICP-Fusion	ug/g	97.80	<5.00e-02	<1.02e+03	<1.01e3	n/a	n/a	n/a	1.02e+03	n/a
S96T005896		F	Beryllium -ICP-Fusion	ug/g	101.6	<5.00e-03	<1.02e+02	<1.01e2	n/a	n/a	n/a	102.0	n/a
S96T005896		F	Bismuth -ICP-Fusion	ug/g	101.8	<1.00e-01	<2.03e+03	<2.01e3	n/a	n/a	n/a	2.03e+03	n/a
S96T005896		F	Calcium -ICP-Fusion	ug/g	99.20	<1.00e-01	<2.03e+03	<2.01e3	n/a	n/a	n/a	2.03e+03	n/a
S96T005896		F	Cadmium -ICP-Fusion	ug/g	100.4	<5.00e-03	<1.02e+02	<1.01e2	n/a	n/a	n/a	102.0	n/a
S96T005896		F	Cerium -ICP-Fusion	ug/g	100.4	<1.00e-01	<2.03e+03	<2.01e3	n/a	n/a	n/a	2.03e+03	n/a
S96T005896		F	Cobalt -ICP-Fusion	ug/g	103.0	<2.00e-02	<4.06e+02	<4.03e2	n/a	n/a	n/a	406.0	n/a
S96T005896		F	Chromium -ICP-Fusion	ug/g	99.80	<1.00e-02	9.08e+03	8.95e+03	9.02e+03	1.44	n/a	203.0	n/a
S96T005896		F	Copper -ICP-Fusion	ug/g	107.0	<1.00e-02	<2.03e+02	<2.01e2	n/a	n/a	n/a	203.0	n/a
S96T005896		F	Iron -ICP-Fusion	ug/g	100.4	<5.00e-02	<1.02e+03	<1.01e3	n/a	n/a	n/a	1.02e+03	n/a
S96T005896		F	Lanthanum -ICP-Fusion	ug/g	99.00	<5.00e-02	<1.02e+03	<1.01e3	n/a	n/a	n/a	1.02e+03	n/a
S96T005896		F	Lithium -ICP-Fusion	ug/g	96.60	<1.00e-02	<2.03e+02	<2.01e2	n/a	n/a	n/a	203.0	n/a
S96T005896		F	Magnesium -ICP-Fusion	ug/g	100.8	<1.00e-01	<2.03e+03	<2.01e3	n/a	n/a	n/a	2.03e+03	n/a
S96T005896		F	Manganese -ICP-Fusion	ug/g	98.20	<1.00e-02	<2.03e+02	<2.01e2	n/a	n/a	n/a	203.0	n/a
S96T005896		F	Molybdenum -ICP-Fusion	ug/g	103.0	<5.00e-02	<1.02e+03	<1.01e3	n/a	n/a	n/a	1.02e+03	n/a
S96T005896		F	Sodium -ICP-Fusion	ug/g	103.4	1.900	2.66e+05	2.66e+05	2.66e+05	0.00	n/a	2.03e+03	n/a
S96T005896		F	Neodymium -ICP-Fusion	ug/g	99.40	<1.00e-01	<2.03e+03	<2.01e3	n/a	n/a	n/a	2.03e+03	n/a
S96T005896		F	Phosphorus -ICP-Fusion	ug/g	104.4	<2.00e-01	<4.06e+03	<4.03e3	n/a	n/a	n/a	4.06e+03	n/a
S96T005896		F	Lead -ICP-Fusion	ug/g	98.00	<1.00e-01	<2.03e+03	<2.01e3	n/a	n/a	n/a	2.03e+03	n/a
S96T005896		F	Sulfur -ICP-Fusion	ug/g	102.4	<1.00e-01	1.04e+04	9.01e+03	9.70e+03	14.3	n/a	2.03e+03	n/a
S96T005896		F	Antimony -ICP-Fusion	ug/g	98.60	<6.00e-02	<1.22e+03	<1.21e3	n/a	n/a	n/a	1.22e+03	n/a
S96T005896		F	Selenium -ICP-Fusion	ug/g	95.40	<1.00e-01	<2.03e+03	<2.01e3	n/a	n/a	n/a	2.03e+03	n/a
S96T005896		F	Silicon -ICP-Fusion	ug/g	98.60	<5.00e-02	<1.02e+03	<1.01e3	n/a	n/a	n/a	1.02e+03	n/a
S96T005896		F	Samarium -ICP-Fusion	ug/g	97.60	<1.00e-01	<2.03e+03	<2.01e3	n/a	n/a	n/a	2.03e+03	n/a
S96T005896		F	Strontium -ICP-Fusion	ug/g	98.20	<1.00e-02	<2.03e+02	<2.01e2	n/a	n/a	n/a	203.0	n/a
S96T005896		F	Titanium-ICP-Fusion	ug/g	99.40	<1.00e-02	<2.03e+02	<2.01e2	n/a	n/a	n/a	203.0	n/a
S96T005896		F	Thallium -ICP-Fusion	ug/g	97.40	<2.00e-01	<4.06e+03	<4.03e3	n/a	n/a	n/a	4.06e+03	n/a
S96T005896		F	Uranium -ICP-Fusion	ug/g	97.30	<5.00e-01	<1.02e+04	<1.01e4	n/a	n/a	n/a	1.02e+04	n/a
S96T005896		F	Vanadium -ICP-Fusion	ug/g	102.2	<5.00e-02	<1.02e+03	<1.01e3	n/a	n/a	n/a	1.02e+03	n/a
S96T005896		F	Zinc -ICP-Fusion	ug/g	104.6	<1.00e-02	<2.03e+02	<2.01e2	n/a	n/a	n/a	203.0	n/a
S96T005896		F	Zirconium -ICP-Fusion	ug/g	100.8	<1.00e-02	<2.03e+02	<2.01e2	n/a	n/a	n/a	203.0	n/a
S96T005904		W	Fluoride-IC-Dionex 4000/4500	ug/g	109.2	<1.20e-02	9.04e+03	1.06e+04	9.82e+03	15.9	n/a	86.92	n/a
S96T005904		W	Chloride-IC-Dionex 4000/4500	ug/g	107.2	<1.70e-02	2.94e+03	3.46e+03	3.20e+03	16.2	n/a	123.1	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005904		W	Nitrite-IC - Dionex 4000/4500	ug/g	104.6	<1.08e-01	5.77e+04	6.54e+04	6.16e+04	12.5	n/a	782.3	n/a
S96T005904		W	Bromide by Ion Chromatograph	ug/g	103.4	<1.25e-01	<9.05e+02	<1.04e3	n/a	n/a	n/a	905.3	n/a
S96T005904		W	Nitrate by IC-Dionex 4000/4500	ug/g	107.6	<1.39e-01	7.34e+04	8.37e+04	7.86e+04	13.1	n/a	1.01e+03	n/a
S96T005904		W	Phosphate-IC-Dionex 4000/4500	ug/g	107.9	<1.20e-01	9.68e+03	1.12e+04	1.04e+04	14.6	n/a	869.2	n/a
S96T005904		W	Sulfate by IC-Dionex 4000/4500	ug/g	105.9	<1.38e-01	3.69e+04	4.24e+04	3.97e+04	13.9	n/a	999.6	n/a
S96T005904		W	Oxalate by IC-Dionex 4000/4500	ug/g	100.4	<4.300	2.30e+04	2.35e+04	2.32e+04	2.15	n/a	760.6	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005871			Bulk Density of Sample	g/mL	n/a	n/a	1.820	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T005879			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	7.550	33.90	20.72	127	n/a	n/a	n/a
S96T005879			DSC Exotherm on Perkin Elmer	Joules/g	101.1	n/a	5.060	22.70	13.88	127	n/a	n/a	n/a
S96T005879			% Water by TGA on Perkin Elmer	%	99.04	n/a	32.89	33.03	32.96	0.42	n/a	n/a	n/a
S96T005879			TIC by Acid/Coulometry	ug/g	99.17	5.100	7.27e+02	720.0	723.5	0.97	105.0	5.000	n/a
S96T005879			TOC by Persulfate/Coulometry	ug/g	93.33	9.00e-01	1.55e+03	1.56e+03	1.56e+03	0.64	115.0	80.00	n/a
S96T005895		F	Potassium -ICP-Fusion	ug/g	102.0	<5.00e-01	5.38e+06	n/a	n/a	n/a	n/a	1.03e+04	n/a
S96T005895		F	Nickel -ICP-Fusion	ug/g	99.80	6.20e-02	4.58e+03	8.26e+03	6.42e+03	57.3	98.30	410.0	n/a
S96T005895		F	Silver -ICP-Fusion	ug/g	97.60	<1.00e-02	<2.05e+02	<2.24e2	n/a	n/a	91.30	205.0	n/a
S96T005895		F	Aluminium -ICP-Fusion	ug/g	97.40	<5.00e-02	3.18e+04	3.27e+04	3.22e+04	2.79	101.0	1.03e+03	n/a
S96T005895		F	Arsenic -ICP-Fusion	ug/g	103.4	<1.00e-01	<2.05e+03	<2.24e3	n/a	n/a	104.0	2.05e+03	n/a
S96T005895		F	Boron -ICP-Fusion	ug/g	102.2	<5.00e-02	<1.03e+03	<1.12e3	n/a	n/a	102.0	1.03e+03	n/a
S96T005895		F	Barium -ICP-Fusion	ug/g	97.80	<5.00e-02	<1.03e+03	<1.12e3	n/a	n/a	97.00	1.03e+03	n/a
S96T005895		F	Beryllium -ICP-Fusion	ug/g	101.6	<5.00e-03	<1.03e+02	<1.12e2	n/a	n/a	101.0	103.0	n/a
S96T005895		F	Bismuth -ICP-Fusion	ug/g	101.8	<1.00e-01	<2.05e+03	<2.24e3	n/a	n/a	99.90	2.05e+03	n/a
S96T005895		F	Calcium -ICP-Fusion	ug/g	99.20	<1.00e-01	<2.05e+03	<2.24e3	n/a	n/a	99.40	2.05e+03	n/a
S96T005895		F	Cadmium -ICP-Fusion	ug/g	100.4	<5.00e-03	<1.03e+02	<1.12e2	n/a	n/a	100.0	103.0	n/a
S96T005895		F	Cerium -ICP-Fusion	ug/g	100.4	<1.00e-01	<2.05e+03	<2.24e3	n/a	n/a	101.0	2.05e+03	n/a
S96T005895		F	Cobalt -ICP-Fusion	ug/g	103.0	<2.00e-02	<4.11e+02	<4.47e2	n/a	n/a	103.0	410.0	n/a
S96T005895		F	Chromium -ICP-Fusion	ug/g	99.80	<1.00e-02	3.83e+03	3.65e+03	3.74e+03	4.81	100.0	205.0	n/a
S96T005895		F	Copper -ICP-Fusion	ug/g	107.0	<1.00e-02	<2.05e+02	<2.24e2	n/a	n/a	108.0	205.0	n/a
S96T005895		F	Iron -ICP-Fusion	ug/g	100.4	<5.00e-02	7.22e+03	6.90e+03	7.06e+03	4.53	101.0	1.03e+03	n/a
S96T005895		F	Lanthanum -ICP-Fusion	ug/g	99.00	<5.00e-02	<1.03e+03	<1.12e3	n/a	n/a	99.80	1.03e+03	n/a
S96T005895		F	Lithium -ICP-Fusion	ug/g	96.60	<1.00e-02	<2.05e+02	<2.24e2	n/a	n/a	97.60	205.0	n/a
S96T005895		F	Magnesium -ICP-Fusion	ug/g	100.8	<1.00e-01	<2.05e+03	<2.24e3	n/a	n/a	101.0	2.05e+03	n/a
S96T005895		F	Manganese -ICP-Fusion	ug/g	98.20	<1.00e-02	<2.05e+02	<2.24e2	n/a	n/a	95.60	205.0	n/a
S96T005895		F	Molybdenum -ICP-Fusion	ug/g	103.0	<5.00e-02	<1.03e+03	<1.12e3	n/a	n/a	104.0	1.03e+03	n/a
S96T005895		F	Sodium -ICP-Fusion	ug/g	103.4	1.900	2.71e+05	2.80e+05	2.76e+05	3.27	147.0	2.05e+03	n/a
S96T005895		F	Neodymium -ICP-Fusion	ug/g	99.40	<1.00e-01	<2.05e+03	<2.24e3	n/a	n/a	100.0	2.05e+03	n/a
S96T005895		F	Phosphorus -ICP-Fusion	ug/g	104.4	<2.00e-01	<4.11e+03	<4.47e3	n/a	n/a	108.0	4.10e+03	n/a
S96T005895		F	Lead -ICP-Fusion	ug/g	98.00	<1.00e-01	<2.05e+03	<2.24e3	n/a	n/a	98.40	2.05e+03	n/a
S96T005895		F	Sulfur -ICP-Fusion	ug/g	102.4	<1.00e-01	4.34e+04	4.33e+04	4.34e+04	0.23	108.0	2.05e+03	n/a
S96T005895		F	Antimony -ICP-Fusion	ug/g	98.60	<6.00e-02	<1.23e+03	<1.34e3	n/a	n/a	98.40	1.23e+03	n/a
S96T005895		F	Selenium -ICP-Fusion	ug/g	95.40	<1.00e-01	<2.05e+03	<2.24e3	n/a	n/a	96.90	2.05e+03	n/a
S96T005895		F	Silicon -ICP-Fusion	ug/g	98.60	<5.00e-02	5.41e+03	5.23e+03	5.32e+03	3.38	100.0	1.03e+03	n/a
S96T005895		F	Samarium -ICP-Fusion	ug/g	97.60	<1.00e-01	<2.05e+03	<2.24e3	n/a	n/a	97.20	2.05e+03	n/a
S96T005895		F	Strontium -ICP-Fusion	ug/g	98.20	<1.00e-02	<2.05e+02	<2.24e2	n/a	n/a	98.80	205.0	n/a
S96T005895		F	Titanium-ICP-Fusion	ug/g	99.40	<1.00e-02	<2.05e+02	<2.24e2	n/a	n/a	100.0	205.0	n/a
S96T005895		F	Thallium -ICP-Fusion	ug/g	97.40	<2.00e-01	<4.11e+03	<4.47e3	n/a	n/a	97.20	4.10e+03	n/a
S96T005895		F	Uranium -ICP-Fusion	ug/g	97.30	<5.00e-01	<1.03e+04	<1.12e4	n/a	n/a	97.50	1.03e+04	n/a
S96T005895		F	Vanadium -ICP-Fusion	ug/g	102.2	<5.00e-02	<1.03e+03	<1.12e3	n/a	n/a	102.0	1.03e+03	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005895		F	Zinc -ICP-Fusion	ug/g	104.6	<1.00e-02	<2.05e+02	<2.24e2	n/a	n/a	105.0	205.0	n/a
S96T005895		F	Zirconium -ICP-Fusion	ug/g	100.8	<1.00e-02	<2.05e+02	<2.24e2	n/a	n/a	100.0	205.0	n/a
S96T005895		F	Alpha of Digested Solid	uCi/g	90.87	4.00e-03	6.18e-02	6.28e-02	6.23e-02	1.61	71.31	4.00e-03	2.19E+01
S96T005903		W	Fluoride-IC-Dionex 4000/4500	ug/g	109.2	<1.20e-02	5.58e+04	5.46e+04	5.52e+04	2.17	110.0	249.5	n/a
S96T005903		W	Chloride-IC-Dionex 4000/4500	ug/g	107.2	<1.70e-02	3.07e+03	3.08e+03	3.08e+03	0.33	105.4	353.4	n/a
S96T005903		W	Nitrite-IC - Dionex 4000/4500	ug/g	104.6	<1.08e-01	5.65e+04	5.52e+04	5.59e+04	2.33	111.8	2.24e+03	n/a
S96T005903		W	Bromide by Ion Chromatograph	ug/g	103.4	<1.25e-01	<2.60e+03	<2.53e3	n/a	n/a	103.9	2.60e+03	n/a
S96T005903		W	Nitrate by IC-Dionex 4000/4500	ug/g	107.6	<1.39e-01	6.86e+04	6.90e+04	6.88e+04	0.58	114.3	2.89e+03	n/a
S96T005903		W	Phosphate-IC-Dionex 4000/4500	ug/g	107.9	<1.20e-01	<2.49e+03	<2.43e3	n/a	n/a	110.8	2.50e+03	n/a
S96T005903		W	Sulfate by IC-Dionex 4000/4500	ug/g	105.9	<1.38e-01	1.26e+05	1.24e+05	1.25e+05	1.60	115.4	2.87e+03	n/a
S96T005903		W	Oxalate by IC-Dionex 4000/4500	ug/g	100.4	<4.300	2.45e+03	1.27e+03	1.86e+03	63.4	39.96	886.0	n/a

Table 3. Data Summay Table
BY-112

CORE NUMBER: 177
SEGMENT #: Field Blank

SEGMENT PORTION: Field Blank

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005909			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T005909			DSC Exotherm on Perkin Elmer	Joules/g	102.1	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T005909			Specific Gravity	Sp.G.	100.0	n/a	9.86e-01	9.83e-01	9.84e-01	0.30	n/a	1.00e-03	n/a
S96T005909			% Water by TGA on Perkin Elmer	%	98.81	n/a	99.15	99.57	99.36	0.42	n/a	n/a	n/a
S96T005909			TIC by Acid/Coulometry	ug/mL	101.2	1.000	31.50	30.90	31.20	1.92	102.0	5.000	n/a
S96T005909			TOC by Persulfate/Coulometry	ug/mL	98.33	2.200	< 40.00	<4.00E+1	n/a	n/a	92.00	40.00	n/a
S96T005909		D	Silver-ICP-Acid Dil.	ug/mL	97.60	<1.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S96T005909		D	Aluminium-ICP-Acid Dil.	ug/mL	97.60	<5.00e-02	2.830	2.790	2.810	1.42	n/a	1.00e-01	n/a
S96T005909		D	Arsenic-ICP-Acid Dil.	ug/mL	103.2	<1.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S96T005909		D	Boron-ICP-Acid Dil.	ug/mL	102.2	<5.00e-02	1.990	2.020	2.005	1.50	n/a	1.00e-01	n/a
S96T005909		D	Barium-ICP-Acid Dil.	ug/mL	99.20	<5.00e-02	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S96T005909		D	Beryllium-ICP-Acid Dil.	ug/mL	101.8	<5.00e-03	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S96T005909		D	Bismuth-ICP-Acid Dil.	ug/mL	100.2	<1.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S96T005909		D	Calcium-ICP-Acid Dil.	ug/mL	99.40	<1.00e-01	16.50	16.40	16.45	0.61	n/a	2.00e-01	n/a
S96T005909		D	Cadmium-ICP-Acid Dil.	ug/mL	100.4	<5.00e-03	<1.00e-02	<1.00e-2	n/a	n/a	n/a	1.00e-02	n/a
S96T005909		D	Cerium-ICP-Acid Dil.	ug/mL	100.8	<1.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S96T005909		D	Cobalt-ICP-Acid Dil.	ug/mL	103.2	<2.00e-02	<4.00e-02	<4.00e-2	n/a	n/a	n/a	4.00e-02	n/a
S96T005909		D	Chromium-ICP-Acid Dil.	ug/mL	100.2	<1.00e-02	5.96e-02	6.15e-02	6.05e-02	3.14	n/a	2.00e-02	n/a
S96T005909		D	Copper-ICP-Acid Dil.	ug/mL	107.2	<1.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S96T005909		D	Iron-ICP-Acid Dil.	ug/mL	100.6	<5.00e-02	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S96T005909		D	Potassium-ICP-Acid Dil.	ug/mL	105.8	<5.00e-01	2.330	2.060	2.195	12.3	n/a	1.000	n/a
S96T005909		D	Lanthanum-ICP-Acid Dil.	ug/mL	99.40	<5.00e-02	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S96T005909		D	Lithium-ICP-Acid Dil.	ug/mL	96.80	<1.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S96T005909		D	Magnesium-ICP-Acid Dil.	ug/mL	100.8	<1.00e-01	7.52e-01	7.46e-01	7.49e-01	0.80	n/a	2.00e-01	n/a
S96T005909		D	Manganese-ICP-Acid Dil.	ug/mL	98.40	<1.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S96T005909		D	Molybdenum-ICP-Acid Dil.	ug/mL	103.4	<5.00e-02	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S96T005909		D	Sodium-ICP-Acid Dil.	ug/mL	104.0	<1.00e-01	73.20	73.90	73.55	0.95	n/a	2.00e-01	n/a
S96T005909		D	Neodymium-ICP-Acid Dil.	ug/mL	100.0	<1.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S96T005909		D	Nickel-ICP-Acid Dil.	ug/mL	100.4	<2.00e-02	<4.00e-02	<4.00e-2	n/a	n/a	n/a	4.00e-02	n/a
S96T005909		D	Phosphorus-ICP-Acid Dil.	ug/mL	102.8	<2.00e-01	<4.00e-01	<4.00e-1	n/a	n/a	n/a	4.00e-01	n/a
S96T005909		D	Lead-ICP-Acid Dil.	ug/mL	98.40	<1.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S96T005909		D	Sulfur-ICP-Acid Dil.	ug/mL	101.0	<1.00e-01	6.950	6.950	6.950	0.00	n/a	2.00e-01	n/a
S96T005909		D	Antimony-ICP-Acid Dil.	ug/mL	98.20	<6.00e-02	<1.20e-01	<1.20e-1	n/a	n/a	n/a	1.20e-01	n/a
S96T005909		D	Selenium-ICP-Acid Dil.	ug/mL	96.20	<1.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S96T005909		D	Silicon-ICP-Acid Dil.	ug/mL	99.40	<5.00e-02	2.780	2.770	2.775	0.36	n/a	1.00e-01	n/a
S96T005909		D	Samarium-ICP-Acid Dil.	ug/mL	98.20	<1.00e-01	<2.00e-01	<2.00e-1	n/a	n/a	n/a	2.00e-01	n/a
S96T005909		D	Strontium-ICP-Acid Dil.	ug/mL	98.60	<1.00e-02	7.20e-02	7.23e-02	7.21e-02	0.42	n/a	2.00e-02	n/a
S96T005909		D	Titanium-ICP-Acid Dil.	ug/mL	99.60	<1.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S96T005909		D	Thallium-ICP-Acid Dil.	ug/mL	96.80	<2.00e-01	<4.00e-01	<4.00e-1	n/a	n/a	n/a	4.00e-01	n/a
S96T005909		D	Uranium-ICP-Acid Dil.	ug/mL	97.70	<5.00e-01	< 1.000	<1.00e0	n/a	n/a	n/a	1.000	n/a
S96T005909		D	Vanadium-ICP-Acid Dil.	ug/mL	102.4	<5.00e-02	<1.00e-01	<1.00e-1	n/a	n/a	n/a	1.00e-01	n/a
S96T005909		D	Zinc-ICP-Acid Dil.	ug/mL	104.4	<1.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S96T005909		D	Zirconium-ICP-Acid Dil.	ug/mL	101.0	<1.00e-02	<2.00e-02	<2.00e-2	n/a	n/a	n/a	2.00e-02	n/a
S96T005909			Fluoride-IC-Dionex 500	ug/mL	111.4	<1.20e-02	6.90e-01	6.56e-01	6.73e-01	5.05	n/a	1.32e-01	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005909			Chloride-IC-Dionex 4000/4500	ug/mL	96.83	<1.70e-02	8.740	9.020	8.880	3.15	n/a	1.87e-01	n/a
S96T005909			Nitrite-IC - Dionex 4000/4500	ug/mL	95.93	<1.08e-01	17.40	17.90	17.65	2.83	n/a	1.188	n/a
S96T005909			Bromide by Ion Chromatograph	ug/mL	99.83	<1.25e-01	< 1.375	<1.38e0	n/a	n/a	n/a	1.375	n/a
S96T005909			Nitrate by IC-Dionex 4000/4500	ug/mL	101.3	<1.39e-01	43.66	44.30	43.98	1.36	n/a	1.529	n/a
S96T005909			Phosphate-IC-Dionex 4000/4500	ug/mL	97.79	<1.20e-01	< 1.320	<1.32e0	n/a	n/a	n/a	1.320	n/a
S96T005909			Sulfate by IC-Dionex 4000/4500	ug/mL	101.6	<1.38e-01	16.95	16.80	16.88	0.59	n/a	1.518	n/a
S96T005909			Oxalate by IC-Dionex 4000/4500	ug/mL	107.4	<1.05e-01	< 1.155	<1.16e0	n/a	n/a	n/a	1.155	n/a
S96T005909			Alpha in Liquid Samples	uCi/mL	84.78	<1.22e-02	<3.63e-06	<2.99E-6	n/a	n/a	n/a	7.53e-06	5.00E+02

Table 3. Data Summary Table
BY-112

CORE NUMBER: 177
SEGMENT #: 1

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005911			Bulk Density of Sample	g/mL	n/a	n/a	NA	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T005917			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T005917			DSC Exotherm on Perkin Elmer	Joules/g	101.1	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T005917			% Water by TGA on Perkin Elmer	%	99.04	n/a	39.43	21.83	30.63	57.5	n/a	n/a	n/a
S96T005917 1			% Water by TGA on Perkin Elmer	%	98.65	n/a	43.02	39.42	41.22	8.73	n/a	n/a	n/a
S96T005917			TIC by Acid/Coulometry	ug/g	101.7	1.200	3.43e+04	3.60e+04	3.52e+04	4.84	n/a	5.000	n/a
S96T005917			TOC by Persulfate/Coulometry	ug/g	97.00	3.700	1.39e+03	1.26e+03	1.32e+03	9.81	n/a	40.00	n/a
S96T005929	F		Silver -ICP-Fusion	ug/g	97.80	<1.00e-02	<1.99e+02	<1.86e2	n/a	n/a	43.50	199.0	n/a
S96T005929	F		Aluminium -ICP-Fusion	ug/g	97.80	<5.00e-02	1.11e+04	1.34e+04	1.22e+04	18.8	93.00	996.0	n/a
S96T005929	F		Arsenic -ICP-Fusion	ug/g	103.4	<1.00e-01	<1.99e+03	<1.86e3	n/a	n/a	102.0	1.99e+03	n/a
S96T005929	F		Boron -ICP-Fusion	ug/g	103.2	<5.00e-02	<9.95e+02	<9.28e2	n/a	n/a	97.60	996.0	n/a
S96T005929	F		Barium -ICP-Fusion	ug/g	99.00	<5.00e-02	<9.95e+02	<9.28e2	n/a	n/a	94.80	996.0	n/a
S96T005929	F		Beryllium -ICP-Fusion	ug/g	102.0	<5.00e-03	< 99.50	<9.28e1	n/a	n/a	97.60	99.60	n/a
S96T005929	F		Bismuth -ICP-Fusion	ug/g	101.0	<1.00e-01	<1.99e+03	<1.86e3	n/a	n/a	104.0	1.99e+03	n/a
S96T005929	F		Calcium -ICP-Fusion	ug/g	99.20	<1.00e-01	<1.99e+03	<1.86e3	n/a	n/a	102.0	1.99e+03	n/a
S96T005929	F		Cadmium -ICP-Fusion	ug/g	100.4	<5.00e-03	< 99.50	<9.28e1	n/a	n/a	100.0	99.60	n/a
S96T005929	F		Cerium -ICP-Fusion	ug/g	101.0	<1.00e-01	<1.99e+03	<1.86e3	n/a	n/a	96.20	1.99e+03	n/a
S96T005929	F		Cobalt -ICP-Fusion	ug/g	103.0	<2.00e-02	<3.98e+02	<3.71e2	n/a	n/a	102.0	398.0	n/a
S96T005929	F		Chromium -ICP-Fusion	ug/g	100.0	<1.00e-02	4.70e+03	4.38e+03	4.54e+03	7.05	99.20	199.0	n/a
S96T005929	F		Copper -ICP-Fusion	ug/g	107.6	<1.00e-02	<1.99e+02	<1.86e2	n/a	n/a	102.0	199.0	n/a
S96T005929	F		Iron -ICP-Fusion	ug/g	100.6	<5.00e-02	3.11e+03	3.31e+03	3.21e+03	6.23	98.20	996.0	n/a
S96T005929	F		Lanthanum -ICP-Fusion	ug/g	99.60	<5.00e-02	<9.95e+02	<9.28e2	n/a	n/a	96.50	996.0	n/a
S96T005929	F		Lithium -ICP-Fusion	ug/g	97.60	<1.00e-02	<1.99e+02	<1.86e2	n/a	n/a	90.50	199.0	n/a
S96T005929	F		Magnesium -ICP-Fusion	ug/g	101.0	<1.00e-01	<1.99e+03	<1.86e3	n/a	n/a	94.40	1.99e+03	n/a
S96T005929	F		Manganese -ICP-Fusion	ug/g	98.20	<1.00e-02	<1.99e+02	<1.86e2	n/a	n/a	95.10	199.0	n/a
S96T005929	F		Molybdenum -ICP-Fusion	ug/g	103.4	<5.00e-02	<9.95e+02	<9.28e2	n/a	n/a	103.0	996.0	n/a
S96T005929	F		Sodium -ICP-Fusion	ug/g	104.0	2.160	2.60e+05	2.47e+05	2.54e+05	5.13	85.90	1.99e+03	n/a
S96T005929	F		Neodymium -ICP-Fusion	ug/g	100.2	<1.00e-01	<1.99e+03	<1.86e3	n/a	n/a	96.50	1.99e+03	n/a
S96T005929	F		Phosphorus -ICP-Fusion	ug/g	104.6	<2.00e-01	3.78e+04	3.70e+04	3.74e+04	2.14	109.0	3.98e+03	n/a
S96T005929	F		Lead -ICP-Fusion	ug/g	98.20	<1.00e-01	<1.99e+03	<1.86e3	n/a	n/a	97.70	1.99e+03	n/a
S96T005929	F		Sulfur -ICP-Fusion	ug/g	101.6	<1.00e-01	<1.99e+03	<1.86e3	n/a	n/a	110.0	1.99e+03	n/a
S96T005929	F		Antimony -ICP-Fusion	ug/g	98.00	<6.00e-02	<1.19e+03	<1.11e3	n/a	n/a	96.00	1.19e+03	n/a
S96T005929	F		Selenium -ICP-Fusion	ug/g	96.00	<1.00e-01	<1.99e+03	<1.86e3	n/a	n/a	99.90	1.99e+03	n/a
S96T005929	F		Silicon -ICP-Fusion	ug/g	98.60	<5.00e-02	2.09e+03	1.77e+03	1.93e+03	16.6	98.30	996.0	n/a
S96T005929	F		Samarium -ICP-Fusion	ug/g	98.40	<1.00e-01	<1.99e+03	<1.86e3	n/a	n/a	97.30	1.99e+03	n/a
S96T005929	F		Strontium -ICP-Fusion	ug/g	98.80	<1.00e-02	<1.99e+02	<1.86e2	n/a	n/a	95.60	199.0	n/a
S96T005929	F		Titanium-ICP-Fusion	ug/g	99.60	<1.00e-02	<1.99e+02	<1.86e2	n/a	n/a	97.30	199.0	n/a
S96T005929	F		Thallium -ICP-Fusion	ug/g	96.40	<2.00e-01	<3.98e+03	<3.71e3	n/a	n/a	91.20	3.98e+03	n/a
S96T005929	F		Uranium -ICP-Fusion	ug/g	98.40	<5.00e-01	<9.95e+03	<9.28e3	n/a	n/a	95.00	9.96e+03	n/a
S96T005929	F		Vanadium -ICP-Fusion	ug/g	102.4	<5.00e-02	<9.95e+02	<9.28e2	n/a	n/a	101.0	996.0	n/a
S96T005929	F		Zinc -ICP-Fusion	ug/g	104.6	<1.00e-02	<1.99e+02	<1.86e2	n/a	n/a	104.0	199.0	n/a
S96T005929	F		Zirconium -ICP-Fusion	ug/g	101.2	<1.00e-02	<1.99e+02	<1.86e2	n/a	n/a	99.20	199.0	n/a
S96T005929	F		Alpha of Digested Solid	uCi/g	93.04	<3.29e-04	2.32e-03	2.32e-03	2.32e-03	0.00	n/a	3.86e-04	3.16E+01
S96T005935	W		Fluoride-IC-Dionex 4000/4500	ug/g	99.66	<1.20e-02	1.23e+04	1.23e+04	1.23e+04	0.00	115.8	91.80	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005935		W	Chloride-IC-Dionex 4000/4500	ug/g	100.5	<1.70e-02	3.72e+02	395.0	383.8	6.00	110.8	130.1	n/a
S96T005935		W	Nitrite-IC - Dionex 4000/4500	ug/g	97.41	<1.08e-01	5.47e+03	5.53e+03	5.50e+03	1.09	98.15	826.1	n/a
S96T005935		W	Bromide by Ion Chromatograph	ug/g	98.30	<1.25e-01	<9.56e+02	<1.02e3	n/a	n/a	103.2	956.5	n/a
S96T005935		W	Nitrate by IC-Dionex 4000/4500	ug/g	97.64	1.50e-01	1.44e+04	1.43e+04	1.43e+04	0.70	118.4	1.06e+03	n/a
S96T005935		W	Phosphate-IC-Dionex 4000/4500	ug/g	96.32	<1.20e-01	1.06e+05	1.06e+05	1.06e+05	0.00	118.0	918.0	n/a
S96T005935		W	Sulfate by IC-Dionex 4000/4500	ug/g	99.21	<1.38e-01	5.19e+03	5.23e+03	5.21e+03	0.77	108.7	1.06e+03	n/a
S96T005935		W	Oxalate by IC-Dionex 4000/4500	ug/g	104.4	<1.05e-01	2.74e+03	2.69e+03	2.72e+03	1.84	91.05	803.2	n/a

Table 3. Data Summary Table
BY-112

CORE NUMBER: 177
SEGMENT #: 2

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005912			Bulk Density of Sample	g/mL	n/a	n/a	1.190	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T005918			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T005918			DSC Exotherm on Perkin Elmer	Joules/g	97.61	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S96T005918			% Water by TGA on Perkin Elmer	%	97.86	n/a	15.73	15.00	15.37	4.75	n/a	n/a	n/a
S96T005918			TIC by Acid/Coulometry	ug/g	100.7	4.00e-01	7.84e+04	8.19e+04	8.02e+04	4.37	n/a	5.000	n/a
S96T005918			TOC by Persulfate/Coulometry	ug/g	95.00	9.800	9.04e+02	750.0	827.0	18.6	91.20	40.00	n/a
S96T005930		F	Silver -ICP-Fusion	ug/g	97.80	<1.00e-02	<1.91e+02	<1.86e2	n/a	n/a	n/a	191.0	n/a
S96T005930		F	Aluminium -ICP-Fusion	ug/g	97.80	<5.00e-02	1.25e+03	1.10e+03	1.18e+03	12.8	n/a	955.0	n/a
S96T005930		F	Arsenic -ICP-Fusion	ug/g	103.4	<1.00e-01	<1.91e+03	<1.86e3	n/a	n/a	n/a	1.91e+03	n/a
S96T005930		F	Boron -ICP-Fusion	ug/g	103.2	<5.00e-02	<9.53e+02	<9.31e2	n/a	n/a	n/a	955.0	n/a
S96T005930		F	Barium -ICP-Fusion	ug/g	99.00	<5.00e-02	<9.53e+02	<9.31e2	n/a	n/a	n/a	955.0	n/a
S96T005930		F	Beryllium -ICP-Fusion	ug/g	102.0	<5.00e-03	< 95.30	<9.31e1	n/a	n/a	n/a	95.50	n/a
S96T005930		F	Bismuth -ICP-Fusion	ug/g	101.0	<1.00e-01	<1.91e+03	<1.86e3	n/a	n/a	n/a	1.91e+03	n/a
S96T005930		F	Calcium -ICP-Fusion	ug/g	99.20	<1.00e-01	<1.91e+03	<1.86e3	n/a	n/a	n/a	1.91e+03	n/a
S96T005930		F	Cadmium -ICP-Fusion	ug/g	100.4	<5.00e-03	< 95.30	<9.31e1	n/a	n/a	n/a	95.50	n/a
S96T005930		F	Cerium -ICP-Fusion	ug/g	101.0	<1.00e-01	<1.91e+03	<1.86e3	n/a	n/a	n/a	1.91e+03	n/a
S96T005930		F	Cobalt -ICP-Fusion	ug/g	103.0	<2.00e-02	<3.81e+02	<3.73e2	n/a	n/a	n/a	381.0	n/a
S96T005930		F	Chromium -ICP-Fusion	ug/g	100.0	<1.00e-02	6.20e+03	6.12e+03	6.16e+03	1.30	n/a	191.0	n/a
S96T005930		F	Copper -ICP-Fusion	ug/g	107.6	<1.00e-02	<1.91e+02	<1.86e2	n/a	n/a	n/a	191.0	n/a
S96T005930		F	Iron -ICP-Fusion	ug/g	100.6	<5.00e-02	<9.53e+02	<9.31e2	n/a	n/a	n/a	955.0	n/a
S96T005930		F	Lanthanum -ICP-Fusion	ug/g	99.60	<5.00e-02	<9.53e+02	<9.31e2	n/a	n/a	n/a	955.0	n/a
S96T005930		F	Lithium -ICP-Fusion	ug/g	97.60	<1.00e-02	<1.91e+02	<1.86e2	n/a	n/a	n/a	191.0	n/a
S96T005930		F	Magnesium -ICP-Fusion	ug/g	101.0	<1.00e-01	<1.91e+03	<1.86e3	n/a	n/a	n/a	1.91e+03	n/a
S96T005930		F	Manganese -ICP-Fusion	ug/g	98.20	<1.00e-02	<1.91e+02	<1.86e2	n/a	n/a	n/a	191.0	n/a
S96T005930		F	Molybdenum -ICP-Fusion	ug/g	103.4	<5.00e-02	<9.53e+02	<9.31e2	n/a	n/a	n/a	955.0	n/a
S96T005930		F	Sodium -ICP-Fusion	ug/g	104.0	2.160	3.29e+05	3.33e+05	3.31e+05	1.21	n/a	1.91e+03	n/a
S96T005930		F	Neodymium -ICP-Fusion	ug/g	100.2	<1.00e-01	<1.91e+03	<1.86e3	n/a	n/a	n/a	1.91e+03	n/a
S96T005930		F	Phosphorus -ICP-Fusion	ug/g	104.6	<2.00e-01	7.89e+03	4.01e+03	5.95e+03	65.2	n/a	3.81e+03	n/a
S96T005930		F	Lead -ICP-Fusion	ug/g	98.20	<1.00e-01	<1.91e+03	<1.86e3	n/a	n/a	n/a	1.91e+03	n/a
S96T005930		F	Sulfur -ICP-Fusion	ug/g	101.6	<1.00e-01	2.63e+03	2.45e+03	2.54e+03	7.09	n/a	1.91e+03	n/a
S96T005930		F	Antimony -ICP-Fusion	ug/g	98.00	<6.00e-02	<1.14e+03	<1.12e3	n/a	n/a	n/a	1.14e+03	n/a
S96T005930		F	Selenium -ICP-Fusion	ug/g	96.00	<1.00e-01	<1.91e+03	<1.86e3	n/a	n/a	n/a	1.91e+03	n/a
S96T005930		F	Silicon -ICP-Fusion	ug/g	98.60	<5.00e-02	2.18e+03	2.27e+03	2.22e+03	4.04	n/a	955.0	n/a
S96T005930		F	Samarium -ICP-Fusion	ug/g	98.40	<1.00e-01	<1.91e+03	<1.86e3	n/a	n/a	n/a	1.91e+03	n/a
S96T005930		F	Strontium -ICP-Fusion	ug/g	98.80	<1.00e-02	<1.91e+02	<1.86e2	n/a	n/a	n/a	191.0	n/a
S96T005930		F	Titanium-ICP-Fusion	ug/g	99.60	<1.00e-02	<1.91e+02	<1.86e2	n/a	n/a	n/a	191.0	n/a
S96T005930		F	Thallium -ICP-Fusion	ug/g	96.40	<2.00e-01	<3.81e+03	<3.73e3	n/a	n/a	n/a	3.81e+03	n/a
S96T005930		F	Uranium -ICP-Fusion	ug/g	98.40	<5.00e-01	<9.53e+03	<9.31e3	n/a	n/a	n/a	9.55e+03	n/a
S96T005930		F	Vanadium -ICP-Fusion	ug/g	102.4	<5.00e-02	<9.53e+02	<9.31e2	n/a	n/a	n/a	955.0	n/a
S96T005930		F	Zinc -ICP-Fusion	ug/g	104.6	<1.00e-02	<1.91e+02	<1.86e2	n/a	n/a	n/a	191.0	n/a
S96T005930		F	Zirconium -ICP-Fusion	ug/g	101.2	<1.00e-02	<1.91e+02	<1.86e2	n/a	n/a	n/a	191.0	n/a
S96T005930		F	Alpha of Digested Solid	uCi/g	93.04	<3.29e-04	4.02e-02	3.55e-02	3.78e-02	12.4	n/a	3.70e-04	7.43E+00
S96T005936		W	Fluoride-IC-Dionex 4000/4500	ug/g	99.66	<1.20e-02	1.95e+03	5.22e+03	3.58e+03	91.2	n/a	89.22	n/a
S96T005936		W	Chloride-IC-Dionex 4000/4500	ug/g	100.5	<1.70e-02	2.16e+02	267.0	241.4	21.1	n/a	126.4	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005936		W	Nitrite-IC - Dionex 4000/4500	ug/g	97.41	<1.08e-01	2.86e+03	4.03e+03	3.44e+03	34.0	n/a	803.2	n/a
S96T005936		W	Bromide by Ion Chromatograph	ug/g	98.30	<1.25e-01	<9.30e+02	<9.82e2	n/a	n/a	n/a	929.5	n/a
S96T005936		W	Nitrate by IC-Dionex 4000/4500	ug/g	97.64	1.50e-01	4.66e+05	2.27e+04	2.44e+05	181	n/a	1.03e+03	n/a
S96T005936		W	Phosphate-IC-Dionex 4000/4500	ug/g	96.32	<1.20e-01	6.45e+03	1.81e+04	1.23e+04	94.9	n/a	892.2	n/a
S96T005936		W	Sulfate by IC-Dionex 4000/4500	ug/g	99.21	<1.38e-01	3.94e+03	9.45e+03	6.70e+03	82.3	n/a	1.03e+03	n/a
S96T005936		W	Oxalate by IC-Dionex 4000/4500	ug/g	104.4	<1.05e-01	1.30e+03	5.97e+03	3.64e+03	128	n/a	780.6	n/a

Table 3. Data Summary Table
BY-112

CORE NUMBER: 177
SEGMENT #: 3

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005913			Bulk Density of Sample	g/mL	n/a	n/a	1.070	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T005919			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	93.80	167.0	130.4	56.1	n/a	n/a	n/a
S96T005919			DSC Exotherm on Perkin Elmer	Joules/g	97.61	n/a	76.40	136.0	106.2	56.1	n/a	n/a	n/a
S96T005919			% Water by TGA on Perkin Elmer	%	97.86	n/a	21.15	15.94	18.54	28.1	n/a	n/a	n/a
S96T005919			TIC by Acid/Coulometry	ug/g	100.7	4.00e-01	6.85e+04	7.92e+04	7.38e+04	14.5	n/a	5.000	n/a
S96T005919			TOC by Persulfate/Coulometry	ug/g	95.00	9.800	5.16e+02	555.0	535.5	7.28	n/a	40.00	n/a
S96T005931	F		Silver -ICP-Fusion	ug/g	97.80	<1.00e-02	<1.85e+02	<2.09e2	n/a	n/a	n/a	185.0	n/a
S96T005931	F		Aluminium -ICP-Fusion	ug/g	97.80	<5.00e-02	1.78e+03	1.52e+03	1.65e+03	15.8	n/a	927.0	n/a
S96T005931	F		Arsenic -ICP-Fusion	ug/g	103.4	<1.00e-01	<1.85e+03	<2.09e3	n/a	n/a	n/a	1.85e+03	n/a
S96T005931	F		Boron -ICP-Fusion	ug/g	103.2	<5.00e-02	<9.26e+02	<1.05e3	n/a	n/a	n/a	927.0	n/a
S96T005931	F		Barium -ICP-Fusion	ug/g	99.00	<5.00e-02	<9.26e+02	<1.05e3	n/a	n/a	n/a	927.0	n/a
S96T005931	F		Beryllium -ICP-Fusion	ug/g	102.0	<5.00e-03	< 92.60	<1.05e2	n/a	n/a	n/a	92.70	n/a
S96T005931	F		Bismuth -ICP-Fusion	ug/g	101.0	<1.00e-01	<1.85e+03	<2.09e3	n/a	n/a	n/a	1.85e+03	n/a
S96T005931	F		Calcium -ICP-Fusion	ug/g	99.20	<1.00e-01	<1.85e+03	<2.09e3	n/a	n/a	n/a	1.85e+03	n/a
S96T005931	F		Cadmium -ICP-Fusion	ug/g	100.4	<5.00e-03	< 92.60	<1.05e2	n/a	n/a	n/a	92.70	n/a
S96T005931	F		Cerium -ICP-Fusion	ug/g	101.0	<1.00e-01	<1.85e+03	<2.09e3	n/a	n/a	n/a	1.85e+03	n/a
S96T005931	F		Cobalt -ICP-Fusion	ug/g	103.0	<2.00e-02	<3.71e+02	<4.19e2	n/a	n/a	n/a	371.0	n/a
S96T005931	F		Chromium -ICP-Fusion	ug/g	100.0	<1.00e-02	9.70e+03	8.70e+03	9.20e+03	10.9	n/a	185.0	n/a
S96T005931	F		Copper -ICP-Fusion	ug/g	107.6	<1.00e-02	<1.85e+02	<2.09e2	n/a	n/a	n/a	185.0	n/a
S96T005931	F		Iron -ICP-Fusion	ug/g	100.6	<5.00e-02	<9.26e+02	<1.05e3	n/a	n/a	n/a	927.0	n/a
S96T005931	F		Lanthanum -ICP-Fusion	ug/g	99.60	<5.00e-02	<9.26e+02	<1.05e3	n/a	n/a	n/a	927.0	n/a
S96T005931	F		Lithium -ICP-Fusion	ug/g	97.60	<1.00e-02	<1.85e+02	<2.09e2	n/a	n/a	n/a	185.0	n/a
S96T005931	F		Magnesium -ICP-Fusion	ug/g	101.0	<1.00e-01	<1.85e+03	<2.09e3	n/a	n/a	n/a	1.85e+03	n/a
S96T005931	F		Manganese -ICP-Fusion	ug/g	98.20	<1.00e-02	<1.85e+02	<2.09e2	n/a	n/a	n/a	185.0	n/a
S96T005931	F		Molybdenum -ICP-Fusion	ug/g	103.4	<5.00e-02	<9.26e+02	<1.05e3	n/a	n/a	n/a	927.0	n/a
S96T005931	F		Sodium -ICP-Fusion	ug/g	104.0	2.160	3.39e+05	3.61e+05	3.50e+05	6.29	n/a	1.85e+03	n/a
S96T005931	F		Neodymium -ICP-Fusion	ug/g	100.2	<1.00e-01	<1.85e+03	<2.09e3	n/a	n/a	n/a	1.85e+03	n/a
S96T005931	F		Phosphorus -ICP-Fusion	ug/g	104.6	<2.00e-01	<3.71e+03	<4.19e3	n/a	n/a	n/a	3.71e+03	n/a
S96T005931	F		Lead -ICP-Fusion	ug/g	98.20	<1.00e-01	<1.85e+03	<2.09e3	n/a	n/a	n/a	1.85e+03	n/a
S96T005931	F		Sulfur -ICP-Fusion	ug/g	101.6	<1.00e-01	2.21e+03	<2.09e3	n/a	n/a	n/a	1.85e+03	n/a
S96T005931	F		Antimony -ICP-Fusion	ug/g	98.00	<6.00e-02	<1.11e+03	<1.26e3	n/a	n/a	n/a	1.11e+03	n/a
S96T005931	F		Selenium -ICP-Fusion	ug/g	96.00	<1.00e-01	<1.85e+03	<2.09e3	n/a	n/a	n/a	1.85e+03	n/a
S96T005931	F		Silicon -ICP-Fusion	ug/g	98.60	<5.00e-02	2.76e+03	2.18e+03	2.47e+03	23.5	n/a	927.0	n/a
S96T005931	F		Samarium -ICP-Fusion	ug/g	98.40	<1.00e-01	<1.85e+03	<2.09e3	n/a	n/a	n/a	1.85e+03	n/a
S96T005931	F		Strontium -ICP-Fusion	ug/g	98.80	<1.00e-02	<1.85e+02	<2.09e2	n/a	n/a	n/a	185.0	n/a
S96T005931	F		Titanium-ICP-Fusion	ug/g	99.60	<1.00e-02	<1.85e+02	<2.09e2	n/a	n/a	n/a	185.0	n/a
S96T005931	F		Thallium -ICP-Fusion	ug/g	96.40	<2.00e-01	<3.71e+03	<4.19e3	n/a	n/a	n/a	3.71e+03	n/a
S96T005931	F		Uranium -ICP-Fusion	ug/g	98.40	<5.00e-01	<9.26e+03	<1.05e4	n/a	n/a	n/a	9.27e+03	n/a
S96T005931	F		Vanadium -ICP-Fusion	ug/g	102.4	<5.00e-02	<9.26e+02	<1.05e3	n/a	n/a	n/a	927.0	n/a
S96T005931	F		Zinc -ICP-Fusion	ug/g	104.6	<1.00e-02	<1.85e+02	<2.09e2	n/a	n/a	n/a	185.0	n/a
S96T005931	F		Zirconium -ICP-Fusion	ug/g	101.2	<1.00e-02	<1.85e+02	<2.09e2	n/a	n/a	n/a	185.0	n/a
S96T005931	F		Alpha of Digested Solid	uCi/g	93.04	<3.29e-04	4.97e-02	4.75e-02	4.86e-02	4.53	n/a	3.59e-04	6.27E+00
S96T005937	W		Fluoride-IC-Dionex 4000/4500	ug/g	99.66	<1.20e-02	6.38e+03	6.70e+03	6.54e+03	4.89	n/a	100.9	n/a
S96T005937	W		Chloride-IC-Dionex 4000/4500	ug/g	100.5	<1.70e-02	2.93e+02	272.0	282.4	7.43	n/a	142.9	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005937		W	Nitrite-IC - Dionex 4000/4500	ug/g	97.41	<1.08e-01	4.50e+03	4.34e+03	4.42e+03	3.62	n/a	908.1	n/a
S96T005937		W	Bromide by Ion Chromatograph	ug/g	98.30	<1.25e-01	<1.05e+03	<9.52e2	n/a	n/a	n/a	1.05e+03	n/a
S96T005937		W	Nitrate by IC-Dionex 4000/4500	ug/g	97.64	1.50e-01	2.40e+04	4.76e+04	3.58e+04	65.9	n/a	1.17e+03	n/a
S96T005937		W	Phosphate-IC-Dionex 4000/4500	ug/g	96.32	<1.20e-01	2.19e+03	7.70e+03	4.95e+03	111	n/a	1.01e+03	n/a
S96T005937		W	Sulfate by IC-Dionex 4000/4500	ug/g	99.21	<1.38e-01	8.08e+03	7.57e+03	7.82e+03	6.52	n/a	1.16e+03	n/a
S96T005937		W	Oxalate by IC-Dionex 4000/4500	ug/g	104.4	<1.05e-01	<8.83e+02	<8.00e2	n/a	n/a	n/a	882.7	n/a

Table 3. Data Summary Table
BY-112

CORE NUMBER: 177
SEGMENT #: 4

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005920			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	1.46e+02	83.50	114.8	54.5	n/a	n/a	n/a
S96T005920			DSC Exotherm on Perkin Elmer	Joules/g	97.61	n/a	1.17e+02	66.90	91.95	54.5	n/a	n/a	n/a
S96T005920			% Water by TGA on Perkin Elmer	%	97.86	n/a	18.25	21.46	19.86	16.2	n/a	n/a	n/a
S96T005920			TIC by Acid/Coulometry	ug/g	101.2	1.400	4.98e+04	5.62e+04	5.30e+04	12.1	137.0	5.000	n/a
S96T005920			TOC by Persulfate/Coulometry	ug/g	97.00	6.300	7.33e+03	6.08e+03	6.70e+03	18.6	92.70	40.00	n/a
S96T005932		F	Silver -ICP-Fusion	ug/g	98.00	<1.00e-02	<2.05e+02	<1.98e2	n/a	n/a	88.70	205.0	n/a
S96T005932		F	Aluminium -ICP-Fusion	ug/g	98.00	<5.00e-02	1.18e+04	1.48e+04	1.33e+04	22.6	90.20	1.02e+03	n/a
S96T005932		F	Arsenic -ICP-Fusion	ug/g	103.2	<1.00e-01	<2.05e+03	<1.98e3	n/a	n/a	98.70	2.05e+03	n/a
S96T005932		F	Boron -ICP-Fusion	ug/g	103.6	<5.00e-02	<1.02e+03	<9.88e2	n/a	n/a	95.60	1.02e+03	n/a
S96T005932		F	Barium -ICP-Fusion	ug/g	99.00	<5.00e-02	<1.02e+03	<9.88e2	n/a	n/a	91.90	1.02e+03	n/a
S96T005932		F	Beryllium -ICP-Fusion	ug/g	102.0	<5.00e-03	<1.02e+02	<9.88e1	n/a	n/a	95.70	102.0	n/a
S96T005932		F	Bismuth -ICP-Fusion	ug/g	101.4	<1.00e-01	<2.05e+03	<1.98e3	n/a	n/a	99.20	2.05e+03	n/a
S96T005932		F	Calcium -ICP-Fusion	ug/g	99.80	<1.00e-01	<2.05e+03	<1.98e3	n/a	n/a	101.0	2.05e+03	n/a
S96T005932		F	Cadmium -ICP-Fusion	ug/g	101.0	<5.00e-03	1.39e+02	136.0	137.5	2.18	97.90	102.0	n/a
S96T005932		F	Cerium -ICP-Fusion	ug/g	101.2	<1.00e-01	<2.05e+03	<1.98e3	n/a	n/a	96.80	2.05e+03	n/a
S96T005932		F	Cobalt -ICP-Fusion	ug/g	103.6	<2.00e-02	<4.09e+02	<3.95e2	n/a	n/a	100.0	409.0	n/a
S96T005932		F	Chromium -ICP-Fusion	ug/g	100.2	<1.00e-02	2.55e+04	2.49e+04	2.52e+04	2.38	95.30	205.0	n/a
S96T005932		F	Copper -ICP-Fusion	ug/g	107.6	<1.00e-02	<2.05e+02	<1.98e2	n/a	n/a	99.80	205.0	n/a
S96T005932		F	Iron -ICP-Fusion	ug/g	100.8	<5.00e-02	1.22e+03	1.28e+03	1.25e+03	4.80	96.40	1.02e+03	n/a
S96T005932		F	Lanthanum -ICP-Fusion	ug/g	99.80	<5.00e-02	<1.02e+03	<9.88e2	n/a	n/a	94.40	1.02e+03	n/a
S96T005932		F	Lithium -ICP-Fusion	ug/g	97.40	<1.00e-02	<2.05e+02	<1.98e2	n/a	n/a	89.00	205.0	n/a
S96T005932		F	Magnesium -ICP-Fusion	ug/g	101.0	<1.00e-01	<2.05e+03	<1.98e3	n/a	n/a	95.20	2.05e+03	n/a
S96T005932		F	Manganese -ICP-Fusion	ug/g	98.80	<1.00e-02	<2.05e+02	<1.98e2	n/a	n/a	93.90	205.0	n/a
S96T005932		F	Molybdenum -ICP-Fusion	ug/g	103.8	<5.00e-02	<1.02e+03	<9.88e2	n/a	n/a	101.0	1.02e+03	n/a
S96T005932		F	Sodium -ICP-Fusion	ug/g	103.8	1.830	3.23e+05	3.04e+05	3.14e+05	6.06	21.30	2.05e+03	n/a
S96T005932		F	Neodymium -ICP-Fusion	ug/g	100.4	<1.00e-01	<2.05e+03	<1.98e3	n/a	n/a	94.00	2.05e+03	n/a
S96T005932		F	Phosphorus -ICP-Fusion	ug/g	105.4	<2.00e-01	<4.09e+03	<3.95e3	n/a	n/a	104.0	4.09e+03	n/a
S96T005932		F	Lead -ICP-Fusion	ug/g	98.00	<1.00e-01	<2.05e+03	<1.98e3	n/a	n/a	97.60	2.05e+03	n/a
S96T005932		F	Sulfur -ICP-Fusion	ug/g	102.2	<1.00e-01	6.68e+03	6.30e+03	6.49e+03	5.86	100.0	2.05e+03	n/a
S96T005932		F	Antimony -ICP-Fusion	ug/g	98.40	<6.00e-02	<1.23e+03	<1.19e3	n/a	n/a	96.90	1.23e+03	n/a
S96T005932		F	Selenium -ICP-Fusion	ug/g	95.20	<1.00e-01	<2.05e+03	<1.98e3	n/a	n/a	95.60	2.05e+03	n/a
S96T005932		F	Silicon -ICP-Fusion	ug/g	99.20	<5.00e-02	2.10e+03	1.25e+03	1.68e+03	50.7	98.50	1.02e+03	n/a
S96T005932		F	Samarium -ICP-Fusion	ug/g	98.80	<1.00e-01	<2.05e+03	<1.98e3	n/a	n/a	95.20	2.05e+03	n/a
S96T005932		F	Strontium -ICP-Fusion	ug/g	99.00	<1.00e-02	<2.05e+02	<1.98e2	n/a	n/a	93.20	205.0	n/a
S96T005932		F	Titanium-ICP-Fusion	ug/g	99.80	<1.00e-02	<2.05e+02	<1.98e2	n/a	n/a	95.10	205.0	n/a
S96T005932		F	Thallium -ICP-Fusion	ug/g	97.60	<2.00e-01	<4.09e+03	<3.95e3	n/a	n/a	94.40	4.09e+03	n/a
S96T005932		F	Uranium -ICP-Fusion	ug/g	98.20	<5.00e-01	<1.02e+04	<9.88e3	n/a	n/a	94.00	1.02e+04	n/a
S96T005932		F	Vanadium -ICP-Fusion	ug/g	102.6	<5.00e-02	<1.02e+03	<9.88e2	n/a	n/a	99.10	1.02e+03	n/a
S96T005932		F	Zinc -ICP-Fusion	ug/g	105.0	<1.00e-02	<2.05e+02	<1.98e2	n/a	n/a	103.0	205.0	n/a
S96T005932		F	Zirconium -ICP-Fusion	ug/g	101.4	<1.00e-02	<2.05e+02	<1.98e2	n/a	n/a	96.80	205.0	n/a
S96T005938		W	Fluoride-IC-Dionex 4000/4500	ug/g	112.0	<1.20e-02	5.33e+03	5.16e+03	5.24e+03	3.24	104.6	25.23	n/a
S96T005938		W	Chloride-IC-Dionex 4000/4500	ug/g	98.10	6.20e-02	1.01e+03	1.05e+03	1.03e+03	3.88	98.86	35.75	n/a
S96T005938		W	Nitrite-IC - Dionex 4000/4500	ug/g	96.30	<1.08e-01	1.86e+04	1.92e+04	1.89e+04	3.17	103.3	227.1	n/a
S96T005938		W	Bromide by Ion Chromatograph	ug/g	97.79	<1.25e-01	<2.63e+02	<2.71e2	n/a	n/a	94.91	262.9	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005938		W	Nitrate by IC-Dionex 4000/4500	ug/g	101.5	<1.39e-01	5.72e+04	6.51e+04	6.12e+04	12.9	97.14	292.4	n/a
S96T005938		W	Phosphate-IC-Dionex 4000/4500	ug/g	95.22	<1.20e-01	2.77e+03	2.36e+03	2.56e+03	16.0	97.06	252.3	n/a
S96T005938		W	Sulfate by IC-Dionex 4000/4500	ug/g	105.4	<1.38e-01	2.03e+04	1.92e+04	1.97e+04	5.57	105.9	290.3	n/a
S96T005938		W	Oxalate by IC-Dionex 4000/4500	ug/g	107.8	<1.05e-01	4.10e+04	3.59e+04	3.85e+04	13.3	67.81	220.9	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005915			Bulk Density of Sample	g/mL	n/a	n/a	1.780	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T005921			DSC Exotherm using Mettler	Joules/g	95.25	n/a	1.50e+02	127.9	138.9	15.8	n/a	n/a	n/a
S96T005921			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	2.37e+02	202.0	219.5	15.9	n/a	n/a	n/a
S96T005921			% Water by TGA using Mettler	%	97.91	n/a	36.42	36.86	36.64	1.20	n/a	n/a	n/a
S96T005921			TIC by Acid/Coulometry	ug/g	100.0	2.800	1.19e+04	6.74e+03	9.32e+03	55.4	n/a	5.000	n/a
S96T005921			TOC by Persulfate/Coulometry	ug/g	95.67	3.900	2.98e+04	2.53e+04	2.76e+04	16.3	n/a	40.00	n/a
S96T005933		F	Silver -ICP-Fusion	ug/g	98.00	<1.00e-02	<2.13e+02	<2.08e2	n/a	n/a	n/a	212.0	n/a
S96T005933		F	Aluminium -ICP-Fusion	ug/g	98.00	<5.00e-02	1.64e+04	1.55e+04	1.60e+04	5.64	n/a	1.06e+03	n/a
S96T005933		F	Arsenic -ICP-Fusion	ug/g	103.2	<1.00e-01	<2.13e+03	<2.08e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005933		F	Boron -ICP-Fusion	ug/g	103.6	<5.00e-02	<1.06e+03	<1.04e3	n/a	n/a	n/a	1.06e+03	n/a
S96T005933		F	Barium -ICP-Fusion	ug/g	99.00	<5.00e-02	<1.06e+03	<1.04e3	n/a	n/a	n/a	1.06e+03	n/a
S96T005933		F	Beryllium -ICP-Fusion	ug/g	102.0	<5.00e-03	<1.06e+02	<1.04e2	n/a	n/a	n/a	106.0	n/a
S96T005933		F	Bismuth -ICP-Fusion	ug/g	101.4	<1.00e-01	<2.13e+03	<2.08e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005933		F	Calcium -ICP-Fusion	ug/g	99.80	<1.00e-01	<2.13e+03	<2.08e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005933		F	Cadmium -ICP-Fusion	ug/g	101.0	<5.00e-03	1.32e+02	116.0	124.0	12.9	n/a	106.0	n/a
S96T005933		F	Cerium -ICP-Fusion	ug/g	101.2	<1.00e-01	<2.13e+03	<2.08e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005933		F	Cobalt -ICP-Fusion	ug/g	103.6	<2.00e-02	<4.25e+02	<4.15e2	n/a	n/a	n/a	426.0	n/a
S96T005933		F	Chromium -ICP-Fusion	ug/g	100.2	<1.00e-02	4.74e+04	4.39e+04	4.56e+04	7.67	n/a	212.0	n/a
S96T005933		F	Copper -ICP-Fusion	ug/g	107.6	<1.00e-02	<2.13e+02	<2.08e2	n/a	n/a	n/a	212.0	n/a
S96T005933		F	Iron -ICP-Fusion	ug/g	100.8	<5.00e-02	5.31e+03	4.98e+03	5.14e+03	6.41	n/a	1.06e+03	n/a
S96T005933		F	Lanthanum -ICP-Fusion	ug/g	99.80	<5.00e-02	<1.06e+03	<1.04e3	n/a	n/a	n/a	1.06e+03	n/a
S96T005933		F	Lithium -ICP-Fusion	ug/g	97.40	<1.00e-02	<2.13e+02	<2.08e2	n/a	n/a	n/a	212.0	n/a
S96T005933		F	Magnesium -ICP-Fusion	ug/g	101.0	<1.00e-01	<2.13e+03	<2.08e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005933		F	Manganese -ICP-Fusion	ug/g	98.80	<1.00e-02	5.50e+02	515.0	532.5	6.57	n/a	212.0	n/a
S96T005933		F	Molybdenum -ICP-Fusion	ug/g	103.8	<5.00e-02	<1.06e+03	<1.04e3	n/a	n/a	n/a	1.06e+03	n/a
S96T005933		F	Sodium -ICP-Fusion	ug/g	103.8	1.830	2.65e+05	2.72e+05	2.68e+05	2.61	n/a	2.12e+03	n/a
S96T005933		F	Neodymium -ICP-Fusion	ug/g	100.4	<1.00e-01	<2.13e+03	<2.08e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005933		F	Phosphorus -ICP-Fusion	ug/g	105.4	<2.00e-01	<4.25e+03	<4.15e3	n/a	n/a	n/a	4.26e+03	n/a
S96T005933		F	Lead -ICP-Fusion	ug/g	98.00	<1.00e-01	<2.13e+03	<2.08e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005933		F	Sulfur -ICP-Fusion	ug/g	102.2	<1.00e-01	9.84e+03	1.07e+04	1.03e+04	8.37	n/a	2.12e+03	n/a
S96T005933		F	Antimony -ICP-Fusion	ug/g	98.40	<6.00e-02	<1.28e+03	<1.25e3	n/a	n/a	n/a	1.28e+03	n/a
S96T005933		F	Selenium -ICP-Fusion	ug/g	95.20	<1.00e-01	<2.13e+03	<2.08e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005933		F	Silicon -ICP-Fusion	ug/g	99.20	<5.00e-02	3.68e+03	3.27e+03	3.48e+03	11.8	n/a	1.06e+03	n/a
S96T005933		F	Samarium -ICP-Fusion	ug/g	98.80	<1.00e-01	<2.13e+03	<2.08e3	n/a	n/a	n/a	2.12e+03	n/a
S96T005933		F	Strontium -ICP-Fusion	ug/g	99.00	<1.00e-02	<2.13e+02	<2.08e2	n/a	n/a	n/a	212.0	n/a
S96T005933		F	Titanium-ICP-Fusion	ug/g	99.80	<1.00e-02	<2.13e+02	<2.08e2	n/a	n/a	n/a	212.0	n/a
S96T005933		F	Thallium -ICP-Fusion	ug/g	97.60	<2.00e-01	<4.25e+03	<4.15e3	n/a	n/a	n/a	4.26e+03	n/a
S96T005933		F	Uranium -ICP-Fusion	ug/g	98.20	<5.00e-01	<1.06e+04	<1.04e4	n/a	n/a	n/a	1.06e+04	n/a
S96T005933		F	Vanadium -ICP-Fusion	ug/g	102.6	<5.00e-02	<1.06e+03	<1.04e3	n/a	n/a	n/a	1.06e+03	n/a
S96T005933		F	Zinc -ICP-Fusion	ug/g	105.0	<1.00e-02	<2.13e+02	<2.08e2	n/a	n/a	n/a	212.0	n/a
S96T005933		F	Zirconium -ICP-Fusion	ug/g	101.4	<1.00e-02	<2.13e+02	<2.08e2	n/a	n/a	n/a	212.0	n/a
S96T005933		F	Alpha of Digested Solid	uCi/g	89.56	<2.08e-02	1.74e-01	1.54e-01	1.64e-01	12.2	n/a	5.00e-02	3.32E+01
S96T005939		W	Fluoride-IC-Dionex 4000/4500	ug/g	112.0	<1.20e-02	6.94e+03	7.94e+03	7.44e+03	13.4	n/a	49.73	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005939		W	Chloride-IC-Dionex 4000/4500	ug/g	98.10	6.20e-02	1.38e+03	1.51e+03	1.45e+03	9.00	n/a	70.45	n/a
S96T005939		W	Nitrite-IC - Dionex 4000/4500	ug/g	96.30	<1.08e-01	2.55e+04	2.76e+04	2.65e+04	7.91	n/a	447.5	n/a
S96T005939		W	Bromide by Ion Chromatograph	ug/g	97.79	<1.25e-01	<5.18e+02	<5.11e2	n/a	n/a	n/a	518.1	n/a
S96T005939		W	Nitrate by IC-Dionex 4000/4500	ug/g	101.5	<1.39e-01	1.09e+05	8.19e+04	9.53e+04	28.4	n/a	576.0	n/a
S96T005939		W	Phosphate-IC-Dionex 4000/4500	ug/g	95.22	<1.20e-01	3.90e+03	3.50e+04	1.95e+04	160	n/a	497.3	n/a
S96T005939		W	Sulfate by IC-Dionex 4000/4500	ug/g	105.4	<1.38e-01	2.60e+04	3.07e+04	2.84e+04	16.6	n/a	572.0	n/a
S96T005939		W	Oxalate by IC-Dionex 4000/4500	ug/g	107.8	<1.05e-01	1.11e+05	1.30e+05	1.20e+05	15.8	n/a	435.1	n/a

Table 3. Data Summay Table
BY-112

CORE NUMBER: 177
SEGMENT #: 5

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005950			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	76.60	214.0	145.3	94.6	n/a	n/a	n/a
S96T005950			DSC Exotherm on Perkin Elmer	Joules/g	102.1	n/a	50.90	142.0	96.45	94.5	n/a	n/a	n/a
S96T005950			% Water by TGA on Perkin Elmer	%	97.86	n/a	32.32	34.77	33.55	7.30	n/a	n/a	n/a
S96T005950			TIC by Acid/Coulometry	ug/g	100.0	2.800	1.31e+04	1.10e+04	1.20e+04	17.4	n/a	5.000	n/a
S96T005950			TOC by Persulfate/Coulometry	ug/g	95.67	3.900	2.34e+04	1.78e+04	2.06e+04	27.2	n/a	40.00	n/a
S96T005956		F	Silver -ICP-Fusion	ug/g	98.00	<1.00e-02	<2.19e+02	<2.14e2	n/a	n/a	n/a	219.0	n/a
S96T005956		F	Aluminium -ICP-Fusion	ug/g	98.00	<5.00e-02	2.14e+04	2.21e+04	2.18e+04	3.22	n/a	1.09e+03	n/a
S96T005956		F	Arsenic -ICP-Fusion	ug/g	103.2	<1.00e-01	<2.19e+03	<2.14e3	n/a	n/a	n/a	2.19e+03	n/a
S96T005956		F	Boron -ICP-Fusion	ug/g	103.6	<5.00e-02	<1.09e+03	<1.07e3	n/a	n/a	n/a	1.09e+03	n/a
S96T005956		F	Barium -ICP-Fusion	ug/g	99.00	<5.00e-02	<1.09e+03	<1.07e3	n/a	n/a	n/a	1.09e+03	n/a
S96T005956		F	Beryllium -ICP-Fusion	ug/g	102.0	<5.00e-03	<1.09e+02	<1.07e2	n/a	n/a	n/a	109.0	n/a
S96T005956		F	Bismuth -ICP-Fusion	ug/g	101.4	<1.00e-01	<2.19e+03	<2.14e3	n/a	n/a	n/a	2.19e+03	n/a
S96T005956		F	Calcium -ICP-Fusion	ug/g	99.80	<1.00e-01	<2.19e+03	<2.14e3	n/a	n/a	n/a	2.19e+03	n/a
S96T005956		F	Cadmium -ICP-Fusion	ug/g	101.0	<5.00e-03	1.10e+02	119.0	114.5	7.86	n/a	109.0	n/a
S96T005956		F	Cerium -ICP-Fusion	ug/g	101.2	<1.00e-01	<2.19e+03	<2.14e3	n/a	n/a	n/a	2.19e+03	n/a
S96T005956		F	Cobalt -ICP-Fusion	ug/g	103.6	<2.00e-02	<4.38e+02	<4.29e2	n/a	n/a	n/a	439.0	n/a
S96T005956		F	Chromium -ICP-Fusion	ug/g	100.2	<1.00e-02	3.75e+04	3.53e+04	3.64e+04	6.04	n/a	219.0	n/a
S96T005956		F	Copper -ICP-Fusion	ug/g	107.6	<1.00e-02	<2.19e+02	<2.14e2	n/a	n/a	n/a	219.0	n/a
S96T005956		F	Iron -ICP-Fusion	ug/g	100.8	<5.00e-02	4.91e+03	5.10e+03	5.00e+03	3.80	n/a	1.09e+03	n/a
S96T005956		F	Lanthanum -ICP-Fusion	ug/g	99.80	<5.00e-02	<1.09e+03	<1.07e3	n/a	n/a	n/a	1.09e+03	n/a
S96T005956		F	Lithium -ICP-Fusion	ug/g	97.40	<1.00e-02	<2.19e+02	<2.14e2	n/a	n/a	n/a	219.0	n/a
S96T005956		F	Magnesium -ICP-Fusion	ug/g	101.0	<1.00e-01	<2.19e+03	<2.14e3	n/a	n/a	n/a	2.19e+03	n/a
S96T005956		F	Manganese -ICP-Fusion	ug/g	98.80	<1.00e-02	4.85e+02	453.0	469.0	6.82	n/a	219.0	n/a
S96T005956		F	Molybdenum -ICP-Fusion	ug/g	103.8	<5.00e-02	<1.09e+03	<1.07e3	n/a	n/a	n/a	1.09e+03	n/a
S96T005956		F	Sodium -ICP-Fusion	ug/g	103.8	1.830	2.73e+05	2.74e+05	2.74e+05	0.37	n/a	2.19e+03	n/a
S96T005956		F	Neodymium -ICP-Fusion	ug/g	100.4	<1.00e-01	<2.19e+03	<2.14e3	n/a	n/a	n/a	2.19e+03	n/a
S96T005956		F	Phosphorus -ICP-Fusion	ug/g	105.4	<2.00e-01	<4.38e+03	<4.29e3	n/a	n/a	n/a	4.39e+03	n/a
S96T005956		F	Lead -ICP-Fusion	ug/g	98.00	<1.00e-01	<2.19e+03	<2.14e3	n/a	n/a	n/a	2.19e+03	n/a
S96T005956		F	Sulfur -ICP-Fusion	ug/g	102.2	<1.00e-01	6.19e+03	5.77e+03	5.98e+03	7.02	n/a	2.19e+03	n/a
S96T005956		F	Antimony -ICP-Fusion	ug/g	98.40	<6.00e-02	<1.31e+03	<1.29e3	n/a	n/a	n/a	1.31e+03	n/a
S96T005956		F	Selenium -ICP-Fusion	ug/g	95.20	<1.00e-01	<2.19e+03	<2.14e3	n/a	n/a	n/a	2.19e+03	n/a
S96T005956		F	Silicon -ICP-Fusion	ug/g	99.20	<5.00e-02	2.38e+03	3.05e+03	2.72e+03	24.7	n/a	1.09e+03	n/a
S96T005956		F	Samarium -ICP-Fusion	ug/g	98.80	<1.00e-01	<2.19e+03	<2.14e3	n/a	n/a	n/a	2.19e+03	n/a
S96T005956		F	Strontium -ICP-Fusion	ug/g	99.00	<1.00e-02	<2.19e+02	<2.14e2	n/a	n/a	n/a	219.0	n/a
S96T005956		F	Titanium-ICP-Fusion	ug/g	99.80	<1.00e-02	<2.19e+02	<2.14e2	n/a	n/a	n/a	219.0	n/a
S96T005956		F	Thallium -ICP-Fusion	ug/g	97.60	<2.00e-01	<4.38e+03	<4.29e3	n/a	n/a	n/a	4.39e+03	n/a
S96T005956		F	Uranium -ICP-Fusion	ug/g	98.20	<5.00e-01	<1.09e+04	<1.07e4	n/a	n/a	n/a	1.09e+04	n/a
S96T005956		F	Vanadium -ICP-Fusion	ug/g	102.6	<5.00e-02	<1.09e+03	<1.07e3	n/a	n/a	n/a	1.09e+03	n/a
S96T005956		F	Zinc -ICP-Fusion	ug/g	105.0	<1.00e-02	<2.19e+02	<2.14e2	n/a	n/a	n/a	219.0	n/a
S96T005956		F	Zirconium -ICP-Fusion	ug/g	101.4	<1.00e-02	<2.19e+02	<2.14e2	n/a	n/a	n/a	219.0	n/a
S96T005958		W	Fluoride-IC-Dionex 4000/4500	ug/g	112.0	<1.20e-02	5.70e+03	5.37e+03	5.53e+03	5.96	n/a	53.26	n/a
S96T005958		W	Chloride-IC-Dionex 4000/4500	ug/g	98.10	6.20e-02	2.30e+03	2.20e+03	2.25e+03	4.44	n/a	75.45	n/a
S96T005958		W	Nitrite-IC - Dionex 4000/4500	ug/g	96.30	<1.08e-01	4.20e+04	4.05e+04	4.13e+04	3.64	n/a	479.4	n/a
S96T005958		W	Bromide by Ion Chromatograph	ug/g	97.79	<1.25e-01	<5.55e+02	<5.42e2	n/a	n/a	n/a	554.8	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005958		W	Nitrate by IC-Dionex 4000/4500	ug/g	101.5	<1.39e-01	8.74e+04	8.30e+04	8.52e+04	5.16	n/a	617.0	n/a
S96T005958		W	Phosphate-IC-Dionex 4000/4500	ug/g	95.22	<1.20e-01	3.46e+03	5.03e+03	4.25e+03	37.0	n/a	532.6	n/a
S96T005958		W	Sulfate by IC-Dionex 4000/4500	ug/g	105.4	<1.38e-01	1.67e+04	1.58e+04	1.62e+04	5.54	n/a	612.6	n/a
S96T005958		W	Oxalate by IC-Dionex 4000/4500	ug/g	107.8	<1.05e-01	1.18e+05	1.16e+05	1.17e+05	1.71	n/a	466.0	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005942			Bulk Density of Sample	g/mL	n/a	n/a	1.560	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T005951			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	1.66e+02	186.0	176.0	11.4	n/a	n/a	n/a
S96T005951			DSC Exotherm on Perkin Elmer	Joules/g	102.1	n/a	99.20	111.0	105.1	11.2	n/a	n/a	n/a
S96T005951			% Water by TGA on Perkin Elmer	%	97.86	n/a	40.34	40.06	40.20	0.70	n/a	n/a	n/a
S96T005951			TIC by Acid/Coulometry	ug/g	102.7	1.400	1.27e+04	1.04e+04	1.16e+04	19.9	n/a	5.000	n/a
S96T005951			TOC by Persulfate/Coulometry	ug/g	99.00	5.00e-01	8.45e+03	8.78e+03	8.62e+03	3.83	n/a	40.00	n/a
S96T005957		F	Silver -ICP-Fusion	ug/g	97.80	<1.00e-02	<2.25e+02	<2.11e2	n/a	n/a	87.80	225.0	n/a
S96T005957		F	Aluminium -ICP-Fusion	ug/g	98.20	<5.00e-02	2.46e+04	2.18e+04	2.32e+04	12.1	96.00	1.12e+03	n/a
S96T005957		F	Arsenic -ICP-Fusion	ug/g	102.4	<1.00e-01	<2.25e+03	<2.11e3	n/a	n/a	102.0	2.25e+03	n/a
S96T005957		F	Boron -ICP-Fusion	ug/g	100.2	<5.00e-02	<1.13e+03	<1.05e3	n/a	n/a	96.40	1.12e+03	n/a
S96T005957		F	Barium -ICP-Fusion	ug/g	100.6	<5.00e-02	<1.13e+03	<1.05e3	n/a	n/a	95.90	1.12e+03	n/a
S96T005957		F	Beryllium -ICP-Fusion	ug/g	101.4	<5.00e-03	<1.13e+02	<1.05e2	n/a	n/a	98.70	112.0	n/a
S96T005957		F	Bismuth -ICP-Fusion	ug/g	101.6	<1.00e-01	<2.25e+03	<2.11e3	n/a	n/a	100.0	2.25e+03	n/a
S96T005957		F	Calcium -ICP-Fusion	ug/g	100.6	<1.00e-01	<2.25e+03	<2.11e3	n/a	n/a	99.90	2.25e+03	n/a
S96T005957		F	Cadmium -ICP-Fusion	ug/g	100.6	<5.00e-03	<1.13e+02	<1.05e2	n/a	n/a	98.00	112.0	n/a
S96T005957		F	Cerium -ICP-Fusion	ug/g	102.4	<1.00e-01	<2.25e+03	<2.11e3	n/a	n/a	98.50	2.25e+03	n/a
S96T005957		F	Cobalt -ICP-Fusion	ug/g	101.6	<2.00e-02	<4.50e+02	<4.21e2	n/a	n/a	99.30	451.0	n/a
S96T005957		F	Chromium -ICP-Fusion	ug/g	100.4	<1.00e-02	2.10e+04	1.91e+04	2.00e+04	9.48	99.20	225.0	n/a
S96T005957		F	Copper -ICP-Fusion	ug/g	106.4	<1.00e-02	<2.25e+02	<2.11e2	n/a	n/a	103.0	225.0	n/a
S96T005957		F	Iron -ICP-Fusion	ug/g	101.0	<5.00e-02	<1.13e+03	<1.05e3	n/a	n/a	103.0	1.12e+03	n/a
S96T005957		F	Lanthanum -ICP-Fusion	ug/g	100.8	<5.00e-02	<1.13e+03	<1.05e3	n/a	n/a	97.80	1.12e+03	n/a
S96T005957		F	Lithium -ICP-Fusion	ug/g	97.60	<1.00e-02	<2.25e+02	<2.11e2	n/a	n/a	95.00	225.0	n/a
S96T005957		F	Magnesium -ICP-Fusion	ug/g	101.4	<1.00e-01	<2.25e+03	<2.11e3	n/a	n/a	98.60	2.25e+03	n/a
S96T005957		F	Manganese -ICP-Fusion	ug/g	98.60	<1.00e-02	<2.25e+02	<2.11e2	n/a	n/a	94.70	225.0	n/a
S96T005957		F	Molybdenum -ICP-Fusion	ug/g	102.6	<5.00e-02	<1.13e+03	<1.05e3	n/a	n/a	100.0	1.12e+03	n/a
S96T005957		F	Sodium -ICP-Fusion	ug/g	104.6	1.980	2.73e+05	2.68e+05	2.70e+05	1.85	114.0	2.25e+03	n/a
S96T005957		F	Neodymium -ICP-Fusion	ug/g	101.4	<1.00e-01	<2.25e+03	<2.11e3	n/a	n/a	98.20	2.25e+03	n/a
S96T005957		F	Phosphorus -ICP-Fusion	ug/g	101.4	<2.00e-01	<4.50e+03	<4.21e3	n/a	n/a	109.0	4.51e+03	n/a
S96T005957		F	Lead -ICP-Fusion	ug/g	98.40	<1.00e-01	<2.25e+03	<2.11e3	n/a	n/a	95.60	2.25e+03	n/a
S96T005957		F	Sulfur -ICP-Fusion	ug/g	99.00	<1.00e-01	4.38e+03	4.13e+03	4.26e+03	5.88	100.0	2.25e+03	n/a
S96T005957		F	Antimony -ICP-Fusion	ug/g	97.00	<6.00e-02	<1.35e+03	<1.26e3	n/a	n/a	96.10	1.35e+03	n/a
S96T005957		F	Selenium -ICP-Fusion	ug/g	94.20	<1.00e-01	<2.25e+03	<2.11e3	n/a	n/a	93.50	2.25e+03	n/a
S96T005957		F	Silicon -ICP-Fusion	ug/g	99.20	<5.00e-02	<1.13e+03	1.08e+03	n/a	n/a	104.0	1.12e+03	n/a
S96T005957		F	Samarium -ICP-Fusion	ug/g	99.20	<1.00e-01	<2.25e+03	<2.11e3	n/a	n/a	95.90	2.25e+03	n/a
S96T005957		F	Strontium -ICP-Fusion	ug/g	99.80	<1.00e-02	<2.25e+02	<2.11e2	n/a	n/a	97.30	225.0	n/a
S96T005957		F	Titanium-ICP-Fusion	ug/g	99.00	<1.00e-02	<2.25e+02	<2.11e2	n/a	n/a	96.70	225.0	n/a
S96T005957		F	Thallium -ICP-Fusion	ug/g	98.40	<2.00e-01	<4.50e+03	<4.21e3	n/a	n/a	96.00	4.51e+03	n/a
S96T005957		F	Uranium -ICP-Fusion	ug/g	97.50	<5.00e-01	<1.13e+04	<1.05e4	n/a	n/a	91.00	1.12e+04	n/a
S96T005957		F	Vanadium -ICP-Fusion	ug/g	101.4	<5.00e-02	<1.13e+03	<1.05e3	n/a	n/a	99.10	1.12e+03	n/a
S96T005957		F	Zinc -ICP-Fusion	ug/g	102.8	<1.00e-02	<2.25e+02	<2.11e2	n/a	n/a	101.0	225.0	n/a
S96T005957		F	Zirconium -ICP-Fusion	ug/g	100.4	<1.00e-02	<2.25e+02	<2.11e2	n/a	n/a	97.30	225.0	n/a
S96T005957		F	Alpha of Digested Solid	uCi/g	85.22	1.00e-02	4.50e-02	4.59e-02	4.55e-02	1.98	n/a	1.80e-02	4.15E+01
S96T005959		W	Fluoride-IC-Dionex 4000/4500	ug/g	103.9	<4.92e-01	2.88e+03	2.80e+03	2.84e+03	2.82	101.4	103.5	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005959		W	Chloride-IC-Dionex 4000/4500	ug/g	100.6	<6.97e-01	3.02e+03	2.88e+03	2.95e+03	4.75	96.84	146.7	n/a
S96T005959		W	Nitrite-IC - Dionex 4000/4500	ug/g	100.7	<4.430	5.49e+04	5.08e+04	5.28e+04	7.76	103.5	931.5	n/a
S96T005959		W	Bromide by Ion Chromatograph	ug/g	98.64	<5.120	<1.08e+03	<1.03e3	n/a	n/a	100.7	1.08e+03	n/a
S96T005959		W	Nitrate by IC-Dionex 4000/4500	ug/g	97.64	7.050	9.70e+04	1.28e+05	1.13e+05	27.6	120.7	1.20e+03	n/a
S96T005959		W	Phosphate-IC-Dionex 4000/4500	ug/g	95.96	<4.920	3.27e+03	2.58e+03	2.92e+03	23.6	98.90	1.04e+03	n/a
S96T005959		W	Sulfate by IC-Dionex 4000/4500	ug/g	99.05	<5.660	1.14e+04	1.32e+04	1.23e+04	14.6	106.2	1.19e+03	n/a
S96T005959		W	Oxalate by IC-Dionex 4000/4500	ug/g	104.8	<4.300	3.46e+04	3.73e+04	3.59e+04	7.51	106.9	905.7	n/a

Drainable Liquid: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005960			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	1.42e+02	71.30	106.7	66.3	n/a	n/a	n/a
S96T005960			DSC Exotherm on Perkin Elmer	Joules/g	102.1	n/a	72.64	36.61	54.62	66.0	n/a	n/a	n/a
S96T005960			Specific Gravity	Sp.G.	100.0	n/a	1.462	1.470	1.466	0.55	n/a	1.00e-03	n/a
S96T005960			% Water by TGA on Perkin Elmer	%	98.81	n/a	48.75	48.60	48.67	0.31	n/a	n/a	n/a
S96T005960			TIC by Acid/Coulometry	ug/mL	100.8	3.300	1.47e+03	1.46e+03	1.46e+03	0.68	111.0	5.000	n/a
S96T005960			TOC by Persulfate/Coulometry	ug/mL	96.67	4.900	1.51e+03	1.53e+03	1.52e+03	1.32	112.0	40.00	n/a
S96T005960		D	Silver-ICP-Acid Dil.	ug/mL	97.60	<1.00e-02	18.00	17.90	17.95	0.56	83.80	6.010	n/a
S96T005960		D	Aluminium-ICP-Acid Dil.	ug/mL	97.60	<5.00e-02	5.40e+04	5.46e+04	5.43e+04	1.10	-5.870e2	30.10	n/a
S96T005960		D	Arsenic-ICP-Acid Dil.	ug/mL	103.2	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	91.80	60.10	n/a
S96T005960		D	Boron-ICP-Acid Dil.	ug/mL	102.2	<5.00e-02	40.30	39.00	39.65	3.28	732.0	30.10	n/a
S96T005960		D	Barium-ICP-Acid Dil.	ug/mL	99.20	<5.00e-02	< 30.10	<3.01e1	n/a	n/a	93.00	30.10	n/a
S96T005960		D	Beryllium-ICP-Acid Dil.	ug/mL	101.8	<5.00e-03	< 3.000	<3.00e0	n/a	n/a	96.20	3.000	n/a
S96T005960		D	Bismuth-ICP-Acid Dil.	ug/mL	100.2	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	95.30	60.10	n/a
S96T005960		D	Calcium-ICP-Acid Dil.	ug/mL	99.40	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	96.10	60.10	n/a
S96T005960		D	Cadmium-ICP-Acid Dil.	ug/mL	100.4	<5.00e-03	< 3.000	<3.00e0	n/a	n/a	94.60	3.000	n/a
S96T005960		D	Cerium-ICP-Acid Dil.	ug/mL	100.8	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	95.10	60.10	n/a
S96T005960		D	Cobalt-ICP-Acid Dil.	ug/mL	103.2	<2.00e-02	< 12.00	<1.20e1	n/a	n/a	98.00	12.00	n/a
S96T005960		D	Chromium-ICP-Acid Dil.	ug/mL	100.2	<1.00e-02	1.32e+04	1.33e+04	1.32e+04	0.75	-7.710e1	6.010	n/a
S96T005960		D	Copper-ICP-Acid Dil.	ug/mL	107.2	<1.00e-02	< 6.010	<6.01e0	n/a	n/a	99.10	6.010	n/a
S96T005960		D	Iron-ICP-Acid Dil.	ug/mL	100.6	<5.00e-02	< 30.10	<3.01e1	n/a	n/a	93.90	30.10	n/a
S96T005960		D	Potassium-ICP-Acid Dil.	ug/mL	105.8	<5.00e-01	9.94e+03	1.01e+04	1.00e+04	1.60	-3.790e1	300.0	n/a
S96T005960		D	Lanthanum-ICP-Acid Dil.	ug/mL	99.40	<5.00e-02	< 30.10	<3.01e1	n/a	n/a	94.40	30.10	n/a
S96T005960		D	Lithium-ICP-Acid Dil.	ug/mL	96.80	<1.00e-02	< 6.010	<6.01e0	n/a	n/a	90.90	6.010	n/a
S96T005960		D	Magnesium-ICP-Acid Dil.	ug/mL	100.8	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	107.0	60.10	n/a
S96T005960		D	Manganese-ICP-Acid Dil.	ug/mL	98.40	<1.00e-02	< 6.010	<6.01e0	n/a	n/a	90.60	6.010	n/a
S96T005960		D	Molybdenum-ICP-Acid Dil.	ug/mL	103.4	<5.00e-02	94.00	97.30	95.65	3.45	740.0	30.10	n/a
S96T005960		D	Sodium-ICP-Acid Dil.	ug/mL	104.0	<1.00e-01	2.43e+05	2.46e+05	2.44e+05	1.23	-2.900e3	60.10	n/a
S96T005960		D	Neodymium-ICP-Acid Dil.	ug/mL	100.0	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	95.30	60.10	n/a
S96T005960		D	Nickel-ICP-Acid Dil.	ug/mL	100.4	<2.00e-02	< 12.00	<1.20e1	n/a	n/a	92.40	12.00	n/a
S96T005960		D	Phosphorus-ICP-Acid Dil.	ug/mL	102.8	<2.00e-01	3.87e+02	408.0	397.5	5.28	763.0	120.0	n/a
S96T005960		D	Lead-ICP-Acid Dil.	ug/mL	98.40	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	94.10	60.10	n/a
S96T005960		D	Sulfur-ICP-Acid Dil.	ug/mL	101.0	<1.00e-01	3.17e+02	331.0	324.0	4.32	757.0	60.10	n/a
S96T005960		D	Antimony-ICP-Acid Dil.	ug/mL	98.20	<6.00e-02	< 36.10	<3.61e1	n/a	n/a	745.0	36.10	n/a
S96T005960		D	Selenium-ICP-Acid Dil.	ug/mL	96.20	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	99.40	60.10	n/a
S96T005960		D	Silicon-ICP-Acid Dil.	ug/mL	99.40	<5.00e-02	4.06e+02	380.0	393.0	6.62	766.0	30.10	n/a
S96T005960		D	Samarium-ICP-Acid Dil.	ug/mL	98.20	<1.00e-01	< 60.10	<6.01e1	n/a	n/a	92.90	60.10	n/a
S96T005960		D	Strontium-ICP-Acid Dil.	ug/mL	98.60	<1.00e-02	< 6.010	<6.01e0	n/a	n/a	93.10	6.010	n/a
S96T005960		D	Titanium-ICP-Acid Dil.	ug/mL	99.60	<1.00e-02	< 6.010	<6.01e0	n/a	n/a	678.0	6.010	n/a
S96T005960		D	Thallium-ICP-Acid Dil.	ug/mL	96.80	<2.00e-01	<1.20e+02	<1.20e2	n/a	n/a	87.30	120.0	n/a
S96T005960		D	Uranium-ICP-Acid Dil.	ug/mL	97.70	<5.00e-01	<3.00e+02	<3.00e2	n/a	n/a	91.50	300.0	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005960		D	Vanadium-ICP-Acid Dil.	ug/mL	102.4	<5.00e-02	< 30.10	<3.01e1	n/a	n/a	97.30	30.10	n/a
S96T005960		D	Zinc-ICP-Acid Dil.	ug/mL	104.4	<1.00e-02	< 6.010	<6.01e0	n/a	n/a	98.90	6.010	n/a
S96T005960		D	Zirconium-ICP-Acid Dil.	ug/mL	101.0	<1.00e-02	< 6.010	<6.01e0	n/a	n/a	745.0	6.010	n/a
S96T005960			Fluoride-IC-Dionex 500	ug/mL	111.4	<1.20e-02	8.10e+02	724.0	766.9	11.2	87.97	61.81	n/a
S96T005960			Chloride-IC-Dionex 4000/4500	ug/mL	96.83	<1.70e-02	7.70e+03	7.67e+03	7.69e+03	0.39	81.77	87.57	n/a
S96T005960			Nitrite-IC - Dionex 4000/4500	ug/mL	95.93	<1.08e-01	1.50e+05	1.48e+05	1.49e+05	1.34	42.51	556.3	n/a
S96T005960			Bromide by Ion Chromatograph	ug/mL	99.83	<1.25e-01	<6.44e+02	<6.44e2	n/a	n/a	92.19	643.9	n/a
S96T005960			Nitrate by IC-Dionex 4000/4500	ug/mL	101.3	<1.39e-01	2.12e+05	2.07e+05	2.10e+05	2.39	5.724	716.0	n/a
S96T005960			Phosphate-IC-Dionex 4000/4500	ug/mL	97.79	<1.20e-01	1.48e+03	1.41e+03	1.44e+03	4.84	91.36	618.1	n/a
S96T005960			Sulfate by IC-Dionex 4000/4500	ug/mL	101.6	<1.38e-01	<7.11e+02	1.74e+04	n/a	n/a	103.2	710.8	n/a
S96T005960			Oxalate by IC-Dionex 4000/4500	ug/mL	107.4	<1.05e-01	8.40e+02	750.0	795.1	11.3	143.0	540.9	n/a
S96T005960			Alpha in Liquid Samples	uCi/mL	84.78	<1.22e-02	<6.11e-03	<3.46E-2	n/a	n/a	82.45	1.50e-02	5.00E+02

Table 3. Data Summary Table
BY-112

CORE NUMBER: 177
SEGMENT #: 6

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005916			Bulk Density of Sample	g/mL	n/a	n/a	1.860	n/a	n/a	n/a	n/a	5.00e-01	n/a
S96T005922			DSC Exotherm using Mettler	Joules/g	95.25	n/a	50.80	58.30	54.55	13.7	n/a	n/a	n/a
S96T005922			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	71.20	81.80	76.50	13.9	n/a	n/a	n/a
S96T005922			% Water by TGA using Mettler	%	97.91	n/a	29.71	27.66	28.69	7.15	n/a	n/a	n/a
S96T005922			TIC by Acid/Coulometry	ug/g	100.0	2.800	1.16e+04	1.74e+04	1.45e+04	40.0	n/a	5.000	n/a
S96T005922			TOC by Persulfate/Coulometry	ug/g	95.67	3.900	4.74e+03	4.63e+03	4.68e+03	2.35	n/a	40.00	n/a
S96T005934		F	Silver -ICP-Fusion	ug/g	97.80	<1.00e-02	<2.16e+02	<2.20e2	n/a	n/a	88.70	216.0	n/a
S96T005934		F	Aluminium -ICP-Fusion	ug/g	98.20	<5.00e-02	2.07e+04	1.84e+04	1.96e+04	11.8	95.70	1.08e+03	n/a
S96T005934		F	Arsenic -ICP-Fusion	ug/g	102.4	<1.00e-01	<2.16e+03	<2.20e3	n/a	n/a	100.0	2.16e+03	n/a
S96T005934		F	Boron -ICP-Fusion	ug/g	100.2	<5.00e-02	<1.08e+03	<1.10e3	n/a	n/a	94.10	1.08e+03	n/a
S96T005934		F	Barium -ICP-Fusion	ug/g	100.6	<5.00e-02	<1.08e+03	<1.10e3	n/a	n/a	95.90	1.08e+03	n/a
S96T005934		F	Beryllium -ICP-Fusion	ug/g	101.4	<5.00e-03	<1.08e+02	<1.10e2	n/a	n/a	96.00	108.0	n/a
S96T005934		F	Bismuth -ICP-Fusion	ug/g	101.6	<1.00e-01	<2.16e+03	<2.20e3	n/a	n/a	99.20	2.16e+03	n/a
S96T005934		F	Calcium -ICP-Fusion	ug/g	100.6	<1.00e-01	<2.16e+03	<2.20e3	n/a	n/a	103.0	2.16e+03	n/a
S96T005934		F	Cadmium -ICP-Fusion	ug/g	100.6	<5.00e-03	<1.08e+02	<1.10e2	n/a	n/a	98.80	108.0	n/a
S96T005934		F	Cerium -ICP-Fusion	ug/g	102.4	<1.00e-01	<2.16e+03	<2.20e3	n/a	n/a	99.60	2.16e+03	n/a
S96T005934		F	Cobalt -ICP-Fusion	ug/g	101.6	<2.00e-02	<4.31e+02	<4.39e2	n/a	n/a	99.60	430.0	n/a
S96T005934		F	Chromium -ICP-Fusion	ug/g	100.4	<1.00e-02	1.38e+04	1.40e+04	1.39e+04	1.44	99.50	216.0	n/a
S96T005934		F	Copper -ICP-Fusion	ug/g	106.4	<1.00e-02	<2.16e+02	<2.20e2	n/a	n/a	99.70	216.0	n/a
S96T005934		F	Iron -ICP-Fusion	ug/g	101.0	<5.00e-02	2.75e+03	2.52e+03	2.64e+03	8.73	98.20	1.08e+03	n/a
S96T005934		F	Lanthanum -ICP-Fusion	ug/g	100.8	<5.00e-02	<1.08e+03	<1.10e3	n/a	n/a	97.60	1.08e+03	n/a
S96T005934		F	Lithium -ICP-Fusion	ug/g	97.60	<1.00e-02	<2.16e+02	<2.20e2	n/a	n/a	89.80	216.0	n/a
S96T005934		F	Magnesium -ICP-Fusion	ug/g	101.4	<1.00e-01	<2.16e+03	<2.20e3	n/a	n/a	96.20	2.16e+03	n/a
S96T005934		F	Manganese -ICP-Fusion	ug/g	98.60	<1.00e-02	<2.16e+02	<2.20e2	n/a	n/a	94.60	216.0	n/a
S96T005934		F	Molybdenum -ICP-Fusion	ug/g	102.6	<5.00e-02	<1.08e+03	<1.10e3	n/a	n/a	101.0	1.08e+03	n/a
S96T005934		F	Sodium -ICP-Fusion	ug/g	104.6	1.980	2.99e+05	2.81e+05	2.90e+05	6.21	107.0	2.16e+03	n/a
S96T005934		F	Neodymium -ICP-Fusion	ug/g	101.4	<1.00e-01	<2.16e+03	<2.20e3	n/a	n/a	97.50	2.16e+03	n/a
S96T005934		F	Phosphorus -ICP-Fusion	ug/g	101.4	<2.00e-01	<4.31e+03	7.70e+03	n/a	n/a	102.0	4.30e+03	n/a
S96T005934		F	Lead -ICP-Fusion	ug/g	98.40	<1.00e-01	<2.16e+03	<2.20e3	n/a	n/a	97.00	2.16e+03	n/a
S96T005934		F	Sulfur -ICP-Fusion	ug/g	99.00	<1.00e-01	2.41e+04	2.84e+04	2.62e+04	16.4	95.50	2.16e+03	n/a
S96T005934		F	Antimony -ICP-Fusion	ug/g	97.00	<6.00e-02	<1.29e+03	<1.32e3	n/a	n/a	94.10	1.30e+03	n/a
S96T005934		F	Selenium -ICP-Fusion	ug/g	94.20	<1.00e-01	<2.16e+03	<2.20e3	n/a	n/a	96.20	2.16e+03	n/a
S96T005934		F	Silicon -ICP-Fusion	ug/g	99.20	<5.00e-02	3.44e+03	3.46e+03	3.45e+03	0.58	98.10	1.08e+03	n/a
S96T005934		F	Samarium -ICP-Fusion	ug/g	99.20	<1.00e-01	<2.16e+03	<2.20e3	n/a	n/a	97.60	2.16e+03	n/a
S96T005934		F	Strontium -ICP-Fusion	ug/g	99.80	<1.00e-02	<2.16e+02	<2.20e2	n/a	n/a	96.10	216.0	n/a
S96T005934		F	Titanium-ICP-Fusion	ug/g	99.00	<1.00e-02	<2.16e+02	<2.20e2	n/a	n/a	95.60	216.0	n/a
S96T005934		F	Thallium -ICP-Fusion	ug/g	98.40	<2.00e-01	<4.31e+03	<4.39e3	n/a	n/a	95.00	4.30e+03	n/a
S96T005934		F	Uranium -ICP-Fusion	ug/g	97.50	<5.00e-01	<1.08e+04	<1.10e4	n/a	n/a	94.50	1.08e+04	n/a
S96T005934		F	Vanadium -ICP-Fusion	ug/g	101.4	<5.00e-02	<1.08e+03	<1.10e3	n/a	n/a	99.10	1.08e+03	n/a
S96T005934		F	Zinc -ICP-Fusion	ug/g	102.8	<1.00e-02	<2.16e+02	<2.20e2	n/a	n/a	101.0	216.0	n/a
S96T005934		F	Zirconium -ICP-Fusion	ug/g	100.4	<1.00e-02	<2.16e+02	<2.20e2	n/a	n/a	97.70	216.0	n/a
S96T005934		F	Alpha of Digested Solid	uCi/g	85.22	1.00e-02	3.99e-02	3.90e-02	3.94e-02	2.28	n/a	9.00e-03	3.01E+01
S96T005940		W	Fluoride-IC-Dionex 4000/4500	ug/g	103.9	<4.92e-01	1.60e+04	1.56e+04	1.58e+04	2.53	101.2	100.7	n/a
S96T005940		W	Chloride-IC-Dionex 4000/4500	ug/g	100.6	<6.97e-01	2.22e+03	2.15e+03	2.18e+03	3.20	92.03	142.7	n/a

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S96T005940		W	Nitrite-IC - Dionex 4000/4500	ug/g	100.7	<4.430	3.18e+04	3.75e+04	3.47e+04	16.5	102.8	906.5	n/a
S96T005940		W	Bromide by Ion Chromatograph	ug/g	98.64	<5.120	<1.05e+03	<9.81e2	n/a	n/a	101.5	1.05e+03	n/a
S96T005940		W	Nitrate by IC-Dionex 4000/4500	ug/g	97.64	7.050	8.67e+04	5.66e+04	7.17e+04	42.0	109.3	1.17e+03	n/a
S96T005940		W	Phosphate-IC-Dionex 4000/4500	ug/g	95.96	<4.920	2.51e+03	1.86e+03	2.18e+03	29.7	95.96	1.01e+03	n/a
S96T005940		W	Sulfate by IC-Dionex 4000/4500	ug/g	99.05	<5.660	7.18e+04	6.75e+04	6.96e+04	6.17	103.6	1.16e+03	n/a
S96T005940		W	Oxalate by IC-Dionex 4000/4500	ug/g	104.8	<4.300	6.20e+03	1.55e+04	1.09e+04	85.7	105.9	881.5	n/a

CHAIN OF CUSTODY FORMS

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CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

) Shipment Number 200W-08-TF (2) Sample Number 96-509 (3) Supervisor Hartley

) Tank B4112 (5) Riser 18 (6) Segment 1 (7) Core 174 (8) Cask Serial Number 16G

ediation Survey Data:	(9) FIELD	(33) LABORATORY
Over Top Dose Rate	<0.5	<.5
Side Dose Rate	<0.5	.7
Bottom Dose Rate	1.0	.5
Smearable Contamination	<20 (Alpha)	<20 (Alpha)
	<1000 (Beta-Gamma)	<1K (Beta-Gamma)
RCT* (HPT)	[signature] (Signature)	RCT* (HPT) [signature] (Signature)

(10) Shipment Description	
A. Work Package Number	ES-96-00657
B. Cask Seal Number	13002
C. Sampler Serial Number	96-055
D. Date and Time Sampler Unseated	10/2/96 1440
E. Expected Liquid Content	20%
F. Expected Solid Content	80%
G. Dose Rate Through Drill String	28 mr/HR
H. Expected Sample Length	17.2"

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

HNF-SD-WM-DP-229, REV. 0

2) Field Comments

(34) Laboratory Comments

63

(13) Point of Origin	(14) Destination	(15) Sender Name (Sign and PRINT)	(16) Date/Time	(17) Sender Comments
B4112	222S	James Sickels James Sickels	1310 10-29-96	
(19) Relinquished By (Sign and PRINT)		(20) Received By (Sign and PRINT)	(21) Date/Time	(22) Receiver Comments
James Sickels James Sickels		James [signature] James [signature]	1389 10-29-96	
(23) Relinquished By (Sign and PRINT)		(24) Received By (Sign and PRINT)	(25) Date/Time	(26) Receiver Comments
James [signature] James [signature]		[signature] Jim Knight Jr	1403 10-29-96	
(27) Relinquished By (Sign and PRINT)		(28) Received By (Sign and PRINT)	(29) Date/Time	(30) Receiver Comments

(18) Seal Intact Upon Release?	(31) Seal Intact Upon Receipt?	(32) Seal Data Consistent with this Record?		
☒ Yes ☐ No	☒ Yes ☐ No	Shipment No. ☒ Yes ☐ No	Cask Seal No. ☒ Yes ☐ No	Sample No. ☒ Yes ☐ No

STRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldenrod - Tank Farm Operations, S4-43 BC-6000-309 (02/94)

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 2000W-08-TF (2) Sample Number #96-510 (3) Supervisor David Dye

(4) Tank BY-112 (5) Riser 18 (6) Segment #2 (7) Core 174 (8) Cask Serial Number C-2011

Radiation Survey Date:	(9) FIELD	(33) LABORATORY
Over Top Dose Rate	<0.5	<.5
Side Dose Rate	<0.5	.6
Bottom Dose Rate	0.8	.6
Smearable Contamination	<20 (Alpha)	<20 (Alpha)
	4100 (Beta-Gamma)	<1K (Beta-Gamma)
RCT* (HPT)	(Signature)	RCT* (HPT) (Signature)

(10) Shipment Description

A. Work Package Number	ES-96-00675
B. Cask Seal Number	12290
C. Sampler Serial Number	96-056
D. Date and Time Sampler Unseated	10/2/96, 1806 hrs
E. Expected Liquid Content	10%
F. Expected Solid Content	90%
G. Dose Rate Through Drill String	32 rad/hr
H. Expected Sample Length	19"

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

(12) Field Comments

64

(34) Laboratory Comments

(13) Point of Origin	(14) Destination	(15) Sender Name (Sign and PRINT)	(16) Date/Time	(17) Sender Comments
BY 112	222-S labs.	James Sickels JAMES SICKELS	1318 10-29-96	
(19) Relinquished By (Sign and PRINT)		(20) Received By (Sign and PRINT)	(21) Date/Time	(22) Receiver Comments
James Sickels JAMES SICKELS		James Sickels James Sickels	1308 10-29-96	
(23) Relinquished By (Sign and PRINT)		(24) Received By (Sign and PRINT)	(25) Date/Time	(26) Receiver Comments
James Sickels James Sickels		S Knight S Knight	1403 10-29-96	
(27) Relinquished By (Sign and PRINT)		(28) Received By (Sign and PRINT)	(29) Date/Time	(30) Receiver Comments

(18) Seal Intact Upon Release?	(31) Seal Intact Upon Receipt?	(32) Seal Data Consistent with this Record?		
		Shipment No.	Cask Seal No.	Sample No.
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldenrod - Tank Farm Operations, S4-43 BC-6000-309 (02/94)

HNF-SD-WM-DP-229, REV. 0

Oct. 29, 1996 3:12PM WHC 222S LAB ROOM 2F BACKSIDE No. 6404 P. 1/4

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200W-08-TF (2) Sample Number #96-511 (3) Supervisor Daniel Dwyer

Tank B-112 (5) Riser 18 (6) Segment #3 (7) Core 174 (8) Cask Serial Number C-1034

Radiation Survey Data:	(9) FIELD	(33) LABORATORY
Over Top Dose Rate	40.5	2.5
Side Dose Rate	40.5	.8
Bottom Dose Rate	1.2	1.5
Smearable Contamination	< 220 (Alpha)	< 20 (Alpha)
	< 1000 (Beta-Gamma)	< 1K (Beta-Gamma)
RCT* (HPT)	(Signature)	RCT* (HPT) (Signature)

(10) Shipment Description	
A. Work Package Number	ES-96-00657
B. Cask Seal Number	12786
C. Sampler Serial Number	96-044
D. Date and Time Sampler Unseated	10/4/96 ; 2136 hrs
E. Expected Liquid Content	10%
F. Expected Solid Content	90%
G. Dose Rate Through Drill String	42 mr/hr.
H. Expected Sample Length	19"

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

:) Field Comments

65

(34) Laboratory Comments

(13) Point of Origin	(14) Destination	(15) Sender Name (Sign and PRINT)	(16) Date/Time	(17) Sender Comments
B-112	222-S lab	Thomas Sickels / James Sickels	10-29-96	
) Relinquished By (Sign and PRINT)		(20) Received By (Sign and PRINT)	(21) Date/Time	(22) Receiver Comments
Thomas Sickels / James Sickels		James L. Huntley / James L. Huntley	10-29-96	
) Relinquished By (Sign and PRINT)		(24) Received By (Sign and PRINT)	(25) Date/Time	(26) Receiver Comments
James L. Huntley / James Huntley		J. Stoughton / Jon Knight-Sr	1702 10-29-96	
) Relinquished By (Sign and PRINT)		(28) Received By (Sign and PRINT)	(29) Date/Time	(30) Receiver Comments

(18) Seal Intact Upon Release?	(31) Seal Intact Upon Receipt?	(32) Seal Data Consistent with this Record?		
		Shipment No.	Cask Seal No.	Sample No.
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldenrod - Tank Farm Operations, S4-43 BC-6000-309 (02/94)

HNF-SD-WM-DP-229, REV. 0

Oct. 29, 1996 3:13PM WHC 222S LAB ROOM 2F BACKSIDE No. 6404 P. 2/4

002
373 1432
509
14:43
10/29/96

COPY

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200W-08-TF (2) Sample Number 96-512 (3) Supervisor R. Frank Swift

(4) Tank B-112 (5) Riser 18 (6) Segment 4 (7) Core 174 (8) Cask Serial Number 1010C

Radiation Survey Data:	(9) FIELD	(33) LABORATORY
Over Top Dose Rate	60.5	<1.5
Side Dose Rate	60.5	8
Bottom Dose Rate	9	8
Smearable Contamination	120 (Alpha)	<20 (Alpha)
	60 (Beta-Gamma)	<1K (Beta-Gamma)
	RCT* (HPT) (Signature)	RCT* (HPT) (Signature)

(10) Shipment Description

A. Work Package Number	ES-96-00657
B. Cask Seal Number	10327
C. Sampler Serial Number	96-052
D. Date and Time Sampler Unseated	10-3-96/0309
E. Expected Liquid Content	soft, dry, salt-cake
F. Expected Solid Content	
G. Dose Rate Through Drill String	450 MR
H. Expected Sample Length	19"

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

99

(12) Field Comments
-3 sampler
sampler clear

(34) Laboratory Comments

(13) Point of Origin R-18	(14) Destination 222S - Lab.	(15) Sender Name (Sign and PRINT) Pamela Sickels JAMES Sickels	(16) Date/Time 1320 10-29-96	(17) Sender Comments
(19) Relinquished By (Sign and PRINT) Pamela Sickels JAMES Sickels		(20) Received By (Sign and PRINT) JOHN HARDING	(21) Date/Time 1322 10-29-96	(22) Receiver Comments
(23) Relinquished By (Sign and PRINT) JOHN HARDING		(24) Received By (Sign and PRINT) Jim Knight	(25) Date/Time 10-29-96 1324	(26) Receiver Comments
(27) Relinquished By (Sign and PRINT)		(28) Received By (Sign and PRINT)	(29) Date/Time	(30) Receiver Comments

(32) Seal Data Consistent with this Record?							
(31) Seal Intact Upon Release?	(31) Seal Intact Upon Receipt?	Shipment No.		Cask Seal No.		Sample No.	
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes	☐ No	☒ Yes	☐ No	☒ Yes	☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldenrod - Tank Farm Operations, S4-43 BC-6000-309 (02/94)

HNF-SD-WM-DP-229, REV. 0

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200W-08-TF (2) Sample Number 96-513 (3) Supervisor R. Frank Frost

Tank B-112 (5) Riser 18 (6) Segment 5 (7) Core 174 (8) Cask Serial Number 26C

Radiation Survey Data:	(9) FIELD	(33) LABORATORY
Over Top Dose Rate	<.5	<.5
Side Dose Rate	<.5	18
Bottom Dose Rate	17	7
Smearable Contamination (Alpha)	<20	<20
(Beta-Gamma)	<1000	<1K
RCT* (HPT) (Signature)		

(10) Shipment Description

A. Work Package Number	ES-96-00657
B. Cask Seal Number	10326
C. Sampler Serial Number	96-053
D. Date and Time Sampler Unseated	10-3-96/0428
E. Expected Liquid Content	soft, wet salt-cake
F. Expected Solid Content	
G. Dose Rate Through Drill String	1R
H. Expected Sample Length	19"

(11) INFORMATION (include statement of laboratory tests to be performed.)

29

(12) Field Comments

-3 sampler
sampler clean

(34) Laboratory Comments

(13) Point of Origin	(14) Destination	(15) Sender Name (Sign and PRINT)	(16) Date/Time	(17) Sender Comments
B-112	222S-Lab	James Sickels	1300 10-29-96	
(19) Relinquished By (Sign and PRINT)		(20) Received By (Sign and PRINT)	(21) Date/Time	(22) Receiver Comments
James Sickels		John Hardin	1320 10-29-96	
(23) Relinquished By (Sign and PRINT)		(24) Received By (Sign and PRINT)	(25) Date/Time	(26) Receiver Comments
John Hardin		Kim Knight	1320 10-29-96	
(27) Relinquished By (Sign and PRINT)		(28) Received By (Sign and PRINT)	(29) Date/Time	(30) Receiver Comments

(18) Seal Intact Upon Release?	(31) Seal Intact Upon Receipt?	(32) Seal Data Consistent with this Record?		
		Shipment No.	Cask Seal No.	Sample No.
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldenrod - Tank Farm Operations, S4-43

BC-6000-309 (02/94)

HNF-SD-WM-DP-229, REV. 0

Oct. 29, 1996 3:14PM WHC 222S LAB ROOM 2F BACKSIDE P. 4/4 No. 6404

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number: 2000-08-TF (2) Sample Number: 96-514 (3) Supervisor: Hartley (8) Cask Serial Number: 306

(4) Tank: B-412 (5) Riser: 18 (6) Segment: 6 (7) Core: 174

Radiation Survey Data:	(9) FIELD	(33) LABORATORY
Over Top Dose Rate	40.5	<.5
Side Dose Rate	2	23
Bottom Dose Rate	22	25
Smearable Contamination (Alpha)	<20	<20
(Beta-Gamma)	<1000	<1K

RCT* (HPT) (Signature) RCT* (HPT) (Signature)

(10) Shipment Description	
A. Work Package Number	ES-96-006576
B. Cask Seal Number	13003
C. Sampler Serial Number	96-054
D. Date and Time Sampler Unsealed	10-3-96, 1900
E. Expected Liquid Content	20%
F. Expected Solid Content	80%
G. Dose Rate Through Drill String	950 MR/HR
H. Expected Sample Length	18 7/8"

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

(12) Field Comments: 1/29

(34) Laboratory Comments

(13) Point of Origin: B-412	(14) Destination: 222-S	(15) Sender Name (Sign and PRINT): James Sickels - James Sickels	(16) Date/Time: 1300 10-29-96	(17) Sender Comments
(18) Relinquished By (Sign and PRINT): James Sickels - James Sickels		(20) Received By (Sign and PRINT): JOHN HARDING	(21) Date/Time: 10-29-96	(22) Receiver Comments
(23) Relinquished By (Sign and PRINT): JOHN HARDING		(24) Received By (Sign and PRINT): Jim Wright	(25) Date/Time: 10-29-96 1350	(26) Receiver Comments
(27) Relinquished By (Sign and PRINT)		(28) Received By (Sign and PRINT)	(29) Date/Time	(30) Receiver Comments

(18) Seal Intact Upon Release?	(31) Seal Intact Upon Receipt?	(32) Seal Date Consistent with this Record?		
		Shipment No.	Cask Seal No.	Sample No.
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-95 Goldenrod - Tank Farm Operations, S4-43

BC-6000-309 (02

HNF-SD-WM-DP-229, REV. 0

004 509 373 1432 14:44 10/29/96

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

COPY

(1) Shipment Number 200W-08-TF (2) Sample Number Field Blank (3) Supervisor Daniel Dorp

(4) Tank BY-112 (5) Riser 21 (6) Segment Field Blank (7) Core 177 (8) Cask Serial Number C-1025

Radiation Survey Data:	(9) FIELD	(33) LABORATORY
Over Top Dose Rate	< .5 mr/hr	< .5
Side Dose Rate	< .5 mr/hr	< .5
Bottom Dose Rate	< .5 mr/hr	< .5
Smearable Contamination	< 20 dpm/100 cm² (Alpha)	< 180 dpm (Alpha)
	< 1000 dpm/100 cm² (Beta-Gamma)	< 1000 dpm (Beta-Gamma)
RCT* (HPT)	Doug Tyler (Signature)	RCT* (HPT) Ed Felder (Signature)

(10) Shipment Description	
A. Work Package Number	ES-96-00658
B. Cask Seal Number	12294
C. Sampler Serial Number	96-063
D. Date and Time Sample(s) Uncased	10/8/96, 0020 hrs
E. Expected Liquid Content	100 %
F. Expected Solid Content	0
G. Dose Rate Through Drill String	N/A
H. Expected Sample Length	19 ft

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

89

(12) Field Comments: Field Blank. Auger Liner used

(34) Laboratory Comments

(13) Point of Origin	(14) Destination	(15) Sender Name (Sign and PRINT)	(16) Date/Time	(17) Sender Comments
BY-112	222-S Labs	RJ Penznik for D Garza	10-15-96 0915 hr	
(18) Relinquished By (Sign and PRINT)		(20) Received By (Sign and PRINT)	(21) Date/Time	(22) Receiver Comments
R J Penznik		James C Fredenberg	10-15-96 0924 hr	
(23) Relinquished By (Sign and PRINT)		(24) Received By (Sign and PRINT)	(25) Date/Time	(26) Receiver Comments
James C Fredenberg		R L Chamberlain	10-15-96 1115	
(27) Relinquished By (Sign and PRINT)		(28) Received By (Sign and PRINT)	(29) Date/Time	(30) Receiver Comments

(18) Seal Intact Upon Release?	(31) Seal Intact Upon Receipt?	(32) Seal Data Consistent with this Record?		
		Shipment No.	Cask Seal No.	Sample No.
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldenrod - Tank Farm Operations, S4-43 BC-6000-309 (02/94)

001 509 373 1432 10/15/96 13:27

HNF-SD-WM-DP-229, REV. 0

10/31/96 14:49 509 373 1432 002

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

COPY 233

(1) Shipment Number 200W-08-TF (2) Sample Number #96-533 (3) Supervisor Daniel Sorge

(4) Tank BY-112 (5) Riser 21 (6) Segment #1 (7) Core 177 (8) Cask Serial Number 59

Radiation Survey Data:	(9) FIELD	(33) LABORATORY
Over Top Dose Rate	<0.5 mr/hr	<0.5 mr/hr
Side Dose Rate	6 mr/hr	<0.5 mr/hr
Bottom Dose Rate	<0.5 mr/hr	<0.5 mr/hr
Smearable Contamination	<20 (Alpha)	<20 (Alpha)
	<1K (Beta-Gamma)	<1K (Beta-Gamma)
RCT (HPT)	D Gordon (Signature)	RCT (HPT) D Gordon (Signature)

(10) Shipment Description

A. Work Package Number	ES-96-00658
B. Cask Seal Number	12296
C. Sampler Serial Number	96-187
D. Date and Time Sampler Unseated	10/7/96, 0212 hrs
E. Expected Liquid Content	10%
F. Expected Solid Content	90%
G. Dose Rate Through Drill String	23 mR/hr
H. Expected Sample Length	13"

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

(12) Field Comments Started at a 13" stroke.

(34) Laboratory Comments

69

(13) Point of Origin	(14) Destination	(15) Sender Name (Sign and PRINT)	(16) Date/Time	(17) Sender Comments
BY-112	2225-Labs	James Sickels JAMES SICKELS	1300 10-31-96	
(19) Relinquished By (Sign and PRINT)		(20) Received By (Sign and PRINT)	(21) Date/Time	(22) Receiver Comments
James Sickels JAMES SICKELS		[signature] JOHN HARDING	15:30 10-31-96	
(23) Relinquished By (Sign and PRINT)		(24) Received By (Sign and PRINT)	(25) Date/Time	(26) Receiver Comments
[signature] JOHN HARDING		[signature] Jim Knight Jr	17:59 10/31/96	
(27) Relinquished By (Sign and PRINT)		(28) Received By (Sign and PRINT)	(29) Date/Time	(30) Receiver Comments

(18) Seal Intact Upon Release? ☒ Yes ☐ No

(31) Seal Intact Upon Receipt? ☒ Yes ☐ No

(32) Seal Data Consistent with this Record?

Shipment No. ☒ Yes ☐ No

Cask Seal No. ☒ Yes ☐ No

Sample No. ☒ Yes ☐ No

TRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldenrod - Tank Farm Operations, S4-43

BC-6000-309 (02/94)

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200W-08-TF (2) Sample Number #96-534

(3) Supervisor Daniel Dago.

(4) Tank BY-112 (5) Riser 21 (6) Segment #2 (7) Core 177 (8) Cask Serial Number C 2002

Radiation Survey Data:	(9) FIELD	(33) LABORATORY
Over Top Dose Rate	<0.5 mr/hr	<1.5 mr/hr
Side Dose Rate	<0.5 mr/hr	<1.5 mr/hr
Bottom Dose Rate	<0.5 mr/hr	<1.5 mr/hr
Smearable Contamination (Alpha)	<20	<20
(Beta-Gamma)	<1K	<1K
RCT (HPT) (Signature)		RCT (HPT) (Signature)

(10) Shipment Description

A. Work Package Number	ES-96-00655
B. Cask Seal Number	12297
C. Sampler Serial Number	#96-089
D. Date and Time Sample Unseated	10/31/96 + 0504 hrs
E. Expected Liquid Content	10%
F. Expected Solid Content	90%
G. Dose Rate Through Drill String	2.4 mR/hr.
H. Expected Sample Length	19"

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

(12) Field Comments

(34) Laboratory Comments

(13) Point of Origin BY-112	(14) Destination 222-S Lab	(15) Sender Name (Sign and PRINT) James Sickels / James Sickels	(16) Date/Time 1300 10-31-96	(17) Sender Comments	
(18) Relinquished By (Sign and PRINT) James Sickels / James Sickels		(20) Received By (Sign and PRINT) John Hardy	(21) Date/Time 1530 10-31-96	(22) Receiver Comments	
(23) Relinquished By (Sign and PRINT) John Hardy		(24) Received By (Sign and PRINT) Jim Knight Jr.	(25) Date/Time 1410 11/1/96	(26) Receiver Comments	
		(28) Received By (Sign and PRINT)	(29) Date/Time	(30) Receiver Comments	

(32) Seal Data Consistent with this Record?							
(16) Seal Intact Upon Release?	(31) Seal Intact Upon Receipt?	Shipment No.		Cask Seal No.		Sample No.	
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes	☐ No	☒ Yes	☐ No	☒ Yes	☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldenrod - Tank Farm Operations, S4-43

WC-5000-309 (02/94)

HNF-SD-WM-DP-229, REV. 0

10/31/96 14:50 509 373 1432 003

COPY

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200W-08-TF (2) Sample Number #96-535 (3) Supervisor Daniel Dorge

(4) Tank BY-112 (5) Riser 21 (6) Segment #3 (7) Core 177 (8) Cask Serial Number 71

Radiation Survey Data:	(9) FIELD	(33) LABORATORY
Over Top Dose Rate	<0.5 mr/hr	<.5 mR/hr
Side Dose Rate	10 mr/hr	.6 mR/hr
Bottom Dose Rate	<0.5 mr/hr	<.5 mR/hr
Smearable Contamination	<20 (Alpha)	<20 (Alpha)
	<1K (Beta-Gamma)	<1K (Beta-Gamma)
RCT (HPT)	[signature] (Signature)	RCT* (HPT) [signature] (Signature)

(10) Shipment Description

A. Work Package Number	ES-96-00658
B. Cask Seal Number	12299
C. Sampler Serial Number	96-086
D. Date and Time Sampler Unseated	10/7/96, 0607 hr
E. Expected Liquid Content	10%
F. Expected Solid Content	90%
G. Dose Rate Through Drill String	28 mR/hr
H. Expected Sample Length	17"

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

(12) Field Comments

71

(34) Laboratory Comments

(13) Point of Origin	(14) Destination	(15) Sender Name (Sign and PRINT)	(16) Date/Time	(17) Sender Comments
BY-112	222-S Lab	[signature] James Sickels	1300 10-31-96	
(19) Relinquished By (Sign and PRINT)		(20) Received By (Sign and PRINT)	(21) Date/Time	(22) Receiver Comments
[signature] James Sickels		[signature]	1330 10-31-96	
(23) Relinquished By (Sign and PRINT)		(24) Received By (Sign and PRINT)	(25) Date/Time	(26) Receiver Comments
[signature] John Harding		[signature]	1400 10/31/96	
(27) Relinquished By (Sign and PRINT)		(28) Received By (Sign and PRINT)	(29) Date/Time	(30) Receiver Comments

(18) Seal Intact Upon Release? ☒ Yes ☐ No

(31) Seal Intact Upon Receipt? ☒ Yes ☐ No

(32) Seal Data Consistent with this Record?

Shipment No. ☒ Yes ☐ No

Cask Seal No. ☒ Yes ☐ No

Sample No. ☒ Yes ☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldenrod - Tank Farm Operations, S4-43

BC-6000-309 (02/94)

004 509 373 1432 10/31/96 14:50

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200W-08-TF (2) Sample Number 96-536 (3) Supervisor Hartley

(4) Tank B-111 (5) Riser 21 (6) Segment 4 (7) Core 177 (8) Cask Serial Number #77

Radiation Survey Data:	(9) FIELD	(33) LABORATORY
Over Top Dose Rate	10.5 mr/hr	<1.5 mr/hr
Side Dose Rate	10 mr/hr	12 mr/hr
Bottom Dose Rate	4 mr/hr	6 mr/hr
Smearable Contamination	<20 (Alpha)	<20 dpm (Alpha)
	<1K (Beta-Gamma)	<1K dpm (Beta-Gamma)
	RCT* (HPT) (Signature)	RCT* (HPT) (Signature)

(10) Shipment Description	
A. Work Package Number	ES-96-00658/0
B. Cask Seal Number	13005
C. Sampler Serial Number	96-088
D. Date and Time Sampler Unseated	10/31/96 1337
E. Expected Liquid Content	2.0%
F. Expected Solid Content	80%
G. Dose Rate Through Drill String	350 MV/HR
H. Expected Sample Length	19ft

(11) INFORMATION (Include statement of laboratory tests to be performed)

(12) Field Comments

27

(34) Laboratory Comments

(13) Point of Origin B-111	(14) Destination 222-S	(15) Sender Name (Sign and PRINT) James Sickels James Sickels	(16) Date/Time 1510 10-31-96	(17) Sender Comments	
(18) Relinquished By (Sign and PRINT) James Sickels James Sickels		(20) Received By (Sign and PRINT) David P. Wohlwend David P. Wohlwend	(21) Date/Time 1510 10-31-96	(22) Receiver Comments	
(23) Relinquished By (Sign and PRINT) David P. Wohlwend DAVID P. Wohlwend		(24) Received By (Sign and PRINT) Tina Knight	(25) Date/Time 1710 10-31-96	(26) Receiver Comments	
(27) Relinquished By (Sign and PRINT)		(28) Received By (Sign and PRINT)	(29) Date/Time	(30) Receiver Comments	

(32) Seal Data Consistent with this Record?							
(18) Seal Intact Upon Release?	(31) Seal Intact Upon Receipt?	Shipment No.		Cask Seal No.		Sample No.	
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes	☐ No	☒ Yes	☐ No	☒ Yes	☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldenrod - Tank Farm Operations, S4-43

BC-6000-309 (02/

10/31/96 15:17 509 373 1432 003

COPY

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200W-08-TF (2) Sample Number 96-537 (3) Supervisor M. C. Jones (8) Cask Serial Number SN-76

(4) Tank BY-112 (5) Riser 21 (6) Segment 5 (7) Core 177

Radiation Survey Data:	(9) FIELD	(33) LABORATORY
Over Top Dose Rate	<0.5 mr/hr	<.5 mr/hr
Side Dose Rate	15 mr/hr	15 mR/hr
Bottom Dose Rate	10 mr/hr	15 mR/hr
Smearable Contamination	<20 (Alpha)	<20 (Alpha)
	<1K (Beta-Gamma)	<1K (Beta-Gamma)
RCT* (HPT)	[signature] (Signature)	RCT* (HPT) [signature] (Signature)

(10) Shipment Description	
A. Work Package Number	ES-96-00658
B. Cask Seal Number	12417
C. Sampler Serial Number	96-180
D. Date and Time Sampler Unseated	10-07-96/1730
E. Expected Liquid Content	30%
F. Expected Solid Content	70%
G. Dose Rate Through Drill String	800 MR/HR
H. Expected Sample Length	19"

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

(12) Field Comments

73

(34) Laboratory Comments

(13) Point of Origin BY-112

(14) Destination 222-S

(15) Sender Name (Sign and PRINT) James Sickels James Sickels

(16) Date/Time 1310 10-31-96

(17) Sender Comments

(19) Relinquished By (Sign and PRINT) James Sickels James Sickels

(20) Received By (Sign and PRINT) David P. Wohlwend David P. Wohlwend

(21) Date/Time 1330 10-31-96

(22) Receiver Comments

(23) Relinquished By (Sign and PRINT) David P. Wohlwend David P. Wohlwend

(24) Received By (Sign and PRINT) [signature] Jim Knight Jr.

(25) Date/Time 1405 10-31-96

(26) Receiver Comments

(27) Relinquished By (Sign and PRINT)

(28) Received By (Sign and PRINT)

(29) Date/Time

(30) Receiver Comments

(18) Seal Intact Upon Release? ☒ Yes ☐ No

(31) Seal Intact Upon Receipt? ☒ Yes ☐ No

(32) Seal Data Consistent with this Record?

Shipment No. ☒ Yes ☐ No

Cask Seal No. ☒ Yes ☐ No

Sample No. ☒ Yes ☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldenrod - Tank Farm Operations, S4-43

BC-6000-309 (

DUPT

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200W-08-TF (2) Sample Number 96-538 (3) Supervisor M. C. Jones
(4) Tank BY-112 (5) Riser 21 (6) Segment 6 (7) Core 177 (8) Cask Serial Number 5-6

Radiation Survey Data:	(9) FIELD	(33) LABORATORY
Over Top Dose Rate	<0.5 mr/hr	<.5 mr/hr
Side Dose Rate	10 mr/hr	10 mr/hr
Bottom Dose Rate	10 mr/hr	14 mr/hr
Smearable Contamination	<20 (Alpha)	<20 (Alpha)
	<1K (Beta-Gamma)	<1K (Beta-Gamma)
RCT* (HPT)	[signature] (Signature)	RCT* (HPT) [signature] (Signature)

(10) Shipment Description	
A. Work Package Number	ES-96-00659
B. Cask Seal Number	12418
C. Sampler Serial Number	96-188
D. Date and Time Sampler Unseated	10-07-96/1900
E. Expected Liquid Content	30%
F. Expected Solid Content	70%
G. Dose Rate Through Drill String	500 MR/HR
H. Expected Sample Length	19"

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

(12) Field Comments

74

(34) Laboratory Comments

(13) Point of Origin BY-112
(14) Destination 222-S
(15) Sender Name (Sign and PRINT) James Sickels James Sickels
(16) Date/Time 1310 10-31-96
(17) Sender Comments
(19) Relinquished By (Sign and PRINT) James Sickels James Sickels
(20) Received By (Sign and PRINT) David P. Wohlwend David P. Wohlwend
(21) Date/Time 1330 10-31-96
(22) Receiver Comments
(23) Relinquished By (Sign and PRINT) David P. Wohlwend David P. Wohlwend
(24) Received By (Sign and PRINT) [signature] Jim Knight
(25) Date/Time 1412 10-31-96
(26) Receiver Comments
(27) Relinquished By (Sign and PRINT)
(28) Received By (Sign and PRINT)
(29) Date/Time
(30) Receiver Comments

(18) Seal Intact Upon Release? ☒ Yes ☐ No
(31) Seal Intact Upon Receipt? ☒ Yes ☐ No
Shipment No. ☒ Yes ☐ No
(32) Seal Date Consistent with this Record? Cask Seal No. ☒ Yes ☐ No Sample No. ☒ Yes ☐ No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldenrod - Tank Farm Operations, S4-43

BC-6000-309

10/31/96 15:17 509 373 1432 004

PHOTOGRAPHS

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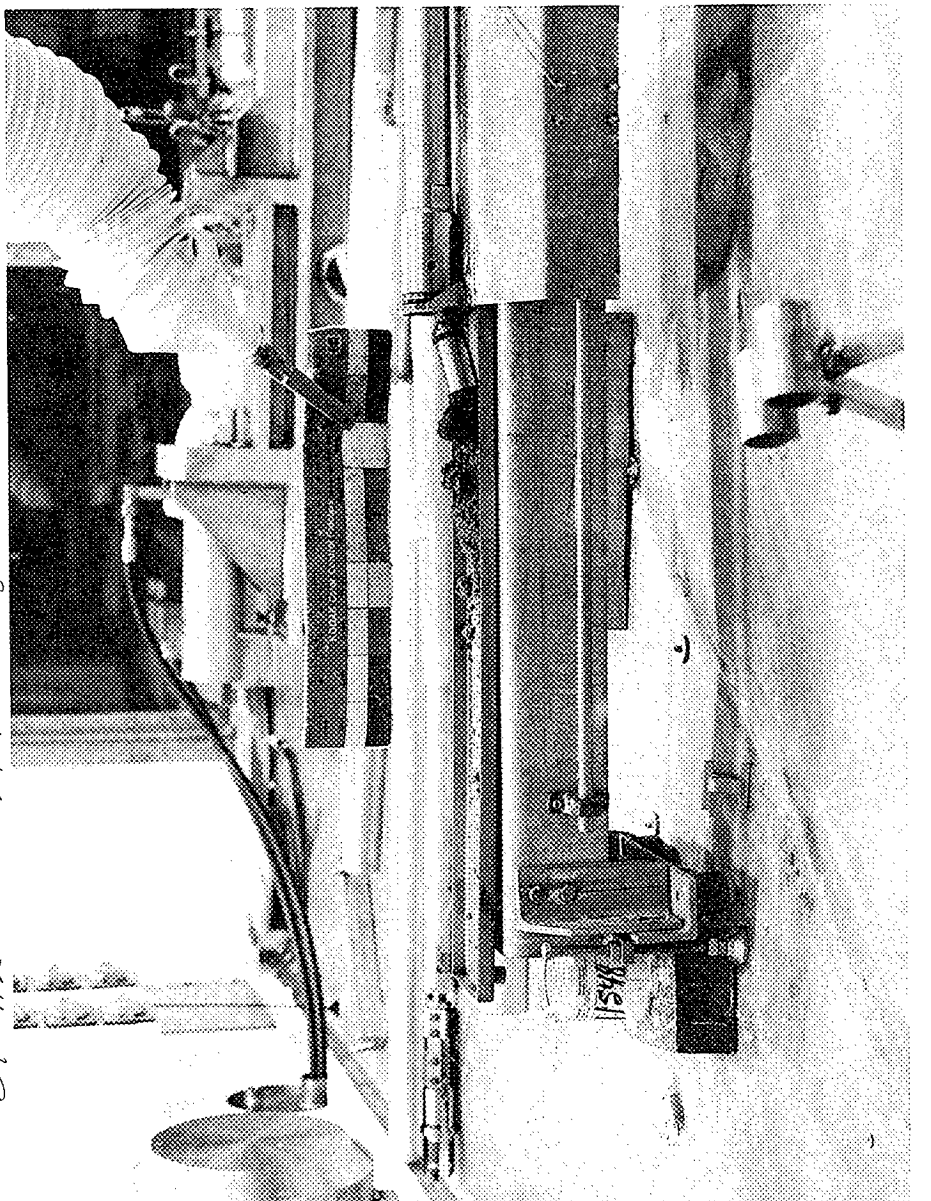
BY-112 Cne 1774 Segment #1
11-4-96


BY-112
Cue 1741
Segment #2
11-4-96

BY-112 Cne 174 Segment #3
11-4-96

BY-112 CORE 174 Segment #4
11-4-96

B4-112 Core 174 Segment #5
11-4-96

BY-112 ONE 1744 Segment #6 11-4-96

BY-112 Case 177 Segment #1 11-5-96

BY-112 CORE 194 Segment #2 11-5-96

BY-112 Core 177 Segment 3 11-5-96

BY-112 Core 177 Segment 4 11-6-90

By-112 Core 177 Segment 5 11-8-96

By-112 Core 177 Segment Co 11-6-96

10-25-96
Cor 177 Field Blank
BY-112

ATTACHMENT 2

DATA VERIFICATION AND DELIVERABLE SUMMARY REPORT

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W H C 2 2 2 - S L A B O R A T O R Y
TANK 241-BY-112, CORE 174

SDG 96001393
Contact J. L. Nuzum

Client TWRS
Tank BY-112

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S

About this section	1
Sample Summaries	3
Prep Batch Summary	5
Work Summary	6
Method Blanks	9
Lab Control Samples	10
Duplicates	11
Matrix Spikes	18
Data Sheets	22
Method Summaries	29
Report Guides	33
End of Section	48

F i n a l R e p o r t

Reviewed by

Approved by

Lab id 222-S
Protocol SST
Version 1.0
Form DVD-TOC
Version 3.08
Report date 03/26/97

WHC 222-S LABORATORY
TANK 241-BY-112, CORE 174
REPORT GUIDE

SDG 96001393
Contact J. L. Nuzum

Client TWRS
Tank BY-112

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DUPLICATES

Final Report

REPORT GUIDES
Page 1
SUMMARY DATA SECTION
Page 1

Lab id 222-S
Protocol SST
Version 1.0
Form DVD-RG
Version 3.08
Report date 03/26/97

WHC 222-S LABORATORY
TANK 241-BY-112, CORE 174

SDG 96001393
Contact J. L. Nuzum

GUIDE, cont.

Client TWRS
Tank BY-112

ABOUT THE DATA SUMMARY SECTION

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

SAMPLE SUMMARY

SDG 96001393
Contact J. L. Nuzum

Client TWRS
Tank BY-112

CLIENT SAMPLE ID	LOCATION		MATRIX	LEVEL	LAB SAMPLE ID	PRIORITY	COLLECTED	RECEIVED
BY112 C174S1 LH FUSION	R: 18 S: 1 C: 174	FUSION	SOLID		S96T005889			11/07/96 08:53
BY112 C174S1 LH FUSION-D	R: 18 S: 1 C: 174	FUSION	SOLID		S96T005889D			
BY112 C174S2 LH FUSION	R: 18 S: 2 C: 174	FUSION	SOLID		S96T005890			11/07/96 08:58
BY112 C174S2 LH FUSION-D	R: 18 S: 2 C: 174	FUSION	SOLID		S96T005890D			
BY112 C174S2 LH FUSION-S	R: 18 S: 2 C: 174	FUSION	SOLID		S96T005890S			
BY112 C174S3 LH FUSION	R: 18 S: 3 C: 174	FUSION	SOLID		S96T005891			11/07/96 08:58
BY112 C174S3 LH FUSION-D	R: 18 S: 3 C: 174	FUSION	SOLID		S96T005891D			
BY112 C174S4 LH FUSION	R: 18 S: 4 C: 174	FUSION	SOLID		S96T005892			11/07/96 08:58
BY112 C174S4 LH FUSION-D	R: 18 S: 4 C: 174	FUSION	SOLID		S96T005892D			
BY112 C174S4 LH FUSION-S	R: 18 S: 4 C: 174	FUSION	SOLID		S96T005892S			
BY112 C174S5 DL DIR J119	R: 18 S: 5 C: 174		LIQUID		S96T005907			11/07/96 09:21
BY112 C174S5 DL DIR J119	R: 18 S: 5 C: 174		LIQUID		S96T005907D			
BY112 C174S5 DL DIR J119	R: 18 S: 5 C: 174		LIQUID		S96T005907S			
BY112 C174S5 LH FUSION	R: 18 S: 5 C: 174	FUSION	SOLID		S96T005893			11/07/96 08:58
BY112 C174S5 LH FUSION-D	R: 18 S: 5 C: 174	FUSION	SOLID		S96T005893D			
BY112 C174S6 LH FUSION	R: 18 S: 6 C: 174	FUSION	SOLID		S96T005895			11/07/96 08:58
BY112 C174S6 LH FUSION-D	R: 18 S: 6 C: 174	FUSION	SOLID		S96T005895D			
BY112 C174S6 LH FUSION-S	R: 18 S: 6 C: 174	FUSION	SOLID		S96T005895S			
DI Blank			LIQUID		B15245-2			
Method Blank			SOLID		B15491-2			
Method Blank			SOLID		B15492-2			
Method Blank			SOLID		B15662-2			
Lab Control Sample			LIQUID		S15245-1			
Lab Control Sample			SOLID		S15491-1			
Lab Control Sample			SOLID		S15492-1			
Lab Control Sample			SOLID		S15662-1			

Final Report

SAMPLE SUMMARY
Page 1
SUMMARY DATA SECTION
Page 3

Lab id 222-S
Protocol SST
Version 1.0
Form DVD-CS
Version 3.08
Report date 03/26/97

WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

QC SUMMARY

SDG 96001393
Contact J. L. Nuzum

Client TWRS
Tank BY-112

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% MOIST	SAMPLE AMOUNT	BASIS AMOUNT	DAYS FROM/TO COLL RCVD	DAYS FROM/TO RCVD RPTD	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
96001393-F		BY112 C174S1 LH FUSION FUSION	SOLID					139	S96T005889	
		BY112 C174S2 LH FUSION FUSION	SOLID					139	S96T005890	
		BY112 C174S3 LH FUSION FUSION	SOLID					139	S96T005891	
		BY112 C174S4 LH FUSION FUSION	SOLID					139	S96T005892	
		BY112 C174S5 LH FUSION FUSION	SOLID					139	S96T005893	
		BY112 C174S6 LH FUSION FUSION	SOLID					139	S96T005895	
		BY112 C174S1 LH FUSION-D FUSION	SOLID					139	S96T005889D	
		BY112 C174S2 LH FUSION-D FUSION	SOLID					139	S96T005890D	
		BY112 C174S2 LH FUSION-S FUSION	SOLID					139	S96T005890S	
		BY112 C174S3 LH FUSION-D FUSION	SOLID					139	S96T005891D	
		BY112 C174S4 LH FUSION-D FUSION	SOLID					139	S96T005892D	
		BY112 C174S4 LH FUSION-S FUSION	SOLID					139	S96T005892S	
		BY112 C174S5 LH FUSION-D FUSION	SOLID					139	S96T005893D	
		BY112 C174S6 LH FUSION-D FUSION	SOLID					139	S96T005895D	
		BY112 C174S6 LH FUSION-S FUSION	SOLID					139	S96T005895S	
96001393-L		BY112 C174S5 DL DIR J119	LIQUID					139	S96T005907	
		BY112 C174S5 DL DIR J119	LIQUID					139	S96T005907D	
		BY112 C174S5 DL DIR J119	LIQUID					139	S96T005907S	
LIQUID		DI Blank	LIQUID						B15245-2	
		Lab Control Sample	LIQUID						S15245-1	
SOLID		Method Blank	SOLID						B15491-2	
		Method Blank	SOLID						B15492-2	
		Method Blank	SOLID						B15662-2	
		Lab Control Sample	SOLID						S15491-1	
		Lab Control Sample	SOLID						S15492-1	
		Lab Control Sample	SOLID						S15662-1	

Final Report

QC SUMMARY
Page 1
SUMMARY DATA SECTION
Page 4

Lab id 222-S
Protocol SST
Version 1.0
Form DVD-QS
Version 3.08
Report date 03/26/97

WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

SDG 96001393
Contact J. L. Nuzum

PREP BATCH SUMMARY

Client TWRS
Tank BY-112

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
AT	LIQUID	Alpha Analysis	96011852	15.0	1			1	1	1/1	1/1	
	SOLID	Alpha Analysis	96012104	15.0	3			1	1	3/3	1/1	
			96012105	15.0	2			1	1	2/2	1/1	
			96012289	15.0	1			1	1	1/1	1/1	

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

WORK SUMMARY

SDG 96001393
Contact J. L. Nuzum

Client TWRS
Tank BY-112

CLIENT SAMPLE ID / LOCATION / CUSTODY / Priority	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
BY112 C174S1 LH FUSION R: 18 S: 1 C: 174	FUSION SOLID	S96T005889 11/07/96	15491-4	AT		12/13/96		SLF	Alpha Analysis
BY112 C174S1 LH FUSION-D R: 18 S: 1 C: 174	FUSION SOLID	S96T005889D 11/07/96	15491-5	AT		12/13/96		SLF	Alpha Analysis
BY112 C174S2 LH FUSION R: 18 S: 2 C: 174	FUSION SOLID	S96T005890 11/07/96	15491-6	AT		12/13/96		SLF	Alpha Analysis
BY112 C174S2 LH FUSION-D R: 18 S: 2 C: 174	FUSION SOLID	S96T005890D 11/07/96	15491-7	AT		12/13/96		SLF	Alpha Analysis
BY112 C174S2 LH FUSION-S R: 18 S: 2 C: 174	FUSION SOLID	S96T005890S 11/07/96	15491-8	AT		12/13/96		SLF	Alpha Analysis
BY112 C174S3 LH FUSION R: 18 S: 3 C: 174	FUSION SOLID	S96T005891 11/07/96	15491-9	AT		12/13/96		SLF	Alpha Analysis
BY112 C174S3 LH FUSION-D R: 18 S: 3 C: 174	FUSION SOLID	S96T005891D 11/07/96	15491-10	AT		12/13/96		SLF	Alpha Analysis
BY112 C174S4 LH FUSION R: 18 S: 4 C: 174	FUSION SOLID	S96T005892 11/07/96	15492-4	AT		12/13/96		SLF	Alpha Analysis
BY112 C174S4 LH FUSION-D R: 18 S: 4 C: 174	FUSION SOLID	S96T005892D 11/07/96	15492-5	AT		12/13/96		SLF	Alpha Analysis
BY112 C174S4 LH FUSION-S R: 18 S: 4 C: 174	FUSION SOLID	S96T005892S 11/07/96	15492-6	AT		12/13/96		SLF	Alpha Analysis

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

SDG 96001393
Contact J. L. Nuzum

WORK SUMMARY, cont.

Client TWRS
Tank BY-112

CLIENT SAMPLE ID / LOCATION / CUSTODY / Priority	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
BY112 C174S5 DL DIR J119 R: 18 S: 5 C: 174	LIQUID	S96T005907 11/07/96	15245-4	AT		12/05/96		SLF	Alpha Analysis
BY112 C174S5 DL DIR J119 R: 18 S: 5 C: 174	LIQUID	S96T005907D 11/07/96	15245-5	AT		12/05/96		SLF	Alpha Analysis
BY112 C174S5 DL DIR J119 R: 18 S: 5 C: 174	LIQUID	S96T005907S 11/07/96	15245-6	AT		12/05/96		SLF	Alpha Analysis
BY112 C174S5 LH FUSION R: 18 S: 5 C: 174	FUSION SOLID	S96T005893 11/07/96	15492-7	AT		12/13/96		SLF	Alpha Analysis
BY112 C174S5 LH FUSION-D R: 18 S: 5 C: 174	FUSION SOLID	S96T005893D 11/07/96	15492-8	AT		12/13/96		SLF	Alpha Analysis
BY112 C174S6 LH FUSION R: 18 S: 6 C: 174	FUSION SOLID	S96T005895 11/07/96	15662-4	AT	01	12/18/96		SLF	Alpha Analysis
BY112 C174S6 LH FUSION-D R: 18 S: 6 C: 174	FUSION SOLID	S96T005895D 11/07/96	15662-5	AT	01	12/18/96		SLF	Alpha Analysis
BY112 C174S6 LH FUSION-S R: 18 S: 6 C: 174	FUSION SOLID	S96T005895S 11/07/96	15662-6	AT	01	12/18/96		SLF	Alpha Analysis
DI Blank	LIQUID	B15245-2	15245-2	AT		12/05/96		SLF	Alpha Analysis
Method Blank	SOLID	B15491-2	15491-2	AT		12/13/96		SLF	Alpha Analysis

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WHC 222-S LABORATORY
TANK 241-BY-112, CORE 174

SDG 96001393
Contact J. L. Nuzum

WORK SUMMARY, cont.

Client TWRS
Tank BY-112

CLIENT SAMPLE ID / LOCATION / CUSTODY	Priority	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Method Blank		SOLID	B15492-2	15492-2	AT		12/13/96		SLF	Alpha Analysis
Method Blank		SOLID	B15662-2	15662-2	AT		12/18/96		SLF	Alpha Analysis
Lab Control Sample		LIQUID	S15245-1	15245-1	AT		12/05/96		SLF	Alpha Analysis
Lab Control Sample		SOLID	S15491-1	15491-1	AT		12/13/96		SLF	Alpha Analysis
Lab Control Sample		SOLID	S15492-1	15492-1	AT		12/13/96		SLF	Alpha Analysis
Lab Control Sample		SOLID	S15662-1	15662-1	AT		12/18/96		SLF	Alpha Analysis

COUNTS OF TESTS BY SAMPLE TYPE

TEST	Priority	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
AT		Alpha Analysis	222-S Lab Analytical Procedure	6			3	3	6	3	21
AT		Alpha Analysis	222-S Lab Analytical Procedure	1			1	1	1	1	5
TOTALS				7			4	4	7	4	26

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

SDG 96001393
Contact J. L. Nuzum

BLANKS

Client TWRS
Tank BY-112

Lab sample id B15245-2
Dept sample id
Client sample id DI Blank
Material/Matrix LIQUID

ANALYTE	CAS NO	RESULT uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALIFIERS	TEST	PREP BATCH
Total Alpha	12587-46-1	3.1E-02		3.1E-02		U	AT	96011852

Lab sample id B15491-2
Dept sample id
Client sample id Method Blank
Material/Matrix SOLID

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	PREP BATCH
Total Alpha	12587-46-1	<1.9E-02		1.9E-02		U	AT	96012104

Lab sample id B15492-2
Dept sample id
Client sample id Method Blank
Material/Matrix SOLID

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	PREP BATCH
Total Alpha	12587-46-1	<4.0E-02		4.0E-02		U	AT	96012105

Lab sample id B15662-2
Dept sample id
Client sample id Method Blank
Material/Matrix SOLID

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	PREP BATCH
Total Alpha	12587-46-1	4.38E-03	84	4.4E-03		U	AT	96012289

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WHC 222-S LABORATORY
TANK 241-BY-112, CORE 174

LAB CONTROL SAMPLES

SDG 96001393
Contact J. L. Nuzum

Client TWRS
Tank BY-112

Lab sample id S15245-1
Dept sample id

Client sample id Lab Control Sample
Material/Matrix LIQUID

ANALYTE	RESULT uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALIFIERS	TEST	ADDED uCi/ml	2σ ERR %	REC %	3σ LMTS (TOTAL)	LIMITS	PREP BATCH
Total Alpha	1.95E-04	15	7.5E-07			AT	2.30E-4	5.0	85	79-121	70-130	96011852

Lab sample id S15491-1
Dept sample id

Client sample id Lab Control Sample
Material/Matrix SOLID

ANALYTE	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	ADDED uCi/g	2σ ERR %	REC %	3σ LMTS (TOTAL)	LIMITS	PREP BATCH
Total Alpha	1.03E-01	16	4.4E-04			AT	1.21E-1	5.0	85	79-121	70-130	96012104

Lab sample id S15492-1
Dept sample id

Client sample id Lab Control Sample
Material/Matrix SOLID

ANALYTE	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	ADDED uCi/g	2σ ERR %	REC %	3σ LMTS (TOTAL)	LIMITS	PREP BATCH
Total Alpha	1.07E-01	15	2.0E-04			AT	1.13E-1	5.0	95	77-123	70-130	96012105

Lab sample id S15662-1
Dept sample id

Client sample id Lab Control Sample
Material/Matrix SOLID

ANALYTE	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	ADDED uCi/g	2σ ERR %	REC %	3σ LMTS (TOTAL)	LIMITS	PREP BATCH
Total Alpha	1.05E-01	15	2.0E-04			AT	1.15E-1	5.0	91	78-122	70-130	96012289

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

DUPLICATE

S96T005889D

BY112 C174S1 LH FUSION

SDG 96001393
Contact J. L. Nuzum

DUPLICATE
Lab sample id S96T005889D
Dept sample id

ORIGINAL
Lab sample id S96T005889
Dept sample id
Received 11/07/96

Client TWRS
Tank BY-112
Client sample id BY112 C174S1 LH FUSION FUSION
Location/Matrix R: 18 S: 1 C: 174 SOLID
Collected
Chain of custody id

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI-FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	8.74E-02	30	1.8E-02			AT	1.15E-01	29	1.9E-02		27	62 37

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S96T005890D

WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

DUPLICATE

BY112 C174S2 LH FUSION

SDG 96001393
Contact J. L. Nuzum

DUPLICATE
Lab sample id S96T005890D
Dept sample id

ORIGINAL
Lab sample id S96T005890
Dept sample id
Received 11/07/96

Client TWRS
Tank BY-112
Client sample id BY112 C174S2 LH FUSION FUSION
Location/Matrix R: 18 S: 2 C: 174 SOLID
Collected
Chain of custody id

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI-FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT	
Total Alpha	2.75E-02	40	8.8E-03			AT	3.26E-02	34	9.0E-03		17	77	59

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S96T005891D

WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

DUPLICATE

BY112 C174S3 LH FUSION

SDG 96001393
Contact J. L. Nuzum

DUPLICATE
Lab sample id S96T005891D
Dept sample id

ORIGINAL
Lab sample id S96T005891
Dept sample id
Received 11/07/96

Client TWRS
Tank BY-112

Client sample id BY112 C174S3 LH FUSION FUSION
Location/Matrix R: 18 S: 3 C: 174 SOLID
Collected
Chain of custody id

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI-FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	6.57E-02	29	1.0E-02			AT	3.73E-02	32	9.0E-03		55	65 37

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

DUPLICATE

BY112 C174S4 LH FUSION

SDG 96001393
Contact J. L. Nuzum

DUPLICATE
Lab sample id S96T005892D
Dept sample id _____

ORIGINAL
Lab sample id S96T005892
Dept sample id _____
Received 11/07/96

Client TWRS
Tank BY-112
Client sample id BY112 C174S4 LH FUSION FUSION
Location/Matrix R: 18 S: 4 C: 174 SOLID
Collected _____
Chain of custody id _____

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI-FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	2.79E-01	33	3.7E-02			AT	2.36E-01	36	4.0E-02		17	73 30

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S96T005893D

WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

DUPLICATE

BY112 C174S5 LH FUSION

SDG 96001393
Contact J. L. Nuzum

DUPLICATE
Lab sample id S96T005893D
Dept sample id

ORIGINAL
Lab sample id S96T005893
Dept sample id
Received 11/07/96

Client TWRS
Tank BY-112
Client sample id BY112 C174S5 LH FUSION FUSION
Location/Matrix R: 18 S: 5 C: 174 SOLID
Collected
Chain of custody id

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI-FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Total Alpha	4.33E-02	39	8.8E-03			AT	6.65E-02	33	8.8E-03		42	77	32

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

DUPLICATE

BY112 C174S6 LH FUSION

SDG 96001393
Contact J. L. Nuzum

DUPLICATE
Lab sample id S96T005895D
Dept sample id

ORIGINAL
Lab sample id S96T005895
Dept sample id
Received 11/07/96

Client TWRS
Tank BY-112
Client sample id BY112 C174S6 LH FUSION FUSION
Location/Matrix R: 18 S: 6 C: 174 SOLID
Collected
Chain of custody id

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI-FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	6.28E-02	25	4.8E-03			AT	6.18E-02	28	4.4E-03		2	56 20

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S96T005907D

WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

DUPLICATE

BY112 C174S5 DL DIR J119

SDG 96001393
Contact J. L. Nuzum

DUPLICATE
Lab sample id S96T005907D
Dept sample id

ORIGINAL
Lab sample id S96T005907
Dept sample id
Received 11/07/96

Client TWRS
Tank BY-112
Client sample id BY112 C174S5 DL DIR J119
Location/Matrix R: 18 S: 5 C: 174 LIQUID
Collected
Chain of custody id

ANALYTE	DUPLICATE uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALIFIERS	TEST	ORIGINAL uCi/ml	2σ TPU %	MDA uCi/ml	QUALIFIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	<3.1E-02		3.1E-02		U	AT	<3.1E-02		3.1E-02	U		

Samp: BY112 C174S5 DL DIR J11985

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

MATRIX SPIKE

BY112 C174S2 LH FUSION

SDG 96001393
Contact J. L. Nuzum

MATRIX SPIKE
Lab sample id S96T005890S
Dept sample id

ORIGINAL
Lab sample id S96T005890
Dept sample id
Received 11/07/96

Client TWRS
Tank BY-112

Client sample id BY112 C174S2 LH FUSION FUSION
Location/Matrix R: 18 S: 2 C: 174 SOLID
Collected
Chain of custody id

ANALYTE	SPIKE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	ADDED uCi/g	2σ ERR %	ORIGINAL uCi/g	2σ TPU %	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Total Alpha	1.46E 01					AT	1.76E01	5.0	3.26E-02	34	83	80-120	75-125

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

S96T005892S

MATRIX SPIKE

BY112 C174S4 LH FUSION

SDG 96001393
Contact J. L. Nuzum
Client TWRS
Tank BY-112

MATRIX SPIKE
Lab sample id S96T005892S
Dept sample id

ORIGINAL
Lab sample id S96T005892
Dept sample id
Received 11/07/96

Client sample id BY112 C174S4 LH FUSION FUSION
Location/Matrix R: 18 S: 4 C: 174 SOLID
Collected
Chain of custody id

ANALYTE	SPIKE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	ADDED uCi/g	2σ ERR %	ORIGINAL uCi/g	2σ TPU %	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Total Alpha	1.56E 01					AT	1.76E01	5.0	2.36E-01	36	87	79-121	75-125

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

MATRIX SPIKE

BY112 C174S6 LH FUSION

SDG 96001393
Contact J. L. Nuzum
Client TWRS
Tank BY-112

MATRIX SPIKE	ORIGINAL	
Lab sample id S96T005895S	Lab sample id S96T005895	Client sample id BY112 C174S6 LH FUSION FUSION
Dept sample id	Dept sample id	Location/Matrix R: 18 S: 6 C: 174 SOLID
	Received 11/07/96	Collected
		Chain of custody id

ANALYTE	SPIKE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	ADDED uCi/g	2σ ERR %	ORIGINAL uCi/g	2σ TPU %	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Total Alpha	1.29E-01					AT	1.80E01	5.0	6.18E-02	28	71	82-118	75-125

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S96T005907S

WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

MATRIX SPIKE

BY112 C174S5 DL DIR J119

SDG 96001393
Contact J. L. Nuzum
MATRIX SPIKE
Lab sample id S96T005907S
Dept sample id

ORIGINAL
Lab sample id S96T005907
Dept sample id
Received 11/07/96

Client TWRS
Tank BY-112
Client sample id BY112 C174S5 DL DIR J119
Location/Matrix R: 18 S: 5 C: 174 LIQUID
Collected
Chain of custody id

ANALYTE	SPIKE uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALIFIERS	TEST	ADDED uCi/ml	2σ ERR %	ORIGINAL uCi/ml	2σ TPU %	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Total Alpha	3.07E-02					AT	3.59E-2	5.0			86	79-121	75-125

Samp: BY112 C174S5 DL DIR J11985

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WHC 222-S LABORATORY

S96T005889

TANK 241-BY-112, CORE 174

DATA SHEET

BY112 C174S1 LH FUSION

SDG 96001393 Client TWRS
Contact J. L. Nuzum Tank BY-112

Lab sample id S96T005889 Client sample id BY112 C174S1 LH FUSION FUSION
Dept sample id _____ Location/Matrix R: 18 S: 1 C: 174 SOLID
Received 11/07/96 Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI-FIERS	TEST
Total Alpha	12587-46-1	1.15E-01	29	1.9E-02			AT

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Lab id 222-S
Protocol SST
Version 1.0
Form DVD-DS
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WHC 222-S LABORATORY
TANK 241-BY-112, CORE 174
DATA SHEET

S96T005890

BY112 C174S2 LH FUSION

SDG 96001393 Client TWRS
Contact J. L. Nuzum Tank BY-112

Lab sample id S96T005890 Client sample id BY112 C174S2 LH FUSION FUSION
Dept sample id _____ Location/Matrix R: 18 S: 2 C: 174 SOLID
Received 11/07/96 Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST
Total Alpha	12587-46-1	3.26E-02	34	9.0E-03			AT

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

DATA SHEET

S96T005891

BY112 C174S3 LH FUSION

SDG 96001393 Client TWRS

Contact J. L. Nuzum Tank BY-112

Lab sample id S96T005891 Client sample id BY112 C174S3 LH FUSION FUSION

Dept sample id _____ Location/Matrix R: 18 S: 3 C: 174 SOLID

Received 11/07/96 Collected _____

Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST
Total Alpha	12587-46-1	3.73E-02	32	9.0E-03			AT

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WHC 222-S LABORATORY

S96T005892

TANK 241-BY-112, CORE 174

DATA SHEET

BY112 C174S4 LH FUSION

SDG 96001393 Client TWRS

Contact J. L. Nuzum Tank BY-112

Lab sample id S96T005892 Client sample id BY112 C174S4 LH FUSION FUSION

Dept sample id _____ Location/Matrix R: 18 S: 4 C: 174 SOLID

Received 11/07/96 Collected _____

Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI-FIERS	TEST
Total Alpha	12587-46-1	2.36E-01	36	4.0E-02			AT

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TANK 241-BY-112, CORE 174

DATA SHEET

S96T005907

BY112 C174S5 DL DIR J119

SDG 96001393 Client TWRS

Contact J. L. Nuzum Tank BY-112

Lab sample id S96T005907 Client sample id BY112 C174S5 DL DIR J119

Dept sample id _____ Location/Matrix R: 18 S: 5 C: 174 LIQUID

Received 11/07/96 Collected _____

Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALIFIERS	TEST
Total Alpha	12587-46-1	<3.1E-02		3.1E-02		U	AT

Samp: BY112 C174S5 DL DIR J11985

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TANK 241-BY-112, CORE 174

S96T005893

DATA SHEET

BY112 C174S5 LH FUSION

SDG 96001393 Client TWRS
Contact J. L. Nuzum Tank BY-112

Lab sample id S96T005893 Client sample id BY112 C174S5 LH FUSION FUSION
Dept sample id _____ Location/Matrix R: 18 S: 5 C: 174 SOLID
Received 11/07/96 Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST
Total Alpha	12587-46-1	6.65E-02	33	8.8E-03			AT

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TANK 241-BY-112, CORE 174

DATA SHEET

S96T005895

BY112 C174S6 LH FUSION

SDG 96001393 Client TWRS

Contact J. L. Nuzum Tank BY-112

Lab sample id S96T005895 Client sample id BY112 C174S6 LH FUSION FUSION

Dept sample id _____ Location/Matrix R: 18 S: 6 C: 174 SOLID

Received 11/07/96 Collected _____

Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST
Total Alpha	12587-46-1	6.18E-02	28	4.4E-03			AT

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TANK 241-BY-112, CORE 174

Test AT Matrix LIQUID
SDG 96001393
Contact J. L. Nuzum

METHOD SUMMARY

ALPHA ANALYSIS
GAS PROPORTIONAL COUNTING

Client TWRS
Tank BY-112

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	1: Total Alpha	2: Sum, Alpha Emitters	RESULT RATIO (%) 2÷1	RATIO (%) 2σ
Preparation batch 96011852								
BY112 C174S5 DL DIR J119	S96T005907			15245-4	U			
BY112 C174S5 DL DIR J119	S96T005907D			15245-5	- U			
BY112 C174S5 DL DIR J119	S96T005907S			15245-6	ok			
DI Blank	B15245-2			15245-2	U			
Lab Control Sample	S15245-1			15245-1	ok			
Nominal values and limits from method				RDLs (uCi/ml)			80	
							Average	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA uCi/ml	ALIQ ml	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 96011852	2σ prep error 15.0 %	Reference														
BY112 C174S5 DL DIR J119	S96T005907			3.1E-02	0.250	1.00	10200		26	30					12/05/96	WB27809
BY112 C174S5 DL DIR J119	S96T005907D			3.1E-02	0.250	1.00	10200		26	30					12/05/96	WB27809
BY112 C174S5 DL DIR J119	S96T005907S				0.250	1.00	1.00		26	30					12/05/96	WB27809
DI Blank	B15245-2			3.1E-02	0.250		10200		26	30					12/05/96	WB27809
Lab Control Sample	S15245-1			7.5E-07	1.00	1.00	1.00		26	30					12/05/96	WB27809
Nominal values and limits from method					0.100					30						
									20-55							

PROCEDURES REFERENCE 222-S Lab Analytical Procedure
LO-160-103 Core Segment Extrusion Process and Sample Preparation, rev 17
LA-508-101A Alpha in liquid samples, rev 42
LA-508-11NA Operation of the [Tennelec LB-5500 (n=0, A-5), LB-1000 (n=1, A-3), Gamma Products (n=4, A-2)] Alpha/Beta Counting Systems

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 2.3E-02 ± 3.1E-02
EFFICIENCY 26 ± 0

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

Test AT Matrix SOLID
SDG 96001393
Contact J. L. Nuzum

METHOD SUMMARY

ALPHA ANALYSIS
GAS PROPORTIONAL COUNTING

Client TWRS
Tank BY-112

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Total Alpha	2: Americium 241 (GEA)	3: Sum, Alpha Emitters	RESULT RATIOS (%) 2÷1	2σ	3÷1	2σ
Preparation batch 96012104											
BY112 C174S1 LH FUSION F	S96T005889			15491-4	1.15E-01						
BY112 C174S1 LH FUSION-D	S96T005889D			15491-5	ok						
BY112 C174S2 LH FUSION F	S96T005890			15491-6	3.26E-02						
BY112 C174S2 LH FUSION-D	S96T005890D			15491-7	ok						
BY112 C174S2 LH FUSION-S	S96T005890S			15491-8	ok						
BY112 C174S3 LH FUSION F	S96T005891			15491-9	3.73E-02						
BY112 C174S3 LH FUSION-D	S96T005891D			15491-10	OUT						
Method Blank	B15491-2			15491-2	U						
Lab Control Sample	S15491-1			15491-1	ok						
Preparation batch 96012105											
BY112 C174S4 LH FUSION F	S96T005892			15492-4	2.36E-01						
BY112 C174S4 LH FUSION-D	S96T005892D			15492-5	ok						
BY112 C174S4 LH FUSION-S	S96T005892S			15492-6	ok						
BY112 C174S5 LH FUSION F	S96T005893			15492-7	6.65E-02						
BY112 C174S5 LH FUSION-D	S96T005893D			15492-8	OUT						
Method Blank	B15492-2			15492-2	U						
Lab Control Sample	S15492-1			15492-1	ok						
Preparation batch 96012289											
BY112 C174S6 LH FUSION F	S96T005895		01	15662-4	6.18E-02						
BY112 C174S6 LH FUSION-D	S96T005895D		01	15662-5	ok						
BY112 C174S6 LH FUSION-S	S96T005895S		01	15662-6	LOW						
Method Blank	B15662-2			15662-2	U						
Lab Control Sample	S15662-1			15662-1	ok						
Nominal values and limits from method		RDLs (uCi/g)						100		80	
								Averages			

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TANK 241-BY-112, CORE 174

Test AT Matrix SOLID
SDG 96001393
Contact J. L. Nuzum

METHOD SUMMARY

ALPHA ANALYSIS
GAS PROPORTIONAL COUNTING

Client TWRS
Tank BY-112

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA uCi/g	ALIQ ml	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 96012104	2σ prep error 15.0 %	Reference														
BY112 C174S1 LH FUSION F	S96T005889			1.9E-02	0.250	527	11.0		27	30				12/07/96	12/13	WB27807
BY112 C174S1 LH FUSION-D	S96T005889D			1.8E-02	0.250	494	11.0		27	30				12/07/96	12/13	WB27807
BY112 C174S2 LH FUSION F	S96T005890			9.0E-03	0.500	491	11.0		27	30				12/07/96	12/13	WB27807
BY112 C174S2 LH FUSION-D	S96T005890D			8.8E-03	0.500	481	11.0		27	30				12/07/96	12/13	WB27807
BY112 C174S2 LH FUSION-S	S96T005890S				0.500	491	1.00		27	30				12/07/96	12/13	WB27807
BY112 C174S3 LH FUSION F	S96T005891			9.0E-03	0.500	489	11.0		27	30				12/07/96	12/13	WB27807
BY112 C174S3 LH FUSION-D	S96T005891D			1.0E-02	0.500	545	11.0		27	30				12/07/96	12/13	WB27807
Method Blank	B15491-2			1.9E-02	0.250	527	11.0		27	30					12/13/96	WB27807
Lab Control Sample	S15491-1			4.4E-04	1.00	527	1.00		27	30					12/13/96	WB27807
Preparation batch 96012105	2σ prep error 15.0 %	Reference														
BY112 C174S4 LH FUSION F	S96T005892			4.0E-02	0.500	491	101		27	30				12/07/96	12/13	WB27806
BY112 C174S4 LH FUSION-D	S96T005892D			3.7E-02	0.500	461	101		27	30				12/07/96	12/13	WB27806
BY112 C174S4 LH FUSION-S	S96T005892S				0.500	491	1.00		27	30				12/07/96	12/13	WB27806
BY112 C174S5 LH FUSION F	S96T005893			8.8E-03	0.250	499	11.0		27	30				12/07/96	12/13	WB27806
BY112 C174S5 LH FUSION-D	S96T005893D			8.8E-03	0.250	501	11.0		27	30				12/07/96	12/13	WB27806
Method Blank	B15492-2			4.0E-02	0.500	491	101		27	30					12/13/96	WB27806
Lab Control Sample	S15492-1			2.0E-04	1.00	491	1.00		27	30					12/13/96	WB27806
Preparation batch 96012289	2σ prep error 15.0 %	Reference														
BY112 C174S6 LH FUSION F	S96T005895	01		4.4E-03	0.500	501	11.0		27	30				12/07/96	12/18	WB27806
BY112 C174S6 LH FUSION-D	S96T005895D	01		4.8E-03	0.500	545	11.0		27	30				12/07/96	12/18	WB27806
BY112 C174S6 LH FUSION-S	S96T005895S	01			0.500	501	1.00		27	30				12/07/96	12/18	WB27806
Method Blank	B15662-2			4.4E-03	0.500	501	11.0		27	30					12/18/96	WB27806
Lab Control Sample	S15662-1			2.0E-04	1.00	501	1.00		27	30					12/18/96	WB27806
Nominal values and limits from method					0.100					30						
										20-55						

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

Test AT Matrix

SDG 96001393

Contact J. L. Nuzum

METHOD SUMMARY, cont.

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

Client TWRS

Tank BY-112

PROCEDURES	REFERENCE	222-S Lab Analytical Procedure
	LO-160-103	Core Segment Extrusion Process and Sample Preparation, rev 17
	LA-549-141	Fusion with Alkali Metal Hydroxide, rev 40
	LA-508-101A	Alpha in liquid samples, rev 42
	LA-508-11NA	Operation of the [Tennelec LB-5500 (n=0, A-5), LB-1000 (n=1, A-3), Gamma Products (n=4, A-2)] Alpha/Beta Counting Systems

AVERAGES ± 2 SD	MDA	1.3E-02	± 2.6E-02
FOR 21 SAMPLES	EFFICIENCY	27	± 0

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 174

SDG 96001393
Contact J. L. Nuzum

REPORT GUIDE

Client TWRS
Tank BY-112

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* *LAB SAMPLE ID is the lab's primary identification for a sample.*

* *DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.*

* *CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.*

* *QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.*

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* *All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.*

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REPORT GUIDE

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Tank BY-112

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* *The preparation batches are shown in the same order as the Method Summary Reports are printed.*

* *Only analyses of planchets relevant to the SDG are included.*

* *Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.*

* *The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.*

  These qualifiers should be reviewed as follows:

  X — *Some data has been manually entered or modified. Transcription errors are possible.*

  P — *One or more results are 'preliminary'. The data is not ready for final reporting.*

  2 — *There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.*

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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REPORT GUIDE

Client TWRS
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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* *TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.*

* *SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.*

* *The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.*

* *PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.*

* *For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.*

* *The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.*

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REPORT GUIDE

Client TWRS
Tank BY-112

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity). If the MDA is blank, the ERROR is used as the limit.

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DATA SHEET

J — The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B — A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L — Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H — Similar to 'L' except the recovery was high.

P — The RESULT is 'preliminary'.

X — Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 — There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA

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Tank BY-112

DATA SHEET

may not be a good estimate of the 'real' minimum detectable activity.

* *A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.*

* *When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.*

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

* Laboratory control limits are defined in procedure LQ-543-101.

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Client TWRS
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LAB CONTROL SAMPLE

DVD reported limits are based on total propagated uncertainty, a part of which is the laboratory control limits.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

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SDG 96001393
Contact J. L. Nuzum

GUIDE, cont.

Client TWRS
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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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R E P O R T G U I D E

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M A T R I X S P I K E

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

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MATRIX SPIKE

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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M E T H O D S U M M A R Y

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* *Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.*

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* *The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.*

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* *If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.*

  The J and X flags are as on the data sheet.

* *Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.*

* *Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data' means no amount ADDED was specified. 'LOW' and 'HIGH'*

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correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Preparation factors are underlined if greater than the nominal value specified for the QC batch.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

* Count times are underlined if less than the nominal value

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METHOD SUMMARY

specified for the method.

* *Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.*

* *Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.*

* *Days Held (Analyzed - Collected) are underlined if greater than the holding time specified in the protocol.*

* *Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.*

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included.

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No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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S U M M A R Y D A T A S E C T I O N

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F i n a l R e p o r t

Reviewed by

Approved by

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 177

SAMPLE SUMMARY

SDG 96001466
Contact J. L. Nuzum

Client TWRS
Tank BY-112

CLIENT SAMPLE ID	LOCATION		MATRIX	LEVEL	LAB SAMPLE ID	PRIORITY	COLLECTED	RECEIVED
BY112 C177 FB DIR J#1196	R: 21 S: Field Blank C:		LIQUID		S96T005909			11/07/96 09:31
BY112 C177 FB DIR J#1196	R: 21 S: Field Blank C:		LIQUID		S96T005909D			
BY112 C177S1 LH FUSION	R: 21 S: 1 C: 177	FUSION	SOLID		S96T005929			11/07/96 14:00
BY112 C177S1 LH FUSION-D	R: 21 S: 1 C: 177	FUSION	SOLID		S96T005929D			
BY112 C177S2 LH FUSION	R: 21 S: 2 C: 177	FUSION	SOLID		S96T005930			11/07/96 14:00
BY112 C177S2 LH FUSION-D	R: 21 S: 2 C: 177	FUSION	SOLID		S96T005930D			
BY112 C177S3 LH FUSION	R: 21 S: 3 C: 177	FUSION	SOLID		S96T005931			11/07/96 14:00
BY112 C177S3 LH FUSION-D	R: 21 S: 3 C: 177	FUSION	SOLID		S96T005931D			
BY112 C177S4 LH FUSION	R: 21 S: 4 C: 177	FUSION	SOLID		S96T005933			11/07/96 14:00
BY112 C177S4 LH FUSION-D	R: 21 S: 4 C: 177	FUSION	SOLID		S96T005933D			
BY112 C177S5 DL DIR J#11	R: 21 S: 5 C: 177		LIQUID		S96T005960			11/11/96 07:06
BY112 C177S5 DL DIR J#11	R: 21 S: 5 C: 177		LIQUID		S96T005960D			
BY112 C177S5 DL DIR J#11	R: 21 S: 5 C: 177		LIQUID		S96T005960S			
BY112 C177S5 LH FUSION	R: 21 S: 5 C: 177	FUSION	SOLID		S96T005957			11/11/96 06:58
BY112 C177S5 LH FUSION-D	R: 21 S: 5 C: 177	FUSION	SOLID		S96T005957D			
BY112 C177S6 LH FUSION	R: 21 S: 6 C: 177	FUSION	SOLID		S96T005934			11/07/96 14:00
BY112 C177S6 LH FUSION-D	R: 21 S: 6 C: 177	FUSION	SOLID		S96T005934D			
DI Blank			LIQUID		B15245-2			
Method Blank			SOLID		B15461-2			
Method Blank			SOLID		B15462-2			
Method Blank			SOLID		B15463-2			
Lab Control Sample			LIQUID		S15245-1			
Lab Control Sample			SOLID		S15461-1			
Lab Control Sample			SOLID		S15462-1			
Lab Control Sample			SOLID		S15463-1			

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TANK 241-BY-112, CORE 177

QC SUMMARY

SDG 96001466
Contact J. L. Nuzum

Client TWRS
Tank BY-112

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% MOIST	SAMPLE AMOUNT	BASIS AMOUNT	DAYS FROM/TO COLL RCVD	DAYS FROM/TO RCVD RPTD	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
96001466-F		BY112 C177S1 LH FUSION FUSION	SOLID					139	S96T005929	
		BY112 C177S2 LH FUSION FUSION	SOLID					139	S96T005930	
		BY112 C177S3 LH FUSION FUSION	SOLID					139	S96T005931	
		BY112 C177S4 LH FUSION FUSION	SOLID					139	S96T005933	
		BY112 C177S5 LH FUSION FUSION	SOLID					135	S96T005957	
		BY112 C177S6 LH FUSION FUSION	SOLID					139	S96T005934	
		BY112 C177S1 LH FUSION-D FUSION	SOLID					139	S96T005929D	
		BY112 C177S2 LH FUSION-D FUSION	SOLID					139	S96T005930D	
		BY112 C177S3 LH FUSION-D FUSION	SOLID					139	S96T005931D	
		BY112 C177S4 LH FUSION-D FUSION	SOLID					139	S96T005933D	
		BY112 C177S5 LH FUSION-D FUSION	SOLID					135	S96T005957D	
		BY112 C177S6 LH FUSION-D FUSION	SOLID					139	S96T005934D	
96001466-L		BY112 C177 FB DIR J#1196	LIQUID					139	S96T005909	
		BY112 C177S5 DL DIR J#11	LIQUID					135	S96T005960	
		BY112 C177 FB DIR J#1196	LIQUID					139	S96T005909D	
		BY112 C177S5 DL DIR J#11	LIQUID					135	S96T005960D	
		BY112 C177S5 DL DIR J#11	LIQUID					135	S96T005960S	
LIQUID		DI Blank	LIQUID						B15245-2	
		Lab Control Sample	LIQUID						S15245-1	
SOLID		Method Blank	SOLID						B15461-2	
		Method Blank	SOLID						B15462-2	
		Method Blank	SOLID						B15463-2	
		Lab Control Sample	SOLID						S15461-1	
		Lab Control Sample	SOLID						S15462-1	
		Lab Control Sample	SOLID						S15463-1	

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TANK 241-BY-112, CORE 177

PREP BATCH SUMMARY

SDG 96001466
Contact J. L. Nuzum

Client TWRS
Tank BY-112

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting											
AT	LIQUID	Alpha Analysis	96011852	15.0	2		1	1	2/2	1/1	
	SOLID	Alpha Analysis	96012074	15.0	3		1	1	3/3		
			96012075	15.0	1		1	1	1/1		
			96012076	15.0	2		1	1	2/2		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

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TANK 241-BY-112, CORE 177

WORK SUMMARY

SDG 96001466
Contact J. L. Nuzum

Client TWRS
Tank BY-112

CLIENT SAMPLE ID / LOCATION / CUSTODY	MATRIX / Priority	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
BY112 C177 FB DIR J#1196 R: 21 S: Field Blank C:	LIQUID	S96T005909 11/07/96	15245-10	AT		12/05/96		SLF	Alpha Analysis
BY112 C177 FB DIR J#1196 R: 21 S: Field Blank C:	LIQUID	S96T005909D 11/07/96	15245-11	AT		12/05/96		SLF	Alpha Analysis
BY112 C177S1 LH FUSION R: 21 S: 1 C: 177	FUSION SOLID	S96T005929 11/07/96	15461-3	AT		12/11/96		SLF	Alpha Analysis
BY112 C177S1 LH FUSION-D R: 21 S: 1 C: 177	FUSION SOLID	S96T005929D 11/07/96	15461-4	AT		12/11/96		SLF	Alpha Analysis
BY112 C177S2 LH FUSION R: 21 S: 2 C: 177	FUSION SOLID	S96T005930 11/07/96	15461-5	AT		12/11/96		SLF	Alpha Analysis
BY112 C177S2 LH FUSION-D R: 21 S: 2 C: 177	FUSION SOLID	S96T005930D 11/07/96	15461-6	AT		12/11/96		SLF	Alpha Analysis
BY112 C177S3 LH FUSION R: 21 S: 3 C: 177	FUSION SOLID	S96T005931 11/07/96	15461-7	AT		12/11/96		SLF	Alpha Analysis
BY112 C177S3 LH FUSION-D R: 21 S: 3 C: 177	FUSION SOLID	S96T005931D 11/07/96	15461-8	AT		12/11/96		SLF	Alpha Analysis
BY112 C177S4 LH FUSION R: 21 S: 4 C: 177	FUSION SOLID	S96T005933 11/07/96	15462-3	AT		12/09/96		SLF	Alpha Analysis
BY112 C177S4 LH FUSION-D R: 21 S: 4 C: 177	FUSION SOLID	S96T005933D 11/07/96	15462-4	AT		12/09/96		SLF	Alpha Analysis

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Client TWRS
Tank BY-112

CLIENT SAMPLE ID / LOCATION / CUSTODY	MATRIX / Priority	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
BY112 C177S5 DL DIR J#11 R: 21 S: 5 C: 177	LIQUID	S96T005960 11/11/96	15245-7	AT		12/05/96		SLF	Alpha Analysis
BY112 C177S5 DL DIR J#11 R: 21 S: 5 C: 177	LIQUID	S96T005960D 11/11/96	15245-8	AT		12/05/96		SLF	Alpha Analysis
BY112 C177S5 DL DIR J#11 R: 21 S: 5 C: 177	LIQUID	S96T005960S 11/11/96	15245-9	AT		12/05/96		SLF	Alpha Analysis
BY112 C177S5 LH FUSION R: 21 S: 5 C: 177	FUSION SOLID	S96T005957 11/11/96	15463-5	AT		12/09/96		SLF	Alpha Analysis
BY112 C177S5 LH FUSION-D R: 21 S: 5 C: 177	FUSION SOLID	S96T005957D 11/11/96	15463-6	AT		12/09/96		SLF	Alpha Analysis
BY112 C177S6 LH FUSION R: 21 S: 6 C: 177	FUSION SOLID	S96T005934 11/07/96	15463-3	AT		12/09/96		SLF	Alpha Analysis
BY112 C177S6 LH FUSION-D R: 21 S: 6 C: 177	FUSION SOLID	S96T005934D 11/07/96	15463-4	AT		12/09/96		SLF	Alpha Analysis
DI Blank	LIQUID	B15245-2	15245-2	AT		12/05/96		SLF	Alpha Analysis
Method Blank	SOLID	B15461-2	15461-2	AT		12/11/96		SLF	Alpha Analysis
Method Blank	SOLID	B15462-2	15462-2	AT		12/09/96		SLF	Alpha Analysis
Method Blank	SOLID	B15463-2	15463-2	AT		12/09/96		SLF	Alpha Analysis

WHC 222-S LABORATORY

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WORK SUMMARY, cont.

SDG 96001466
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Client TWRS
Tank BY-112

CLIENT SAMPLE ID / LOCATION / CUSTODY	MATRIX / Priority	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Lab Control Sample	LIQUID	S15245-1	15245-1	AT		12/05/96		SLF	Alpha Analysis
Lab Control Sample	SOLID	S15461-1	15461-1	AT		12/11/96		SLF	Alpha Analysis
Lab Control Sample	SOLID	S15462-1	15462-1	AT		12/09/96		SLF	Alpha Analysis
Lab Control Sample	SOLID	S15463-1	15463-1	AT		12/09/96		SLF	Alpha Analysis

COUNTS OF TESTS BY SAMPLE TYPE

TEST	Priority	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
AT		Alpha Analysis	222-S Lab Analytical Procedure	6			3	3	6		18
AT		Alpha Analysis	222-S Lab Analytical Procedure	2			1	1	2	1	7
TOTALS				8			4	4	8	1	25

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BLANKS

Client TWRS
Tank BY-112

Lab sample id B15245-2
Dept sample id

Client sample id DI Blank
Material/Matrix LIQUID

ANALYTE	CAS NO	RESULT uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALIFIERS	TEST	PREP BATCH
Total Alpha	12587-46-1	<3.1E-02		3.1E-02		U	AT	96011852

Lab sample id B15461-2
Dept sample id

Client sample id Method Blank
Material/Matrix SOLID

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	PREP BATCH
Total Alpha	12587-46-1	<3.9E-04		3.9E-04		U	AT	96012074

Lab sample id B15462-2
Dept sample id

Client sample id Method Blank
Material/Matrix SOLID

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	PREP BATCH
Total Alpha	12587-46-1	<5.0E-02		5.0E-02		U	AT	96012075

Lab sample id B15463-2
Dept sample id

Client sample id Method Blank
Material/Matrix SOLID

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	PREP BATCH
Total Alpha	12587-46-1	9.94E-03	68	8.6E-03			AT	96012076

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LAB CONTROL SAMPLES

SDG 96001466
Contact J. L. Nuzum

Client TWRS
Tank BY-112

Lab sample id S15245-1
Dept sample id

Client sample id Lab Control Sample
Material/Matrix LIQUID

ANALYTE	RESULT uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALIFIERS	TEST	ADDED uCi/ml	2σ ERR %	REC %	3σ LMTS (TOTAL)	LIMITS	PROTOCOL PREP BATCH
Total Alpha	1.95E-04	15	7.5E-07			AT	2.30E-4	5.0	85	79-121	70-130	96011852

Lab sample id S15461-1
Dept sample id

Client sample id Lab Control Sample
Material/Matrix SOLID

ANALYTE	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	ADDED uCi/g	2σ ERR %	REC %	3σ LMTS (TOTAL)	LIMITS	PROTOCOL PREP BATCH
Total Alpha	1.04E-01	15	1.9E-04			AT	1.12E-1	5.0	93	77-123	70-130	96012074

Lab sample id S15462-1
Dept sample id

Client sample id Lab Control Sample
Material/Matrix SOLID

ANALYTE	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	ADDED uCi/g	2σ ERR %	REC %	3σ LMTS (TOTAL)	LIMITS	PROTOCOL PREP BATCH
Total Alpha	1.07E-01	15	4.9E-04			AT	1.19E-1	5.0	90	78-122	70-130	96012075

Lab sample id S15463-1
Dept sample id

Client sample id Lab Control Sample
Material/Matrix SOLID

ANALYTE	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	ADDED uCi/g	2σ ERR %	REC %	3σ LMTS (TOTAL)	LIMITS	PROTOCOL PREP BATCH
Total Alpha	1.03E-01	16	3.9E-04		B	AT	1.21E-1	5.0	85	79-121	70-130	96012076

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TANK 241-BY-112, CORE 177

S96T005909D

DUPLICATE

BY112 C177 FB DIR J#1196

SDG 96001466
Contact J. L. Nuzum
DUPLICATE
Lab sample id S96T005909D
Dept sample id

ORIGINAL
Lab sample id S96T005909
Dept sample id
Received 11/07/96

Client TWRS
Tank BY-112
Client sample id BY112 C177 FB DIR J#1196
Location/Matrix R: 21 S: Field Blank C: LIQUID
Collected
Chain of custody id

ANALYTE	DUPLICATE uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALI-FIERS	TEST	ORIGINAL uCi/ml	2σ TPU %	MDA uCi/ml	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	<7.5E-06		7.5E-06		U	AT	<7.5E-06		7.5E-06	U	-	

Loc: Riser: 21 Seg: Field Blank Core: 177

Samp: BY112 C177 FB DIR J#11966
Loc: Riser: 21 Seg: Field Blank Core: 177

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 177

S96T005929D

DUPLICATE

BY112 C177S1 LH FUSION

SDG 96001466
Contact J. L. Nuzum

DUPLICATE	ORIGINAL	
Lab sample id S96T005929D	Lab sample id S96T005929	Client sample id BY112 C177S1 LH FUSION FUSION
Dept sample id	Dept sample id	Location/Matrix R: 21 S: 1 C: 177 SOLID
	Received 11/07/96	Collected
		Chain of custody id

Client TWRS
Tank BY-112

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALIFIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	2.32E-03	37	3.6E-04			AT	2.32E-03	35	3.9E-04		0	76 32

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 177

S96T005930D

DUPLICATE

BY112 C177S2 LH FUSION

SDG 96001466
Contact J. L. Nuzum
Client TWRS
Tank BY-112

DUPLICATE	ORIGINAL		
Lab sample id S96T005930D	Lab sample id S96T005930	Client sample id BY112 C177S2 LH FUSION	FUSION
Dept sample id	Dept sample id	Location/Matrix R: 21 S: 2 C: 177	SOLID
	Received 11/07/96	Collected	
		Chain of custody id	

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALIFIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	3.55E-02	17	3.6E-04			AT	4.02E-02	17	3.7E-04		12	36 20

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S96T005931D

WHC 222-S LABORATORY

TANK 241-BY-112, CORE 177

DUPLICATE

BY112 C177S3 LH FUSION

SDG 96001466		Client TWRS	
Contact J. L. Nuzum		Tank BY-112	
DUPLICATE	ORIGINAL		
Lab sample id S96T005931D	Lab sample id S96T005931	Client sample id BY112 C177S3 LH FUSION	FUSION
Dept sample id	Dept sample id	Location/Matrix R: 21 S: 3 C: 177	SOLID
	Received 11/07/96	Collected	
		Chain of custody id	

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI-FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	4.75E-02	17	4.1E-04			AT	4.97E-02	16	3.6E-04		5	35 20

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 177

S96T005933D

DUPLICATE

BY112 C177S4 LH FUSION

SDG 96001466
Contact J. L. Nuzum

DUPLICATE
Lab sample id S96T005933D
Dept sample id

ORIGINAL
Lab sample id S96T005933
Dept sample id
Received 11/07/96

Client TWRS
Tank BY-112

Client sample id BY112 C177S4 LH FUSION FUSION
Location/Matrix R: 21 S: 4 C: 177 SOLID
Collected
Chain of custody id

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI-FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Total Alpha	1.54E-01	35	4.8E-02			AT	1.74E-01	37	5.0E-02		12	76	60

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 177

S96T005934D

DUPLICATE

BY112 C177S6 LH FUSION

SDG 96001466
Contact J. L. Nuzum

DUPLICATE
Lab sample id S96T005934D
Dept sample id

ORIGINAL
Lab sample id S96T005934
Dept sample id
Received 11/07/96

Client TWRS
Tank BY-112

Client sample id BY112 C177S6 LH FUSION FUSION
Location/Matrix R: 21 S: 6 C: 177 SOLID
Collected
Chain of custody id

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI-FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	3.90E-02	31	8.7E-03		B	AT	3.99E-02	33	8.6E-03	B	2	70 44

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 177

S96T005957D

DUPLICATE

BY112 C177S5 LH FUSION

SDG 96001466
Contact J. L. Nuzum
Client TWRS
Tank BY-112

DUPLICATE	ORIGINAL	
Lab sample id S96T005957D	Lab sample id S96T005957	Client sample id BY112 C177S5 LH FUSION FUSION
Dept sample id	Dept sample id	Location/Matrix R: 21 S: 5 C: 177 SOLID
	Received 11/11/96	Collected
		Chain of custody id

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI-FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	4.59E-02	52	1.7E-02			AT	4.50E-02	44	1.8E-02		2	104 77

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 177

S96T005960D

DUPLICATE

BY112 C177S5 DL DIR J#11

SDG 96001466
Contact J. L. Nuzum

DUPLICATE
Lab sample id S96T005960D
Dept sample id

ORIGINAL
Lab sample id S96T005960
Dept sample id
Received 11/11/96

Client TWRS
Tank BY-112
Client sample id BY112 C177S5 DL DIR J#11
Location/Matrix R: 21 S: 5 C: 177 LIQUID
Collected
Chain of custody id

ANALYTE	DUPLICATE uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALI-FIERS	TEST	ORIGINAL uCi/ml	2σ TPU %	MDA uCi/ml	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	<1.5E-02		1.5E-02		U	AT	<1.5E-02		1.5E-02	U		

Samp: BY112 C177S5 DL DIR J#11981

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 177

S96T005960S

MATRIX SPIKE

BY112 C177S5 DL DIR J#11

SDG 96001466
Contact J. L. Nuzum
MATRIX SPIKE
Lab sample id S96T005960S
Dept sample id

ORIGINAL
Lab sample id S96T005960
Dept sample id
Received 11/11/96

Client TWRS
Tank BY-112
Client sample id BY112 C177S5 DL DIR J#11
Location/Matrix R: 21 S: 5 C: 177 LIQUID
Collected
Chain of custody id

ANALYTE	SPIKE uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALIFIERS	TEST	ADDED uCi/ml	2σ ERR %	ORIGINAL uCi/ml	2σ TPU %	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Total Alpha	2.96E-02					AT	3.59E-2	5.0			82	80-120	75-125

Samp: BY112 C177S5 DL DIR J#11981

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MATRIX SPIKES
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WHC 222-S LABORATORY
TANK 241-BY-112, CORE 177

S96T005909

DATA SHEET

BY112 C177 FB DIR J#1196

SDG 96001466 Client TWRS
Contact J. L. Nuzum Tank BY-112

Lab sample id S96T005909 Client sample id BY112 C177 FB DIR J#1196
Dept sample id _____ Location/Matrix R: 21 S: Field Blank C: LIQUID
Received 11/07/96 Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALI-FIERS	TEST
Total Alpha	12587-46-1	<7.5E-06		7.5E-06		U	AT

Samp: BY112 C177 FB DIR J#11966
Loc: Riser: 21 Seg: Field Blank Core: 177

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WHC 222-S LABORATORY
TANK 241-BY-112, CORE 177
DATA SHEET

S96T005929

BY112 C177S1 LH FUSION

SDG 96001466 Client TWRS
Contact J. L. Nuzum Tank BY-112

Lab sample id S96T005929 Client sample id BY112 C177S1 LH FUSION FUSION
Dept sample id _____ Location/Matrix R: 21 S: 1 C: 177 SOLID
Received 11/07/96 Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI-FIERS	TEST
Total Alpha	12587-46-1	2.32E-03	35	3.9E-04			AT

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WHC 222-S LABORATORY
TANK 241-BY-112, CORE 177

S96T005930

DATA SHEET

BY112 C177S2 LH FUSION

SDG 96001466 Client TWRS
Contact J. L. Nuzum Tank BY-112

Lab sample id S96T005930 Client sample id BY112 C177S2 LH FUSION FUSION
Dept sample id _____ Location/Matrix R: 21 S: 2 C: 177 SOLID
Received 11/07/96 Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST
Total Alpha	12587-46-1	4.02E-02	17	3.7E-04			AT

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W H C 2 2 2 - S L A B O R A T O R Y

TANK 241-BY-112, CORE 177

S96T005931

D A T A S H E E T

BY112 C177S3 LH FUSION

SDG	96001466	Client	TWRS
Contact	J. L. Nuzum	Tank	BY-112
Lab sample id	S96T005931	Client sample id	BY112 C177S3 LH FUSION FUSION
Dept sample id		Location/Matrix	R: 21 S: 3 C: 177 SOLID
Received	11/07/96	Collected	
		Chain of custody id	

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST
Total Alpha	12587-46-1	4.97E-02	16	3.6E-04			AT

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WHC 222-S LABORATORY
TANK 241-BY-112, CORE 177

S96T005933

DATA SHEET

BY112 C177S4 LH FUSION

SDG	96001466	Client	TWRS
Contact	J. L. Nuzum	Tank	BY-112
Lab sample id	S96T005933	Client sample id	BY112 C177S4 LH FUSION FUSION
Dept sample id		Location/Matrix	R: 21 S: 4 C: 177 SOLID
Received	11/07/96	Collected	
		Chain of custody id	

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST
Total Alpha	12587-46-1	1.74E-01	37	5.0E-02			AT

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WHC 222-S LABORATORY
TANK 241-BY-112, CORE 177

S96T005960

DATA SHEET

BY112 C177S5 DL DIR J#11

SDG 96001466 Client TWRS
Contact J. L. Nuzum Tank BY-112

Lab sample id S96T005960 Client sample id BY112 C177S5 DL DIR J#11
Dept sample id _____ Location/Matrix R: 21 S: 5 C: 177 LIQUID
Received 11/11/96 Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALIFIERS	TEST
Total Alpha	12587-46-1	<1.5E-02		1.5E-02		U	AT

Samp: BY112 C177S5 DL DIR J#11981

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Form DVD-DS
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WHC 222-S LABORATORY
TANK 241-BY-112, CORE 177
DATA SHEET

S96T005957

BY112 C177S5 LH FUSION

SDG 96001466 Client TWRS
Contact J. L. Nuzum Tank BY-112

Lab sample id S96T005957 Client sample id BY112 C177S5 LH FUSION FUSION
Dept sample id _____ Location/Matrix R: 21 S: 5 C: 177 SOLID
Received 11/11/96 Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALIFIERS	TEST
Total Alpha	12587-46-1	4.50E-02	44	1.8E-02			AT

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 177

DATA SHEET

S96T005934

BY112 C177S6 LH FUSION

SDG	96001466	Client	TWRS
Contact	J. L. Nuzum	Tank	BY-112
Lab sample id	S96T005934	Client sample id	BY112 C177S6 LH FUSION FUSION
Dept sample id		Location/Matrix	R: 21 S: 6 C: 177 SOLID
Received	11/07/96	Collected	
		Chain of custody id	

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI-FIERS	TEST
Total Alpha	12587-46-1	3.99E-02	33	8.6E-03		B	AT

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 177

Test AT Matrix LIQUID
SDG 96001466
Contact J. L. Nuzum

METHOD SUMMARY

ALPHA ANALYSIS
GAS PROPORTIONAL COUNTING

Client TWRS
Tank BY-112

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Total Alpha	2: Sum, Alpha Emitters	RESULT RATIO (%) 2÷1	2σ
Preparation batch 96011852								
BY112 C177 FB DIR J#1196	S96T005909			15245-10	U			
BY112 C177 FB DIR J#1196	S96T005909D			15245-11	- U			
BY112 C177S5 DL DIR J#11	S96T005960			15245-7	U			
BY112 C177S5 DL DIR J#11	S96T005960D			15245-8	- U			
BY112 C177S5 DL DIR J#11	S96T005960S			15245-9	ok			
DI Blank	B15245-2			15245-2	U			
Lab Control Sample	S15245-1			15245-1	ok			

Nominal values and limits from method — RDLs (uCi/ml) — 80
Average

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA uCi/ml	ALIQ ml	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 96011852	2σ prep error 15.0 %	Reference														
BY112 C177 FB DIR J#1196	S96T005909			7.5E-06	0.100	1.00	1.00		26	30					12/05/96	WB27809
BY112 C177 FB DIR J#1196	S96T005909D			7.5E-06	0.100	1.00	1.00		26	30					12/05/96	WB27809
BY112 C177S5 DL DIR J#11	S96T005960			1.5E-02	0.500	1.00	10200		26	30					12/05/96	WB27809
BY112 C177S5 DL DIR J#11	S96T005960D			1.5E-02	0.500	1.00	10200		26	30					12/05/96	WB27809
BY112 C177S5 DL DIR J#11	S96T005960S				0.500	1.00	1.00		26	30					12/05/96	WB27809
DI Blank	B15245-2			3.1E-02	0.250		10200		26	30					12/05/96	WB27809
Lab Control Sample	S15245-1			7.5E-07	1.00	1.00	1.00		26	30					12/05/96	WB27809

Nominal values and limits from method — 0.100 — 30
20-55

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METHOD SUMMARIES
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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 177

Test AT Matrix LIQUID
SDG 96001466
Contact J. L. Nuzum

METHOD SUMMARY, cont.

ALPHA ANALYSIS
GAS PROPORTIONAL COUNTING

Client TWRS
Tank BY-112

PROCEDURES	REFERENCE	222-S Lab Analytical Procedure
	LO-160-103	Core Segment Extrusion Process and Sample Preparation, rev 17
	LA-508-101A	Alpha in liquid samples, rev 42
	LA-508-11NA	Operation of the [Tennelec LB-5500 (n=0, A-5), LB-1000 (n=1, A-3), Gamma Products (n=4, A-2)] Alpha/Beta Counting Systems

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 1.0E-02 ± 2.5E-02
EFFICIENCY 26 ± 0

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 177

Test AT Matrix SOLID
SDG 96001466
Contact J. L. Nuzum

Client TWRS
Tank BY-112

METHOD SUMMARY

ALPHA ANALYSIS
GAS PROPORTIONAL COUNTING

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Total Alpha	2: Americium 241 (GEA)	3: Sum, Alpha Emitters	RESULT RATIOS (%) 2÷1	2σ	3÷1	2σ
Preparation batch 96012074											
BY112 C177S1 LH FUSION F	S96T005929			15461-3	2.32E-03						
BY112 C177S1 LH FUSION-D	S96T005929D			15461-4	ok						
BY112 C177S2 LH FUSION F	S96T005930			15461-5	4.02E-02						
BY112 C177S2 LH FUSION-D	S96T005930D			15461-6	ok						
BY112 C177S3 LH FUSION F	S96T005931			15461-7	4.97E-02						
BY112 C177S3 LH FUSION-D	S96T005931D			15461-8	ok						
Method Blank	B15461-2			15461-2	U						
Lab Control Sample	S15461-1			15461-1	ok						
Preparation batch 96012075											
BY112 C177S4 LH FUSION F	S96T005933			15462-3	1.74E-01						
BY112 C177S4 LH FUSION-D	S96T005933D			15462-4	ok						
Method Blank	B15462-2			15462-2	U						
Lab Control Sample	S15462-1			15462-1	ok						
Preparation batch 96012076											
BY112 C177S5 LH FUSION F	S96T005957			15463-5	4.50E-02						
BY112 C177S5 LH FUSION-D	S96T005957D			15463-6	ok						
BY112 C177S6 LH FUSION F	S96T005934			15463-3	3.99E-02						
BY112 C177S6 LH FUSION-D	S96T005934D			15463-4	ok						
Method Blank	B15463-2			15463-2	9.94E-03						
Lab Control Sample	S15463-1			15463-1	ok						
Nominal values and limits from method				RDLs (uCi/g)				100		80	
								Averages			

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WHC 222-S LABORATORY

TANK 241-BY-112, CORE 177

Test AT Matrix SOLID
SDG 96001466
Contact J. L. Nuzum

METHOD SUMMARY

ALPHA ANALYSIS
GAS PROPORTIONAL COUNTING

Client TWRS
Tank BY-112

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA uCi/g	ALIQ ml	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 96012074 2σ prep error 15.0 % Reference																
BY112 C177S1 LH FUSION F	S96T005929			3.9E-04	0.500	485	1.00		27	30				12/08/96	12/11	WB26872
BY112 C177S1 LH FUSION-D	S96T005929D			3.6E-04	0.500	452	1.00		27	30				12/08/96	12/11	WB26872
BY112 C177S2 LH FUSION F	S96T005930			3.7E-04	0.500	465	1.00		27	30				12/08/96	12/11	WB26872
BY112 C177S2 LH FUSION-D	S96T005930D			3.6E-04	0.500	454	1.00		27	30				12/08/96	12/11	WB26872
BY112 C177S3 LH FUSION F	S96T005931			3.6E-04	0.500	452	1.00		27	30				12/08/96	12/11	WB26872
BY112 C177S3 LH FUSION-D	S96T005931D			4.1E-04	0.500	511	1.00		27	30				12/08/96	12/11	WB26872
Method Blank	B15461-2			3.9E-04	0.500	485	1.00		27	30					12/11/96	WB26872
Lab Control Sample	S15461-1			1.9E-04	1.00	485	1.00		27	30					12/11/96	WB26872
Preparation batch 96012075 2σ prep error 15.0 % Reference																
BY112 C177S4 LH FUSION F	S96T005933			5.0E-02	1.00	518	101		26	30				12/08/96	12/09	WB27809
BY112 C177S4 LH FUSION-D	S96T005933D			4.8E-02	1.00	506	101		26	30				12/08/96	12/09	WB27809
Method Blank	B15462-2			5.0E-02	1.00	518	101		26	30					12/09/96	WB27809
Lab Control Sample	S15462-1			4.9E-04	1.00	518	1.00		26	30					12/09/96	WB27809
Preparation batch 96012076 2σ prep error 15.0 % Reference																
BY112 C177S5 LH FUSION F	S96T005957			1.8E-02	0.250	549	11.0		27	30				12/08/96	12/09	WB27807
BY112 C177S5 LH FUSION-D	S96T005957D			1.7E-02	0.250	514	11.0		27	30				12/08/96	12/09	WB27807
BY112 C177S6 LH FUSION F	S96T005934			8.6E-03	0.500	526	11.0		27	30				12/08/96	12/09	WB27807
BY112 C177S6 LH FUSION-D	S96T005934D			8.7E-03	0.500	536	11.0		27	30				12/08/96	12/09	WB27807
Method Blank	B15463-2			8.6E-03	0.500	526	11.0		27	30					12/09/96	WB27807
Lab Control Sample	S15463-1			3.9E-04	1.00	526	1.00		27	30					12/09/96	WB27807
Nominal values and limits from method					0.100					30						
										20-55						

PROCEDURES

REFERENCE	222-S Lab Analytical Procedure
LO-160-103	Core Segment Extrusion Process and Sample Preparation, rev 17
LA-549-141	Fusion with Alkali Metal Hydroxide, rev 40
LA-508-101A	Alpha in liquid samples, rev 42
LA-508-11NA	Operation of the [Tennelec LB-5500 (n=0, A-5), LB-1000 (n=1, A-3), Gamma Products (n=4, A-2)] Alpha/Beta Counting Systems

AVERAGES ± 2 SD FOR 18 SAMPLES
MDA 1.2E-02 ± 3.6E-02
EFFICIENCY 27 ± 0.86

Final Report

METHOD SUMMARIES
Page 4
SUMMARY DATA SECTION
Page 29

Lab id 222-S
Protocol SST
Version 1.0
Form DVD-CMS
Version 3.08
Report date 03/26/97

SAMPLE HANDLING

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LABCORE Data Entry Template for Worklist# 14120

Analyst: CC **Instrument:** BA000 **Book #** NA

Method: LO-160-103 Rev/Mod BO

Worklist Comment: BY-112 C177 FIELD BLANK RISER 21 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01				EXTRUD01	SOLID	20	20.01	N/A	
		2 INSTCHK02				EXTRUD01	SOLID	500	500.09	N/A	
96001393	BY-112	3 SAMPLE	S96T005461	0		DLIQVOL1	SOLID	N/A	260		mL
96001393	BY-112	4 SAMPLE	S96T005461	0		DLIQWT01	SOLID	N/A	267.0		g
96001393	BY-112	5 SAMPLE	S96T005461	0		EST.G/ML	SOLID	N/A	1.03		g/mL
96001393	BY-112	6 SAMPLE	S96T005461	0		EXTRUD01	SOLID	N/A	complete		
96001393	BY-112	7 SAMPLE	S96T005461	0		LLIQWT01	SOLID	N/A	0		g
96001393	BY-112	8 SAMPLE	S96T005461	0		NOTEBOOK	SOLID	N/A	N-1389		
96001393	BY-112	9 SAMPLE	S96T005461	0		SLDVOL01	SOLID	N/A	NA		mL
96001393	BY-112	10 SAMPLE	S96T005461	0		SLDWT-01	SOLID	N/A	0		g
96001393	BY-112	11 SAMPLE	S96T005461	0		APPEAR01	SOLID	N/A	complete		
96001393	BY-112	12 SAMPLE	S96T005461	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 14120

CC 10-28-96
Analyst Signature **Date**
B. Duff II
10-28-96

CC 10-28-96
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# 14505

Analyst: CL **Instrument:** BA000 _____ **Book #** NA

Method: LO-160-103 Rev/Mod B0

Worklist Comment: BY-112 C174 SEG # 1 RISER 18 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01				EXTRUD01	SOLID	20	20.00	N/A	
		2 INSTCHK02				EXTRUD01	SOLID	500	500.04	N/A	
96001393	BY-112	3 SAMPLE	S96T005756	0		DLIQVOL1	SOLID	N/A	0		mL
96001393	BY-112	4 SAMPLE	S96T005756	0		DLIQWT01	SOLID	N/A	0		g
96001393	BY-112	5 SAMPLE	S96T005756	0		EST.G/ML	SOLID	N/A	0		g/mL
96001393	BY-112	6 SAMPLE	S96T005756	0		EXTRUD01	SOLID	N/A	complete		
96001393	BY-112	7 SAMPLE	S96T005756	0		LLIQWT01	SOLID	N/A	0		g
96001393	BY-112	8 SAMPLE	S96T005756	0		NOTEBOOK	SOLID	N/A	N-1389		
96001393	BY-112	9 SAMPLE	S96T005756	0		SLDVOL01	SOLID	N/A	NA		mL
96001393	BY-112	10 SAMPLE	S96T005756	0		SLDWT-01	SOLID	N/A	62.0		g
96001393	BY-112	11 SAMPLE	S96T005756	0		APPEAR01	SOLID	N/A	complete		
96001393	BY-112	12 SAMPLE	S96T005756	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 14505

CL 11-4-96
Analyst Signature **Date**

CL 11-4-96
Analyst Signature **Date**

Bertrand Duff II
11-5-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 14506

Analyst: CL **Instrument:** BA000 **Book #** NA

Method: LO-160-103 Rev/Mod B0

Worklist Comment: BY-112 C174 SEG # 2 RISER 18 EXTRUSION

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	20	20.00	N/A	
		2	INSTCHK02				EXTRUD01	SOLID	500	500.04	N/A	
96001393	BY-112	3	SAMPLE	S96T005757	0		DLIQVOL1	SOLID	N/A	0		mL
96001393	BY-112	4	SAMPLE	S96T005757	0		DLIQWT01	SOLID	N/A	0		g
96001393	BY-112	5	SAMPLE	S96T005757	0		EST.G/ML	SOLID	N/A	0		g/mL
96001393	BY-112	6	SAMPLE	S96T005757	0		EXTRUD01	SOLID	N/A	complete		
96001393	BY-112	7	SAMPLE	S96T005757	0		LLIQWT01	SOLID	N/A	complete 0		g
96001393	BY-112	8	SAMPLE	S96T005757	0		NOTEBOOK	SOLID	N/A	N-1389		
96001393	BY-112	9	SAMPLE	S96T005757	0		SLDVOL01	SOLID	N/A	NA		mL
96001393	BY-112	10	SAMPLE	S96T005757	0		SLDWT-01	SOLID	N/A	103.8		g
96001393	BY-112	11	SAMPLE	S96T005757	0		APPEAR01	SOLID	N/A	complete		
96001393	BY-112	12	SAMPLE	S96T005757	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 14506

CL 11-4-96
Analyst Signature **Date**

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Analyst Signature **Date**

Bertrand Unruh II
11-5-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 14507

Analyst: CL **Instrument:** BA000 **Book #** NA

Method: LO-160-103 Rev/Mod B0

Worklist Comment: BY-112 C174 SEG # 3 RISER 18 EXTRUSION

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	20	20.00	N/A	
		2	INSTCHK02				EXTRUD01	SOLID	500	500.04	N/A	
96001393	BY-112	3	SAMPLE	S96T005758	0		DLIQVOL1	SOLID	N/A	6		mL
96001393	BY-112	4	SAMPLE	S96T005758	0		DLIQWT01	SOLID	N/A	0		g
96001393	BY-112	5	SAMPLE	S96T005758	0		EST.G/ML	SOLID	N/A	0		g/mL
96001393	BY-112	6	SAMPLE	S96T005758	0		EXTRUD01	SOLID	N/A	complete		
96001393	BY-112	7	SAMPLE	S96T005758	0		LLIQWT01	SOLID	N/A	0		g
96001393	BY-112	8	SAMPLE	S96T005758	0		NOTEBOOK	SOLID	N/A	N-1389		
96001393	BY-112	9	SAMPLE	S96T005758	0		SLDVOL01	SOLID	N/A	NA		mL
96001393	BY-112	10	SAMPLE	S96T005758	0		SLDWT-01	SOLID	N/A	84.5		g
96001393	BY-112	11	SAMPLE	S96T005758	0		APPEAR01	SOLID	N/A	Complete		
96001393	BY-112	12	SAMPLE	S96T005758	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 14507

CL 11-4-96
Analyst Signature **Date**

Bertram Giff II
11-5-96

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CL 11-4-96
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# 14508

Analyst: [signature] **Instrument:** BA000 _____ **Book #** NA

Method: LO-160-103 Rev/Mod B0

Worklist Comment: BY-112 C174 SEG # 4 RISER 18 EXTRUSION

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	20	20.00	N/A	
		2	INSTCHK02				EXTRUD01	SOLID	500	500.04	N/A	
96001393	BY-112	3	SAMPLE	S96T005759	0		DLIQVOL1	SOLID	N/A	0		mL
96001393	BY-112	4	SAMPLE	S96T005759	0		DLIQWT01	SOLID	N/A	0		g
96001393	BY-112	5	SAMPLE	S96T005759	0		EST.G/ML	SOLID	N/A	0		g/mL
96001393	BY-112	6	SAMPLE	S96T005759	0		EXTRUD01	SOLID	N/A	Complete		
96001393	BY-112	7	SAMPLE	S96T005759	0		LLIQWT01	SOLID	N/A	0		g
96001393	BY-112	8	SAMPLE	S96T005759	0		NOTEBOOK	SOLID	N/A	N-1389		
96001393	BY-112	9	SAMPLE	S96T005759	0		SLDVOL01	SOLID	N/A	NA		mL
96001393	BY-112	10	SAMPLE	S96T005759	0		SLDWT-01	SOLID	N/A	164.5		g
96001393	BY-112	11	SAMPLE	S96T005759	0		APPEAR01	SOLID	N/A	Complete		
96001393	BY-112	12	SAMPLE	S96T005759	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 14508

[signature] 11-4-96
Analyst Signature **Date**

Bert Giff II
11-5-96

[signature] 11-4-96
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# 14509

Analyst: CL **Instrument:** BA000 _____ **Book #** NA

Method: LO-160-103 Rev/Mod D0

Worklist Comment: BY-112 C174 SEG # 5 RISER 18 EXTRUSION

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	20	20.00	N/A	
		2	INSTCHK02				EXTRUD01	SOLID	500	500.04	N/A	
96001393	BY-112	3	SAMPLE	S96T005760	0		DLIQVOL1	SOLID	N/A	90		mL
96001393	BY-112	4	SAMPLE	S96T005760	0		DLIQWT01	SOLID	N/A	128.5		g
96001393	BY-112	5	SAMPLE	S96T005760	0		EST.G/ML	SOLID	N/A	1.43		g/mL
96001393	BY-112	6	SAMPLE	S96T005760	0		EXTRUD01	SOLID	N/A	complete		
96001393	BY-112	7	SAMPLE	S96T005760	0		LLIQWT01	SOLID	N/A	0		g
96001393	BY-112	8	SAMPLE	S96T005760	0		NOTEBOOK	SOLID	N/A	N-1389		
96001393	BY-112	9	SAMPLE	S96T005760	0		SLDVOL01	SOLID	N/A	NA		mL
96001393	BY-112	10	SAMPLE	S96T005760	0		SLDWT-01	SOLID	N/A	215.3		g
96001393	BY-112	11	SAMPLE	S96T005760	0		APPEAR01	SOLID	N/A	complete		
96001393	BY-112	12	SAMPLE	S96T005760	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 14509

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Analyst Signature **Date**

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Analyst Signature **Date**

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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# 14510

Analyst: EC **Instrument:** BA000 **Book #** N/A

Method: LO-160-103 Rev/Mod DO

Worklist Comment: BY-112 C174 SEG # 6 RISER 18 EXTRUSION

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	20	20.00	N/A	
		2	INSTCHK02				EXTRUD01	SOLID	500	500.04	N/A	
96001393	BY-112	3	SAMPLE	S96T005761	0		DLIQVOL1	SOLID	N/A	0		mL
96001393	BY-112	4	SAMPLE	S96T005761	0		DLIQWT01	SOLID	N/A	0		g
96001393	BY-112	5	SAMPLE	S96T005761	0		EST.G/ML	SOLID	N/A	0		g/mL
96001393	BY-112	6	SAMPLE	S96T005761	0		EXTRUD01	SOLID	N/A	complete		
96001393	BY-112	7	SAMPLE	S96T005761	0		LLIQWT01	SOLID	N/A	LS		g
96001393	BY-112	8	SAMPLE	S96T005761	0		NOTEBOOK	SOLID	N/A	N-1389		
96001393	BY-112	9	SAMPLE	S96T005761	0		SLDVOL01	SOLID	N/A	NA		mL
96001393	BY-112	10	SAMPLE	S96T005761	0		SLDWT-01	SOLID	N/A	383.8		g
96001393	BY-112	11	SAMPLE	S96T005761	0		APPEAR01	SOLID	N/A	Complete		
96001393	BY-112	12	SAMPLE	S96T005761	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 14510

EC 11-5-96
Analyst Signature **Date**

Bertram Diff II
11-5-96

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EC 11-5-96
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# 14611

Analyst: EL **Instrument:** BA000 **Book #** NA

Method: LO-160-103 Rev/Mod DO

Worklist Comment: BY-112 C177 SEG # 1 RISER 21 EXTRUSION

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	20	20.01	N/A	
		2	INSTCHK02				EXTRUD01	SOLID	500	500.07	N/A	
96001466	BY-112	3	SAMPLE	S96T005828	0		DLIQVOL1	SOLID	N/A	0		mL
96001466	BY-112	4	SAMPLE	S96T005828	0		DLIQWT01	SOLID	N/A	0		g
96001466	BY-112	5	SAMPLE	S96T005828	0		EST.G/ML	SOLID	N/A	0		g/mL
96001466	BY-112	6	SAMPLE	S96T005828	0		EXTRUD01	SOLID	N/A	Complete		
96001466	BY-112	7	SAMPLE	S96T005828	0		LLIQWT01	SOLID	N/A	0		g
96001466	BY-112	8	SAMPLE	S96T005828	0		NOTEBOOK	SOLID	N/A	N-1389		
96001466	BY-112	9	SAMPLE	S96T005828	0		SLDVOL01	SOLID	N/A	NA		mL
96001466	BY-112	10	SAMPLE	S96T005828	0		SLDWT-01	SOLID	N/A	33.1		g
96001466	BY-112	11	SAMPLE	S96T005828	0		APPEAR01	SOLID	N/A	complete		
96001466	BY-112	12	SAMPLE	S96T005828	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 14611

EL 11-5-96
Analyst Signature **Date**

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EL 11-5-96
Analyst Signature **Date**

Bertrand Griffin II
11-11-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 14612

Analyst: CC **Instrument:** BA000 _____ **Book #** NA

Method: LO-160-103 Rev/Mod D0

Worklist Comment: BY-112 C177 SEG # 2 RISER 21 EXTRUSION

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	26	20.01	N/A	
		2	INSTCHK02				EXTRUD01	SOLID	500	500.07	N/A	
96001466	BY-112	3	SAMPLE	S96T005829	0		DLIQVOL1	SOLID	N/A	0		mL
96001466	BY-112	4	SAMPLE	S96T005829	0		DLIQWT01	SOLID	N/A	0		g
96001466	BY-112	5	SAMPLE	S96T005829	0		EST.G/ML	SOLID	N/A	0		g/mL
96001466	BY-112	6	SAMPLE	S96T005829	0		EXTRUD01	SOLID	N/A	complete		
96001466	BY-112	7	SAMPLE	S96T005829	0		LLIQWT01	SOLID	N/A	0		g
96001466	BY-112	8	SAMPLE	S96T005829	0		NOTEBOOK	SOLID	N/A	N-1389		
96001466	BY-112	9	SAMPLE	S96T005829	0		SLDVOL01	SOLID	N/A	NA		mL
96001466	BY-112	10	SAMPLE	S96T005829	0		SLDWT-01	SOLID	N/A	65.4		g
96001466	BY-112	11	SAMPLE	S96T005829	0		APPEAR01	SOLID	N/A	complete		
96001466	BY-112	12	SAMPLE	S96T005829	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 14612

CC 11-5-96 ✓ CC 11-5-96

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

Bertrand Griffin II
11-11-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 14613

Analyst: CL **Instrument:** BA000 **Book #** NA

Method: LO-160-103 Rev/Mod B0

Worklist Comment: BY-112 C177 SEG # 3 RISER 21 EXTRUSION

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	20	20.01	N/A	
		2	INSTCHK02				EXTRUD01	SOLID	500	500.07	N/A	
96001466	BY-112	3	SAMPLE	S96T005830	0		DLIQVOL1	SOLID	N/A	0		mL
96001466	BY-112	4	SAMPLE	S96T005830	0		DLIQWT01	SOLID	N/A	0		g
96001466	BY-112	5	SAMPLE	S96T005830	0		EST.G/ML	SOLID	N/A	0		g/mL
96001466	BY-112	6	SAMPLE	S96T005830	0		EXTRUD01	SOLID	N/A	complete		
96001466	BY-112	7	SAMPLE	S96T005830	0		LLIQWT01	SOLID	N/A	0		g
96001466	BY-112	8	SAMPLE	S96T005830	0		NOTEBOOK	SOLID	N/A	N-1389		
96001466	BY-112	9	SAMPLE	S96T005830	0		SLDVOL01	SOLID	N/A	NA		mL
96001466	BY-112	10	SAMPLE	S96T005830	0		SLDWT-01	SOLID	N/A	150.2		g
96001466	BY-112	11	SAMPLE	S96T005830	0		APPEAR01	SOLID	N/A	complete		
96001466	BY-112	12	SAMPLE	S96T005830	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 14613

CL 11-5-96 ✓ CL 11-5-96

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

Bertrand Griffin II
11-11-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 14614

Analyst: CE **Instrument:** BA000 **Book #** N/A

Method: LO-160-103 Rev/Mod B0

Worklist Comment: BY-112 C177 SEG # 4 RISER 21 EXTRUSION

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	20	20.01	N/A	
		2	INSTCHK02				EXTRUD01	SOLID	500	500.07	N/A	
96001466	BY-112	3	SAMPLE	S96T005831	0		DLIQVOL1	SOLID	N/A	0		mL
96001466	BY-112	4	SAMPLE	S96T005831	0		DLIQWT01	SOLID	N/A	0		g
96001466	BY-112	5	SAMPLE	S96T005831	0		EST.G/ML	SOLID	N/A	0		g/mL
96001466	BY-112	6	SAMPLE	S96T005831	0		EXTRUD01	SOLID	N/A	complete		
96001466	BY-112	7	SAMPLE	S96T005831	0		LLIQWT01	SOLID	N/A	0		g
96001466	BY-112	8	SAMPLE	S96T005831	0		NOTEBOOK	SOLID	N/A	N-1389		
96001466	BY-112	9	SAMPLE	S96T005831	0		SLDVOL01	SOLID	N/A	N/A		mL
96001466	BY-112	10	SAMPLE	S96T005831	0		SLDWT-01	SOLID	N/A	209.2		g
96001466	BY-112	11	SAMPLE	S96T005831	0		APPEAR01	SOLID	N/A	complete		
96001466	BY-112	12	SAMPLE	S96T005831	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 14614

CE 11-6-96 ✓ CE 11-6-96

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

Bertrand Griffin II
11-11-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 14615

Analyst: EL **Instrument:** BA000 **Book #** NA

Method: LO-160-103 Rev/Mod 00

Worklist Comment: BY-112 C177 SEG # 5 RISER 21 EXTRUSION

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	20	20.00	N/A	
		2	INSTCHK02				EXTRUD01	SOLID	500	500.09	N/A	
96001466	BY-112	3	SAMPLE	S96T005832	0		DLIQVOL1	SOLID	N/A	40		mL
96001466	BY-112	4	SAMPLE	S96T005832	0		DLIQWT01	SOLID	N/A	50.9		g
96001466	BY-112	5	SAMPLE	S96T005832	0		EST.G/ML	SOLID	N/A	1.27		g/mL
96001466	BY-112	6	SAMPLE	S96T005832	0		EXTRUD01	SOLID	N/A	complete		
96001466	BY-112	7	SAMPLE	S96T005832	0		LLIQWT01	SOLID	N/A	<5		g
96001466	BY-112	8	SAMPLE	S96T005832	0		NOTEBOOK	SOLID	N/A	NB389		
96001466	BY-112	9	SAMPLE	S96T005832	0		SLDVOL01	SOLID	N/A	NA		mL
96001466	BY-112	10	SAMPLE	S96T005832	0		SLDWT-01	SOLID	N/A	313.2		g
96001466	BY-112	11	SAMPLE	S96T005832	0		APPEAR01	SOLID	N/A	complete		
96001466	BY-112	12	SAMPLE	S96T005832	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 14615

EL 11-11-96 ✓ EL 11-11-96

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

Bertrand Griffin II
11-11-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 14616

Analyst: CL **Instrument:** BA000 _____ **Book #** NA

Method: LO-160-103 Rev/Mod B0

Worklist Comment: BY-112 C177 SEG # 6 RISER 21 EXTRUSION

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01				EXTRUD01	SOLID	20	20.01	N/A	
		2	INSTCHK02				EXTRUD01	SOLID	500	500.07	N/A	
96001466	BY-112	3	SAMPLE	S96T005833	0		DLIQVOL1	SOLID	N/A	0		mL
96001466	BY-112	4	SAMPLE	S96T005833	0		DLIQWT01	SOLID	N/A	0		g
96001466	BY-112	5	SAMPLE	S96T005833	0		EST.G/ML	SOLID	N/A	0		g/mL
96001466	BY-112	6	SAMPLE	S96T005833	0		EXTRUD01	SOLID	N/A	complete		
96001466	BY-112	7	SAMPLE	S96T005833	0		LLIQWT01	SOLID	N/A	<5		g
96001466	BY-112	8	SAMPLE	S96T005833	0		NOTEBOOK	SOLID	N/A	N-1389		
96001466	BY-112	9	SAMPLE	S96T005833	0		SLDVOL01	SOLID	N/A	NA		mL
96001466	BY-112	10	SAMPLE	S96T005833	0		SLDWT-01	SOLID	N/A	122.1		g
96001466	BY-112	11	SAMPLE	S96T005833	0		APPEAR01	SOLID	N/A	complete		
96001466	BY-112	12	SAMPLE	S96T005833	0		ORGVOL01	SOLID	N/A	0		mL

Final page for worklist # 14616

CL 11-6-96
Analyst Signature **Date**

Bertha Griffin II
11-11-96

✓

CL 11-6-96
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.

SAMPLE PREPARATION

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LABCORE Data Entry Template for Worklist# 14881

Analyst: KRM **Instrument:** FUS01 _____ **Book #** _____

Method: LA-549-141 Rev/Mod F-0

Worklist Comment: BY-112 FUSION DIGEST C177S1,2,3 lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	1	.250	N/A	g/L
96001466	BY-112	2 SAMPLE .5153 → .250 L	S96T005929	0 F	FUSION01	SOLID	N/A	2.0612		g/L
96001466	BY-112	3 SAMPLE	S96T005929	0 F	DOSE-02	SOLID	N/A	25		mrad/hour
96001466	BY-112	4 DUP .5525 → .250 L	S96T005929	0 F	FUSION01	SOLID	2.0612	2.2100	N/A	g/L
96001466	BY-112	5 DUP	S96T005929	0 F	DOSE-02	SOLID	25	25	N/A	mrad/hour
96001466	BY-112	6 SAMPLE .5375 ~~.5359~~ → .250 L	S96T005930	0 F	FUSION01	SOLID	N/A	~~2.1436~~ 2.1500		g/L
96001466	BY-112	7 SAMPLE	S96T005930	0 F	DOSE-02	SOLID	N/A	40		mrad/hour
96001466	BY-112	8 DUP .5503 ~~.5000~~ → .250 L	S96T005930	0 F	FUSION01	SOLID	~~2.1436~~ 2.1500	~~2.0000~~ 2.2012	N/A	g/L
96001466	BY-112	9 DUP	S96T005930	0 F	DOSE-02	SOLID	40	30	N/A	mrad/hour
96001466	BY-112	10 SAMPLE .5533 → .250 L	S96T005931	0 F	FUSION01	SOLID	N/A	2.2132		g/L
96001466	BY-112	11 SAMPLE	S96T005931	0 F	DOSE-02	SOLID	N/A	50		mrad/hour
96001466	BY-112	12 DUP .4894 → .250 L	S96T005931	0 F	FUSION01	SOLID	2.2132	1.9576	N/A	g/L
96001466	BY-112	13 DUP	S96T005931	0 F	DOSE-02	SOLID	50	40	N/A	mrad/hour

Final page for worklist # 14881

[signature] 12-8-96
Analyst Signature **Date**

[signature] 12-8-96
Analyst Signature **Date**

Reviewed By [signature] 12/8/96

Data Entry Comments: ALL SAMPLES 20mL 4M HCl, 30mL CON HNO3, YELLOW, CLEAR, NO SOLIDS

Weighed by [signature]

HPT - C. COOPER

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.

Dec. 8. 1996 4:34AM WHC ZZZS LAB ROOM ZF BACKSIDE No. 7090 P. 1/3

worklistrpt Version 2.1 05/15/95
11/11/96 13:40

LABCORE Data Entry Template for Worklist# 14882

Analyst: KRM **Instrument:** FUS01 **Book #** _____

Method: LA-549-141 Rev/Mod F-0

Worklist Comment: BY-112 FUSION DIGEST C177S4U,L ,5U, lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	1	.250	N/A	g/L
96001466	BY-112	2 SAMPLE	S96T005932	0 F	FUSION01	SOLID	N/A	2.0004		g/L
		.5001 → .250 L								
96001466	BY-112	3 SAMPLE	S96T005932	0 F	DOSE-02	SOLID	N/A	50		mrad/hour
96001466	BY-112	4 DUP	S96T005932	0 F	FUSION01	SOLID	2.0004	2.0752	N/A	g/L
		.5188 → .250 L								
96001466	BY-112	5 DUP	S96T005932	0 F	DOSE-02	SOLID	50	50	N/A	mrad/hour
96001466	BY-112	6 SAMPLE	S96T005933	0 F	FUSION01	SOLID	N/A	1.9292		g/L
		.4823 → .250 L								
96001466	BY-112	7 SAMPLE	S96T005933	0 F	DOSE-02	SOLID	N/A	150		mrad/hour
96001466	BY-112	8 DUP	S96T005933	0 F	FUSION01	SOLID	1.9292	1.9756	N/A	g/L
		.4939 → .250 L								
96001466	BY-112	9 DUP	S96T005933	0 F	DOSE-02	SOLID	150	150	N/A	mrad/hour
96001466	BY-112	10 SAMPLE	S96T005956	0 F	FUSION01	SOLID	N/A	1.8732		g/L
		.4683 → .250 L								
96001466	BY-112	11 SAMPLE	S96T005956	0 F	DOSE-02	SOLID	N/A	125		mrad/hour
96001466	BY-112	12 DUP	S96T005956	0 F	FUSION01	SOLID	1.8732	1.9116	N/A	g/L
		.4779 → .250 L								
96001466	BY-112	13 DUP	S96T005956	0 F	DOSE-02	SOLID	125	125	N/A	mrad/hour

Final page for worklist # 14882

Analyst Signature 12-8-96 Date

Analyst Signature 12-8-96 Date

Reviewed By 12/8/96

Data Entry Comments: ALL SAMPLES; 20mL 4M HCl, 30mL Con HNO_3, YELLOW, CLEAR, NO SOLIDS

Weighed by Kristine Hughes

HPT C. COOPER

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.

Dec. 8. 1996 4:35AM WHC 222S LAB ROOM 2F BACKSIDE NO. 7090 P. 2/3

LABCORE Data Entry Template for Worklist# 14883

Analyst: KRM **Instrument:** FUS01 _____ **Book #** _____

Method: LA-549-141 Rev/Mod F-0

Worklist Comment: BY-112 FUSION DIGEST C177S5L,6 lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	1	.250	N/A	g/L
96001466	BY-112	2 SAMPLE .4754 → .250 l	S96T005934	0 F	FUSION01	SOLID	N/A	1.9016		g/L
96001466	BY-112	3 SAMPLE	S96T005934	0 F	DOSE-02	SOLID	N/A	40		mrad/hour
96001466	BY-112	4 DUP .4667 → .250 l	S96T005934	0 F	FUSION01	SOLID	1.9016	1.8668	N/A	g/L
96001466	BY-112	5 DUP	S96T005934	0 F	DOSE-02	SOLID	40	50	N/A	mrad/hour
96001466	BY-112	6 SAMPLE .4555 → .250 l	S96T005957	0 F	FUSION01	SOLID	N/A	1.8220		g/L
96001466	BY-112	7 SAMPLE	S96T005957	0 F	DOSE-02	SOLID	N/A	50		mrad/hour
96001466	BY-112	8 DUP .4864 → .250 l	S96T005957	0 F	FUSION01	SOLID	1.8220	1.9456	N/A	g/L
96001466	BY-112	9 DUP	S96T005957	0 F	DOSE-02	SOLID	50	50	N/A	mrad/hour

Final page for worklist # 14883

[signature] 12-8-96
Analyst Signature **Date**

[signature] 12-8-96
Analyst Signature **Date**

Reverived By [signature] 12/8/96

Data Entry Comments: All Samples; 20mL 4m HCl, 30mL Con HNO_3, Yellow, Clear, No Solids

Weighed by [signature]

HPT C. Cooper

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.

Dec. 8. 1996 4:35AM WHC 222S LAB ROOM 2F BACKSIDE NO. 7696 P. 3/3

worklistrpt Version 2.1 05/15/95
11/11/96 14:14

LABCORE Data Entry Template for Worklist# 14888

Analyst: KRM **Instrument:** FUS01 **Book #**

Method: LA-549-141 Rev/Mod E-0

Worklist Comment: BY-112 FUSION DIGEST C174S1,2,3

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP				FUSION01	SOLID	1	0.250	N/A	g/L
96001393	BY-112	2 SAMPLE	S96T005889	0	F	FUSION01	SOLID	N/A	1.848		g/L
96001393	BY-112	3 SAMPLE	S96T005889	0	F	DOSE-02	SOLID	N/A	40		mrad/hour
96001393	BY-112	4 DUP	S96T005889	0	F	FUSION01	SOLID	1.848	2.0256	N/A	g/L
96001393	BY-112	5 DUP	S96T005889	0	F	DOSE-02	SOLID	40	35	N/A	mrad/hour
96001393	BY-112	6 SAMPLE	S96T005890	0	F	FUSION01	SOLID	N/A	2.0372		g/L
96001393	BY-112	7 SAMPLE	S96T005890	0	F	DOSE-02	SOLID	N/A	55		mrad/hour
96001393	BY-112	8 DUP	S96T005890	0	F	FUSION01	SOLID	2.0372	2.0784	N/A	g/L
96001393	BY-112	9 DUP	S96T005890	0	F	DOSE-02	SOLID	55	60	N/A	mrad/hour
96001393	BY-112	10 SAMPLE	S96T005891	0	F	FUSION01	SOLID	N/A	2.0432		g/L
96001393	BY-112	11 SAMPLE	S96T005891	0	F	DOSE-02	SOLID	N/A	40		mrad/hour
96001393	BY-112	12 DUP	S96T005891	0	F	FUSION01	SOLID	2.0432	1.8332	N/A	g/L
96001393	BY-112	13 DUP	S96T005891	0	F	DOSE-02	SOLID	40	35	N/A	mrad/hour

Final page for worklist # 14888

Analyst Signature Date 12-7-96

Analyst Signature Date 12-7-96

Validated S. Udelly 12/7/96

Data Entry Comments: All Samples; 20mL 4M HCl and 20mL Con HNO_3, Light Yellow, Clear, No Sludge

Weighed by KRISTIN HIGBEE & JESSIE FRISBY HPT S. LANDER BACK

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.

Dec. 7. 1996 4:43AM WHC 222S LAB ROOM 2F BACKSIDE No. 7690 P. 1/3

worklistrpt Version 2.1 05/15/95
11/11/96 14:14

LABCORE Data Entry Template for Worklist# 14889

Analyst: KRM **Instrument:** FUS01 **Book #** _____

Method: LA-549-141 Rev/Mod F.0

Worklist Comment: BY-112 FUSION DIGEST C174S4,5L,U lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	1	0.250	N/A	g/L
96001393	BY-112	2 SAMPLE	S96T005892	0 F	FUSION01	SOLID	N/A	2.0384		g/L
		.5096 → .250 l								
96001393	BY-112	3 SAMPLE	S96T005892	0 F	DOSE-02	SOLID	N/A	165		mrad/hour
96001393	BY-112	4 DUP	S96T005892	0 F	FUSION01	SOLID	2.0384	2.170	N/A	g/L
		.5425 → .250 l								
96001393	BY-112	5 DUP	S96T005892	0 F	DOSE-02	SOLID	165	200	N/A	mrad/hour
96001393	BY-112	6 SAMPLE	S96T005893	0 F	FUSION01	SOLID	N/A	2.0032		g/L
		.5008 → .250 l								
96001393	BY-112	7 SAMPLE	S96T005893	0 F	DOSE-02	SOLID	N/A	65		mrad/hour
96001393	BY-112	8 DUP	S96T005893	0 F	FUSION01	SOLID	2.0032	1.9944	N/A	g/L
		.4986 → .250 l								
96001393	BY-112	9 DUP	S96T005893	0 F	DOSE-02	SOLID	65	60	N/A	mrad/hour
96001393	BY-112	10 SAMPLE	S96T005894	0 F	FUSION01	SOLID	N/A	1.8828		g/L
		.4707 → .250 l								
96001393	BY-112	11 SAMPLE	S96T005894	0 F	DOSE-02	SOLID	N/A	85		mrad/hour
96001393	BY-112	12 DUP	S96T005894	0 F	FUSION01	SOLID	1.8828	2.0272	N/A	g/L
		.5068 → .250 l								
96001393	BY-112	13 DUP	S96T005894	0 F	DOSE-02	SOLID	85	125	N/A	mrad/hour

Final page for worklist # 14889

[signature] 12-7-96
Analyst Signature **Date**

[signature] 12-7-96
Analyst Signature **Date**

Validated
S. Melley 12/7/96

Data Entry Comments: All Samples; 20 mL 4 m HCl & 20 mL Con HNO_3, Yellow, Clear, No Solids

Weighed by Jessie Frisby

[signature] HPT - S. Lauderback

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

worklistrpt Version 2.1 05/15/95
11/11/96 14:15

LABCORE Data Entry Template for Worklist# 14890

Analyst: KRM **Instrument:** FUS01 _____ **Book #** _____

Method: LA-549-141 Rev/Mod F-0

Worklist Comment: BY-112 FUSION DIGEST C174S6L,U lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	1	0.250	N/A	g/L
96001393	BY-112	2 SAMPLE	S96T005895	0 F	FUSION01	SOLID	N/A	1.9956		g/L
		.4989 → .250 l								
96001393	BY-112	3 SAMPLE	S96T005895	0 F	DOSE-02	SOLID	N/A	30		mrad/hour
96001393	BY-112	4 DUP	S96T005895	0 F	FUSION01	SOLID	1.9956	~~1.8356~~ 1.8344	N/A	g/L
		.4586 → .250 l								
96001393	BY-112	5 DUP	S96T005895	0 F	DOSE-02	SOLID	30	30	N/A	mrad/hour
96001393	BY-112	6 SAMPLE	S96T005896	0 F	FUSION01	SOLID	N/A	2.0192		g/L
		.5048 → .250 l								
96001393	BY-112	7 SAMPLE	S96T005896	0 F	DOSE-02	SOLID	N/A	45		mrad/hour
96001393	BY-112	8 DUP	S96T005896	0 F	FUSION01	SOLID	2.0192	2.0348	N/A	g/L
		.5087 → .250 l								
96001393	BY-112	9 DUP	S96T005896	0 F	DOSE-02	SOLID	45	40	N/A	mrad/hour

Final page for worklist # 14890

[signature] 12-7-96
Analyst Signature **Date**

TR Olson 12-07-96
Analyst Signature **Date**

Validated
[signature] 12/7/96

Data Entry Comments: All Samples; 20mL 4M HCl, 20mL Con HNO_3, Light Yellow, Clear, No Solids
Weighed by Jessie Fisher
+ [signature] HPT S. Lauderback

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.

Dec. 7. 1996 4:44AM WHC 2225 LAB ROOM ZF BACKSIDE NO. 7690 P. 3/3

LABCORE Data Entry Template for Worklist# 14884

Analyst: DCD **Instrument:** H2O01 **Book #** _____

Method: LA-504-101 Rev/Mod EO

Worklist Comment: BY-112 H2O DIGEST C177S1,2,3 lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			H2ODIG01	SOLID	1	.100	N/A	g/L
96001466	BY-112	2 SAMPLE	S96T005935	0 W	H2ODIG01	SOLID	N/A	5.359		g/L
		.5359 → .100 L								
96001466	BY-112	3 SAMPLE	S96T005935	0 W	DOSE-02	SOLID	N/A	25		mrad/hour
96001466	BY-112	4 DUP	S96T005935	0 W	H2ODIG01	SOLID	5.359	5.000	N/A	g/L
		.5000 → .100 L								
96001466	BY-112	5 DUP	S96T005935	0 W	DOSE-02	SOLID	25	25	N/A	mrad/hour
96001466	BY-112	6 SAMPLE	S96T005936	0 W	H2ODIG01	SOLID	N/A	5.514		g/L
		.5514 → .100 L								
96001466	BY-112	7 SAMPLE	S96T005936	0 W	DOSE-02	SOLID	N/A	25		mrad/hour
96001466	BY-112	8 DUP	S96T005936	0 W	H2ODIG01	SOLID	5.514	5.217	N/A	g/L
		.5217 → .100 L								
96001466	BY-112	9 DUP	S96T005936	0 W	DOSE-02	SOLID	25	25	N/A	mrad/hour
96001466	BY-112	10 SAMPLE	S96T005937	0 W	H2ODIG01	SOLID	N/A	4.876		g/L
		.4876 → .100 L								
96001466	BY-112	11 SAMPLE	S96T005937	0 W	DOSE-02	SOLID	N/A	25		mrad/hour
96001466	BY-112	12 DUP	S96T005937	0 W	H2ODIG01	SOLID	4.876	5.383	N/A	g/L
		.5383 → .100 L								
96001466	BY-112	13 DUP	S96T005937	0 W	DOSE-02	SOLID	25	25	N/A	mrad/hour

Final page for worklist # 14884

[signature] 12-9-96
Analyst Signature **Date**

TR Olsson 12-09-96
Analyst Signature **Date**

Validated [signature] 12/11/96

Data Entry Comments:

Weighed by Kim Thomas

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

worklistrpt Version 2.1 05/15/95
11/11/96 13:48

LABCORE Data Entry Template for Worklist# 14885

Analyst: DCD **Instrument:** H2O01 **Book #** _____

Method: LA-504-101 Rev/Mod E-0

Worklist Comment: BY-112 H2O DIGEST C177S4,5 LH UH lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			H2ODIG01	SOLID	1	.100	N/A	g/L
96001466	BY-112	2 SAMPLE	S96T005938	0 W	H2ODIG01	SOLID	N/A	5.230		g/L
		.5230 → .100 L								
96001466	BY-112	3 SAMPLE	S96T005938	0 W	DOSE-02	SOLID	N/A	20		mrad/hour
96001466	BY-112	4 DUP	S96T005938	0 W	H2ODIG01	SOLID	5.230	5.074	N/A	g/L
		.5074 → .100 L								
96001466	BY-112	5 DUP	S96T005938	0 W	DOSE-02	SOLID	20	25	N/A	mrad/hour
96001466	BY-112	6 SAMPLE	S96T005939	0 W	H2ODIG01	SOLID	N/A	5.067		g/L
		.5067 → .100 l								
96001466	BY-112	7 SAMPLE	S96T005939	0 W	DOSE-02	SOLID	N/A	40		mrad/hour
96001466	BY-112	8 DUP	S96T005939	0 W	H2ODIG01	SOLID	5.067	5.139	N/A	g/L
		.5139 → .100 l								
96001466	BY-112	9 DUP	S96T005939	0 W	DOSE-02	SOLID	40	40	N/A	mrad/hour
96001466	BY-112	10 SAMPLE	S96T005958	0 W	H2ODIG01	SOLID	N/A	4.731		g/L
		.4731 → .100 l								
96001466	BY-112	11 SAMPLE	S96T005958	0 W	DOSE-02	SOLID	N/A	40		mrad/hour
96001466	BY-112	12 DUP	S96T005958	0 W	H2ODIG01	SOLID	4.731	4.840	N/A	g/L
		.4840 → .100 l								
96001466	BY-112	13 DUP	S96T005958	0 W	DOSE-02	SOLID	40	40	N/A	mrad/hour

Final page for worklist # 14885

[signature] 12-9-96
Analyst Signature **Date**

TR Olen 12-09-96
Analyst Signature **Date**
Validated by [signature] 12/10/96

Data Entry Comments:

Weighed by Kim Thomas

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.

Dec. 9. 1996 2:51AM WHC 222S LAB ROOM 2F BACKSIDE No. 7718 P. 4/6

LABCORE Data Entry Template for Worklist# 14886

Analyst: KH **Instrument:** H2O01 _____ **Book #** _____

Method: LA-504-101 Rev/Mod EO

Worklist Comment: BY-112 H2O DIGEST C177S5L,6 lad

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP				H2ODIG01	SOLID	1	.100	N/A	g/L
96001466	BY-112	2 SAMPLE	S96T005940	0	W	DOSE-02	SOLID	N/A	35		mrad/hour
96001466	BY-112	3 DUP	S96T005940	0	W	DOSE-02	SOLID	35	40	N/A	mrad/hour
96001466	BY-112	4 SAMPLE	S96T005959	0	W	DOSE-02	SOLID	N/A	35		mrad/hour
96001466	BY-112	5 DUP	S96T005959	0	W	DOSE-02	SOLID	35	50	N/A	mrad/hour
96001466	BY-112	6 SAMPLE	S96T005940	0	W	H2ODIG01	SOLID	N/A	4.884		g/L
96001466	BY-112	7 DUP	S96T005940	0	W	H2ODIG01	SOLID	4.884	5.225	N/A	g/L
96001466	BY-112	8 SAMPLE	S96T005959	0	W	H2ODIG01	SOLID	N/A	4.753		g/L
96001466	BY-112	9 DUP	S96T005959	0	W	H2ODIG01	SOLID	4.753	4.984	N/A	g/L
~~96001466~~	~~BY-112~~	~~10 DUP~~	~~S96T005959~~	~~0~~	~~W~~	~~H2ODIG01~~	~~SOLID~~			~~N/A~~	~~g/L~~

4.884 → .100 l KH 12-7-96

.4884 → .100 l

.5225 → .100 l

.4753 → .100 l

.4984 → .100 l

KH 12-7-96

Final page for worklist # 14886

Analyst Signature Date 12/08/96

12/09/96

Analyst Signature Date 12-09-96

Validated 12/9/96

Data Entry Comments:

Weighed by Kim Thomas

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.

Dec. 9. 1996 2:51AM WHC 222S LAB ROOM 2F BACKSIDE NO. 1118 P. 3/3

worklistrpt Version 2.1 05/15/95
11/11/96 14:19

LABCORE Data Entry Template for Worklist# 14891

Analyst: DcD **Instrument:** H2O01 **Book #** _____

Method: LA-504-101 Rev/Mod E-0

Worklist Comment: BY-112 H2O DIGEST C174S1,2,3 lad

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP				H2ODIG01	SOLID	1	.100	N/A	g/L
96001393	BY-112	2 SAMPLE	S96T005897	0	W	H2ODIG01	SOLID	N/A	4.864		g/L
96001393	BY-112	3 SAMPLE	S96T005897	0	W	DOSE-02	SOLID	N/A	4		mrad/hour
96001393	BY-112	4 DUP	S96T005897	0	W	H2ODIG01	SOLID	4.864	5.296	N/A	g/L
96001393	BY-112	5 DUP	S96T005897	0	W	DOSE-02	SOLID	4	4	N/A	mrad/hour
96001393	BY-112	6 SAMPLE	S96T005898	0	W	H2ODIG01	SOLID	N/A	5.183		g/L
96001393	BY-112	7 SAMPLE	S96T005898	0	W	DOSE-02	SOLID	N/A	2.5		mrad/hour
96001393	BY-112	8 DUP	S96T005898	0	W	H2ODIG01	SOLID	5.183	4.856	N/A	g/L
96001393	BY-112	9 DUP	S96T005898	0	W	DOSE-02	SOLID	2.5	3	N/A	mrad/hour
96001393	BY-112	10 SAMPLE	S96T005899	0	W	H2ODIG01	SOLID	N/A	5.170		g/L
96001393	BY-112	11 SAMPLE	S96T005899	0	W	DOSE-02	SOLID	N/A	3		mrad/hour
96001393	BY-112	12 DUP	S96T005899	0	W	H2ODIG01	SOLID	5.170	4.893	N/A	g/L
96001393	BY-112	13 DUP	S96T005899	0	W	DOSE-02	SOLID	3	4	N/A	mrad/hour

Final page for worklist # 14891

David C Duncan 12-7-96
Analyst Signature **Date**

Gary Hammett 12-8-96
Analyst Signature **Date**

Reviewed By 12/8/96

Data Entry Comments:

Weighed by KRISTIN HIGBEE & JESSIE FRISBY

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.

Dec. 7. 1996 11:12PM WHC 222S LAB ROOM 2F BACKSIDE NO. 7695 P. 3/3

worklistrpt Version 2.1 05/15/95
11/11/96 14:17

LABCORE Data Entry Template for Worklist# 14892

Analyst: DCD **Instrument:** H2O01 _____ **Book #** _____

Method: LA-504-101 Rev/Mod E-0

Worklist Comment: BY-112 H2O DIGEST C174S4,5L,U lad

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			H2ODIG01	SOLID	1	.100	N/A	g/L
96001393	BY-112	2 SAMPLE	S96T005900	0 W	H2ODIG01	SOLID	N/A	5.095		g/L
		.5095 → .100 l								
96001393	BY-112	3 SAMPLE	S96T005900	0 W	DOSE-02	SOLID	N/A	15		mrad/hour
96001393	BY-112	4 DUP	S96T005900	0 W	H2ODIG01	SOLID	5.095	4.806	N/A	g/L
		.4806 → .100 l								
96001393	BY-112	5 DUP	S96T005900	0 W	DOSE-02	SOLID	15	15	N/A	mrad/hour
96001393	BY-112	6 SAMPLE	S96T005901	0 W	H2ODIG01	SOLID	N/A	5.070		g/L
		.5070 → .100 l								
96001393	BY-112	7 SAMPLE	S96T005901	0 W	DOSE-02	SOLID	N/A	35		mrad/hour
96001393	BY-112	8 DUP	S96T005901	0 W	H2ODIG01	SOLID	5.070	5.016	N/A	g/L
		.5016 → .100 l								
96001393	BY-112	9 DUP	S96T005901	0 W	DOSE-02	SOLID	35	25	N/A	mrad/hour
96001393	BY-112	10 SAMPLE	S96T005902	0 W	H2ODIG01	SOLID	N/A	5.127		g/L
		.5127 → .100 l								
96001393	BY-112	11 SAMPLE	S96T005902	0 W	DOSE-02	SOLID	N/A	25		mrad/hour
96001393	BY-112	12 DUP	S96T005902	0 W	H2ODIG01	SOLID	5.127	4.809	N/A	g/L
		.4809 → .100 l								
96001393	BY-112	13 DUP	S96T005902	0 W	DOSE-02	SOLID	25	20	N/A	mrad/hour

Final page for worklist # 14892

David C Dunham 12-7-96
Analyst Signature **Date**

Gary Hammitt 12-8-96
Analyst Signature **Date**

Reviewed By [signature] 12/8/96

Data Entry Comments:

Weighed by Jessie Finley + Kristine Higher

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.

Dec. 7. 1996 11:11PM WHC 222S LAB ROOM 2F BACKSIDE No. 7093 P. 1/3

worklistrpt Version 2.1 05/15/95
11/11/96 14:18

LABCORE Data Entry Template for Worklist# 14893

Analyst: DcD **Instrument:** H2O01 **Book #**

Method: LA-504-101 Rev/Mod E-0

Worklist Comment: BY-112 H2O DIGEST C174S6 LH,UH lad

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK-PREP				H2ODIG01	SOLID	1	.100	N/A	g/L
96001393	BY-112	2	SAMPLE	S96T005903	0	W	H2ODIG01	SOLID	N/A	4.859		g/L
96001393	BY-112	3	SAMPLE	S96T005903	0	W	DOSE-02	SOLID	N/A	30		mrad/hour
96001393	BY-112	4	DUP	S96T005903	0	W	H2ODIG01	SOLID	4.859	4.989	N/A	g/L
96001393	BY-112	5	DUP	S96T005903	0	W	DOSE-02	SOLID	30	25	N/A	mrad/hour
96001393	BY-112	6	SAMPLE	S96T005904	0	W	H2ODIG01	SOLID	N/A	5.661		g/L
96001393	BY-112	7	SAMPLE	S96T005904	0	W	DOSE-02	SOLID	N/A	35		mrad/hour
96001393	BY-112	8	DUP	S96T005904	0	W	H2ODIG01	SOLID	5.661	4.915	N/A	g/L
96001393	BY-112	9	DUP	S96T005904	0	W	DOSE-02	SOLID	35	25	N/A	mrad/hour

4859 → .100
4989 → .100
5661 → .100
4915 → .100

Final page for worklist # 14893

David D Anderson 12-7-96
Analyst Signature **Date**

Gary Hammond 12-8-96
Analyst Signature **Date**

Reviewed By 12-8-96

Data Entry Comments:

Weighed by Jessie Tighe
Jessie Tighe

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.

Dec. 7. 1996 11:11PM WHC 222S LAB ROOM 2F BACKSIDE NO. 1093 P. 2/3

BULK DENSITY WORKSHEETS

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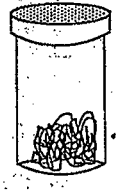
Bulk Density Worksheet

Requestor: NUZUM

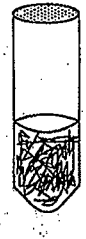
Date: 11-20-96

Tank: BY-112
Core: 174
Seg: 4 LH
Auger: ____
Sample ID: S96T005868



Start Time: ____
End Time: ____
Homogenization Time (Min.): ____

Jar#: 11701
Jar/Vial Size: 125 mL
Initial Weight: 11-20-96 g
Final Weight: AL g
Net Weight: ____ g

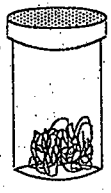


Cone#: 11701
Final Vol: 11.8 mL
Initial Weight: 7.5 g
Final Weight: 29.4 g
Net Weight: 21.9 g
Sample ID: S96T005868

Appearance/Narrative:
BULDWGT = 21.9/11.8 = 1.86 g/l

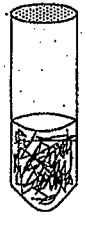
11-21-96 AL

Tank: ____
Core: ____
Seg: ____
Auger: ____
Sample ID: ____



Start Time: ____
End Time: ____
Homogenization Time (Min.): ____

Jar#: ____
Jar/Vial Size: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g



Cone#: ____
Final Vol: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g
Sample ID: ____

Appearance/Narrative:

RA 11/7/96

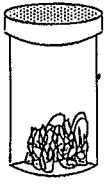
HNF-SD-WM-DP-229, REV. 0

Bulk Density Worksheet

Requestor: Nuzum

Date: 11/20/96

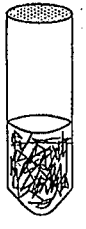
Tank: B4-112 RH 11/8/96
Core: ~~2 LH~~ 177
Seg: 2 LH
Auger: ____
Sample ID: 596T005912



Start Time: ____
End Time: ____
Homogenization Time (Min.): ____

Jar#: 11713
Jar/Vial Size: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g

11/24/96 AMB

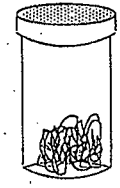


Cone#: 11713
Final Vol: 8.0 mL
Initial Weight: 7.50 g
Final Weight: 17.02 g
Net Weight: 9.52 g
Sample ID: 596T005912

Appearance/Narrative:

Bulk Den = 9.52/8.0 = 1.19 gm/ml

Tank: ____
Core: ____
Seg: ____
Auger: ____
Sample ID: ____



Start Time: ____
End Time: ____
Homogenization Time (Min.): ____

RH 11/8/96

Jar#: ____
Jar/Vial Size: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g

Cone#: ____
Final Vol: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g
Sample ID: ____

Appearance/Narrative:

202

HNF-SD-WM-DP-229, REV. 0

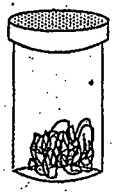
Nov. 22, 1996 10:09AM WHC 222S LAB ROOM 2F BACKSIDE No. 7272 P. 12/17

Bulk Density Worksheet

Requestor: NVZUM

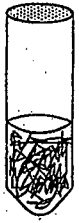
Date: 11/19/96

Tank: B4-112
Core: 177
Seg: 1 LH
Auger: ____
Sample ID: 596T005911



Start Time: ____
End Time: ____
Homogenization Time (Min.): ____

Jar#: 11708
Jar/Vial Size: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g



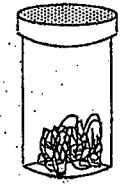
Cone#: 11708
Final Vol: ____ mL
Initial Weight: 7.48 g
Final Weight: ____ g
Net Weight: ____ g
Sample ID: 596T005911

11/21/96 MAB ✓

Appearance/Narrative:
SAMPLE TOO DRY TO PACK DOWN.

203

Tank: ____
Core: ____
Seg: ____
Auger: ____
Sample ID: ____



Start Time: ____
End Time: ____
Homogenization Time (Min.): ____

Jar#: ____ ET 11/8/96
Jar/Vial Size: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g

Cone#: ____
Final Vol: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g
Sample ID: ____

Appearance/Narrative:

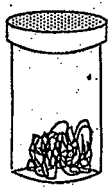
Nov. 22. 1996 10:11AM WHC 222S LAB ROOM 2F BACKSIDE No. 7272 P. 14/17

Bulk Density Worksheet

Requestor: NUCEM

Date: _____

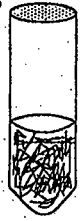
Tank: BY-112
Core: 177
Seg: 3 LH
Auger: _____
Sample ID: 596T00591 3



Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

Jar#: 11709
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

204



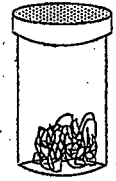
Cone#: 11709
Final Vol: 10 mL
Initial Weight: 7.48 g
Final Weight: 18.16 g
Net Weight: 10.68 g
Sample ID: 596T00591 3

11/21/96 RHO

Appearance/Narrative:

BK Den = 10.68 / 10 = 1.07 gm/ml

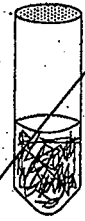
Tank: _____
Core: _____
Seg: _____
Auger: _____
Sample ID: _____



Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

RH 11/8/96

Jar#: _____
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g



Cone#: _____
Final Vol: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g
Sample ID: _____

Appearance/Narrative:

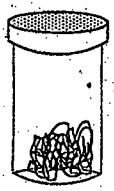
Nov. 22. 1996 10:08AM WHC 222S LAB ROOM 2F BACKSIDE No. 7272 P. 10/17

Bulk Density Worksheet

Requestor: _____

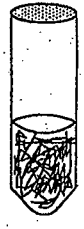
Date: 11/21/96

Tank: BY-112
Core: 177
Seg: 4 LH UH
Auger: _____ SAY 11/5/97
Sample ID: S97T005914



Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

Jar#: 11763
Jar/Vial Size: 60 mL
Initial Weight: 129.8 g
Final Weight: _____ g
Net Weight: _____ g

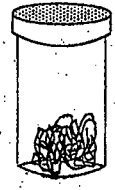


Cone#: 11763
Final Vol: 10.5 mL
Initial Weight: 7.45 g
Final Weight: 25.88 g
Net Weight: 18.43 g
Sample ID: S96T005914

Appearance/Narrative:

Bulk Den = 18.43/10.5 = 1.76 gm/ml

Tank: BY-112
Core: 177
Seg: 4 LH
Auger: _____
Sample ID: _____



Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

Jar#: 11718
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Cone#: 11718
Final Vol: 12.0 mL
Initial Weight: 7.49 g
Final Weight: 28.87 g
Net Weight: 21.38 g
Sample ID: S96T005915

Appearance/Narrative:

Bulk Den 21.38/12.0 = 1.78 gmo/ml

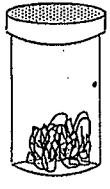
HNF-SD-WM-DP-229, REV. 0

Bulk Density Worksheet

Requestor: J L Nuzum

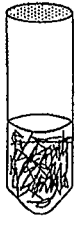
Date: 11-21-96

Tank: BY-112
Core: 177
Seg: 5 LITH
Auger: _____
Sample ID: _____



Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

Jar#: 11715
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

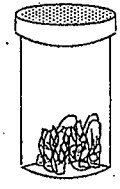


Cone#: 15
Final Vol: 11.0 mL
Initial Weight: 7.47 g
Final Weight: 24.64 g
Net Weight: 17.17 g
Sample ID: S96T005942

Appearance/Narrative:
BLKDEN01 = 17.17/11.0
= 1.56 g/ml.

206

Tank: _____
Core: _____
Seg: _____
Auger: _____
Sample ID: _____



Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

Jar#: _____
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Cone#: _____
Final Vol: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g
Sample ID: _____

Appearance/Narrative:

SEN 4/30/97

HNF-SD-WM-DP-229, REV. 0

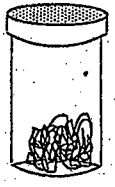
Nov. 22. 1996 10:02AM WHC 222S LAB ROOM 2F BACKSIDE No. 7272 P. 3/17

Bulk Density Worksheet

Requestor: NUZUM

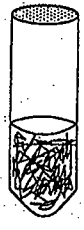
Date: _____

Tank: BY-112
Core: 177
Seg: 6 LH
Auger: _____
Sample ID: S96T005916



Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

Jar#: 11711
Jar/Vial Size: 125 mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g



Cone#: 11711
Final Vol: 11.0 mL
Initial Weight: 7.54 g
Final Weight: 28.0 g
Net Weight: 20.46 g
Sample ID: S96T005916

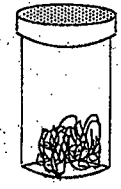
Appearance/Narrative:

Bulk Den = 20.46/11.0 1.86 gm/ml

207

Tank: _____
Core: _____
Seg: _____
Auger: _____
Sample ID: _____

RH 11/8/96



Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

Jar#: _____
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Cone#: _____
Final Vol: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g
Sample ID: _____

Appearance/Narrative:

Nov. 22. 1996 10:01AM WHC 222S LAB ROOM 2F BACKSIDE No. 7272 P. 1/17

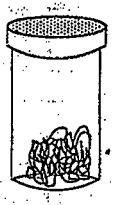
HNF-SD-WM-DP-229, REV. 0

Bulk Density Worksheet

Requestor: NuZum

Date: 11-21-96

Tank: BY-112
Core: 174
Seg: 5 LH
Auger: _____
Sample ID: S96T005869



Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

Jar#: 11705
Jar/Vial Size: 125 mL
Initial Weight: _____ g
Final Weight: 11-21-96 AL g
Net Weight: _____ g

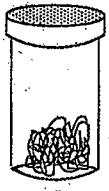
Lower Half

Cone#: 11705
Final Vol: 11.0 mL
Initial Weight: 7.5 g
Final Weight: 25.8 g
Net Weight: 18.3 g
Sample ID: S96T005869

11-21-96 AL

Appearance/Narrative:
BLKDEN.01 = 18.3/11.0 = 1.66 g/cc

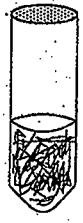
Tank: _____
Core: _____
Seg: _____
Auger: _____
Sample ID: _____



Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

RH 11/7/96

Jar#: _____
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g



Cone#: _____
Final Vol: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g
Sample ID: _____

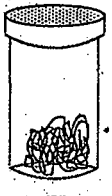
Appearance/Narrative:

Bulk Density Worksheet

Requestor: NuZum

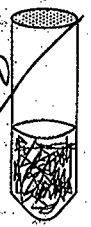
Date: 11-21-96

Tank: BY-112
Core: 174
Seg: 6 LH
Auger: ____
Sample ID: S96T005871



Start Time: ____
End Time: ____
Homogenization Time (Min.): ____

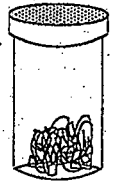
Jar#: 11706
Jar/Vial Size: 125 mL
Initial Weight: ____ g
Final Weight: 11-21-96 R g
Net Weight: ____ g



Cone#: 11706
Final Vol: 11.5 mL
Initial Weight: 7.5 g
Final Weight: 28.4 g
Net Weight: 20.9 g
Sample ID: S96T005871

Appearance/Narrative:
BLKDENSI = 20.9 / 11.5 = 1.82 g/ml

Tank: ____
Core: ____
Seg: ____
Auger: ____
Sample ID: ____



Start Time: ____
End Time: ____
Homogenization Time (Min.): ____

Jar#: ____
Jar/Vial Size: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g

Cone#: ____
Final Vol: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g
Sample ID: ____

Appearance/Narrative:

RH 11/7/96

11-21-96 AT.

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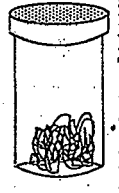
HNF-SD-WM-DP-229, REV. 0

Bulk Density Worksheet

Requestor: NUZUM

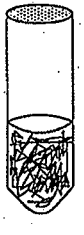
Date: 11/20/96

Tank: BY-112
Core: 174
Seg: 1 LH
Auger: ——
Sample ID: S96T005865



Start Time: ____
End Time: ____
Homogenization Time (Min.): ____

Jar#: 11160
Jar/Vial Size: 125 mL
Initial Weight: ____ g
Final Weight: 11-20-96 AL g
Net Weight: ____ g



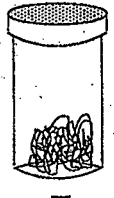
Cone#: 11160
Final Vol: 10.5 mL
Initial Weight: 7.5 g
Final Weight: 18.3 g
Net Weight: 10.8 g
Sample ID: S96T005865

Appearance/Narrative:
BLKDENSY = 10.8/10.5 = 1.03 g/cc

QUESTIONABLE BULK DENSITY — TOO DRY OF SAMPLE — DIDN'T PACK WELL!

Tank: ____
Core: ____
Seg: ____
Auger: ____
Sample ID: ____

RH 11/7/96



Start Time: ____
End Time: ____
Homogenization Time (Min.): ____

Jar#: ____
Jar/Vial Size: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g

Cone#: ____
Final Vol: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g
Sample ID: ____

11-21-96 AL

Appearance/Narrative:

HNF-SD-WM-DP-229, REV. 0

Bulk Density Worksheet

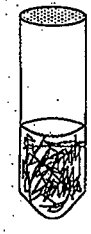
Requestor: NUZUM

Date: 11/20/96

Tank: BY-112
Core: 174
Seg: 2 LH
Auger: —
Sample ID: S96T005866

Start Time: ____
End Time: ____
Homogenization Time (Min.): ____

Jar#: 11704
Jar/Vial Size: 125 mL
Initial Weight: ____ g
Final Weight: 11-20-96 g
Net Weight: ____ g



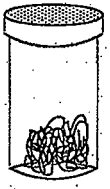
Cone#: 11704
Final Vol: 11.2 mL
Initial Weight: 7.5 g
Final Weight: 19.8 g
Net Weight: 12.3 g
Sample ID: S96T005866

Appearance/Narrative:
BLKDENSI = 12.3/11.2 = 1.10 g/ml

DRY SAMPLE — QUESTIONABLE BULK DENSITY!

11-21-96 AL

Tank: ____
Core: ____
Seg: ____
Auger: ____
Sample ID: ____



Start Time: ____
End Time: ____
Homogenization Time (Min.): ____

Jar#: ____
Jar/Vial Size: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g

Cone#: ____
Final Vol: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g
Sample ID: ____

Appearance/Narrative:

CH 11/7/96

HNF-SD-WM-DP-229, REV. 0

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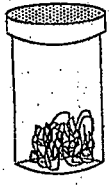
Bulk Density Worksheet

Requestor: Nuzum

Date: 11/20/96

Tank: B4-112
Core: 174
Seg: 3 LH
Auger: ——
Sample ID: 596T005867



Start Time: ____
End Time: ____
Homogenization Time (Min.): ____

Jar#: 11698
Jar/Vial Size: 125 mL
Initial Weight: ____ g
Final Weight: 11-20-96 g
Net Weight: ____ g

Lower Half

Cone#: 11698
Final Vol: 10.8 mL
Initial Weight: 7.5 g
Final Weight: 19.2 g
Net Weight: 11.7 g
Sample ID: 596T005867

11-21-96

Appearance/Narrative:
BULK Dens Vol = 11.7/10.8 = 1.08 g/l
Questionable Bulk Density — Dry
Sample 1

Tank: ____
Core: ____
Seg: ____
Auger: ____
Sample ID: ____

Start Time: ____
End Time: ____
Homogenization Time (Min.): ____

Jar#: ____
Jar/Vial Size: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g

Cone#: ____
Final Vol: ____ mL
Initial Weight: ____ g
Final Weight: ____ g
Net Weight: ____ g
Sample ID: ____

Appearance/Narrative:

RH 11/7/96

HNF-SD-WM-DP-229, REV. 0

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INORGANIC ANALYSIS

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LABCORE Data Entry Template for Worklist# 15233

Analyst: JDS **Instrument:** DSC0 3 **Book #** 12N14B

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: BY-112 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-03	LIQUID	28.45	29.05	N/A	Joules/g
96001393	BY-112	2	SAMPLE	S96T005907	0		DSC-03	LIQUID	N/A	99.19		Joules/g
96001393	BY-112	3	DUP	S96T005907	0		DSC-03	LIQUID	99.19	80.44	N/A	Joules/g
96001466	BY-112	4	SAMPLE	S96T005909	0		DSC-03	LIQUID	N/A	Ø		Joules/g
96001466	BY-112	5	DUP	S96T005909	0		DSC-03	LIQUID	Ø	Ø	N/A	Joules/g
96001466	BY-112	6	SAMPLE	S96T005960	0		DSC-03	LIQUID	N/A	72.64		Joules/g
96001466	BY-112	7	DUP	S96T005960	0		DSC-03	LIQUID	72.64	36.61	N/A	Joules/g

Final page for worklist # 15233

See attached for Signatures 12-12-96
Analyst Signature **Date**

12-12-96
Analyst Signature **Date**

Verified/Validated by
Blandina
Valenzuela 12-16-96

Data Entry Comments: S96T005907 results are the sum of two weight loss steps.

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# 15233

Analyst: Sds **Instrument:** DSC0 **Book #** 12NMB

Method: LA-514-113 Rev/Mod

Worklist Comment: BY-112 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	LIQUID			N/A	Joules/g
96001393	BY-112	2	SAMPLE	S96T005907	0		DSC-01	LIQUID	N/A			Joules/g
96001393	BY-112	3	DUP	S96T005907	0		DSC-01	LIQUID			N/A	Joules/g
96001466	BY-112	4	SAMPLE	S96T005909	0		DSC-01	LIQUID	N/A			Joules/g
96001466	BY-112	5	DUP	S96T005909	0		DSC-01	LIQUID			N/A	Joules/g
96001466	BY-112	6	SAMPLE	S96T005960	0		DSC-01	LIQUID	N/A			Joules/g
96001466	BY-112	7	DUP	S96T005960	0		DSC-01	LIQUID			N/A	Joules/g

Final page for worklist # 15233

12/12/96

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

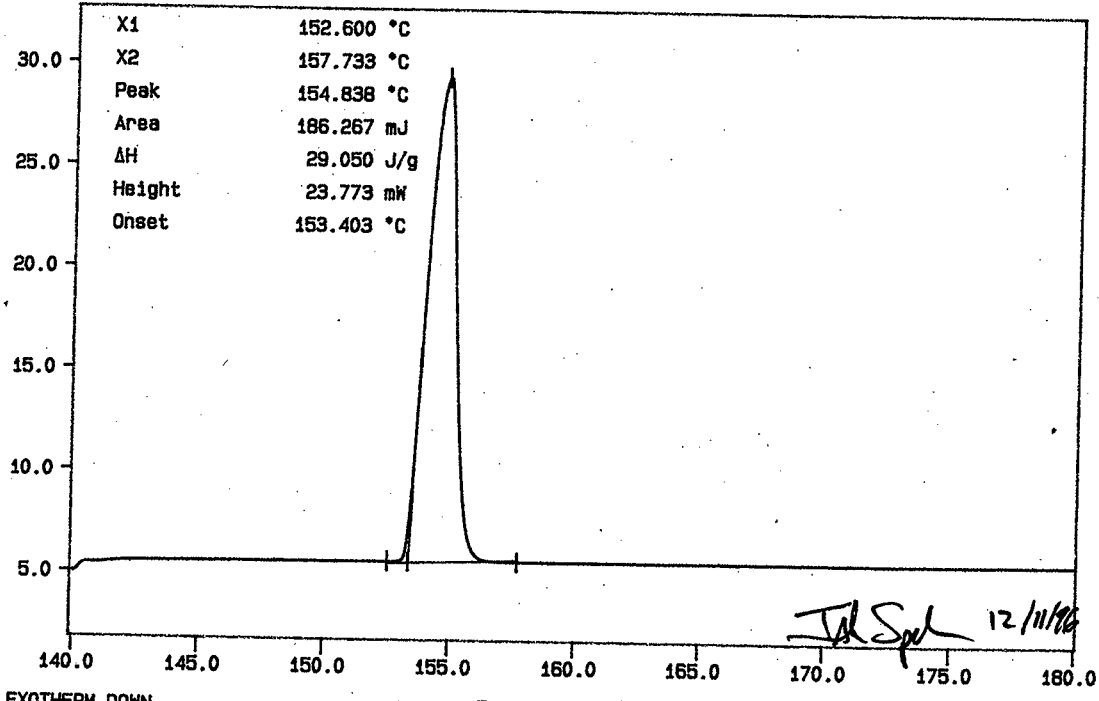
DSC-03 instrument was used. 12-12-96 Blandina Valenzuela

Data Entry Comments:

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

Curve 1: DSC
File info: ind1211.03 Wed Dec 11 09:43:06 1996
Sample Weight: 6.412 mg
12N14-B INDIUM AT 10C/MIN

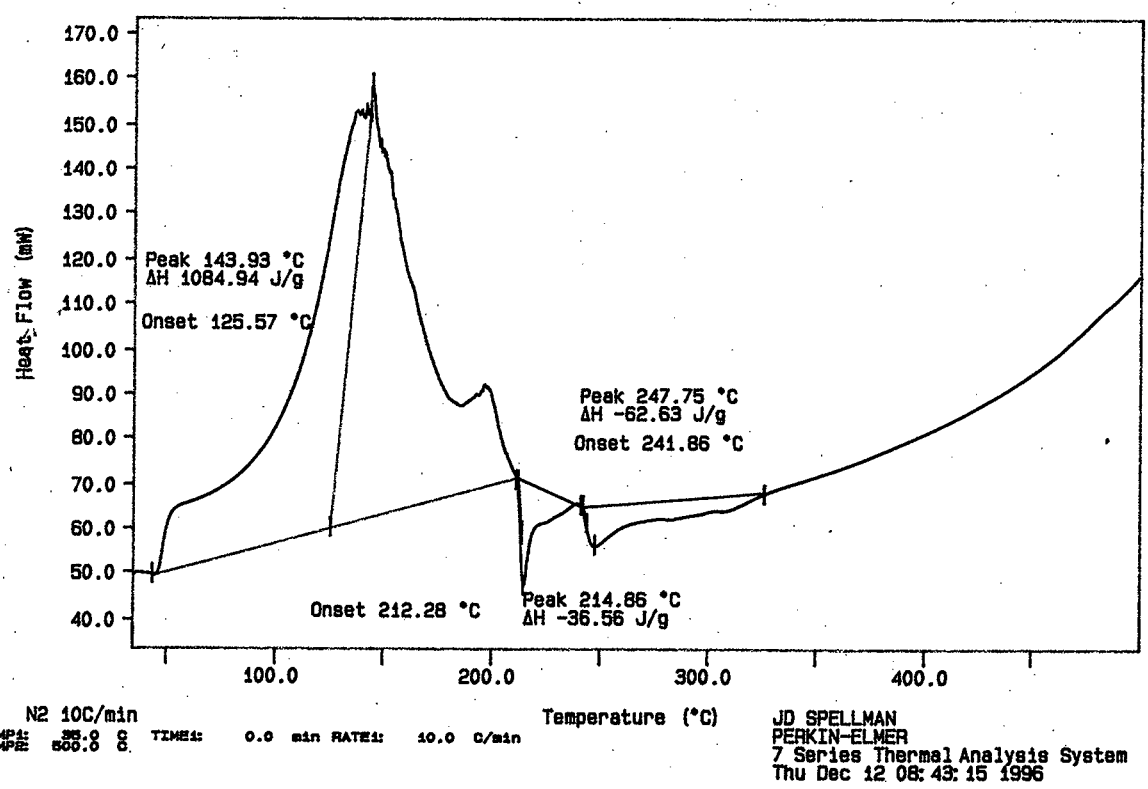
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 218 TO 224.



N2, EXOTHERM DOWN
TEMP1: 140.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 180.0 C

~~bd valenzuela~~
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Dec 11 17:53:40 1996

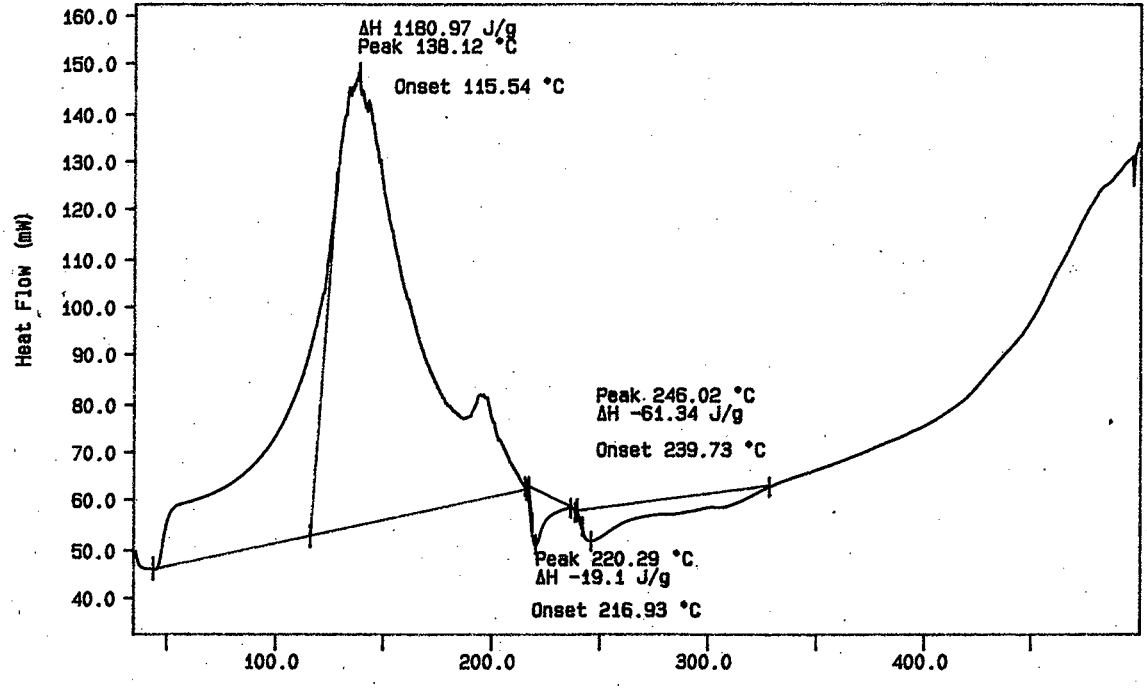
Curve 1: DSC
File info: SAM121101 Wed Dec 11 21:56:48 1996
Sample Weight: 32.570 mg
S96T005907



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

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 08:43:15 1996

Curve 1: DSC
File info: SAM121102 Wed Dec 11 22:53:56 1996
Sample Weight: 27.320 mg
S96T005907DUP



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

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 08:51:51 1996

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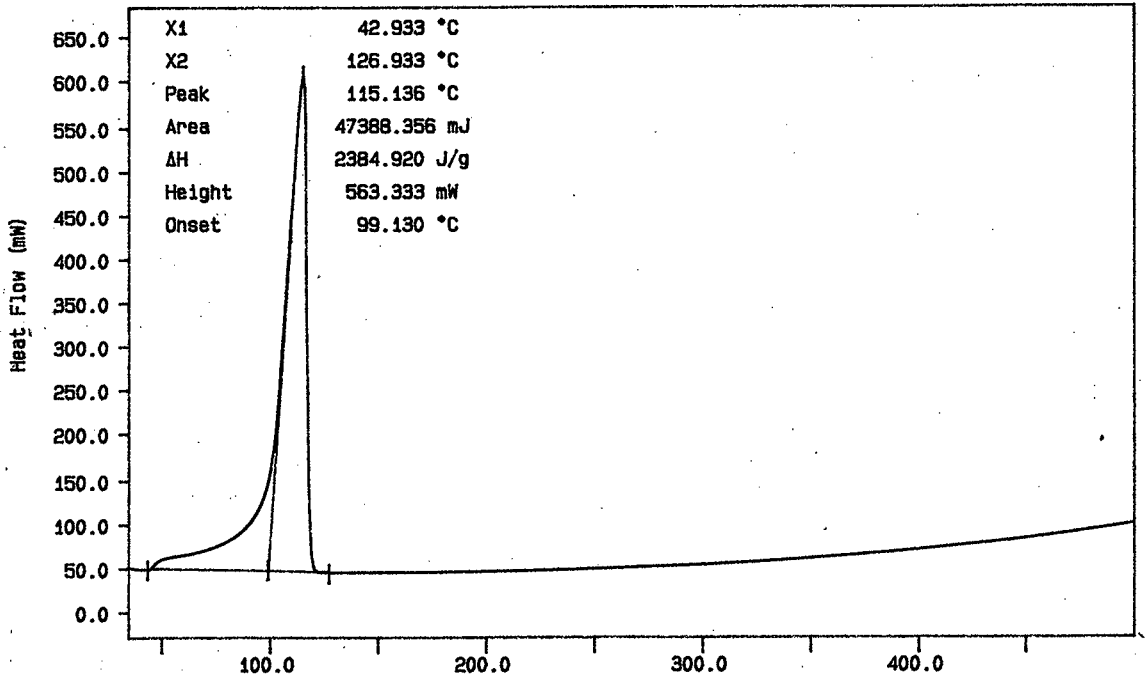
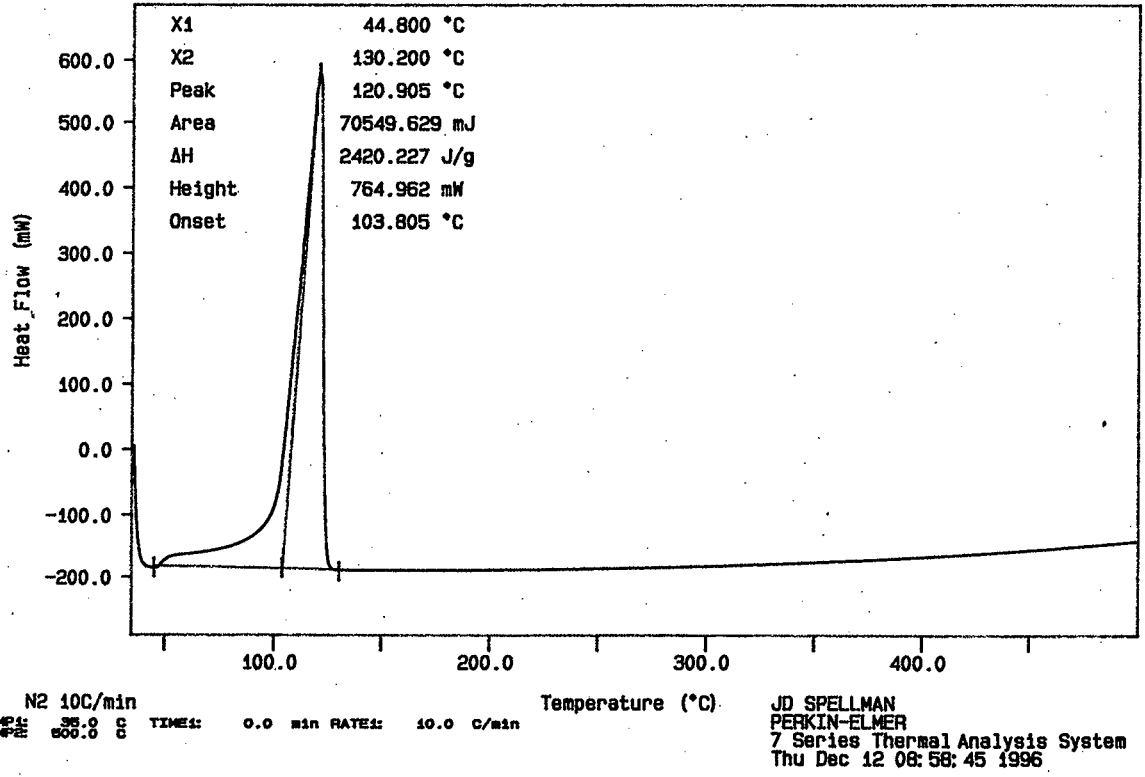
Curve 1: DSC
File info: SAM121301 Thu Dec 12 00:38:51 1996
Sample Weight: 19.870 mg
S96T005909



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

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 00:41:59 1996

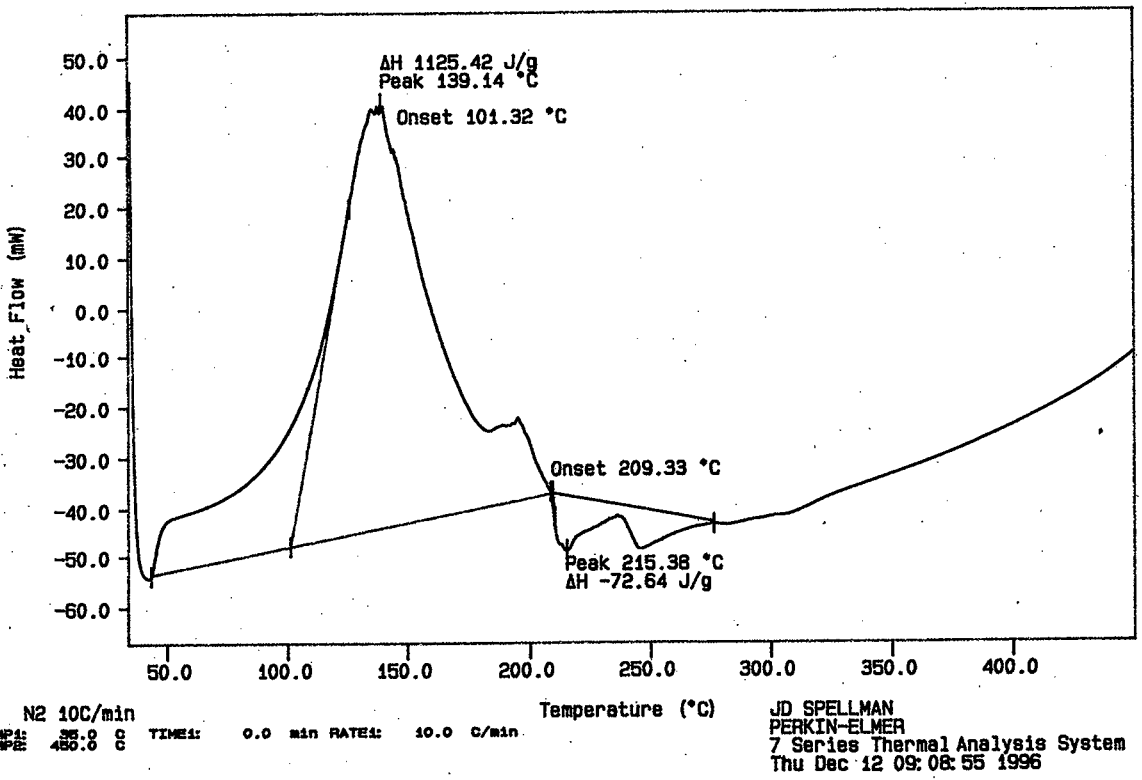
Curve 1: DSC
File info: SAM121202 Thu Dec 12 01:33:25 1996
Sample Weight: 29.150 mg
S96T005909DUP



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

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 08:58:45 1996

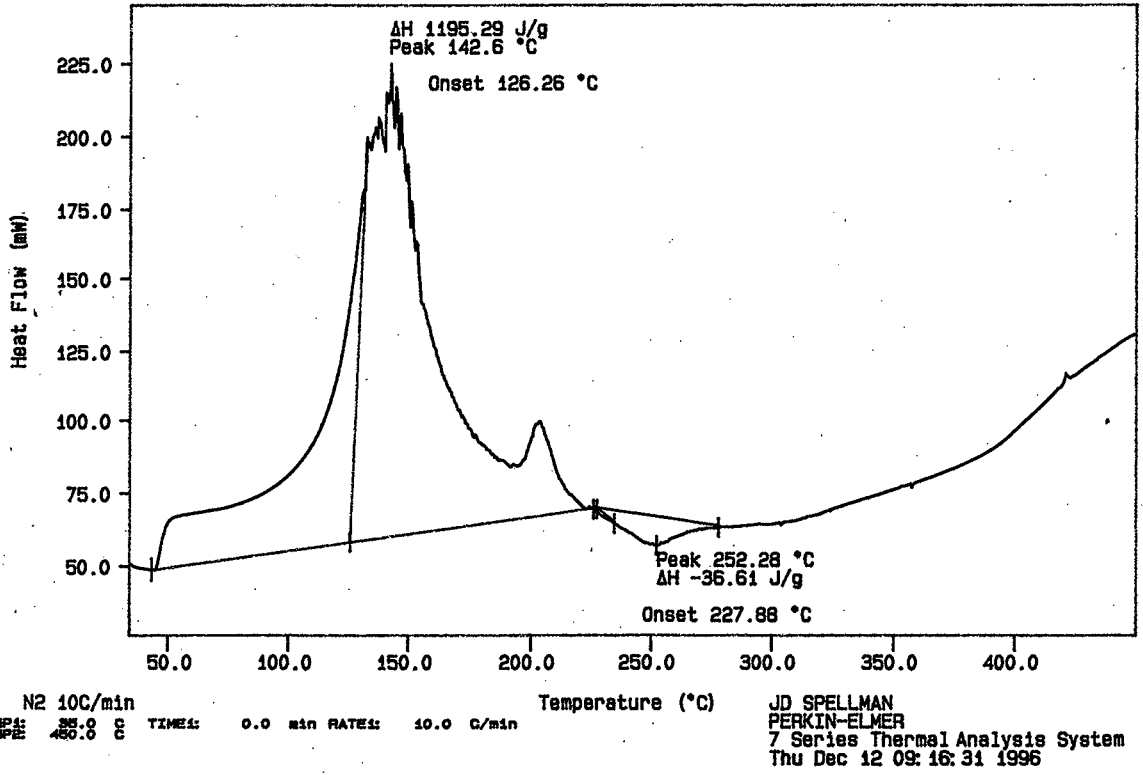
Curve 1: DSC
File info: SAM121203 Thu Dec 12 03:09:04 1996
Sample Weight: 26.610 mg
S96T005960



N2 10C/min
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 450.0 C

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 09:08:55 1996

Curve 1: DSC
File info: SAM121204 Thu Dec 12 04:00:48 1996
Sample Weight: 40.040 mg
S96T005960DUP



N2 10C/min
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 450.0 C

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 09:16:31 1996

LABCORE Data Entry Template for Worklist# 15237

Analyst: PJM **Instrument:** DSC0 3 **Book #** 12N14B

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: BY-112 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-03	SOLID	28.45	28.40	N/A	Joules/g
96001393	BY-112	2 SAMPLE	S96T005873	0		DSC-03	SOLID	N/A	Ø		Joules/g
96001393	BY-112	3 DUP	S96T005873	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g
96001393	BY-112	4 SAMPLE	S96T005874	0		DSC-03	SOLID	N/A	Ø		Joules/g
96001393	BY-112	5 DUP	S96T005874	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g
96001393	BY-112	6 SAMPLE	S96T005875	0		DSC-03	SOLID	N/A	Ø		Joules/g
96001393	BY-112	7 DUP	S96T005875	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 15237

See attached for signatures
Analyst Signature **Date**

Paula Mack 12-13-96
Analyst Signature **Date**

Verified/Validated by
Blandina Valenzuela 12-16-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 15237

Analyst: RJM **Instrument:** DSC0 _____ **Book #** 12N14B

Method: LA-514-113 Rev/Mod _____

Worklist Comment: BY-112 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Joules/g
96001393	BY-112	2	SAMPLE	S96T005873	0		DSC-01	SOLID	N/A			Joules/g
96001393	BY-112	3	DUP	S96T005873	0		DSC-01	SOLID			N/A	Joules/g
96001393	BY-112	4	SAMPLE	S96T005874	0		DSC-01	SOLID	N/A			Joules/g
96001393	BY-112	5	DUP	S96T005874	0		DSC-01	SOLID			N/A	Joules/g
96001393	BY-112	6	SAMPLE	S96T005875	0		DSC-01	SOLID	N/A			Joules/g
96001393	BY-112	7	DUP	S96T005875	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 15237

RJ McCown 12/12/96
Analyst Signature **Date**

[signature] 12/12/96
Analyst Signature **Date**

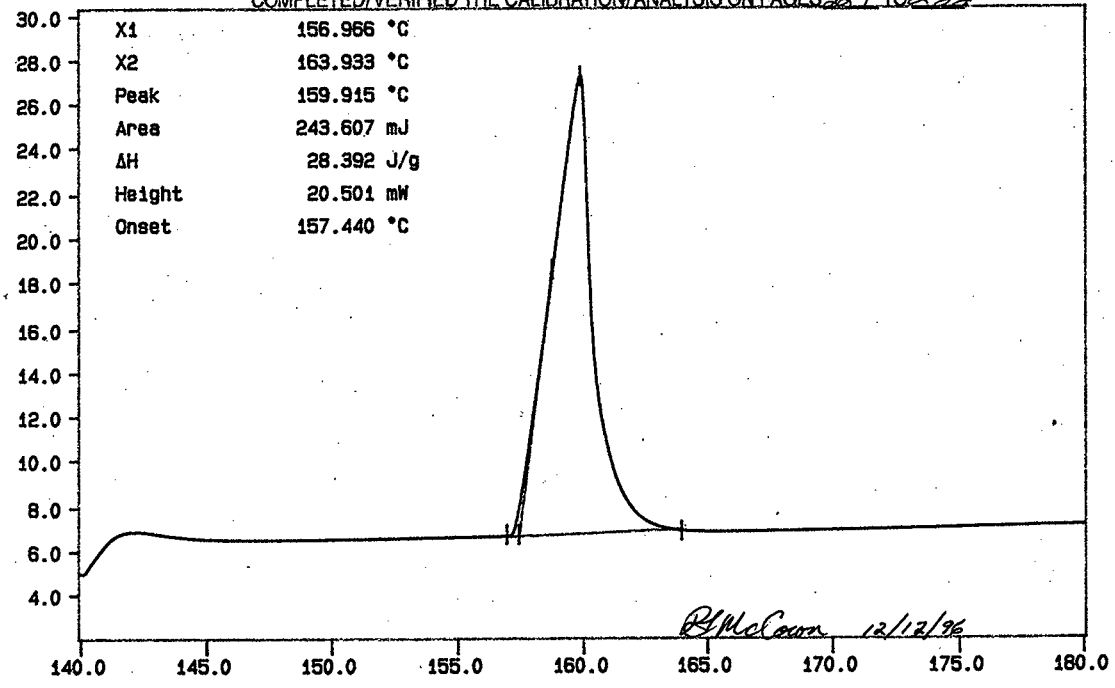
DSC-03 instrument was used.
12-13-96
Blandina Valenzuela

Data Entry Comments:

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

Curve 1: DSC
File info: IND121201 Thu Dec 12 05:37:02 1996
Sample Weight: 8.580 mg
12N14-B INDIUM AT 10C/MIN

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 227 TO 233

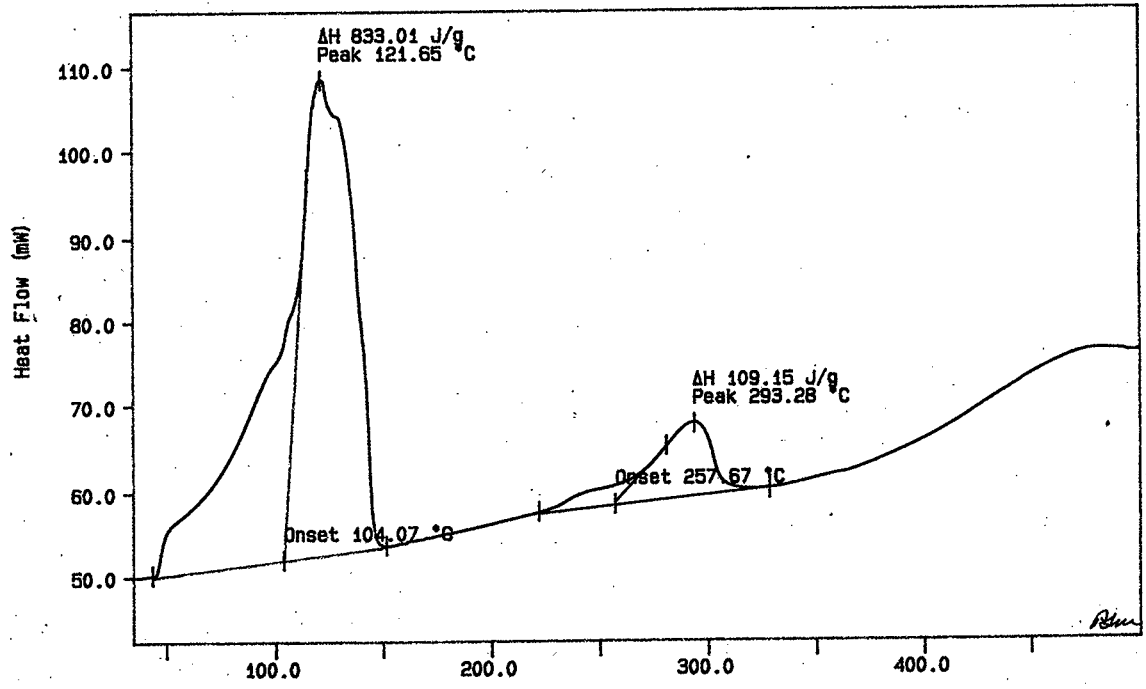


N2, EXOTHERM DOWN
TEMP1: 140.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 180.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 05:37:41 1996

227

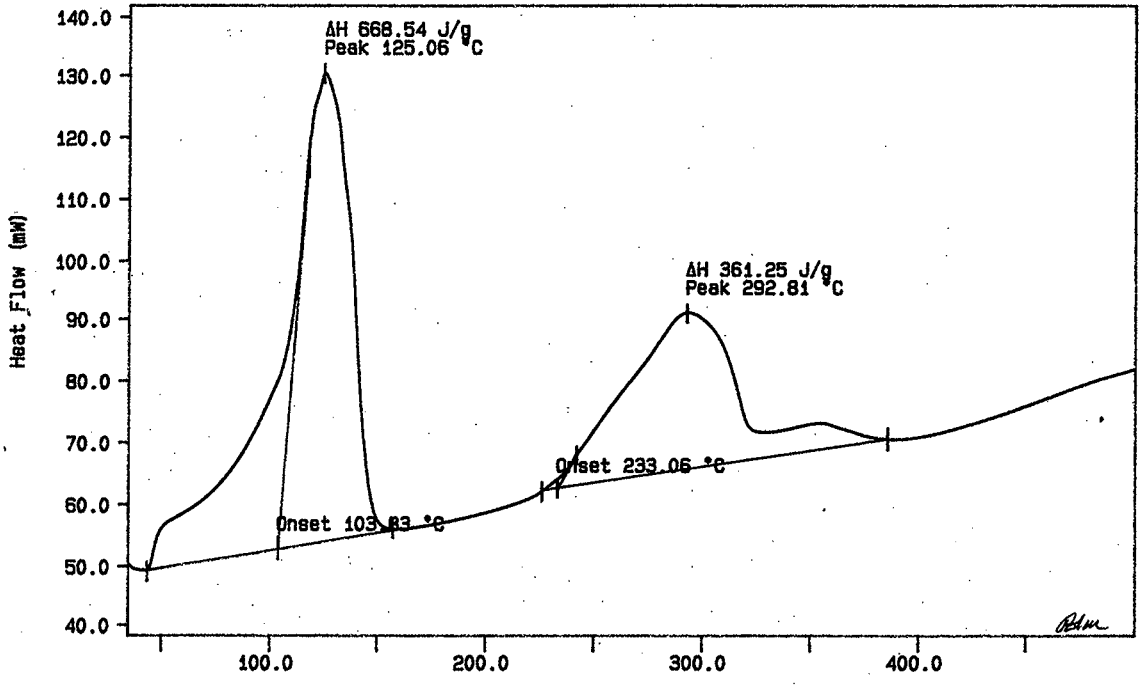
Curve 1: DSC
File info: SAM121201 Thu Dec 12 10:18:18 1996
Sample Weight: 17.060 mg
S96T005873



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

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 11:29:07 1996

Curve 1: DSC
File info: SAM121205 Thu Dec 12 12:39:38 1996
Sample Weight: 26.550 mg
S96T005873 DUP

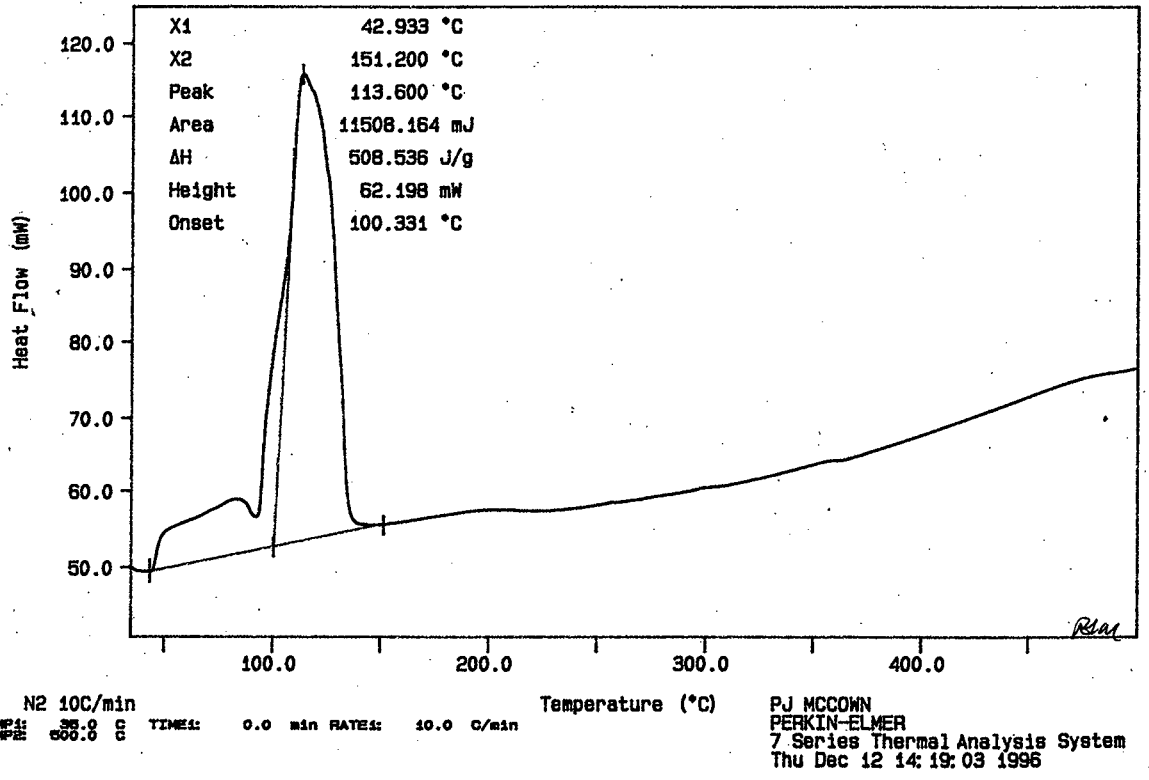


N2 10C/min
TEMP1: 25.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

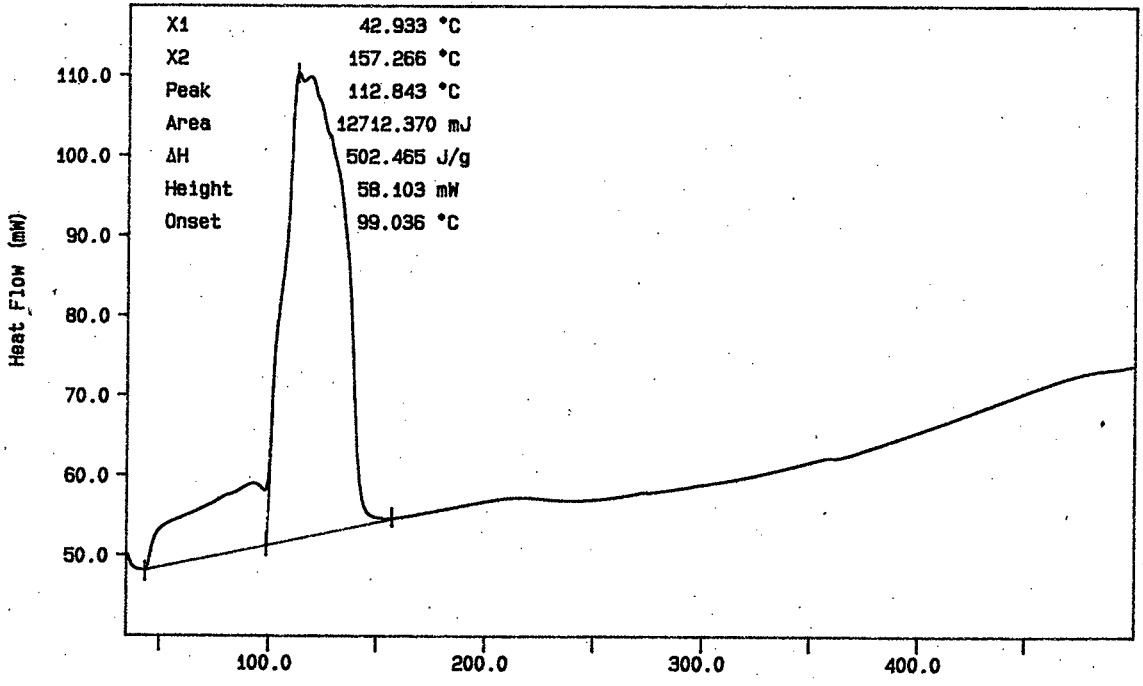
PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 12:41:02 1996

229

Curve 1: DSC
File info: SAM121206 Thu Dec 12 13:55:27 1996
Sample Weight: 22.630 mg
S96T005874



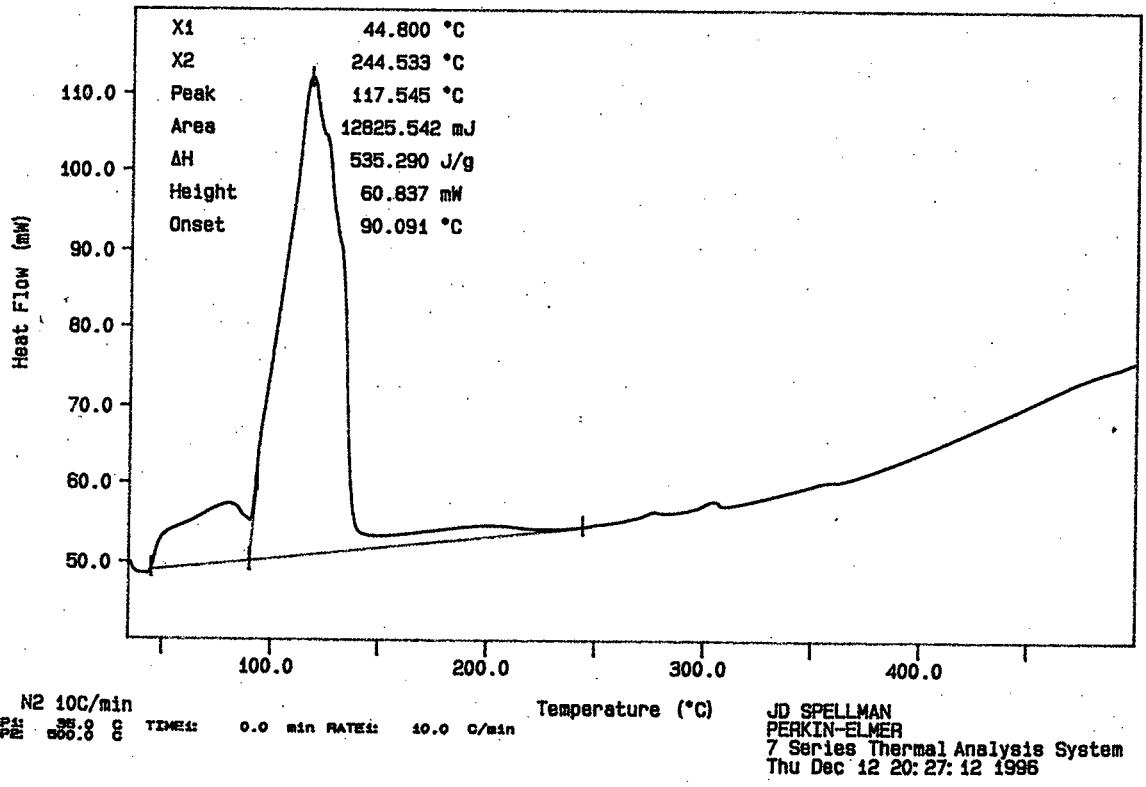
Curve 1: DSC
File info: SAM121207 Thu Dec 12 15:10:28 1996
Sample Weight: 25.300 mg
S96T005874 DUP



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

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 15:11:01 1996

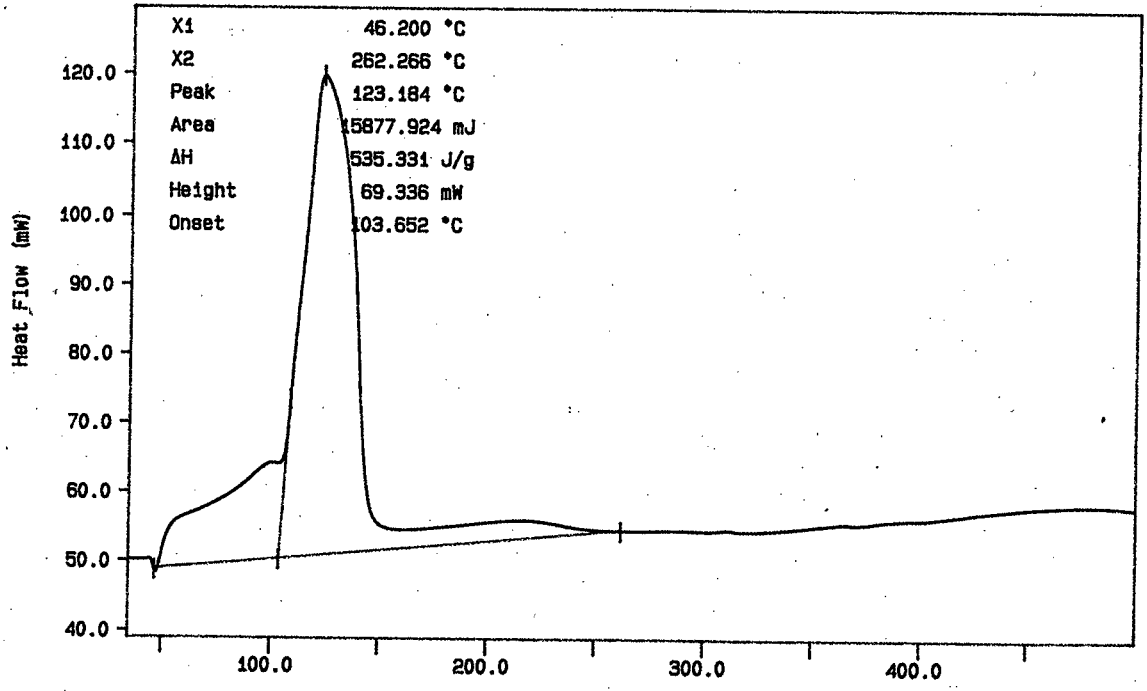
Curve 1: DSC
File info: SAM121208 Thu Dec 12 19:24:05 1996
Sample Weight: 23.960 mg
S96T005875



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

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 20:27:12 1996

Curve 1: DSC
File info: SAM121209 Thu Dec 12 21:26:08 1996
Sample Weight: 29.660 mg
S96T005875DUP



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

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 21:26:40 1996

LABCORE Data Entry Template for Worklist# 15238

Analyst: KRM **Instrument:** DSC0 1 **Book #** 12NHB

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

Worklist Comment: BY-112 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-01	SOLID	28.45	30.2	N/A	Joules/g
96001393	BY-112	2 SAMPLE	S96T005876	0		DSC-01	SOLID	N/A	134.5		Joules/g
96001393	BY-112	3 DUP	S96T005876	0		DSC-01	SOLID	134.5	128.6	N/A	Joules/g
96001393	BY-112	4 SAMPLE	S96T005877	0		DSC-01	SOLID	N/A	61.3		Joules/g
96001393	BY-112	5 DUP	S96T005877	0		DSC-01	SOLID	61.3	63.7	N/A	Joules/g
96001393	BY-112	6 SAMPLE	S96T005878	0		DSC-01	SOLID	N/A	118.1		Joules/g
96001393	BY-112	7 DUP	S96T005878	0		DSC-01	SOLID	118.1	233.4	N/A	Joules/g

Final page for worklist # 15238

Analyst Signature Date 12-14-96

Analyst Signature Date 12-17-96

Verified/Validated by Blandina Valenzuela 12-18-96

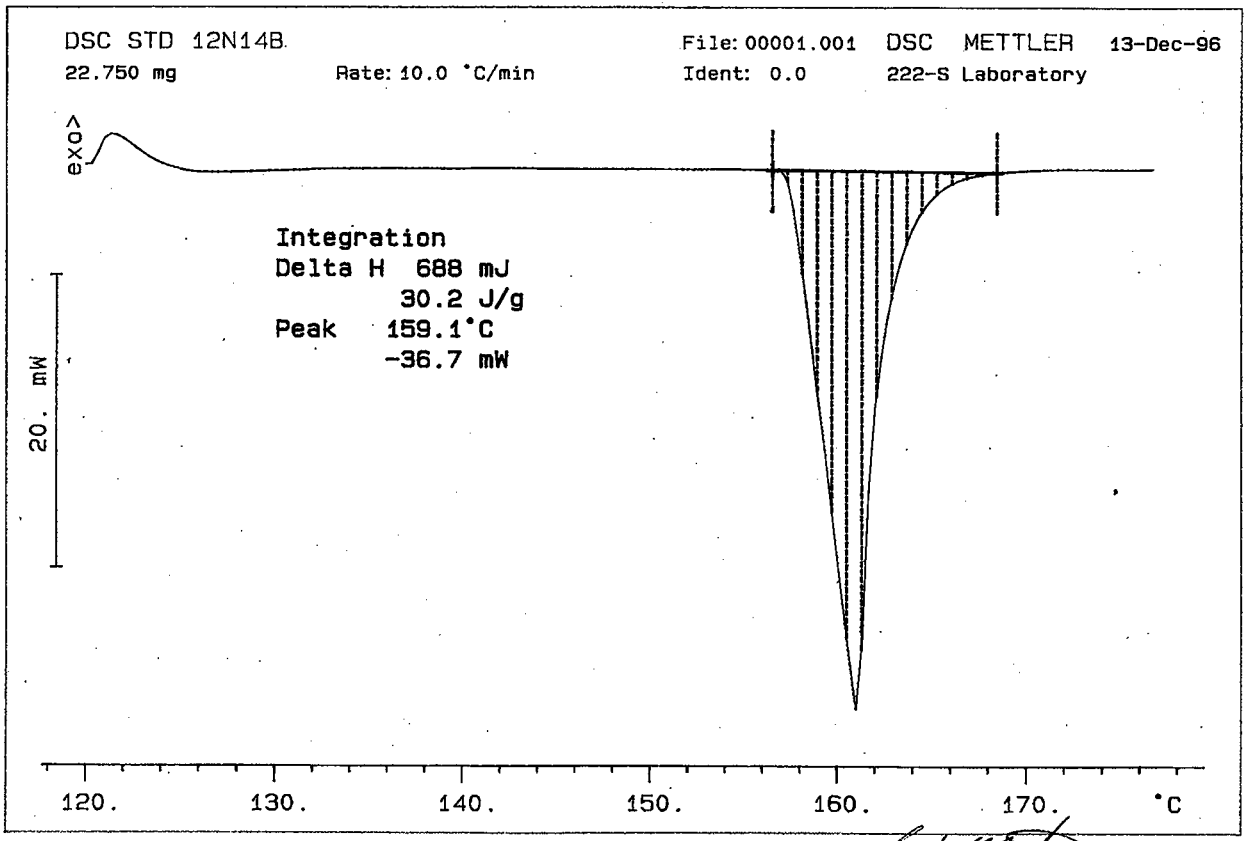
S96T005876 exotherms resemble those of a fairly pure substance.

Data Entry Comments: S96T005877 results are the sum of two exotherms.

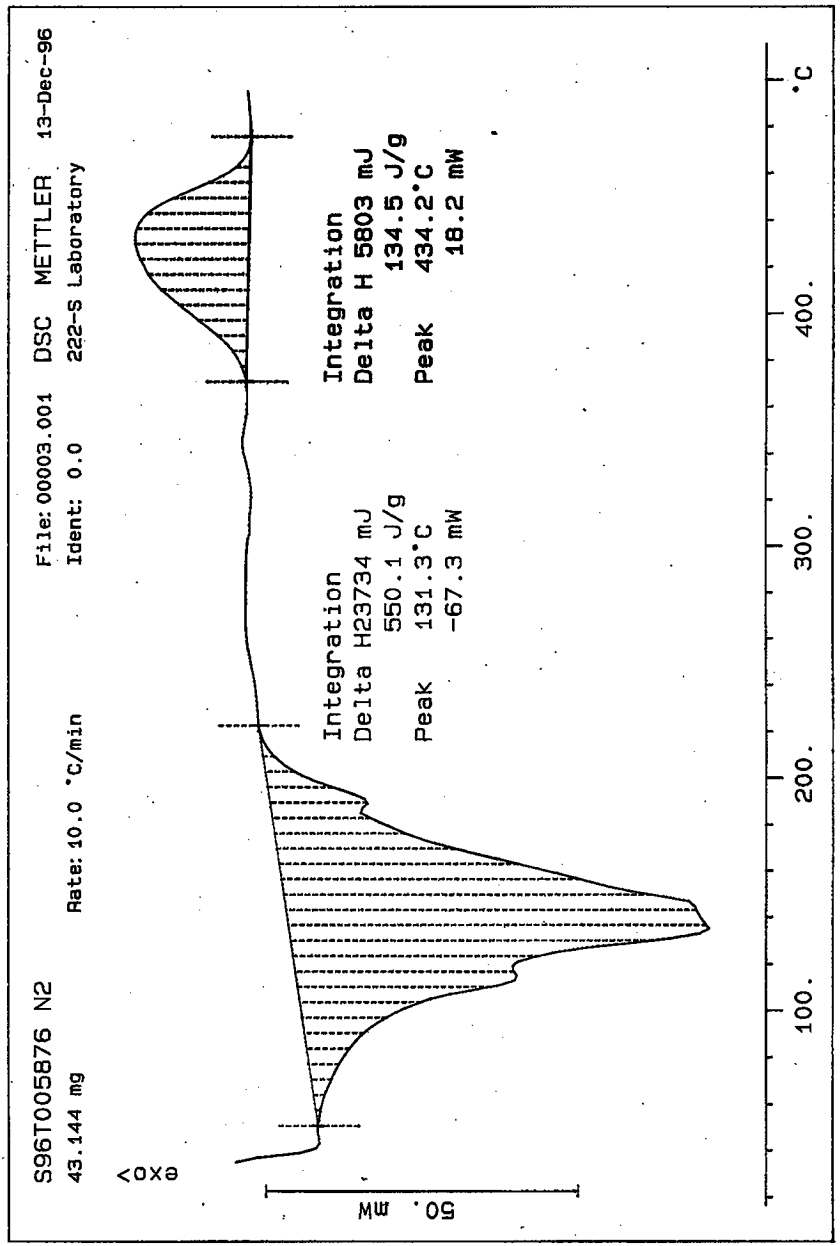
S96T005878 results are the sum of two exotherms

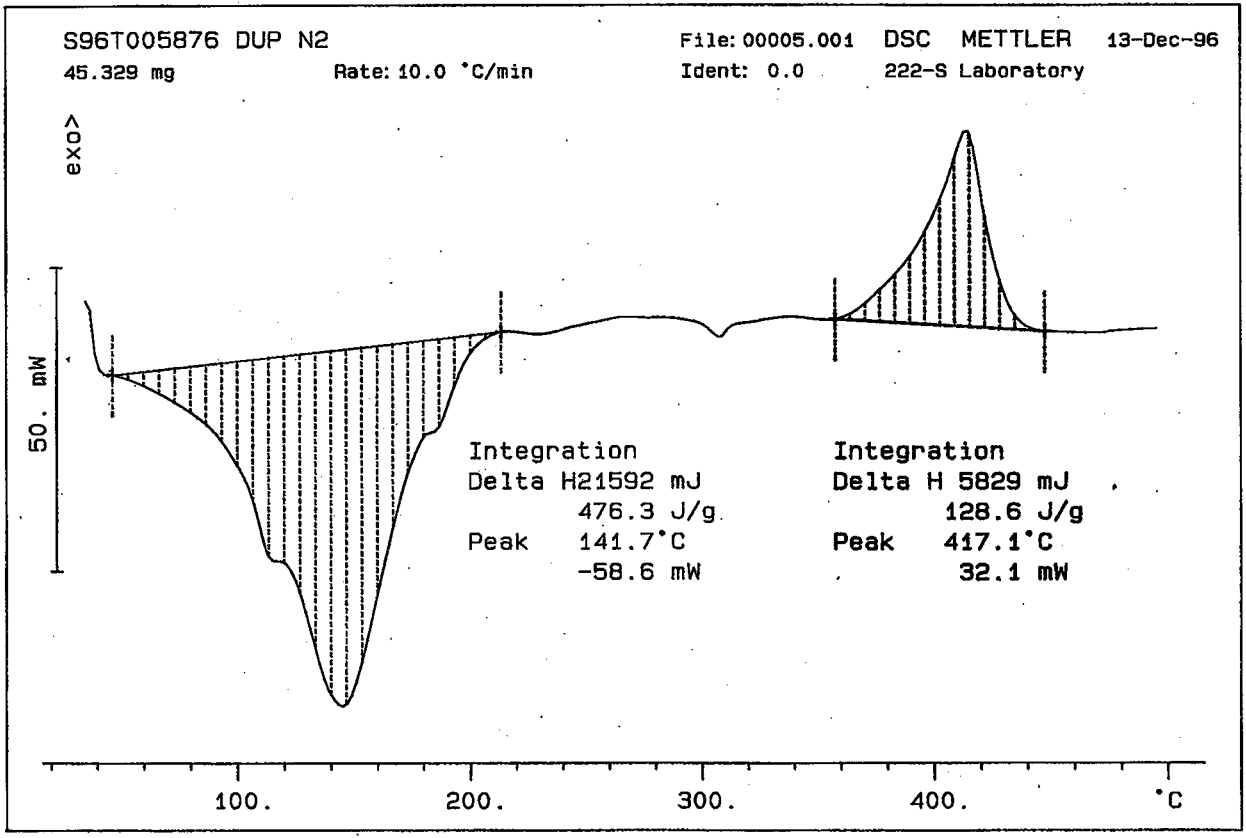
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

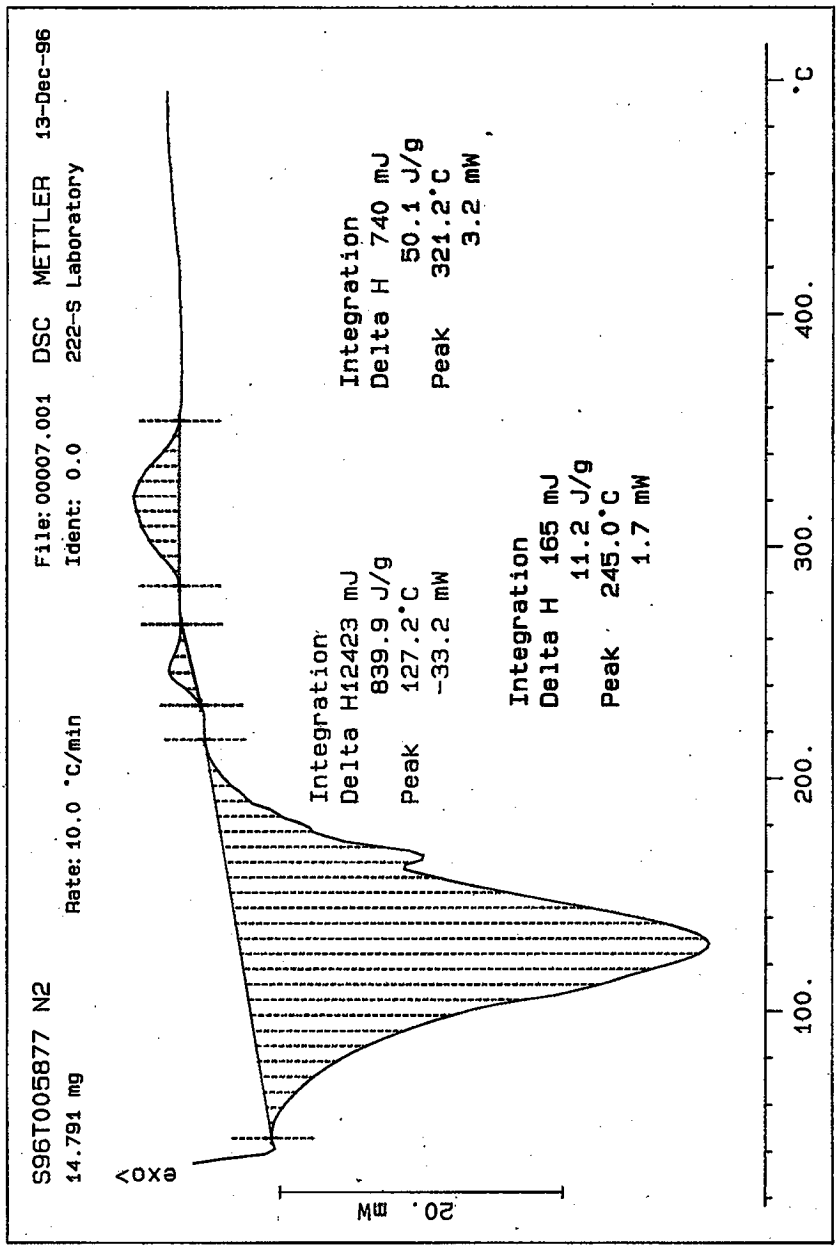
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 235 TO 241.



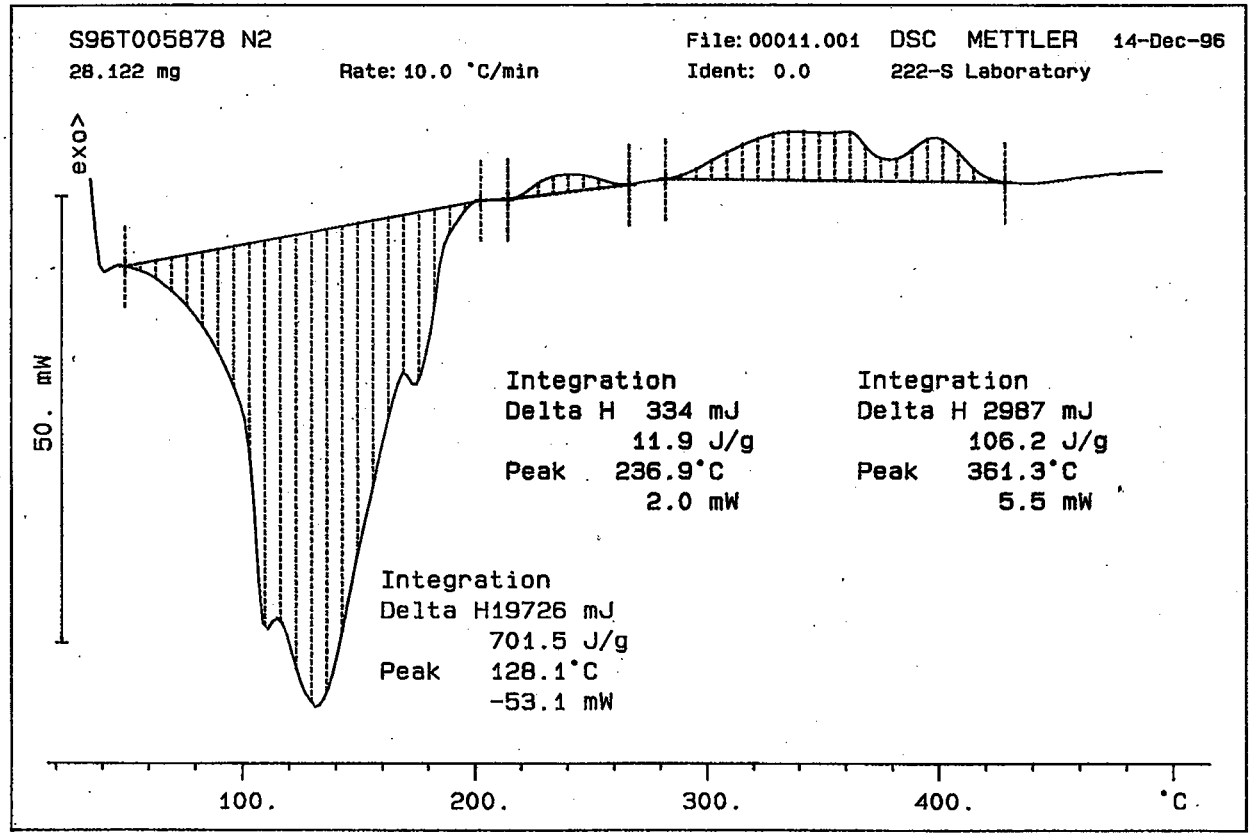
12-14-96

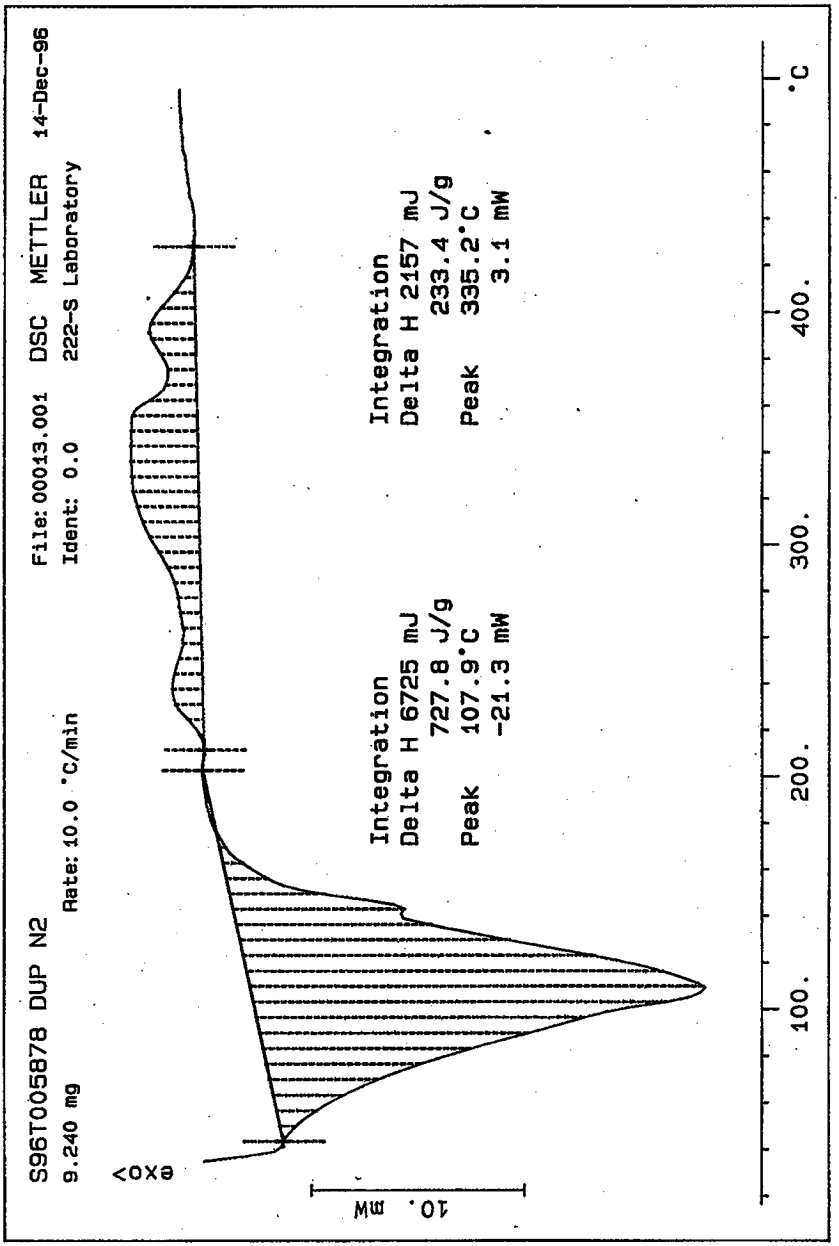

S96T005876 N2
43.144 mg
Rate: 10.0 °C/min
File: 00003.001
Ident: 0.0
DSC METTLER 13-Dec-96
222-S Laboratory
Integration
Delta H23734 mJ
550.1 J/g
Peak 131.3°C
-67.3 mW
Integration
Delta H 5803 mJ
134.5 J/g
Peak 434.2°C
18.2 mW
exo>
50. mW
100.
200.
300.
400.
°C


S96T005876 DUP N2
45.329 mg
Rate: 10.0 °C/min
File: 00005.001
Ident: 0.0
DSC METTLER
222-S Laboratory
13-Dec-96
exo>
50. mW
Integration
Delta H21592 mJ
476.3 J/g
Peak 141.7°C
-58.6 mW
Integration
Delta H 5829 mJ
128.6 J/g
Peak 417.1°C
32.1 mW
100.
200.
300.
400.
°C


S96T005877 N2
14.791 mg
Rate: 10.0 °C/min
File: 00007.001
Ident: 0.0
DSC METTLER 13-Dec-96
222-S Laboratory
Integration
Delta H12423 mJ
839.9 J/g
Peak 127.2°C
-33.2 mW
Integration
Delta H 740 mJ
50.1 J/g
Peak 321.2°C
3.2 mW
Integration
Delta H 165 mJ
11.2 J/g
Peak 245.0°C
1.7 mW
exo>
20. mW
100.
200.
300.
400.
°C

S96T005877 DUP N2
20.048 mg
Rate: 10.0 °C/min
File: 00009.001 DSC METTLER 14-Dec-96
Ident: 0.0 222-S Laboratory
Integration
Delta H 233 mJ
11.6 J/g
Peak 247.0°C
2.3 mW
Integration
Delta H 1045 mJ
52.1 J/g
Peak 323.2°C
4.5 mW
Integration
Delta H17080 mJ
852.0 J/g
Peak 128.6°C
-43.8 mW
exo>
20. mW
100.
200.
300.
400.
°C


S96T005878 N2
28.122 mg
Rate: 10.0 °C/min
File: 00011.001 DSC METTLER 14-Dec-96
Ident: 0.0 222-S Laboratory
exo>
50. mW
Integration
Delta H 334 mJ
11.9 J/g
Peak 236.9°C
2.0 mW
Integration
Delta H 2987 mJ
106.2 J/g
Peak 361.3°C
5.5 mW
Integration
Delta H19726 mJ
701.5 J/g
Peak 128.1°C
-53.1 mW
100.
200.
300.
400.
°C


S96T005878 DUP N2
9.240 mg
Rate: 10.0 °C/min
File: 00013.001 DSC METTLER 14-Dec-96
Ident: 0.0 222-S Laboratory
Integration
Delta H 6725 mJ
727.8 J/g
Peak 107.9°C
-21.3 mW
Integration
Delta H 2157 mJ
233.4 J/g
Peak 335.2°C
3.1 mW
<exo
10. mW
100.
200.
300.
400.
°C

LABCORE Data Entry Template for Worklist# 15239

Analyst: KRM **Instrument:** DSC0 3 **Book #** IZN14B

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: BY-112 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-03	SOLID	28.45	28.76	N/A	Joules/g
96001393	BY-112	2 SAMPLE	S96T005879	0		DSC-03	SOLID	N/A	5.06		Joules/g
96001393	BY-112	3 DUP	S96T005879	0		DSC-03	SOLID	5.06	22.7	N/A	Joules/g
96001393	BY-112	4 SAMPLE	S96T005880	0		DSC-03	SOLID	N/A	67.9		Joules/g
96001393	BY-112	5 DUP	S96T005880	0		DSC-03	SOLID	67.9	139.	N/A	Joules/g
96001466	BY-112	6 SAMPLE	S96T005917	0		DSC-03	SOLID	N/A	Ø		Joules/g
96001466	BY-112	7 DUP	S96T005917	0		DSC-03	SOLID	Ø	Ø	N/A	Joules/g

Final page for worklist # 15239

See attached for signatures 12-16-96 KRM
Analyst Signature **Date**

12-17-96
Analyst Signature **Date**

Verified/Validated by
Blandina
Valenzuela 12-18-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 15239

Analyst: KRM **Instrument:** DSC0 _____ **Book #** 12N14B

Method: LA-514-113 Rev/Mod _____

Worklist Comment: BY-112 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-01	SOLID			N/A	Joules/g
96001393	BY-112	2	SAMPLE	S96T005879	0		DSC-01	SOLID	N/A			Joules/g
96001393	BY-112	3	DUP	S96T005879	0		DSC-01	SOLID			N/A	Joules/g
96001393	BY-112	4	SAMPLE	S96T005880	0		DSC-01	SOLID	N/A			Joules/g
96001393	BY-112	5	DUP	S96T005880	0		DSC-01	SOLID			N/A	Joules/g
96001466	BY-112	6	SAMPLE	S96T005917	0		DSC-01	SOLID	N/A			Joules/g
96001466	BY-112	7	DUP	S96T005917	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 15239

[signature] 12-14-96

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

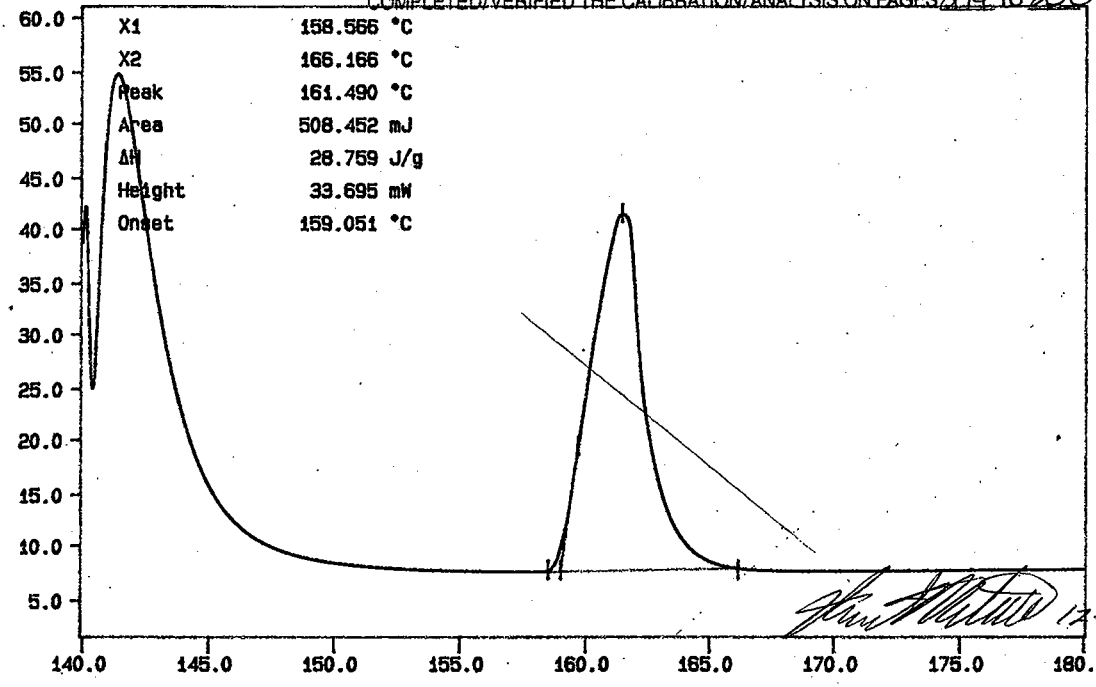
DSC-03 instrument
12-16-96 BBV ~~for~~ was used.
12-16-96
Blandina
Valenzuela

Data Entry Comments:

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

Curve 1: DSC
File info: IND121401 Sat Dec 14 04:44:41 1996
Sample Weight: 17.680 mg
STD 12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 244 TO 250



12-14-96

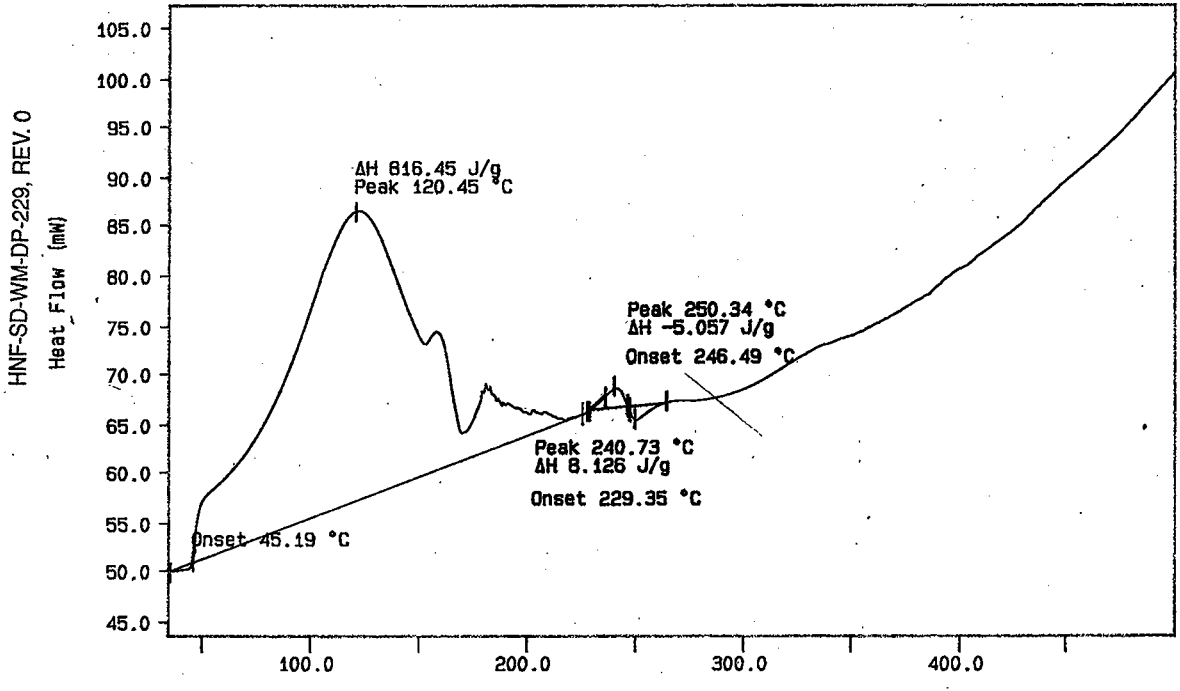
N2, EXOTHERM DOWN
TEMP1: 140.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 180.0 C

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 14 05:06:24 1996

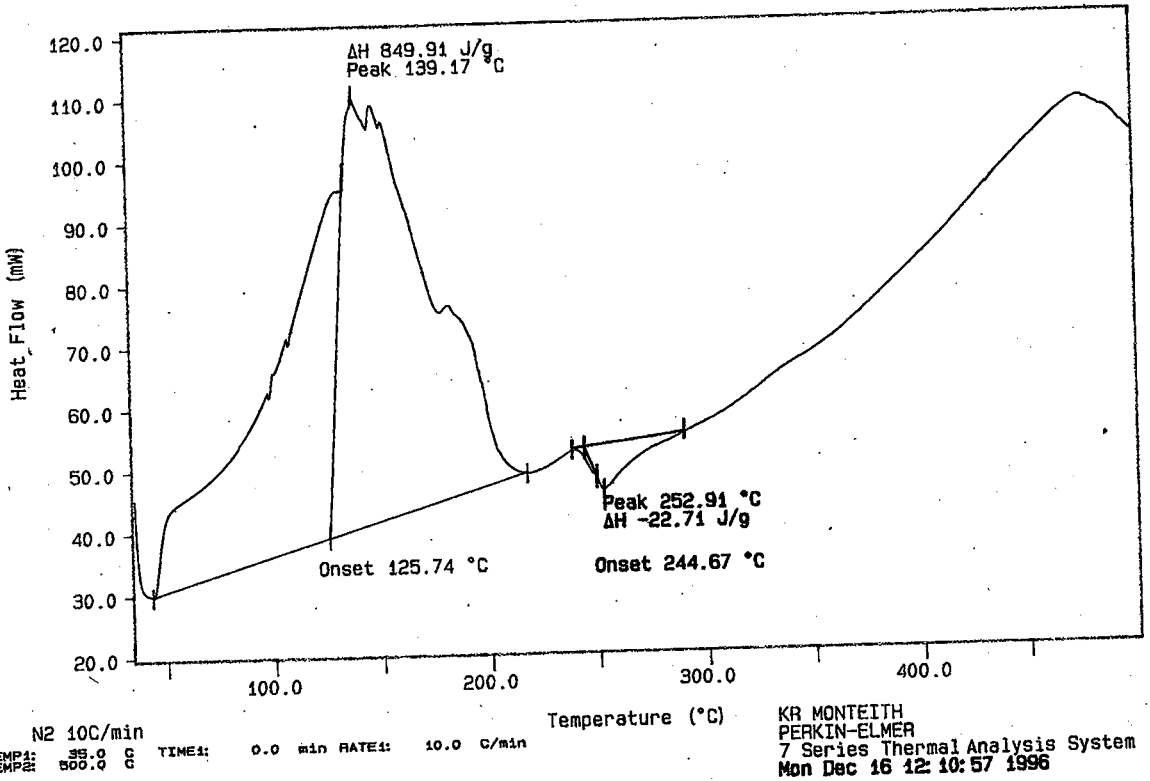
HNF-SD-WM-DP-229, REV. 0

244

Curve 1: DSC
File info: SAM121402 Sat Dec 14 08:19:20 1996
Sample Weight: 16.030 mg
S96T005879 DUP



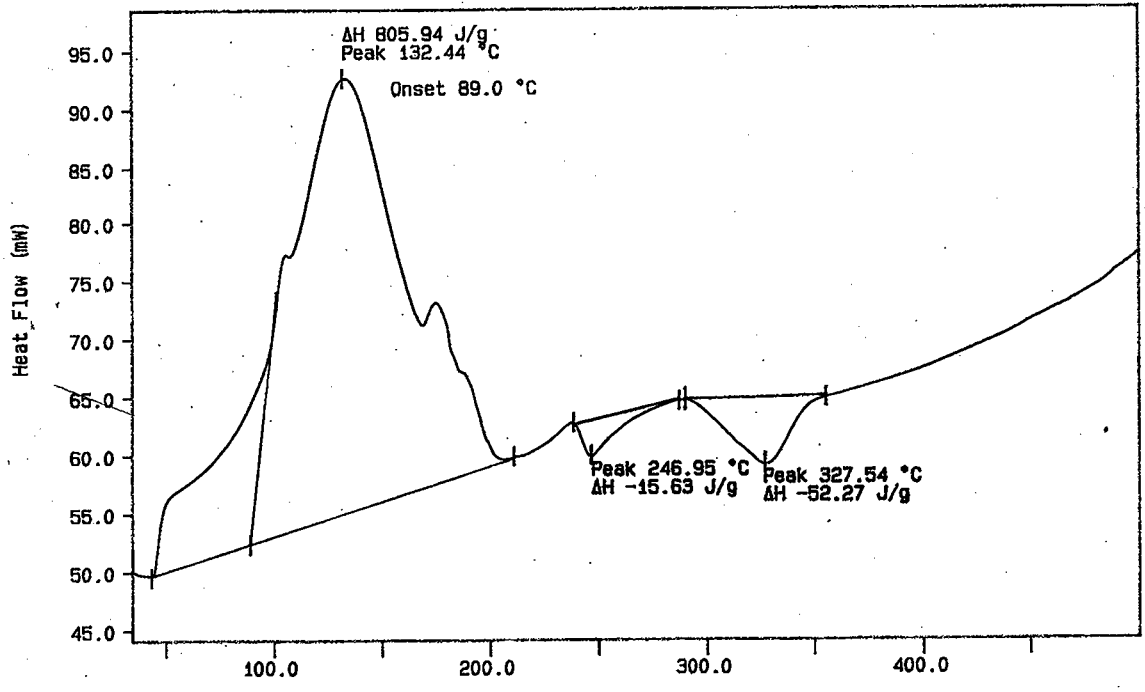
Curve 1: DSC
File info: SAM121401 Sat Dec 14 06:26:01 1996
Sample Weight: 38.250 mg
S96T005879



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

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Dec 16 12:10:57 1996

Curve 1: DSC
File info: SAM121403 Sat Dec 14 09:37:52 1996
Sample Weight: 20.230 mg
S96T005880

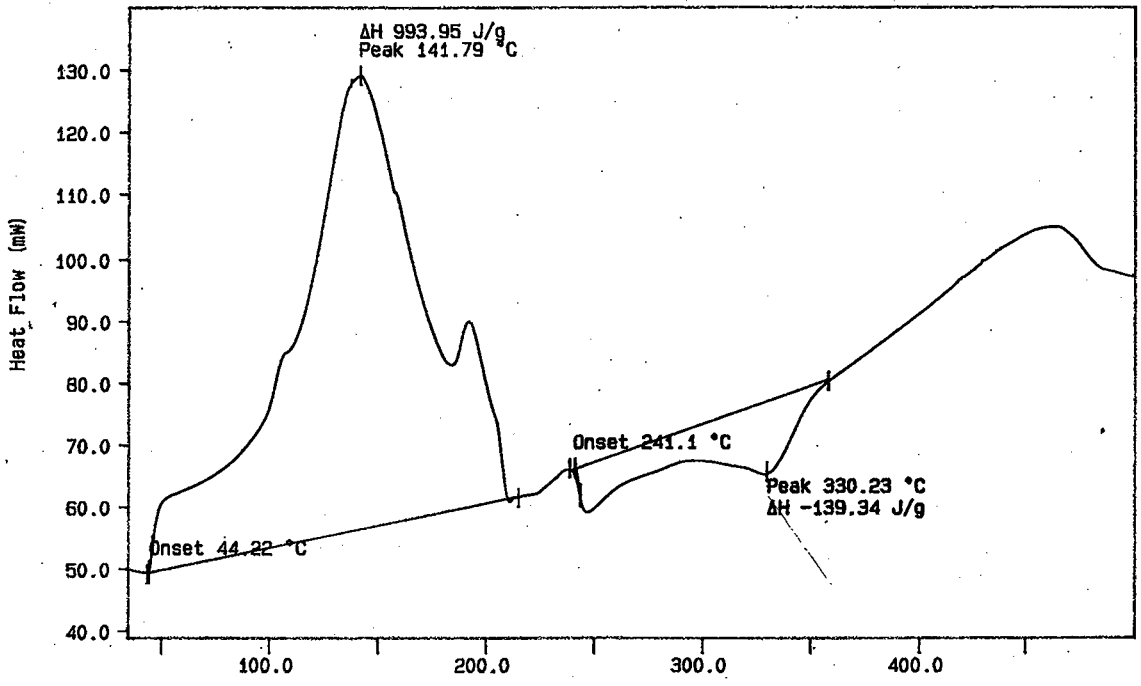


N2 10C/min
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Dec 16 12:43:07 1996

247

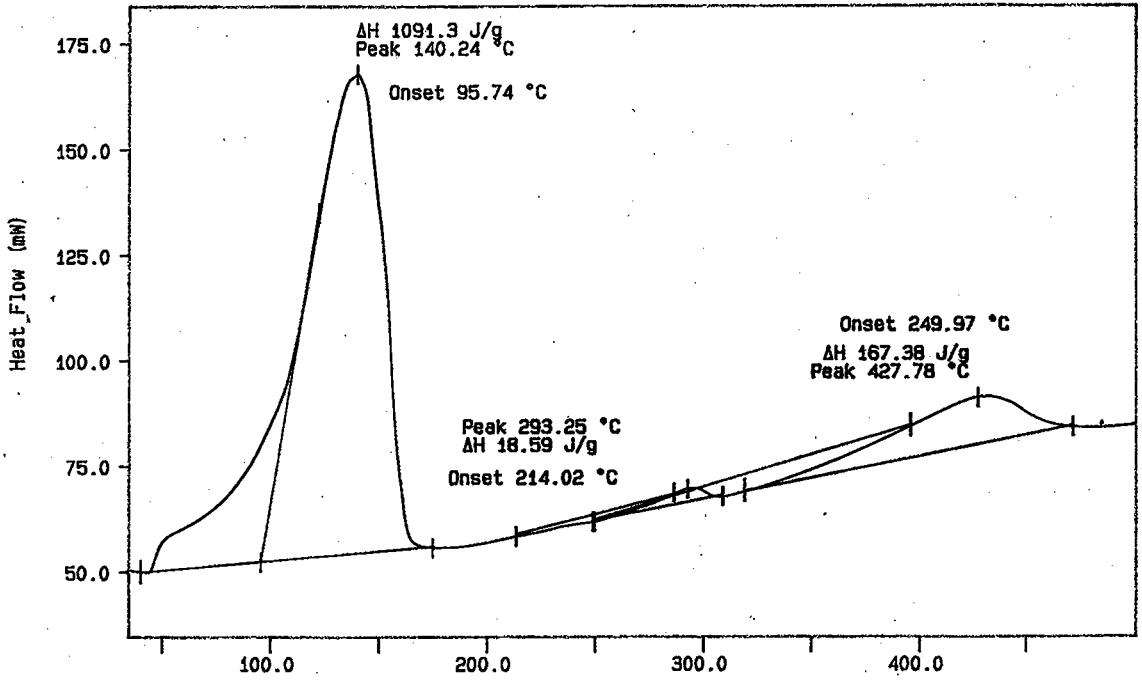
Curve 1: DSC
File info: SAM121404 Sat Dec 14 12:19:33 1996
Sample Weight: 31.650 mg
S96T005880 DUP



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

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Dec 16 13:04:15 1996

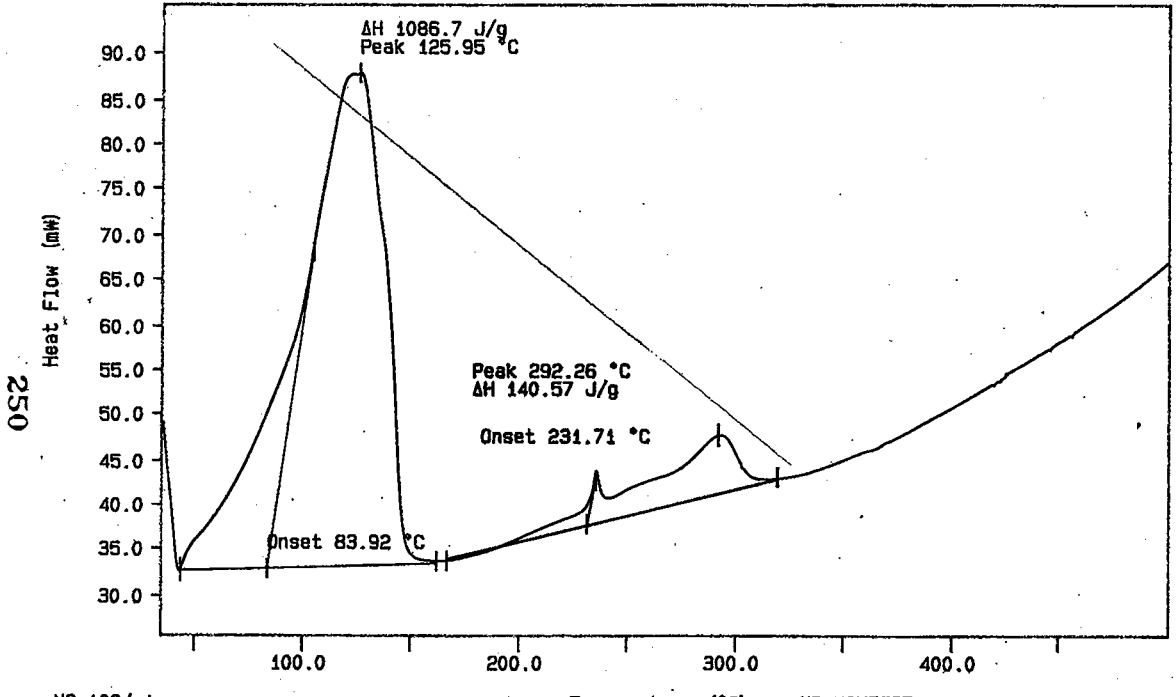
Curve 1: DSC
File info: SAM121405 Sat Dec 14 13:31:53 1996
Sample Weight: 29.520 mg
S96T005917



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

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Dec 16 13:26:59 1996

Curve 1: DSC
File info: SAM121406 Sat Dec 14 15:16:08 1996
Sample Weight: 14.360 mg
S96T005917 DUP



250

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

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Dec 16 13:34:17 1996

HNF-SD-WM-DP-229, REV. 0

LABCORE Data Entry Template for Worklist# 15240

Analyst: EAL **Instrument:** DSC0 3 **Book #** 12N14B

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: BY-112 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	28.45	27.77	N/A	Joules/g
96001466	BY-112	2 SAMPLE	S96T005918	0	DSC-03	SOLID	N/A	Ø		Joules/g
96001466	BY-112	3 DUP	S96T005918	0	DSC-03	SOLID	Ø	Ø	N/A	Joules/g
96001466	BY-112	4 SAMPLE	S96T005919	0	DSC-03	SOLID	N/A	~~1~~176.4 12-16-96		Joules/g
96001466	BY-112	5 DUP	S96T005919	0	DSC-03	SOLID	~~1~~176.4	136	N/A	Joules/g
96001466	BY-112	6 SAMPLE	S96T005920	0	DSC-03	SOLID	N/A	117		Joules/g
96001466	BY-112	7 DUP	S96T005920	0	DSC-03	SOLID	117	66.9	N/A	Joules/g

Final page for worklist # 15240

See attached for signatures 12-18-96
Analyst Signature **Date**

[signature] 12-17-96
Analyst Signature **Date**

Verified/Validated by
Blandina
Valenzuela 12-18-96

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 15240

Analyst: [signature] **Instrument:** DSC0 _____ **Book #** 12/11/96

Method: LA-514-113 Rev/Mod _____

Worklist Comment: BY-112 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-01	SOLID	_____	_____	N/A	Joules/g
96001466	BY-112	2 SAMPLE	S96T005918	0		DSC-01	SOLID	N/A	_____	_____	Joules/g
96001466	BY-112	3 DUP	S96T005918	0		DSC-01	SOLID	_____	_____	N/A	Joules/g
96001466	BY-112	4 SAMPLE	S96T005919	0		DSC-01	SOLID	N/A	_____	_____	Joules/g
96001466	BY-112	5 DUP	S96T005919	0		DSC-01	SOLID	_____	_____	N/A	Joules/g
96001466	BY-112	6 SAMPLE	S96T005920	0		DSC-01	SOLID	N/A	_____	_____	Joules/g
96001466	BY-112	7 DUP	S96T005920	0		DSC-01	SOLID	_____	_____	N/A	Joules/g

Final page for worklist # 15240

[signature] 12/16/96
Analyst Signature **Date**

_____
Analyst Signature **Date**

DSC-03 instrument
was used.
12-16-96
Blandina
Valenzuela

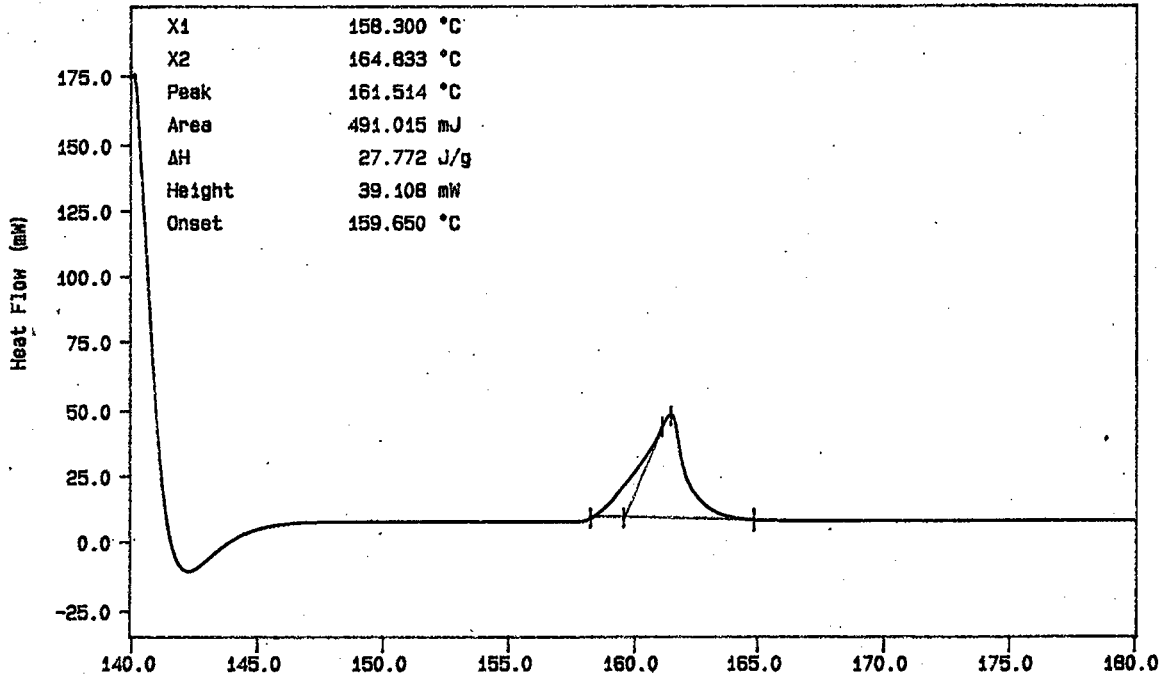
Data Entry Comments:

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

Curve 1: DSC
File info: IND121501 Sun Dec 15 04:59:46 1996
Sample Weight: 17.680 mg
STD 12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 253 TO 259:

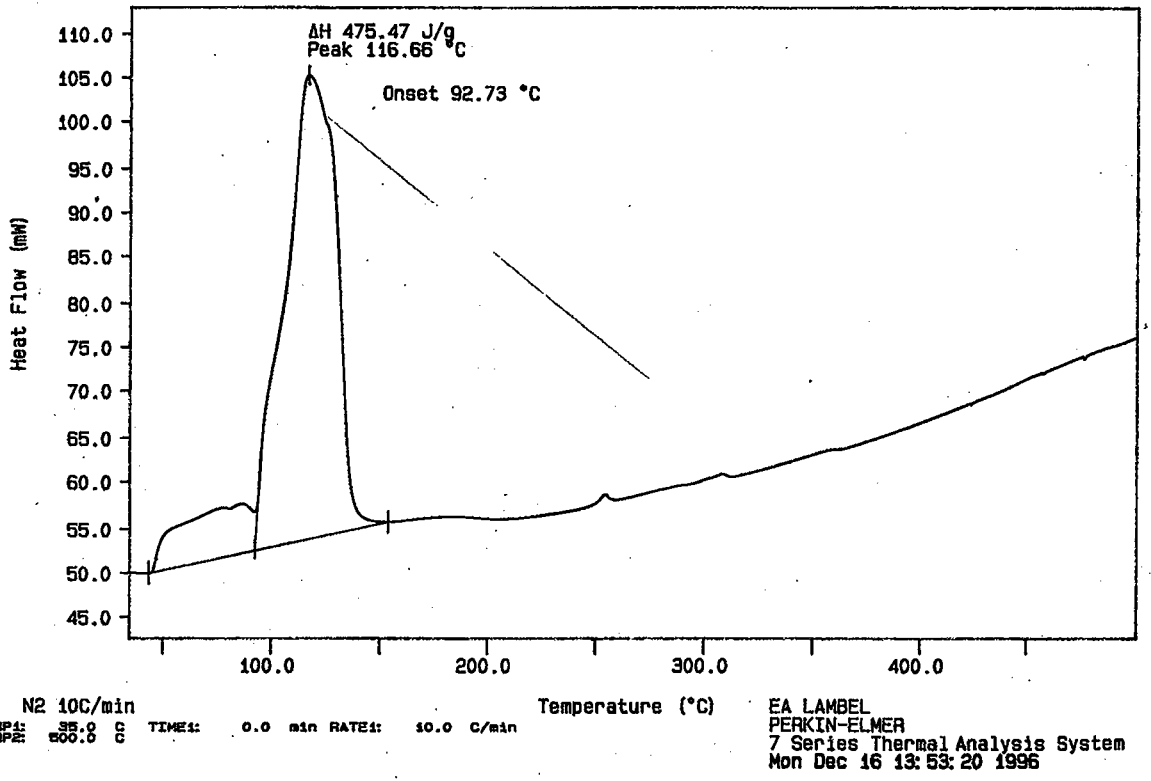
A Lambert 12/15/96



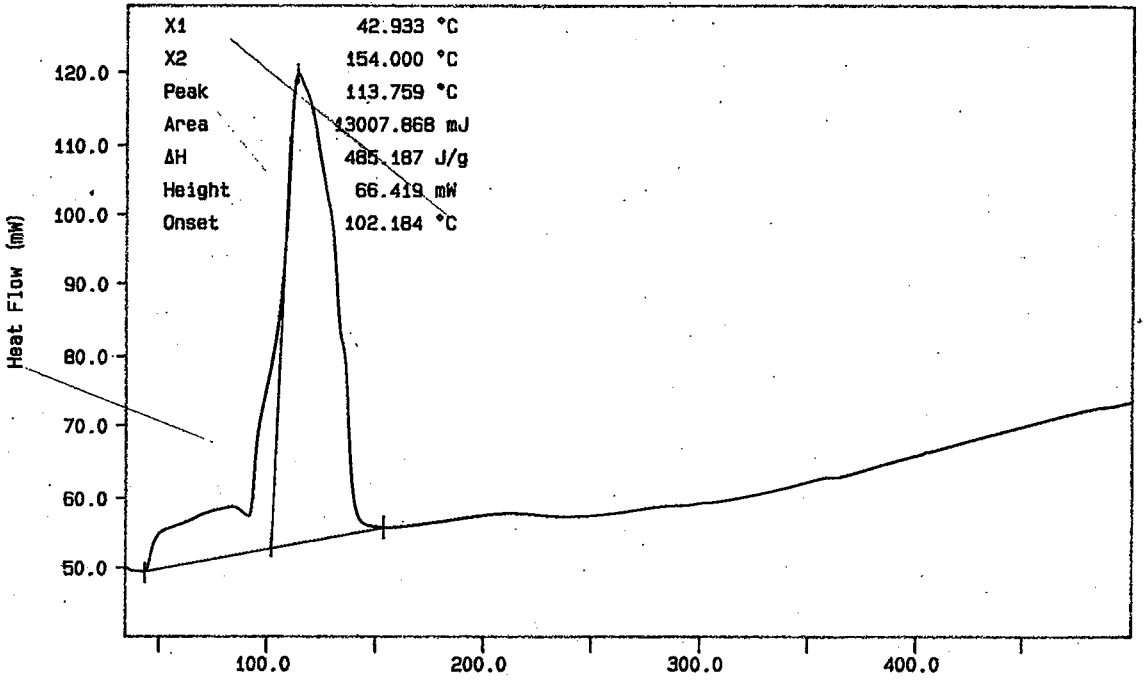
N2, EXOTHERM DOWN
TEMP1: 140.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 180.0 C

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Dec 16 02:33:47 1996

Curve 1: DSC
File info: SAM121505 Sun Dec 15 18:59:37 1996
Sample Weight: 20.680 mg
S96T005918



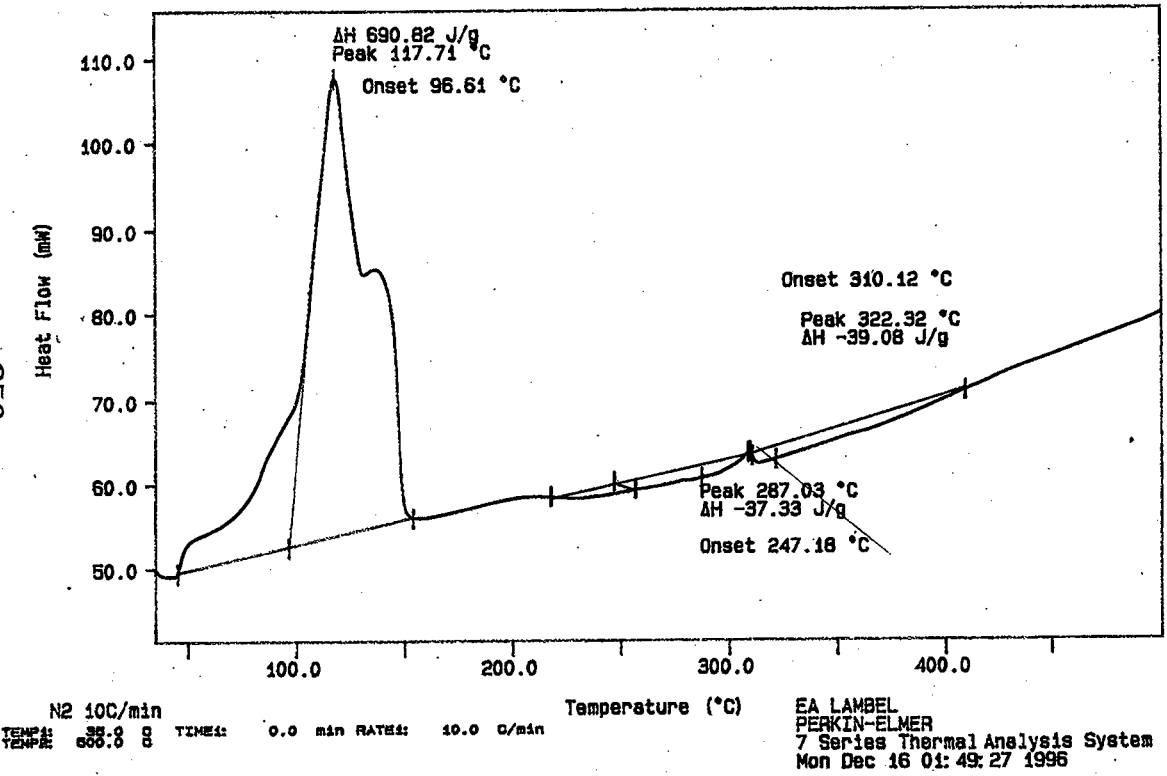
Curve 1: DSC
File info: SAM121506 Sun Dec 15 21:43:54 1996
Sample Weight: 26.810 mg
S96T005918DUP



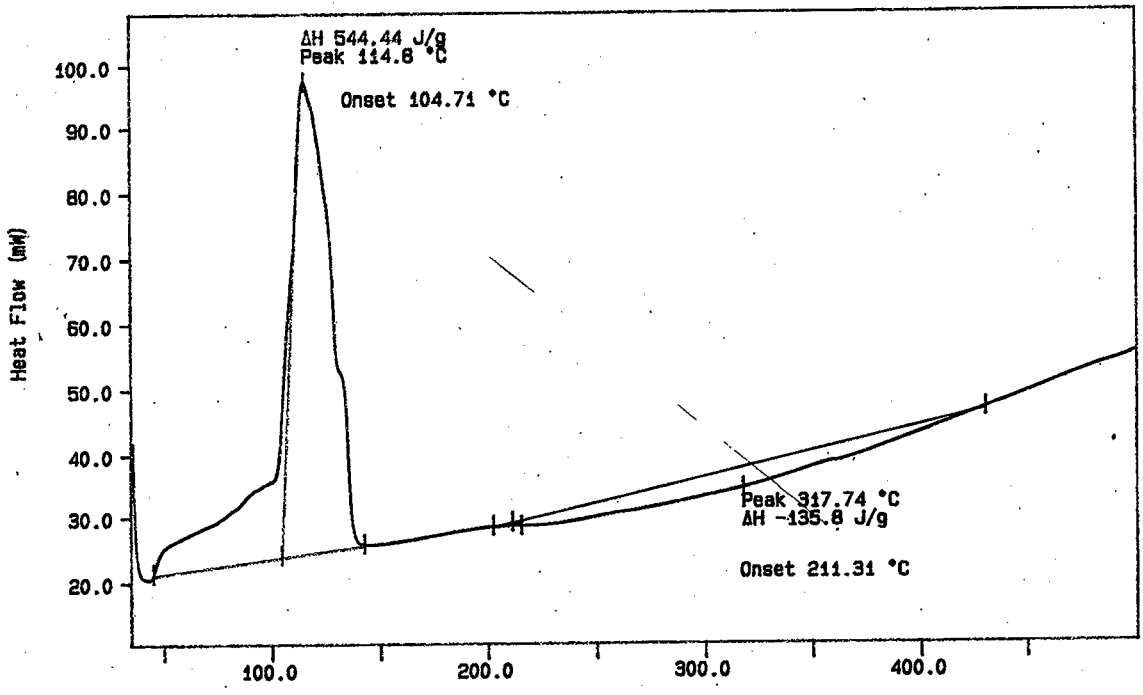
N2 10C/min
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Dec 16 13:59:18 1996

Curve 1: DSC
File info: SAM121509 Mon Dec 16 01:38:45 1996
Sample Weight: 17.530 mg
S96T005919



Curve 1: DSC
File info: SAM121510 Mon Dec 16 02:41:05 1996
Sample Weight: 21.620 mg
S96T005919DUP



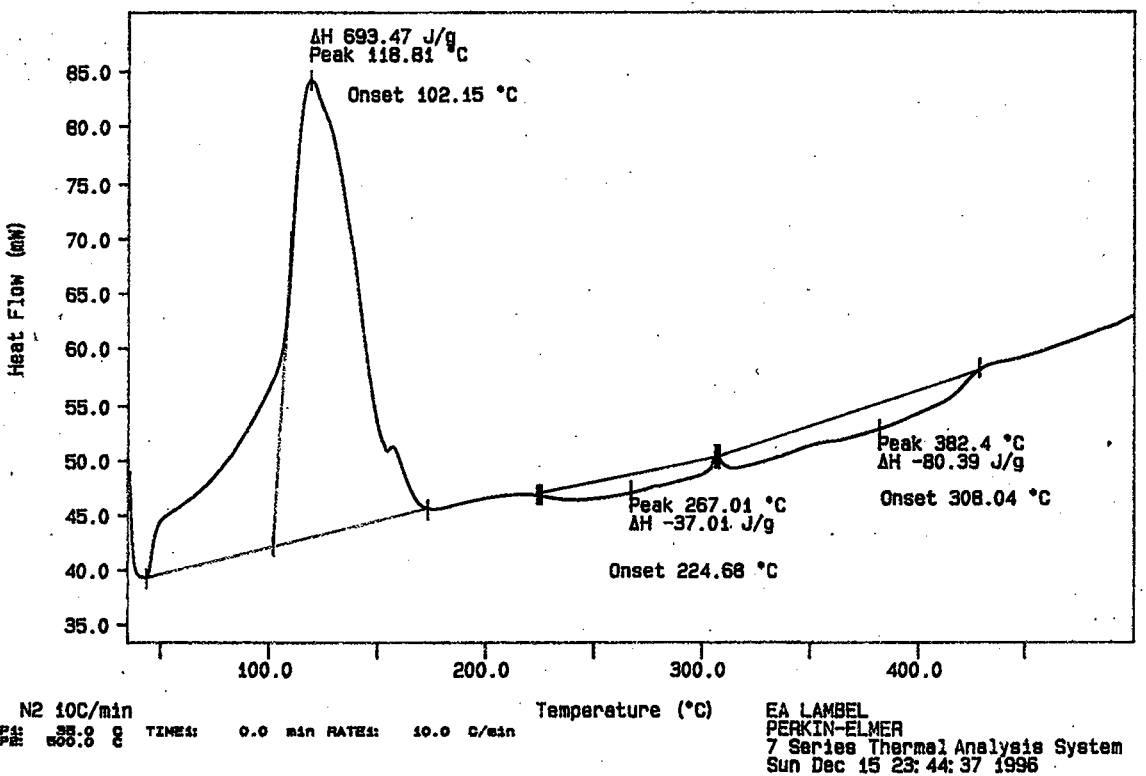
N2 10C/min
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Dec 16 02:51:02 1996

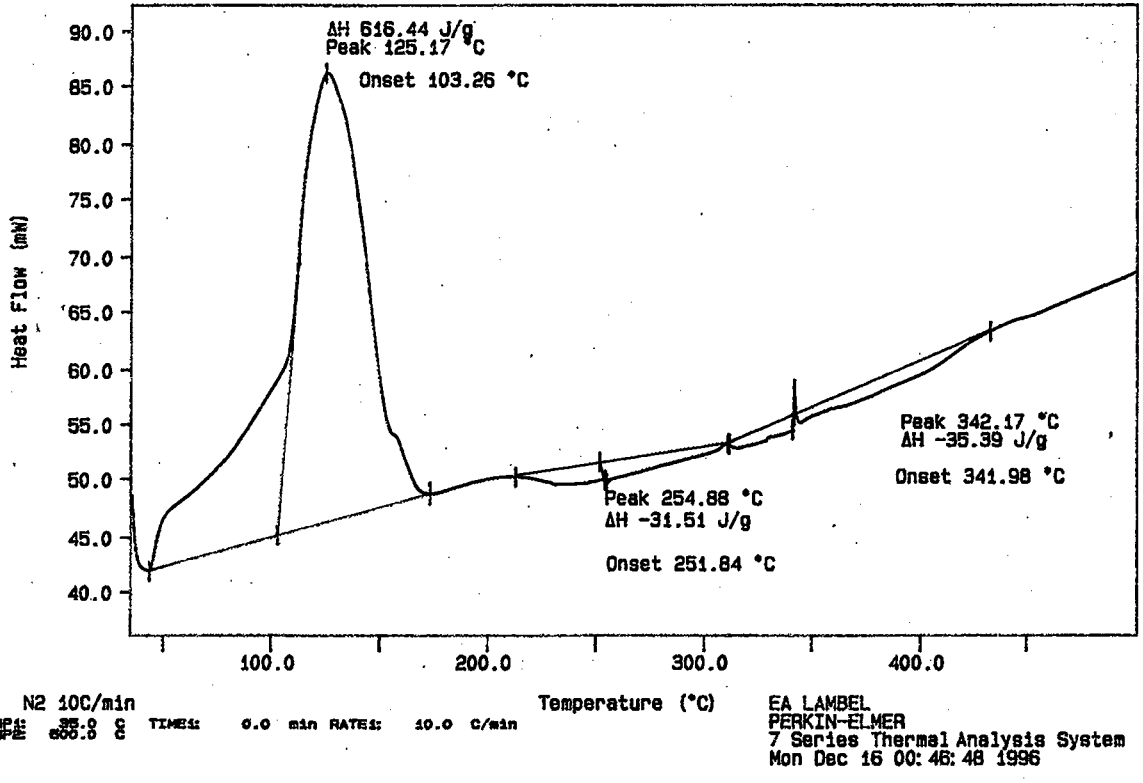
2527

HNF-SD-WM-DP-229, REV. 0

Curve 1: DSC
File info: SAM121507 Sun Dec 15 22:51:56 1996
Sample Weight: 16.450 mg
S96T005920



Curve 1: DSC
File info: SAM121508 Mon Dec 16 00:35:47 1996
Sample Weight: 18.250 mg
S96T005920DUP



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

EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Dec 16 00:46:48 1996

LABCORE Data Entry Template for Worklist# 15241

Analyst: DCD **Instrument:** DSC0 1 **Book #** 12N14-B

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

Worklist Comment: BY-112 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-01	SOLID	28.45 ~~27.1~~	27.1	N/A	Joules/g
96001466	BY-112	2 SAMPLE	S96T005921	0		DSC-01	SOLID	N/A	149.9		Joules/g
96001466	BY-112	3 DUP	S96T005921	0		DSC-01	SOLID	149.9	127.9	N/A	Joules/g
96001466	BY-112	4 SAMPLE	S96T005922	0		DSC-01	SOLID	N/A	50.8		Joules/g
96001466	BY-112	5 DUP	S96T005922	0		DSC-01	SOLID	50.8	58.3	N/A	Joules/g

Final page for worklist # 15241

David C Duncan 12-15-96
Analyst Signature **Date**

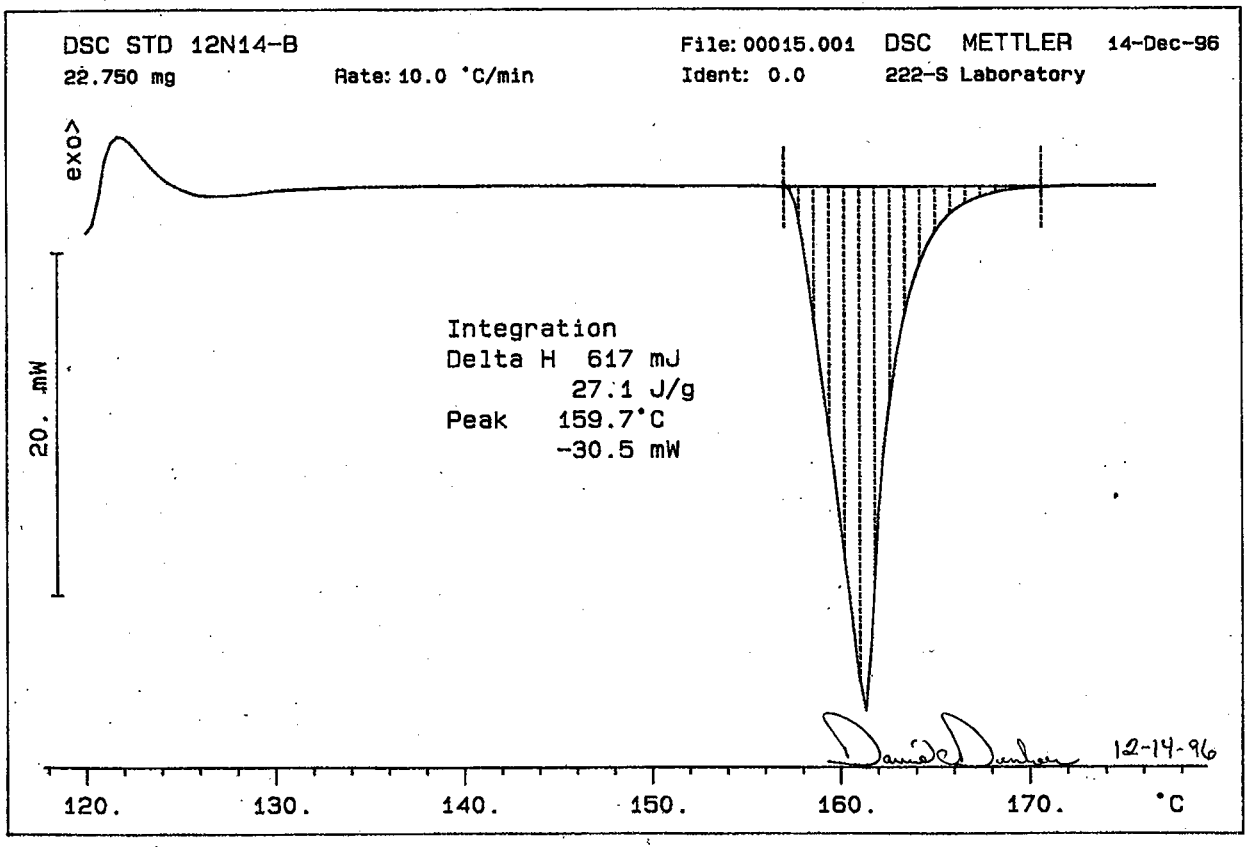
12-17-96
Analyst Signature **Date**

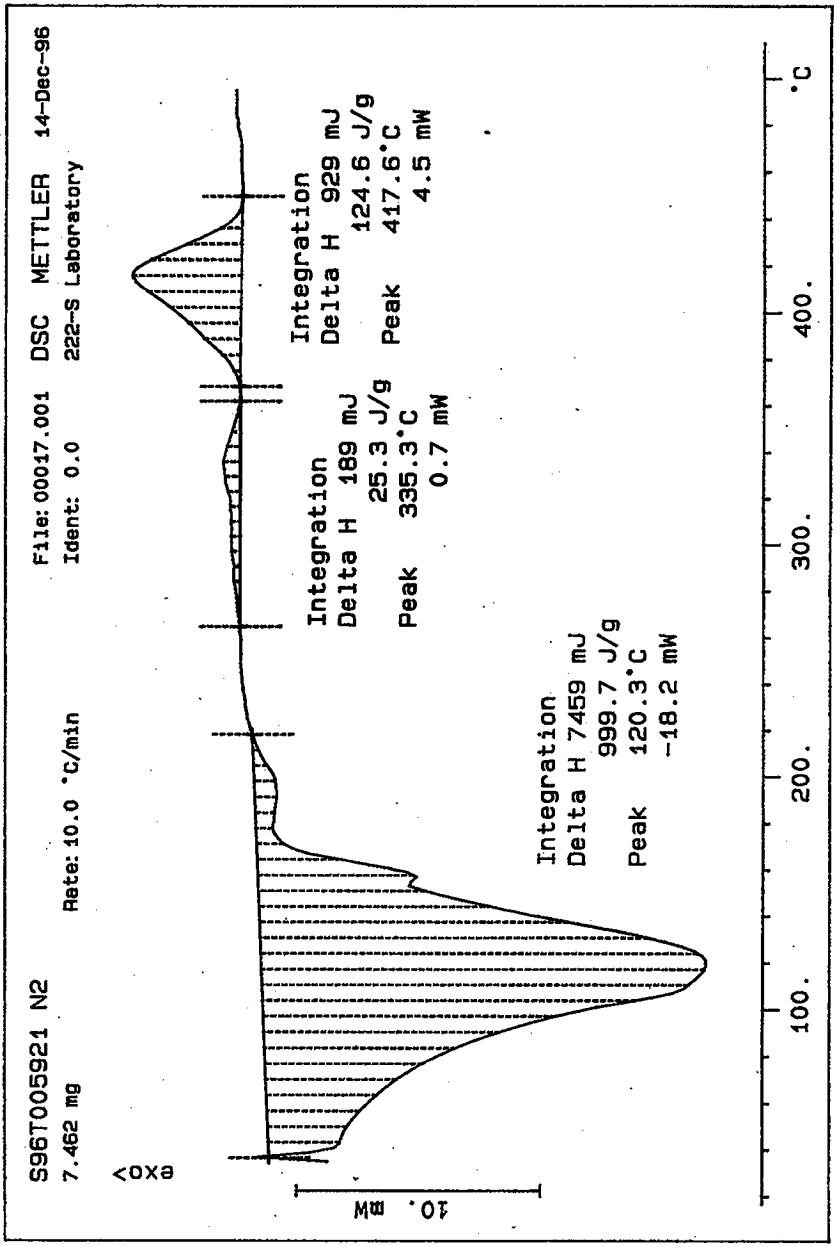
Verified/Validated by
Blandina
Valenzuela 12-18-96

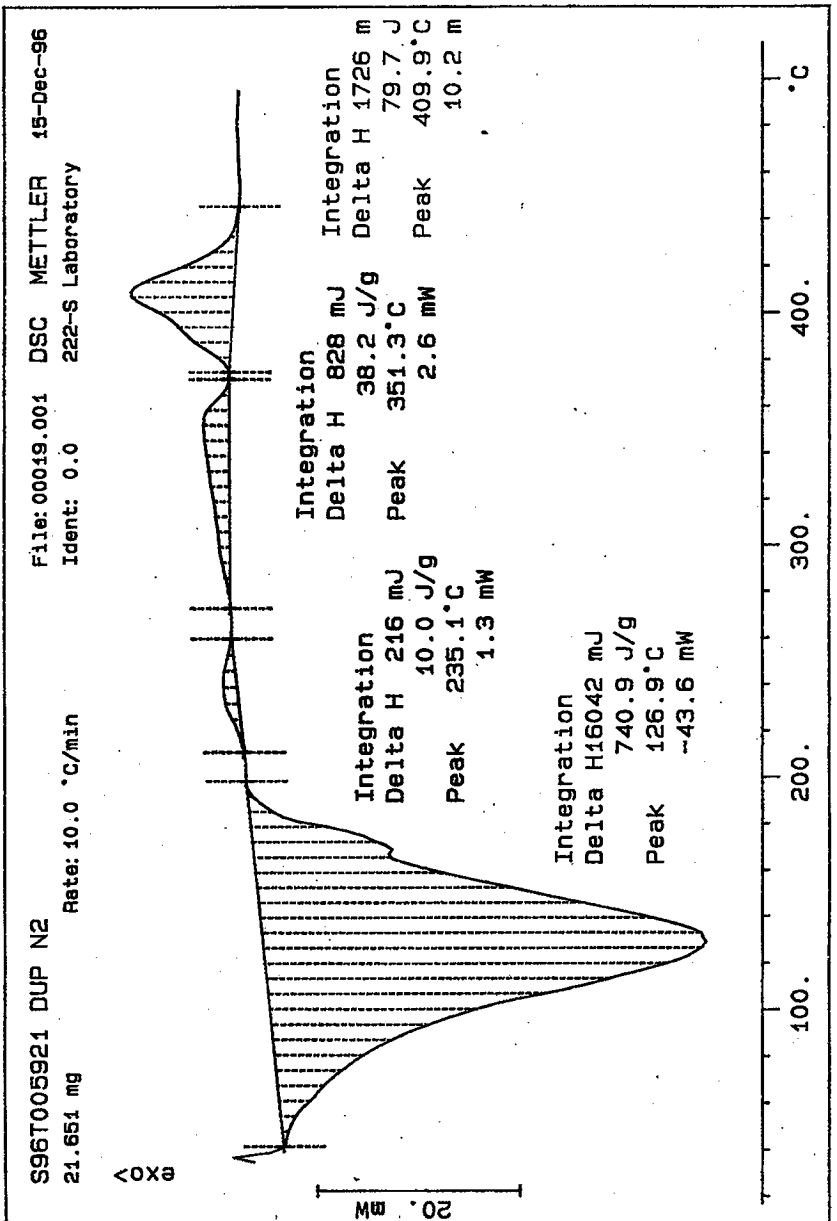
Data Entry Comments:

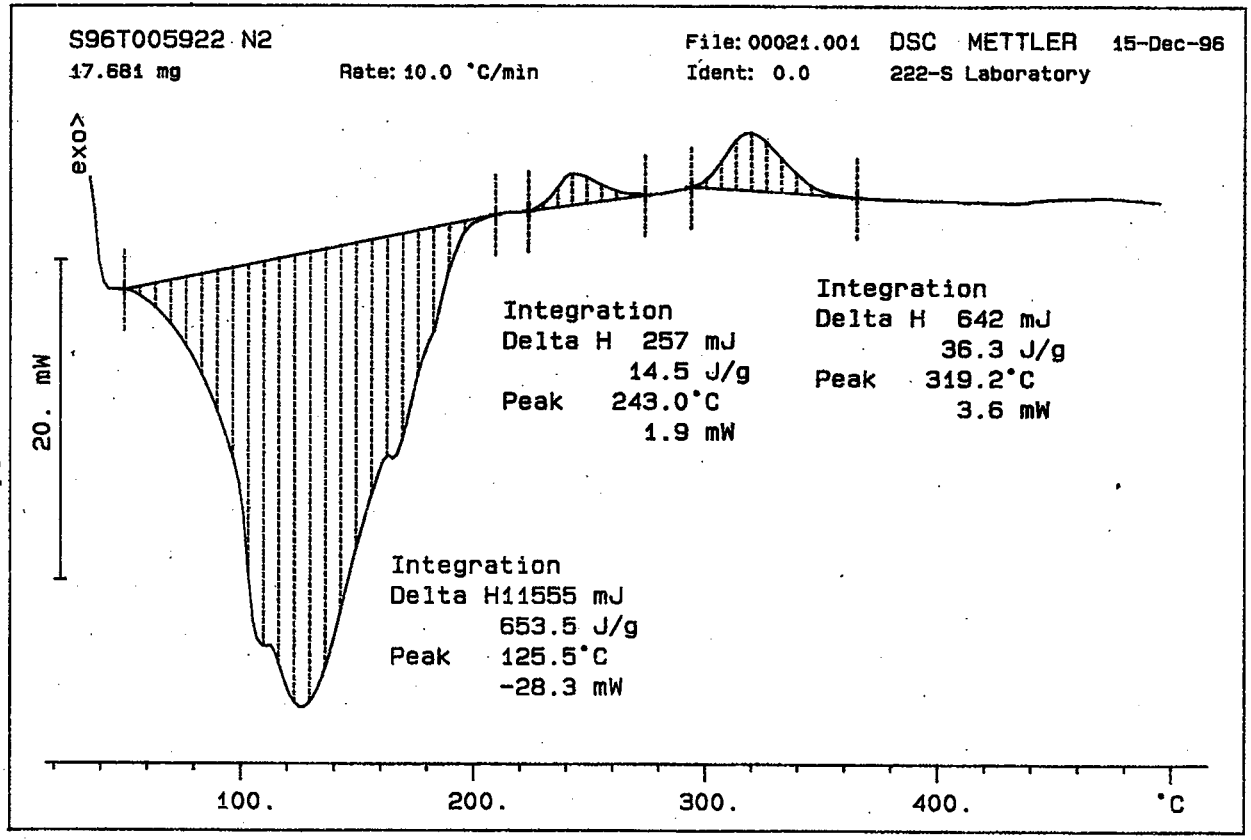
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

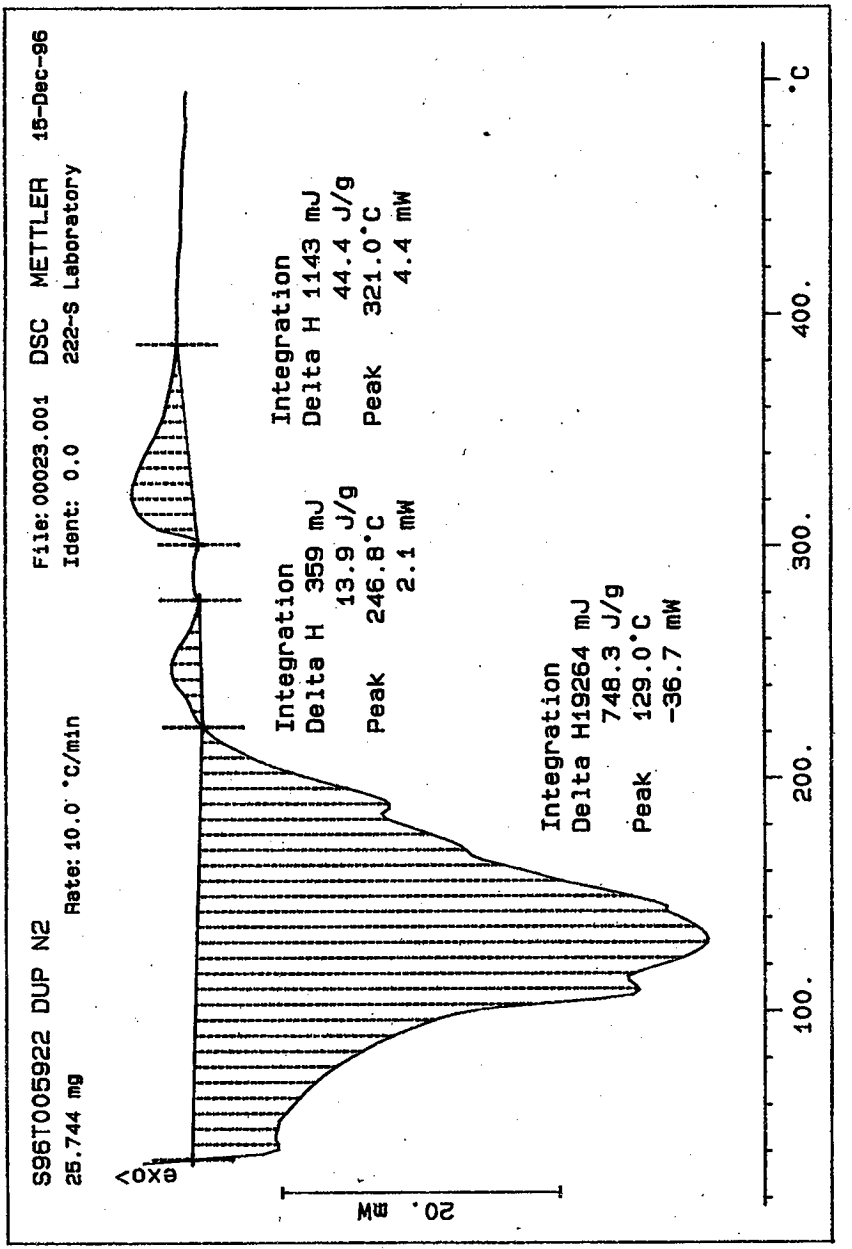
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 261 TO 265.




S96T005921 N2
7.462 mg
Rate: 10.0 °C/min
File: 00017.001
Ident: 0.0
DSC METTLER 14-Dec-96
222-S Laboratory
Integration
Delta H 929 mJ
124.6 J/g
Peak 417.6°C
4.5 mW
Integration
Delta H 189 mJ
25.3 J/g
Peak 335.3°C
0.7 mW
Integration
Delta H 7459 mJ
999.7 J/g
Peak 120.3°C
-18.2 mW
exo>
10. mW
100.
200.
300.
400.
°C


S96T005921 DUP N2
21.651 mg
Rate: 10.0 °C/min
File: 00019.001 DSC METTLER 15-Dec-96
Ident: 0.0 222-S Laboratory
Integration
Delta H 828 mJ
38.2 J/g
Peak 351.3°C
2.6 mW
Integration
Delta H 1726 m
79.7 J
Peak 409.9°C
10.2 m
Integration
Delta H 216 mJ
10.0 J/g
Peak 235.1°C
1.3 mW
Integration
Delta H16042 mJ
740.9 J/g
Peak 126.9°C
-43.6 mW
<exo
20. mW
100.
200.
300.
400.
°C


S96T005922 N2
17.681 mg
Rate: 10.0 °C/min
File: 00021.001 DSC METTLER 15-Dec-96
Ident: 0.0 222-S Laboratory
exo
20. mW
Integration
Delta H 257 mJ
14.5 J/g
Peak 243.0°C
1.9 mW
Integration
Delta H 642 mJ
36.3 J/g
Peak 319.2°C
3.6 mW
Integration
Delta H11555 mJ
653.5 J/g
Peak 125.5°C
-28.3 mW
100.
200.
300.
400.
°C


S96T005922 DUP N2
25.744 mg
Rate: 10.0 °C/min
File: 00023.001 DSC METTLER 15-Dec-96
Ident: 0.0 222-S Laboratory
Integration
Delta H 359 mJ
13.9 J/g
Peak 246.8°C
2.1 mW
Integration
Delta H 1143 mJ
44.4 J/g
Peak 321.0°C
4.4 mW
Integration
Delta H19264 mJ
748.3 J/g
Peak 129.0°C
-36.7 mW
exo>
20. mW
100.
200.
300.
400.
°C

LABCORE Data Entry Template for Worklist# 15242

Analyst: DCD **Instrument:** DSC0 3 **Book #** 12N14B

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: BY-112 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-03	SOLID	28.45	29.06	N/A	Joules/g
96001466	BY-112	2 SAMPLE	S96T005950	0		DSC-03	SOLID	N/A	50.9		Joules/g
96001466	BY-112	3 DUP	S96T005950	0		DSC-03	SOLID	50.9	142	N/A	Joules/g
96001466	BY-112	4 SAMPLE	S96T005951	0		DSC-03	SOLID	N/A	99.2		Joules/g
96001466	BY-112	5 DUP	S96T005951	0		DSC-03	SOLID	99.2	111	N/A	Joules/g

Final page for worklist # 15242

See attached for signatures 12-16-96
Analyst Signature **Date**

12-17-96
Analyst Signature **Date**

Verified/Validated by
Blandina
Valenzuela 12-18-96.

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 15242

Analyst: DeD **Instrument:** DSC0 **Book #** 12N14-B

Method: LA-514-113 Rev/Mod

Worklist Comment: BY-112 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-01	SOLID			N/A	Joules/g
96001466	BY-112	2 SAMPLE	S96T005950	0		DSC-01	SOLID	N/A			Joules/g
96001466	BY-112	3 DUP	S96T005950	0		DSC-01	SOLID			N/A	Joules/g
96001466	BY-112	4 SAMPLE	S96T005951	0		DSC-01	SOLID	N/A			Joules/g
96001466	BY-112	5 DUP	S96T005951	0		DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 15242

David C Dunham 12-15-96
Analyst Signature **Date**

Analyst Signature **Date**

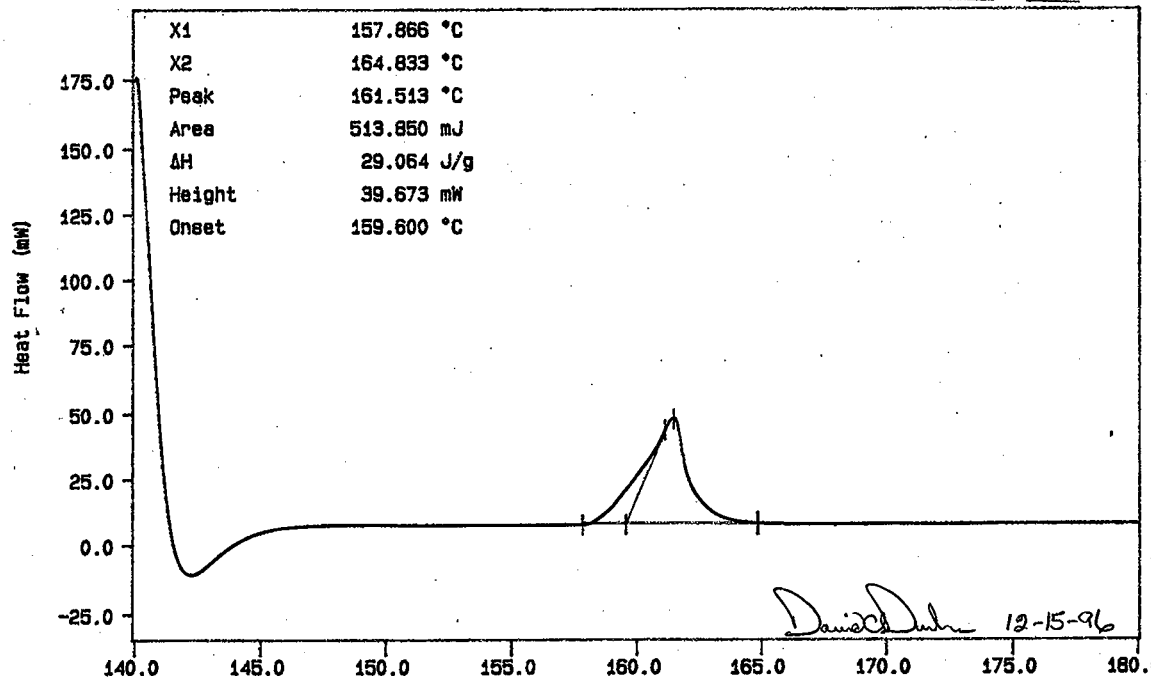
DSC-03 instruments were used.
12-16-96
Blandina Valenzuela

Data Entry Comments:

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

Curve 1: DSC
File info: IND121501 Sun Dec 15 04:59:46 1996
Sample Weight: 17.680 mg
STD 12N14-B

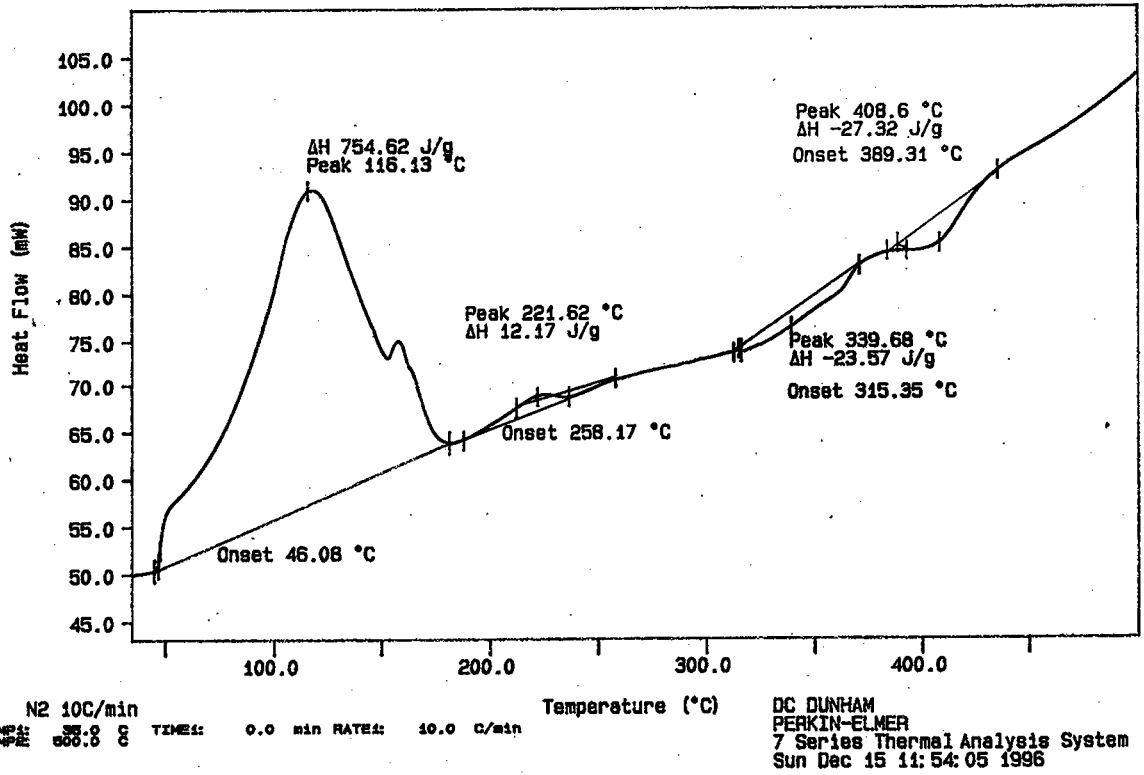
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 268 TO 272



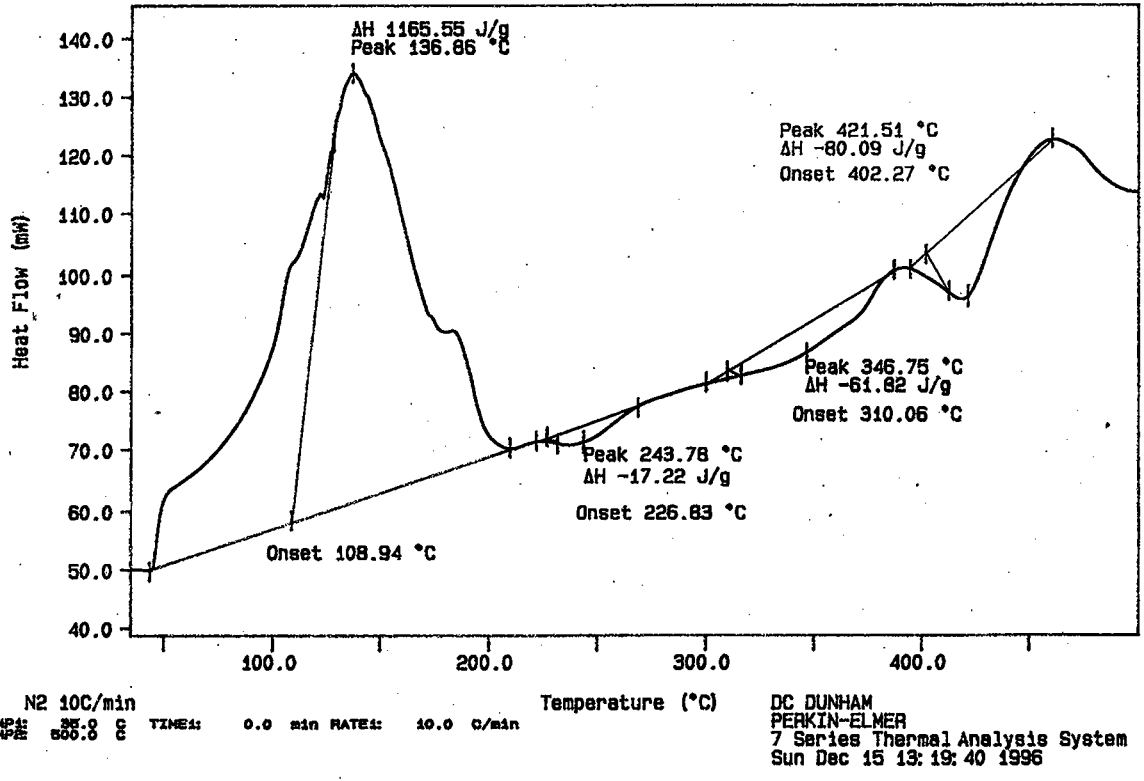
N2, EXOTHERM DOWN
TEMP1: 140.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 180.0 C

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Dec 15 09:21:19 1996

Curve 1: DSC
File info: SAM121501 Sun Dec 15 10:42:34 1996
Sample Weight: 17.350 mg
S96T005950



Curve 1: DSC
File info: SAM121502 Sun Dec 15 12:57:05 1996
Sample Weight: 26.950 mg
S96T005950 DUP

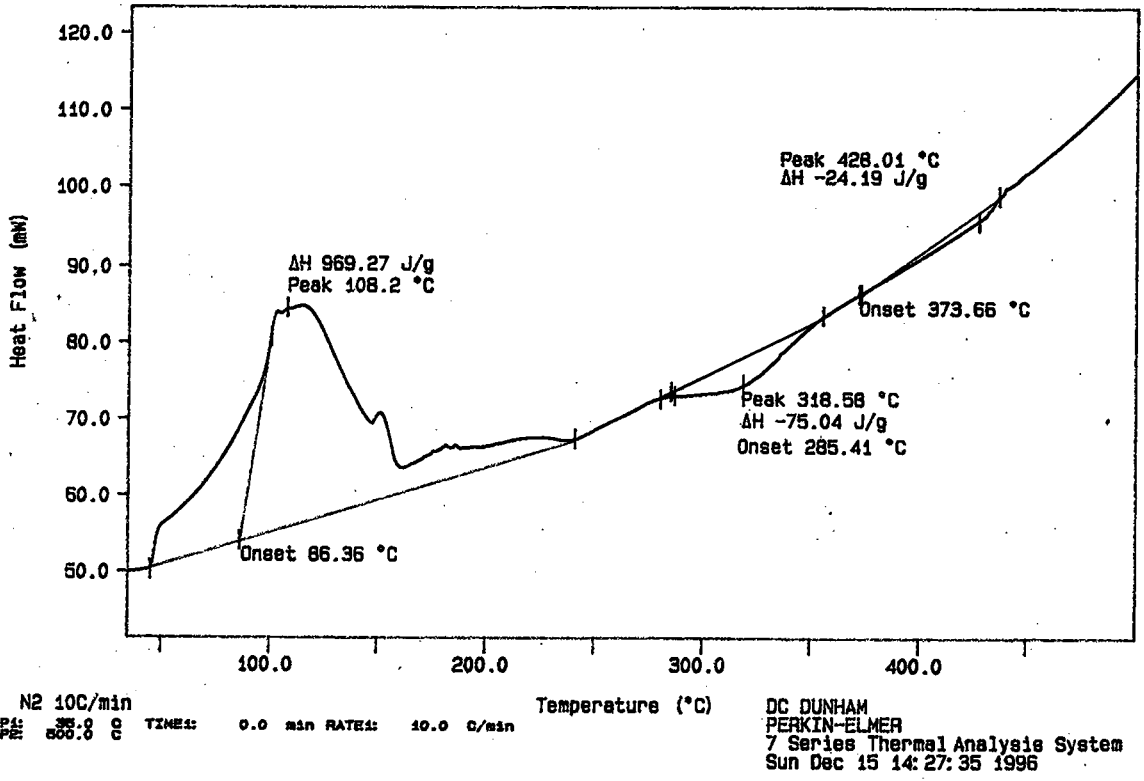


N2 10C/min
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

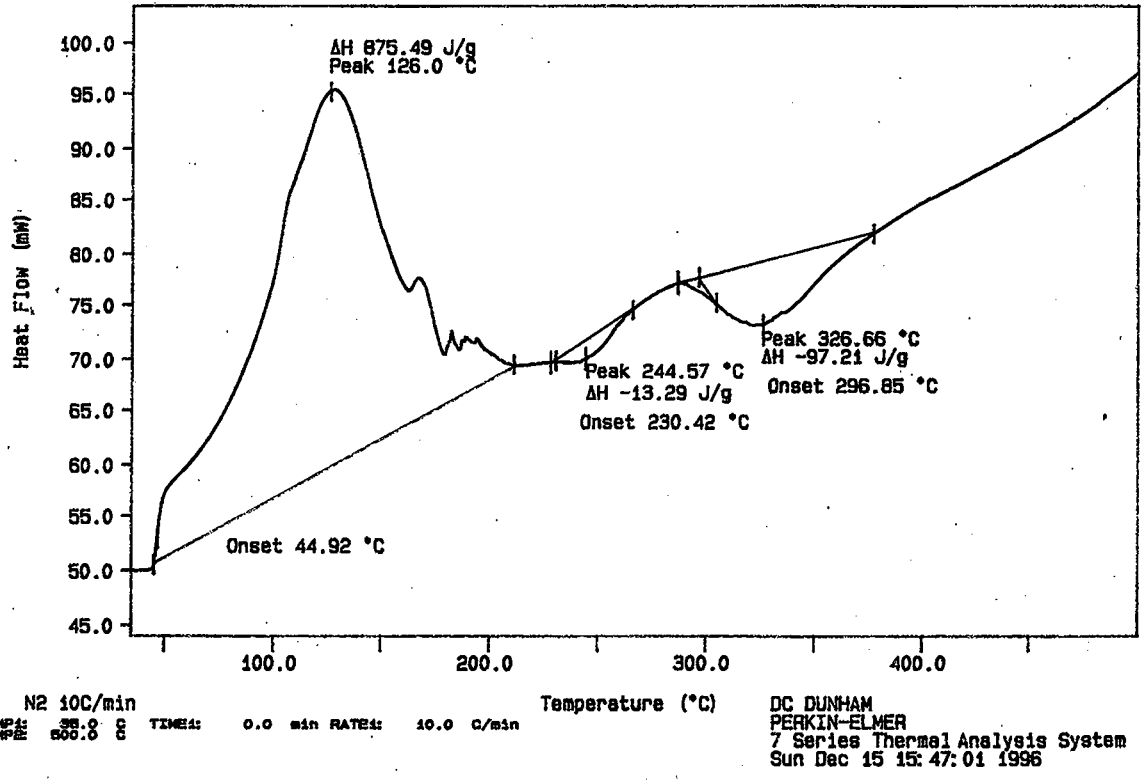
DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Dec 15 13:19:40 1996

270

Curve 1: DSC
File info: SAM121503 Sun Dec 15 14:12:34 1996
Sample Weight: 12.170 mg
S96T005951



Curve 1: DSC
File info: SAM121504 Sun Dec 15 15:36:44 1996
Sample Weight: 17.500 mg
S96T005951 DUP



LABCORE Data Entry Template for Worklist# 15717

Analyst: BDV **Instrument:** DSC01 **Book #** —

Method: LA-514-113 Rev/Mod —

Worklist Comment: Dry DSC for BY-112. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
96001393	BY-112	1 SAMPLE	S96T005873	0		DSC-02	SOLID	N/A	Ø		Joules/g Dry
96001393	BY-112	2 DUP	S96T005873	0		DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
96001393	BY-112	3 SAMPLE	S96T005874	0		DSC-02	SOLID	N/A	Ø		Joules/g Dry
96001393	BY-112	4 DUP	S96T005874	0		DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
96001393	BY-112	5 SAMPLE	S96T005875	0		DSC-02	SOLID	N/A	Ø		Joules/g Dry
96001393	BY-112	6 DUP	S96T005875	0		DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
96001393	BY-112	7 SAMPLE	S96T005876	0		DSC-02	SOLID	N/A	175		Joules/g Dry
96001393	BY-112	8 DUP	S96T005876	0		DSC-02	SOLID	175	168	N/A	Joules/g Dry
96001393	BY-112	9 SAMPLE	S96T005877	0		DSC-02	SOLID	N/A	107		Joules/g Dry
96001393	BY-112	10 DUP	S96T005877	0		DSC-02	SOLID	107	111	N/A	Joules/g Dry
96001393	BY-112	11 SAMPLE	S96T005878	0		DSC-02	SOLID	N/A	179		Joules/g Dry
96001393	BY-112	12 DUP	S96T005878	0		DSC-02	SOLID	179	354	N/A	Joules/g Dry
96001393	BY-112	13 SAMPLE	S96T005879	0		DSC-02	SOLID	N/A	7.55		Joules/g Dry
96001393	BY-112	14 DUP	S96T005879	0		DSC-02	SOLID	7.55	33.9	N/A	Joules/g Dry
96001393	BY-112	15 SAMPLE	S96T005880	0		DSC-02	SOLID	N/A	108		Joules/g Dry
96001393	BY-112	16 DUP	S96T005880	0		DSC-02	SOLID	108	221	N/A	Joules/g Dry

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# 15717

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT

Final page for worklist # 15717

Blandina Valenzuela 12-18-96
Analyst Signature **Date**

H Anastos 12-19-96
Analyst Signature **Date**
Data Entry & Validation

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.

BY-112 dry DSC

CALCULATED DRY DSC			
SAMPLE NO.	DSC RESULT (J/g)	TGA RESULT (% water)	DRY DSC RESULT
S96T005873	Ø		Ø
5873D	Ø		Ø
5874	Ø		Ø
5874D	Ø		Ø
5875	Ø		Ø
5875D	Ø		Ø
5876	134.5	23.29	175
5876D	128.6	23.29	168
5877	61.3	42.66	107
5877D	63.7	42.66	111
5878	118.1	33.98	179
5878D	233.4	33.98	354
5879	5.06	32.96	7.55
5879D	22.7	32.96	33.9
5880	67.9	~~43.37~~ 37.21	108
5880D	139	37.21	221

LABCORE Data Entry Template for Worklist# 15718

Analyst: BDV **Instrument:** DSC01 **Book #** ———

Method: LA-514-113 Rev/Mod ———

Worklist Comment: Dry DSC for BY-112. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
96001466	BY-112	1 SAMPLE	S96T005917	0		DSC-02	SOLID	N/A	Ø		Joules/g Dry
96001466	BY-112	2 DUP	S96T005917	0		DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
96001466	BY-112	3 SAMPLE	S96T005918	0		DSC-02	SOLID	N/A	Ø		Joules/g Dry
96001466	BY-112	4 DUP	S96T005918	0		DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
96001466	BY-112	5 SAMPLE	S96T005919	0		DSC-02	SOLID	N/A	93.8		Joules/g Dry
96001466	BY-112	6 DUP	S96T005919	0		DSC-02	SOLID	93.8	167	N/A	Joules/g Dry
96001466	BY-112	7 SAMPLE	S96T005920	0		DSC-02	SOLID	N/A	146		Joules/g Dry
96001466	BY-112	8 DUP	S96T005920	0		DSC-02	SOLID	146	83.5	N/A	Joules/g Dry
96001466	BY-112	9 SAMPLE	S96T005921	0		DSC-02	SOLID	N/A	237		Joules/g Dry
96001466	BY-112	10 DUP	S96T005921	0		DSC-02	SOLID	237	202	N/A	Joules/g Dry
96001466	BY-112	11 SAMPLE	S96T005922	0		DSC-02	SOLID	N/A	71.2		Joules/g Dry
96001466	BY-112	12 DUP	S96T005922	0		DSC-02	SOLID	71.2	81.8	N/A	Joules/g Dry
96001466	BY-112	13 SAMPLE	S96T005950	0		DSC-02	SOLID	N/A	76.6		Joules/g Dry
96001466	BY-112	14 DUP	S96T005950	0		DSC-02	SOLID	76.6	214	N/A	Joules/g Dry
96001466	BY-112	15 SAMPLE	S96T005951	0		DSC-02	SOLID	N/A	166		Joules/g Dry
96001466	BY-112	16 DUP	S96T005951	0		DSC-02	SOLID	166	186	N/A	Joules/g Dry
96001393	BY-112	17 SAMPLE	S96T005907	0		DSC-02	LIQUID	N/A	192		Joules/g Dry
96001393	BY-112	18 DUP	S96T005907	0		DSC-02	LIQUID	192	156	N/A	Joules/g Dry

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# 15718

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
96001466	BY-112	19	SAMPLE	S96T005909	0		DSC-02	LIQUID	N/A	Ø		Joules/g Dry
96001466	BY-112	20	DUP	S96T005909	0		DSC-02	LIQUID	Ø	Ø	N/A	Joules/g Dry
96001466	BY-112	21	SAMPLE	S96T005960	0		DSC-02	LIQUID	N/A	142		Joules/g Dry
96001466	BY-112	22	DUP	S96T005960	0		DSC-02	LIQUID	142	71.3	N/A	Joules/g Dry

Final page for worklist # 15718

Blandina Valenzuela 12-18-96
Analyst Signature **Date**

H Anaston 12.19.96
Analyst Signature **Date**
Data Entry + Validation

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.

CALCULATED DRY DSC			
SAMPLE NO.	DSC RESULT (J/g)	TGA RESULT (% water)	DRY DSC RESULT
5919	76.4	18.55	93.8
5919D	136	18.55	167
5920	117	19.86	146
5920D	66.9	19.86	83.5
5921	149.9	36.64	237
5921D	127.9	36.64	202
5922	50.8	28.69	71.2
5922D	58.3	28.69	81.8
5950	50.9	33.55	76.6
5950D	142	33.55	214
5951	99.2	40.2	166
5951D	111	40.2	186
5907	99.19	48.38	192
5907D	80.44	48.38	156
5909	Ø		Ø
5909D	Ø		Ø
5960	72.64	48.68	142
5960D	36.61	48.68	71.3

LABCORE Data Entry Template for Worklist# 15223

Analyst: JDS **Instrument:** TGA0 3 **Book #** ~~97N8A~~ 97N8-A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: BY-112 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-03	LIQUID	59.4	58.69	N/A	%
96001393	BY-112	2	SAMPLE	S96T005907	0		TGA-03	LIQUID	N/A	48.69		%
96001393	BY-112	3	DUP	S96T005907	0		TGA-03	LIQUID	48.69	48.06	N/A	%
96001466	BY-112	4	SAMPLE	S96T005909	0		TGA-03	LIQUID	N/A	99.15		%
96001466	BY-112	5	DUP	S96T005909	0		TGA-03	LIQUID	99.15	99.57	N/A	%
96001466	BY-112	6	SAMPLE	S96T005960	0		TGA-03	LIQUID	N/A	48.75		%
96001466	BY-112	7	DUP	S96T005960	0		TGA-03	LIQUID	48.75	48.60	N/A	%

Final page for worklist # 15223

See attached for signatures
Analyst Signature **Date** 12-12-96

Analyst Signature **Date** 12-12-96

Verified/Validated by
Blandina
Valenzuela ~~12-13-96~~ 12-16-96
BOR

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# 15223

Analyst: JdS **Instrument:** TGA0 **Book #** ~~82N84~~ 97N8-A

Method: LA-560-112 Rev/Mod

Worklist Comment: BY-112 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	LIQUID			N/A	%
96001393	BY-112	2	SAMPLE	S96T005907	0		TGA-01	LIQUID	N/A			%
96001393	BY-112	3	DUP	S96T005907	0		TGA-01	LIQUID			N/A	%
96001466	BY-112	4	SAMPLE	S96T005909	0		TGA-01	LIQUID	N/A			%
96001466	BY-112	5	DUP	S96T005909	0		TGA-01	LIQUID			N/A	%
96001466	BY-112	6	SAMPLE	S96T005960	0		TGA-01	LIQUID	N/A			%
96001466	BY-112	7	DUP	S96T005960	0		TGA-01	LIQUID			N/A	%

Final page for worklist # 15223

JdS SpL 12/12/96

Analyst Signature **Date**

Analyst Signature **Date**

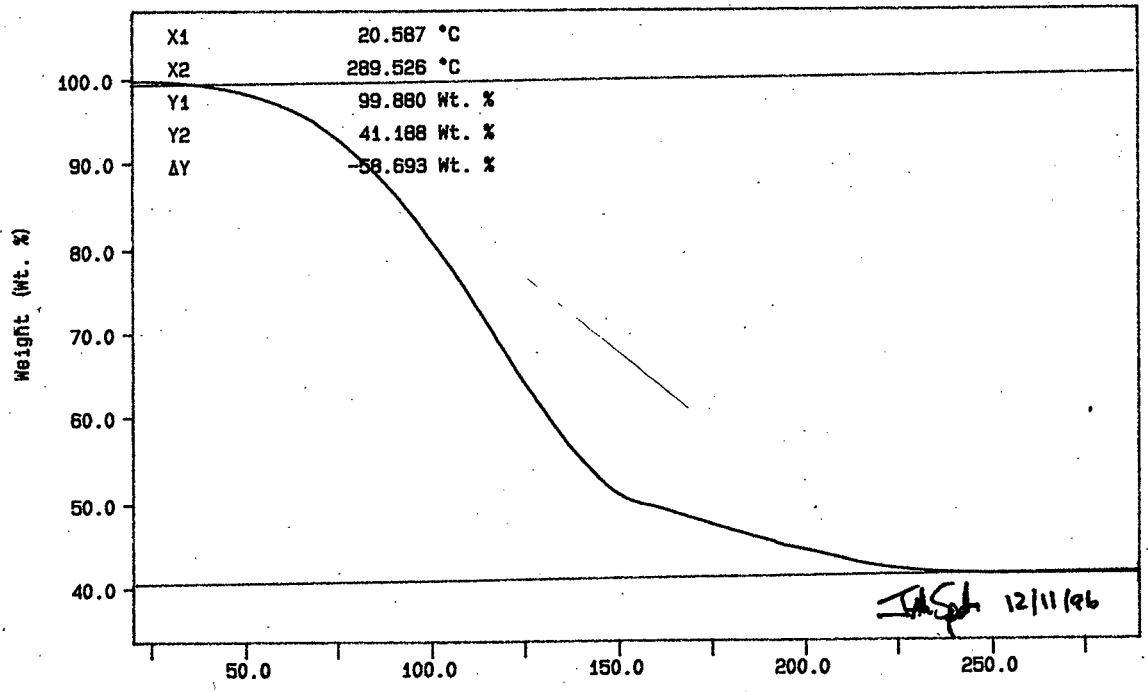
TGA-03 instrument
Was used.
12-12-96
Blandina
Valenzuela

Data Entry Comments:

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

Curve 1: TGA
File info: TER121196 Wed Dec 11 18:15:26 1996
Sample Weight: 12.933 mg
TGA STD ~~82N8-A~~ 97N8A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 281 TO 287

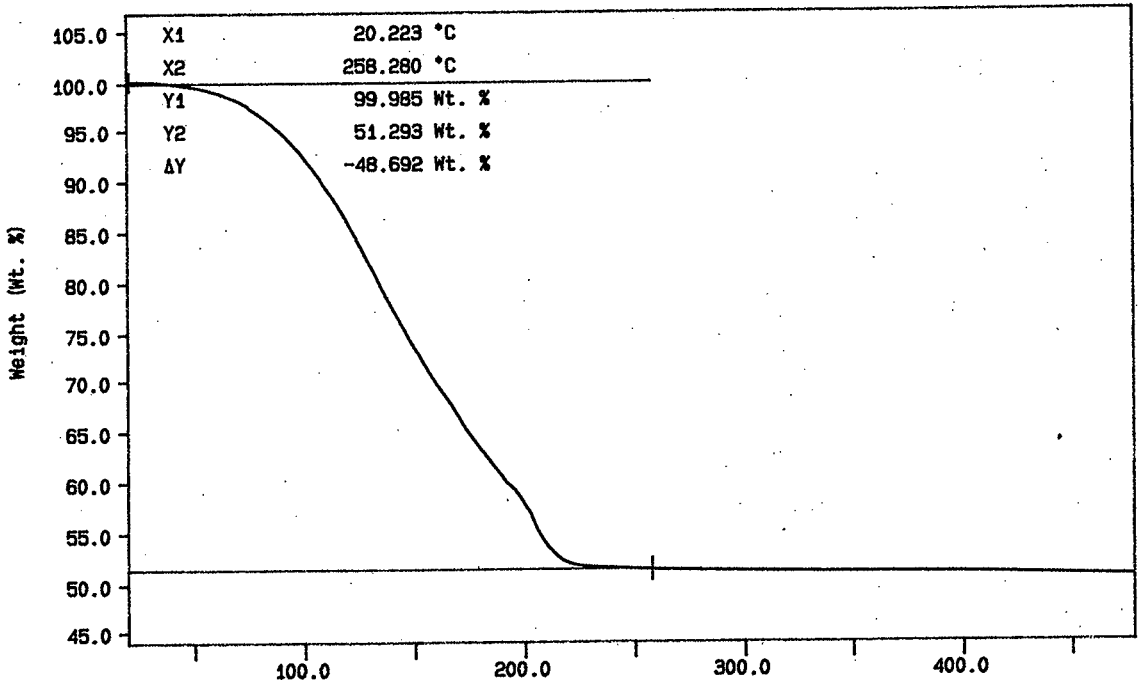


N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Dec 11 18:18:35 1996

281

Curve 1: TGA
File info: SAM121101 Wed Dec 11 21:52:30 1996
Sample Weight: 23.881 mg
S96T005907

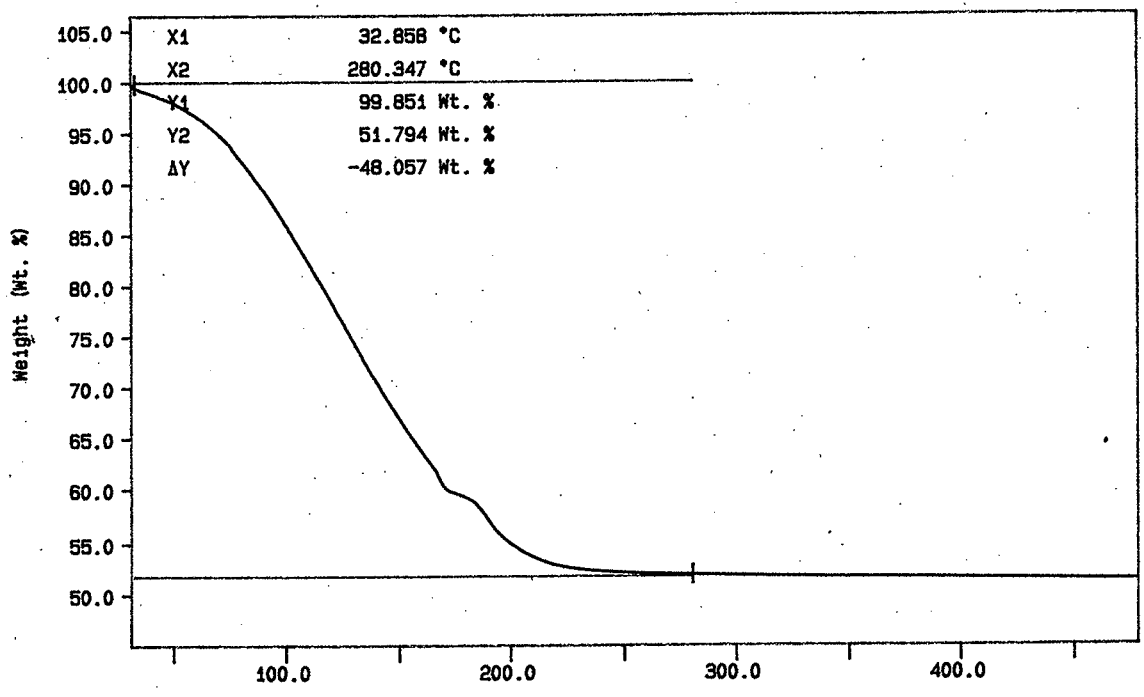


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Dec 11 21:56:30 1996

282

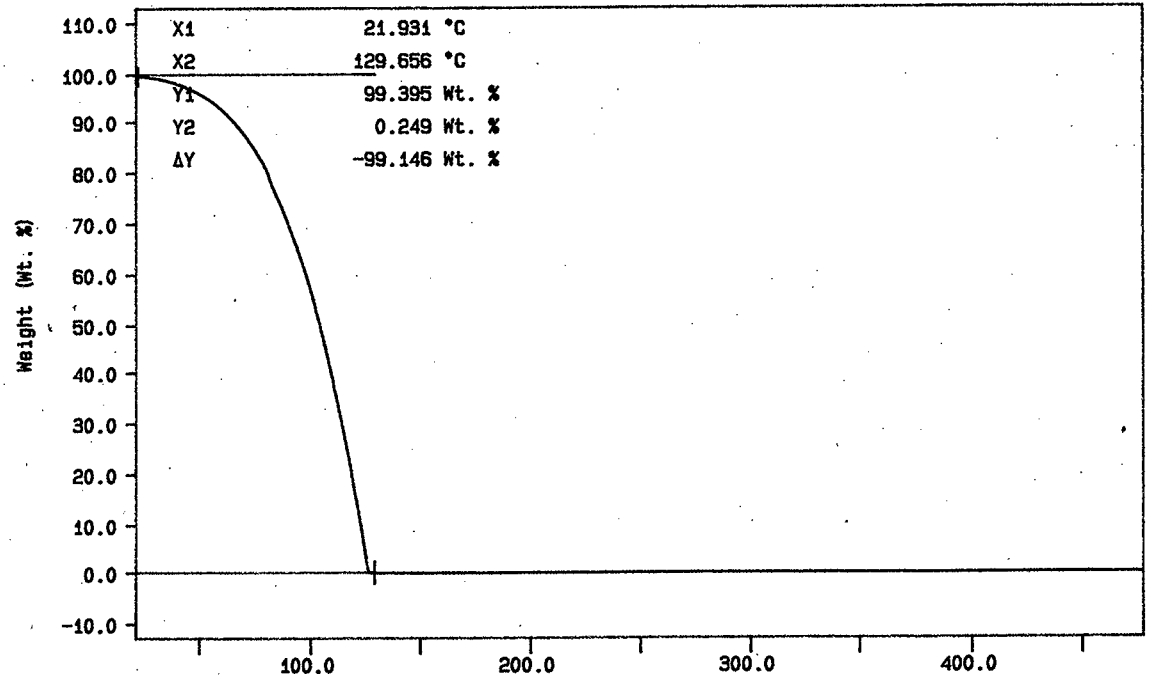
Curve 1: TGA
File info: SAM121102 Wed Dec 11 22:59:33 1996
Sample Weight: 26.181 mg
S96T005907DUP



10C/MIN N2
TEMP1: 25.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Dec 11 23:28:27 1996

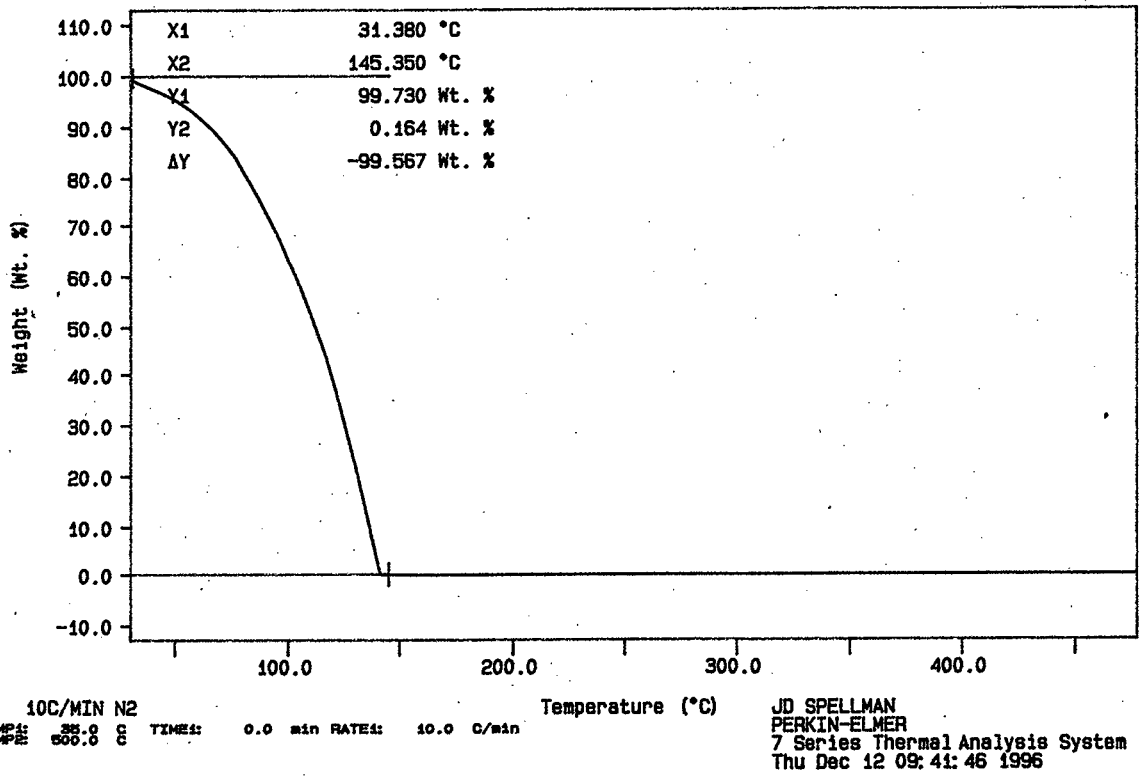
Curve 1: TGA
File info: SAM121301 Thu Dec 12 00:37:07 1996
Sample Weight: 10.157 mg
S96T005909



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

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 00:49:44 1996

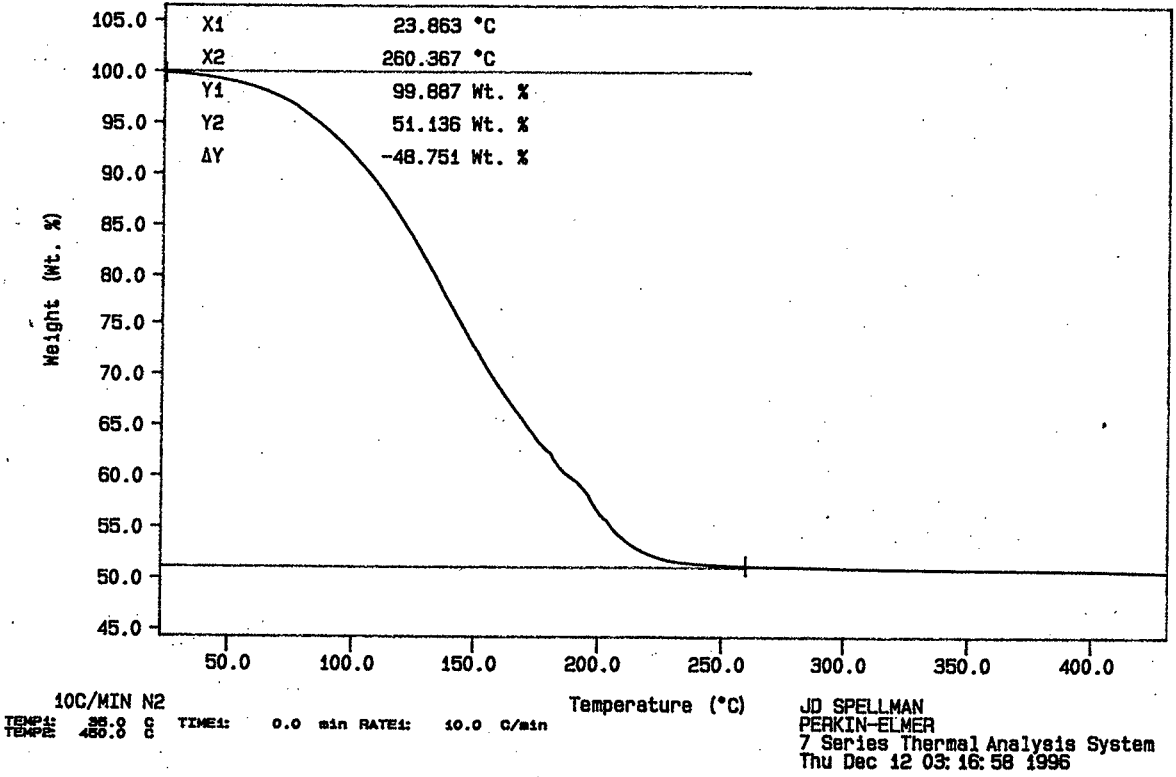
Curve 1: TGA
File info: SAM121202 Thu Dec 12 01:44:46 1996
Sample Weight: 17.186 mg
S96T005909DUP



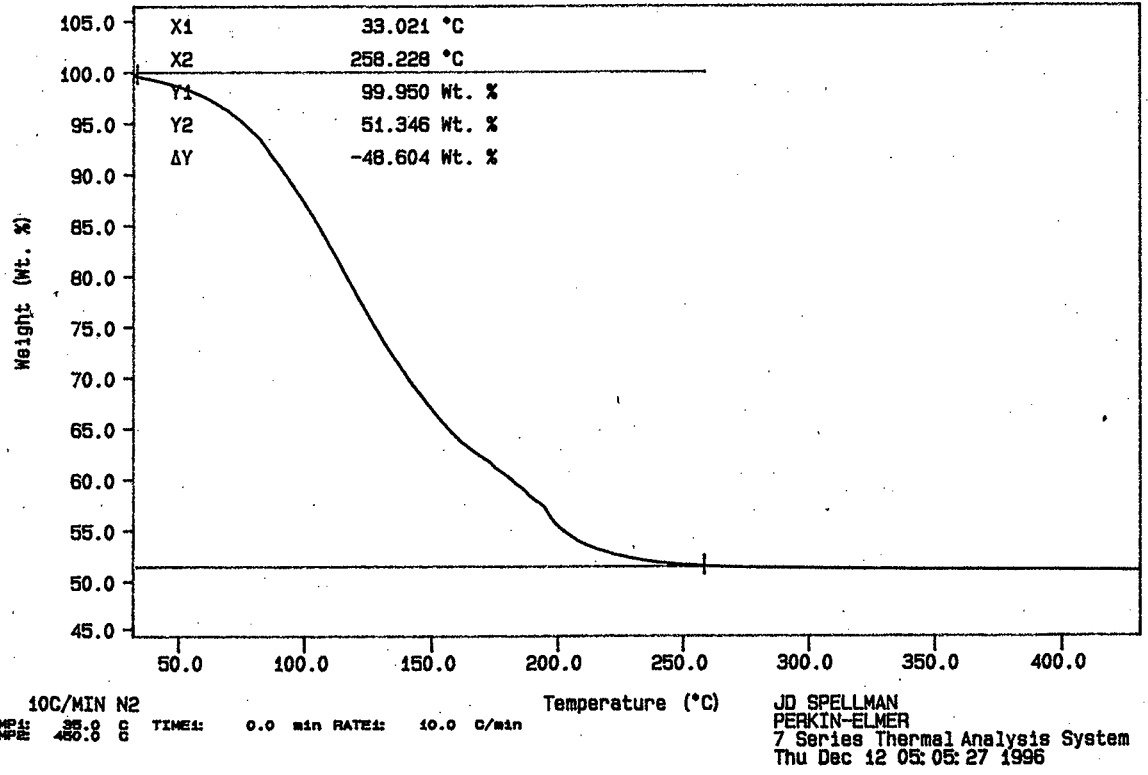
10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 09:41:46 1996

Curve 1: TGA
File info: SAM121203 Thu Dec 12 03:16:27 1996
Sample Weight: 27.119 mg
S96T005960



Curve 1: TGA
File info: SAM121204 Thu Dec 12 04:15:18 1996
Sample Weight: 15.399 mg
S96T005960DUP



LABCORE Data Entry Template for Worklist# 15227

Analyst: PJM **Instrument:** TGA0 3 **Book #** 97N8A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: BY-112 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	SOLID	59.4	58.66	N/A	%
96001393	BY-112	2 SAMPLE	S96T005873	0	TGA-03	SOLID	N/A	22.29		%
96001393	BY-112	3 DUP	S96T005873	0	TGA-03	SOLID	22.29	25.14	N/A	%
96001393	BY-112	4 SAMPLE	S96T005874	0	TGA-03	SOLID	N/A	14.42		%
96001393	BY-112	5 DUP	S96T005874	0	TGA-03	SOLID	14.42	14.39	N/A	%
96001393	BY-112	6 SAMPLE	S96T005875	0	TGA-03	SOLID	N/A	13.69		%
96001393	BY-112	7 DUP	S96T005875	0	TGA-03	SOLID	13.69	15.65	N/A	%

Final page for worklist # 15227

See attached for signatures
Analyst Signature **Date** 12-13-96 BOY

[signature] 12-13-96
Analyst Signature **Date**

Verified/Validated by
Blandina
Valenzuela 12-16-96

S96T005873 resembled sand.

Data Entry Comments: S96T005874 results are the sum of two weight loss steps.

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# 15227

Analyst: [signature] **Instrument:** TGA0 _____ **Book #** 97NBA

Method: LA-560-112 Rev/Mod _____

Worklist Comment: BY-112 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID			N/A	%
96001393	BY-112	2 SAMPLE	S96T005873	0		TGA-01	SOLID	N/A			%
96001393	BY-112	3 DUP	S96T005873	0		TGA-01	SOLID			N/A	%
96001393	BY-112	4 SAMPLE	S96T005874	0		TGA-01	SOLID	N/A			%
96001393	BY-112	5 DUP	S96T005874	0		TGA-01	SOLID			N/A	%
96001393	BY-112	6 SAMPLE	S96T005875	0		TGA-01	SOLID	N/A			%
96001393	BY-112	7 DUP	S96T005875	0		TGA-01	SOLID			N/A	%

Final page for worklist # 15227

RJ McCown 12/12/96
Analyst Signature **Date**

JA Sp 12/12/96
Analyst Signature **Date**

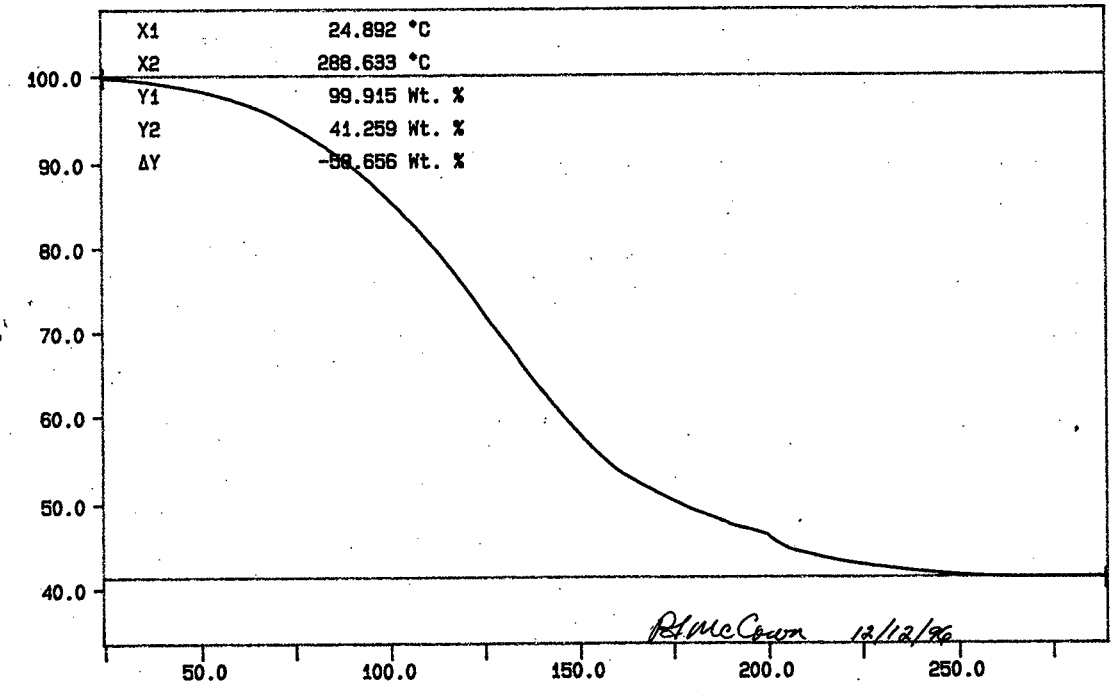
TGA-03 instrument
was used.
12-13-96
Blandina
Valenzuela

Data Entry Comments:

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

Curve 1: TGA
File info: TER121201 Thu Dec 12 05:59:29 1996
Sample Weight: 24.171 mg
TGA STD ~~82N8-A~~ 97N8A
12-13-96 BDY

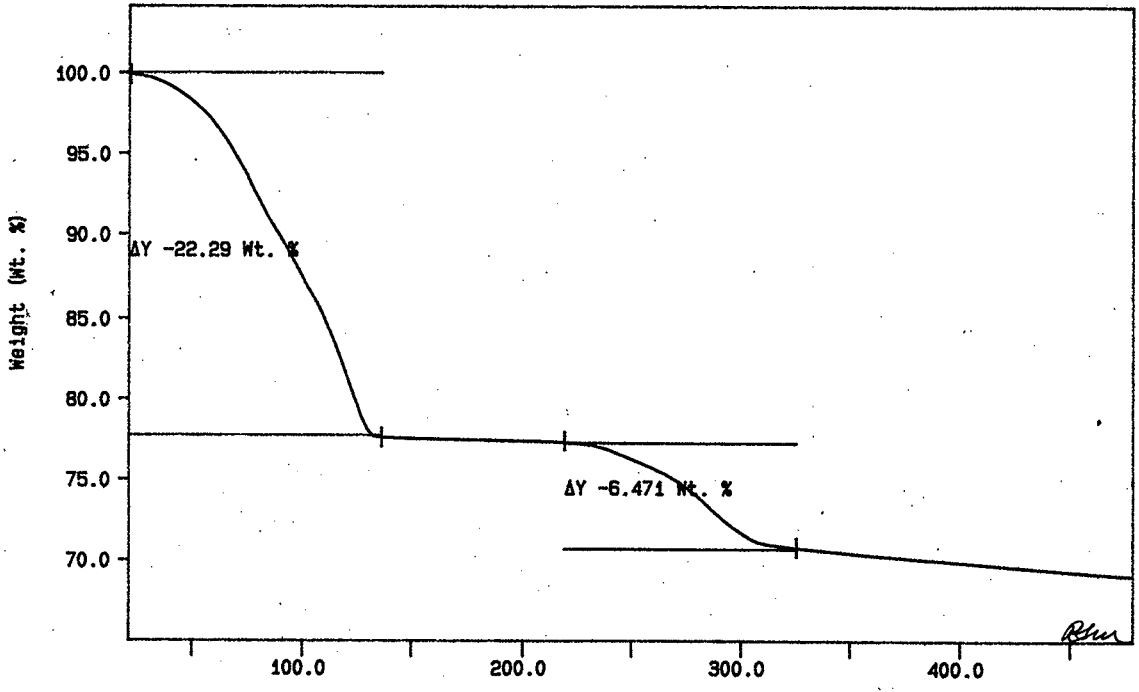
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 290 TO 296.



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

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 06:02:03 1996

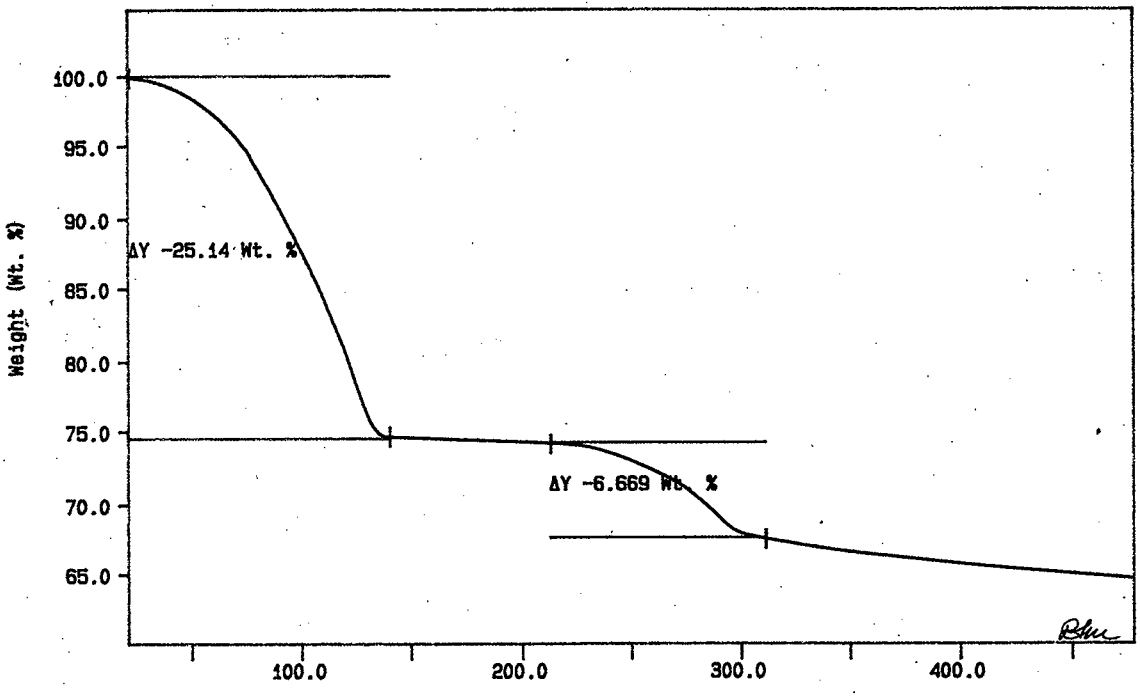
Curve 1: TGA
File info: SAM121201 Thu Dec 12 10:16:11 1996
Sample Weight: 12.822 mg
S96T005873



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

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 11:35:09 1996

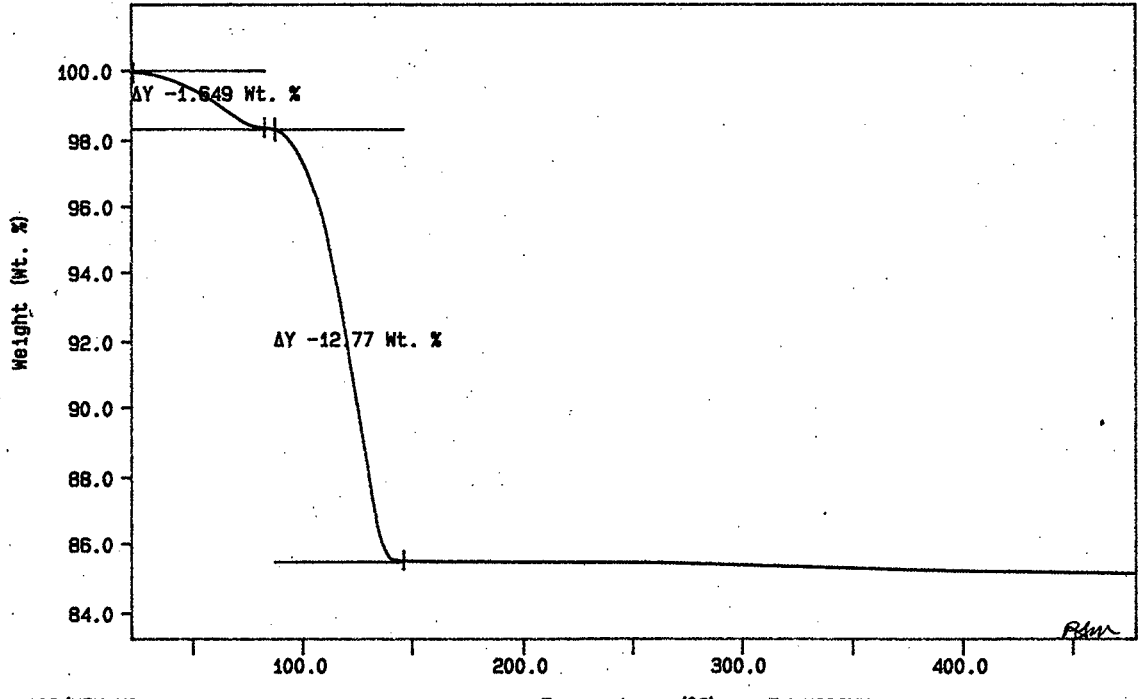
Curve 1: TGA
File info: SAM121205 Thu Dec 12 12:40:16 1996
Sample Weight: 14.466 mg
S96T005873 DUP



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

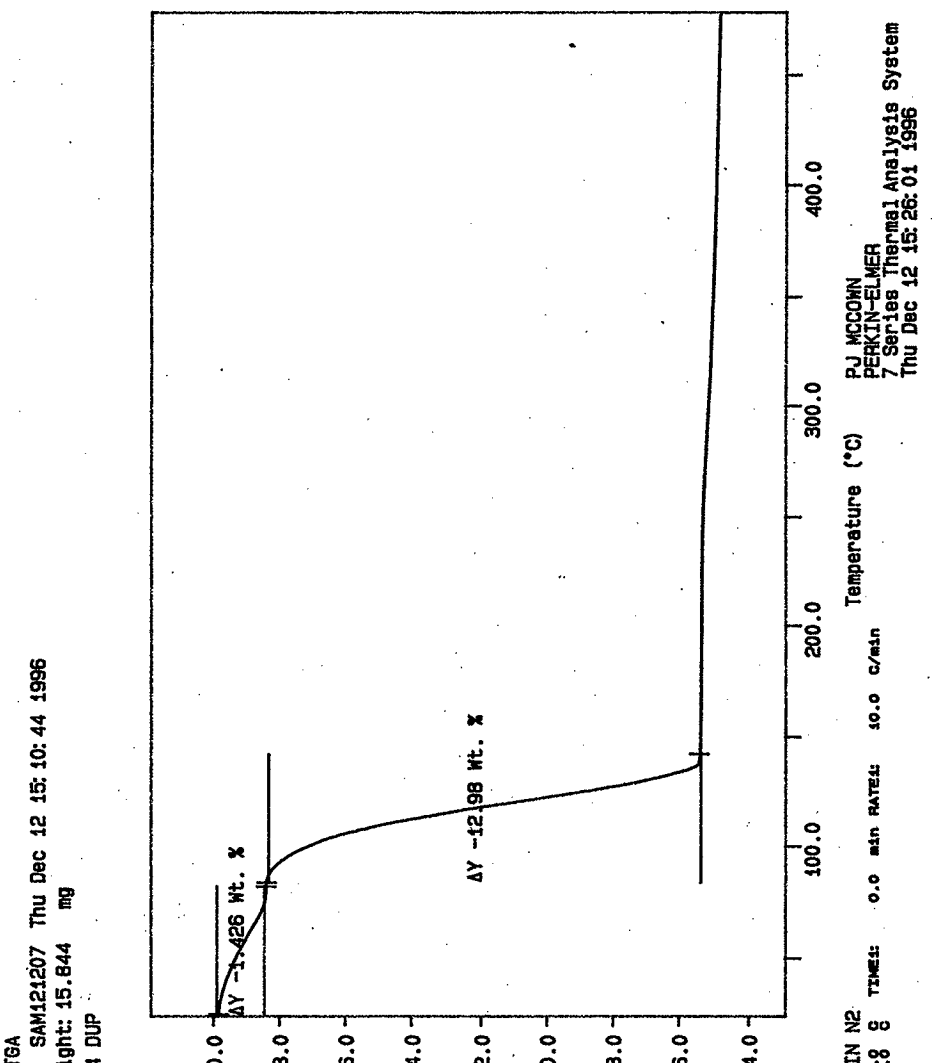
PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 12:46:56 1996

Curve 1: TGA
File info: SAM121206 Thu Dec 12 13:56:07 1996
Sample Weight: 17.447 mg
S96T005874

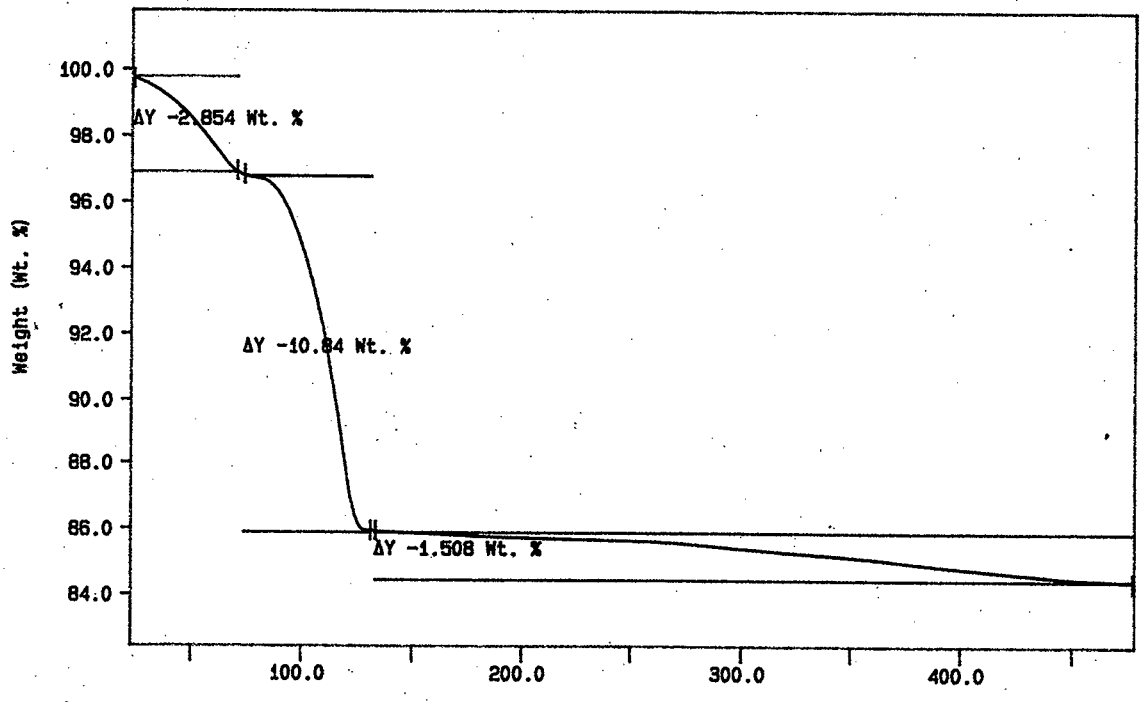


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 14:12:57 1996


Curve 1: TGA
File info: SAM121207 Thu Dec 12 15:10:44 1996
Sample Weight: 15.844 mg
S96T005874 DUP
ΔY -1.426 Wt. %
ΔY -12.198 Wt. %
Weight (Wt. %)
100.0
98.0
96.0
94.0
92.0
90.0
88.0
86.0
84.0
100.0
200.0
300.0
400.0
Temperature (°C)
10C/MIN N2
TEMP1: 25.8 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.8 C
PJ MCCONN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 15:26:01 1996

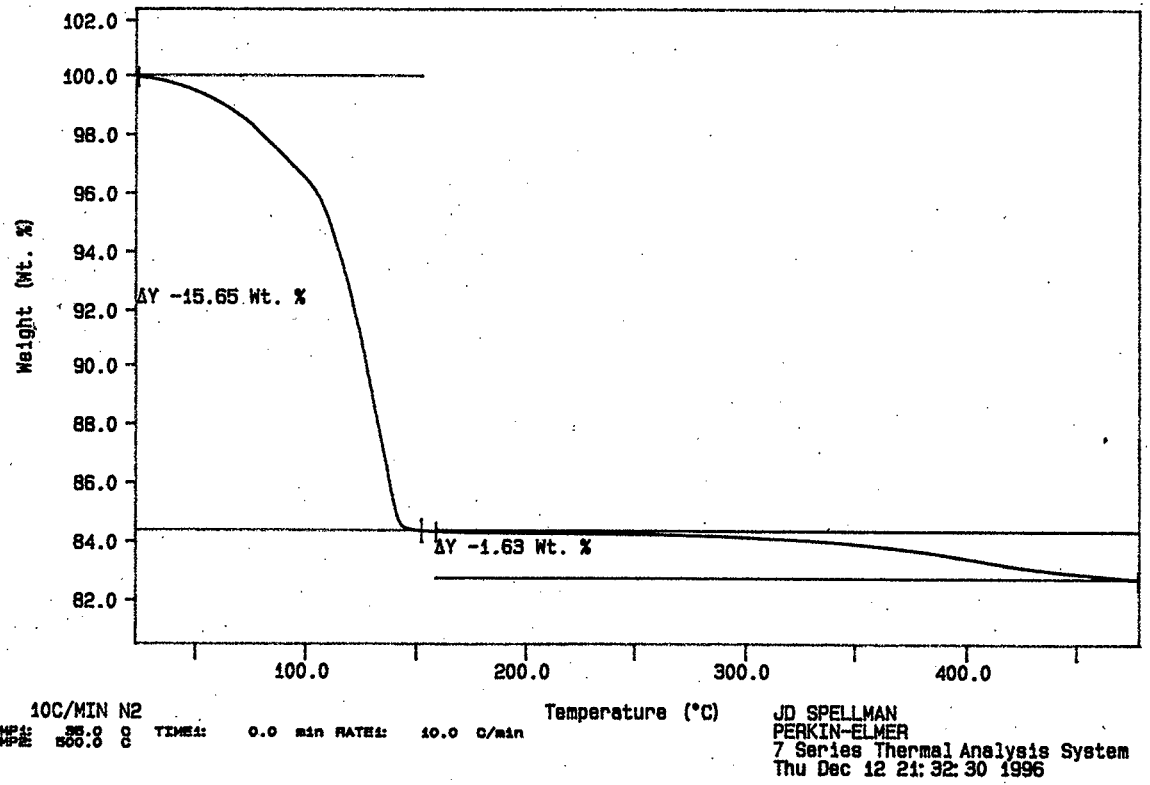
Curve 1: TGA
File info: SAM121208 Thu Dec 12 19:21:27 1996
Sample Weight: 7.043 mg
S96T005875



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

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 20:32:30 1996

Curve 1: TGA
File info: SAM121209 Thu Dec 12 21:25:25 1996
Sample Weight: 20.092 mg
S96T005875DUP



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

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Dec 12 21:32:30 1996

LABCORE Data Entry Template for Worklist# 15228

Analyst: LRM **Instrument:** TGA0 1 **Book #** 9-7N8A

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

Worklist Comment: BY-112 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	59.4	58.67	N/A	%
96001393	BY-112	2 SAMPLE	S96T005876	0		TGA-01	SOLID	N/A	23.17		%
96001393	BY-112	3 DUP	S96T005876	0		TGA-01	SOLID	23.17	23.40	N/A	%
96001393	BY-112	4 SAMPLE	S96T005877	0		TGA-01	SOLID	N/A	43.53		%
96001393	BY-112	5 DUP	S96T005877	0		TGA-01	SOLID	43.53	41.79	N/A	%
96001393	BY-112	6 SAMPLE	S96T005878	0		TGA-01	SOLID	N/A	33.78		%
96001393	BY-112	7 DUP	S96T005878	0		TGA-01	SOLID	33.78	34.17	N/A	%

Final page for worklist # 15228

12-17-96
Analyst Signature **Date**

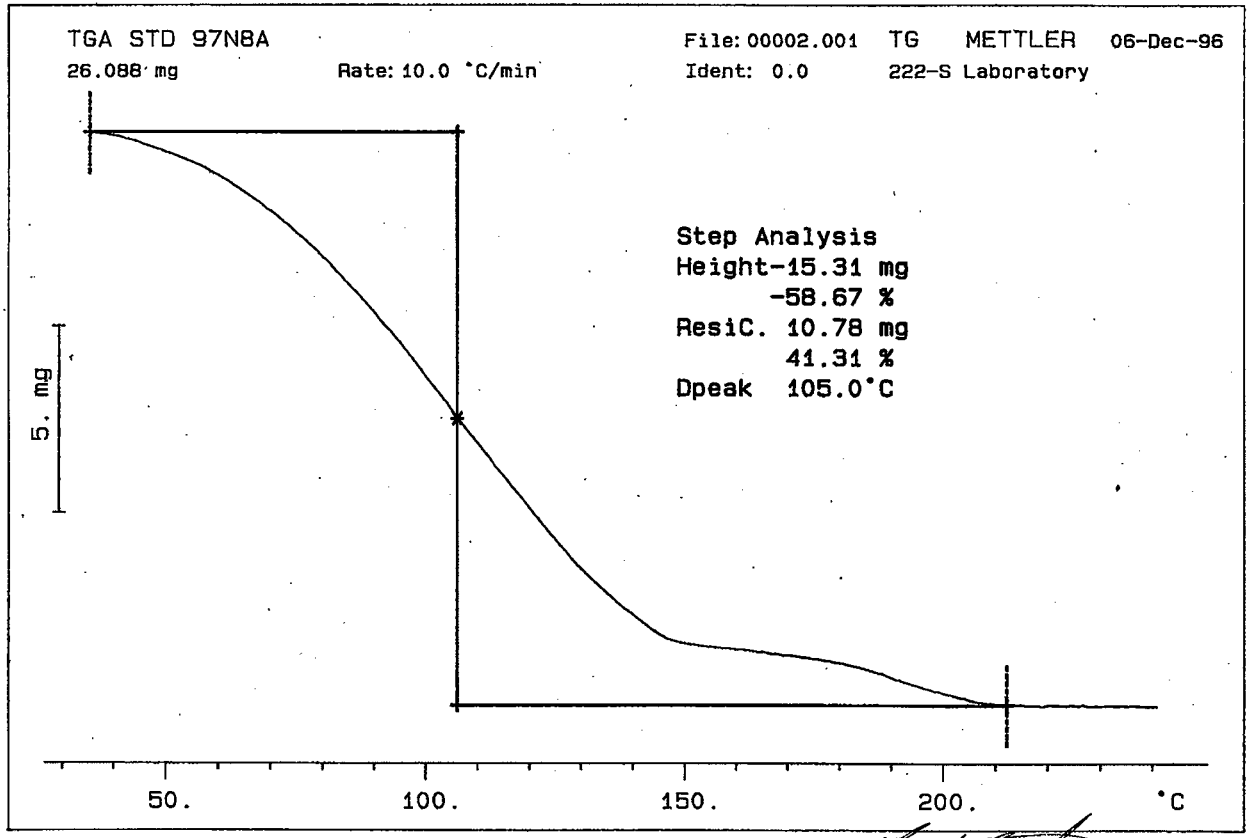
12-17-96
Analyst Signature **Date**

Verified / Validated by
Blandina
Valenzuela 12-18-96

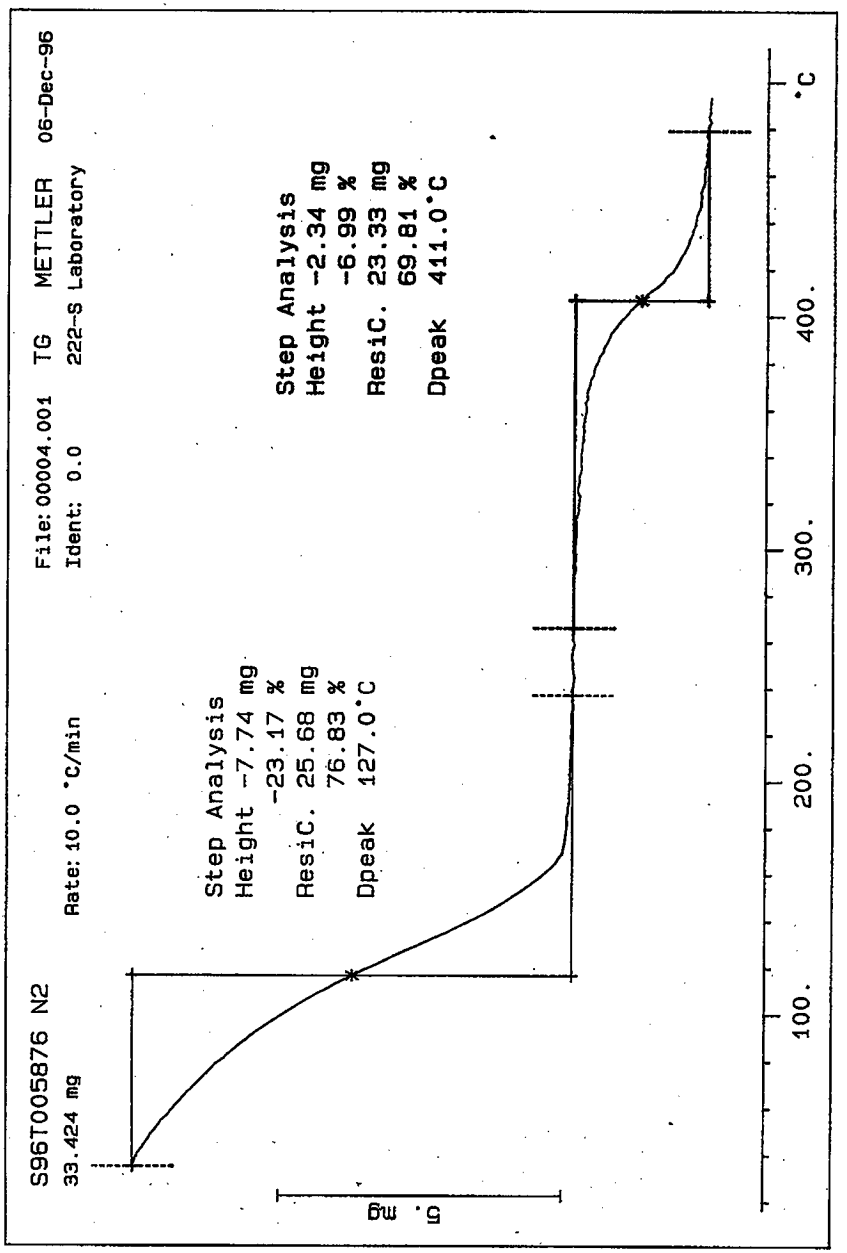
Data Entry Comments:

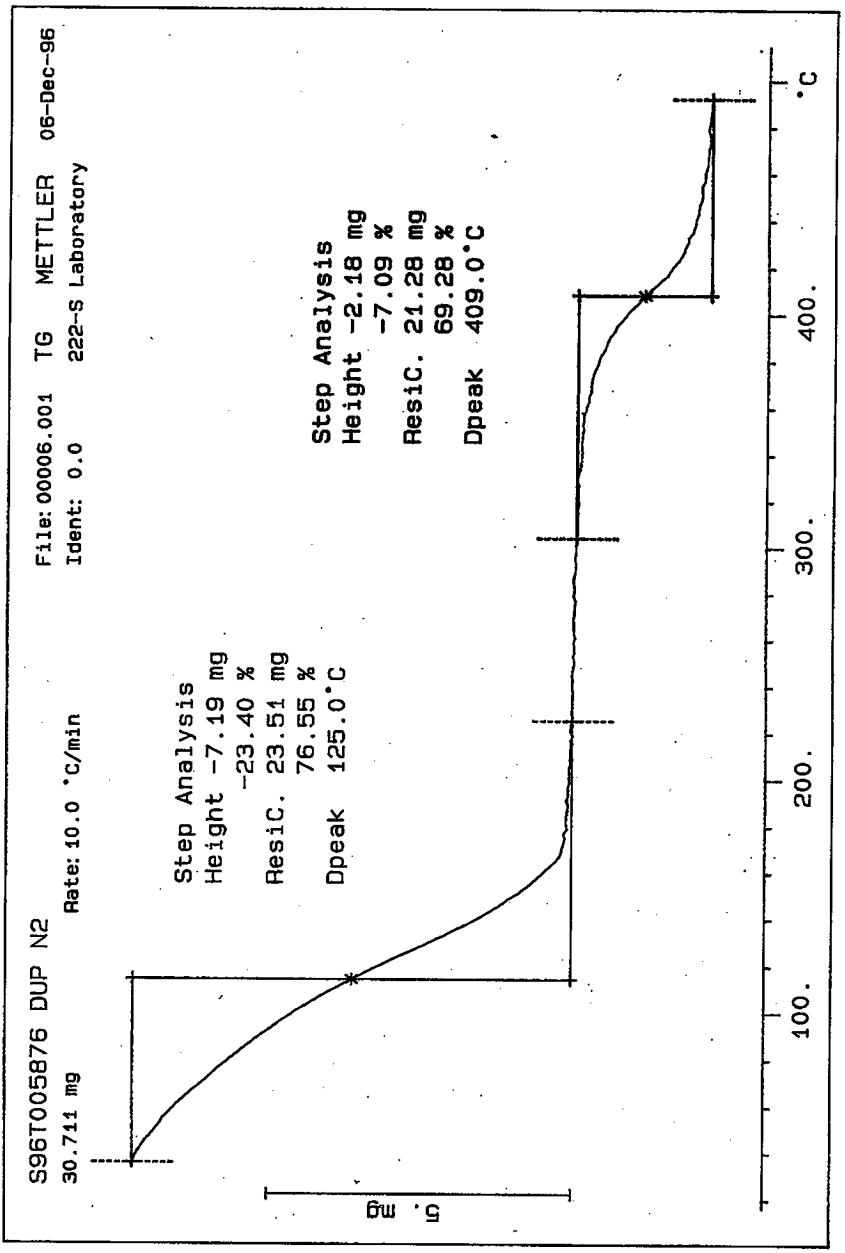
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

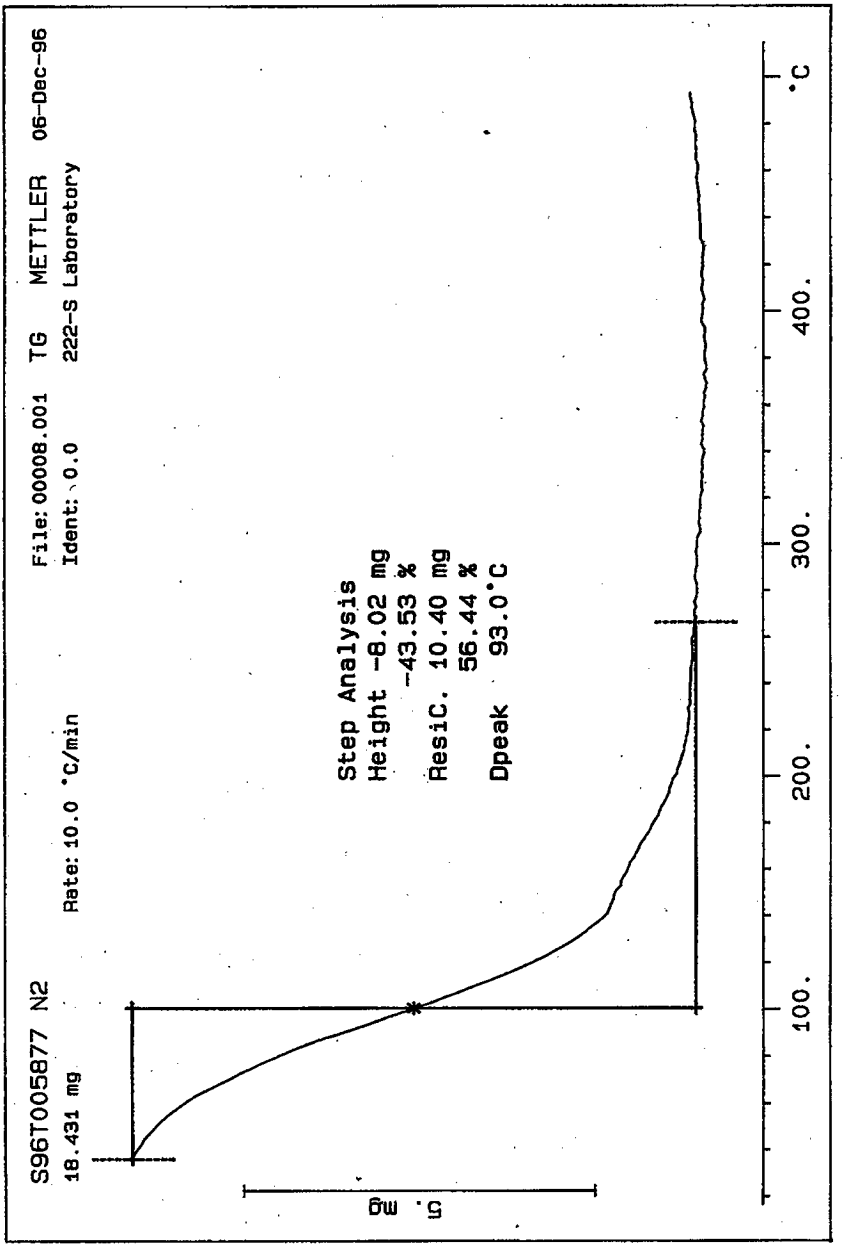
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 298 TO 304.

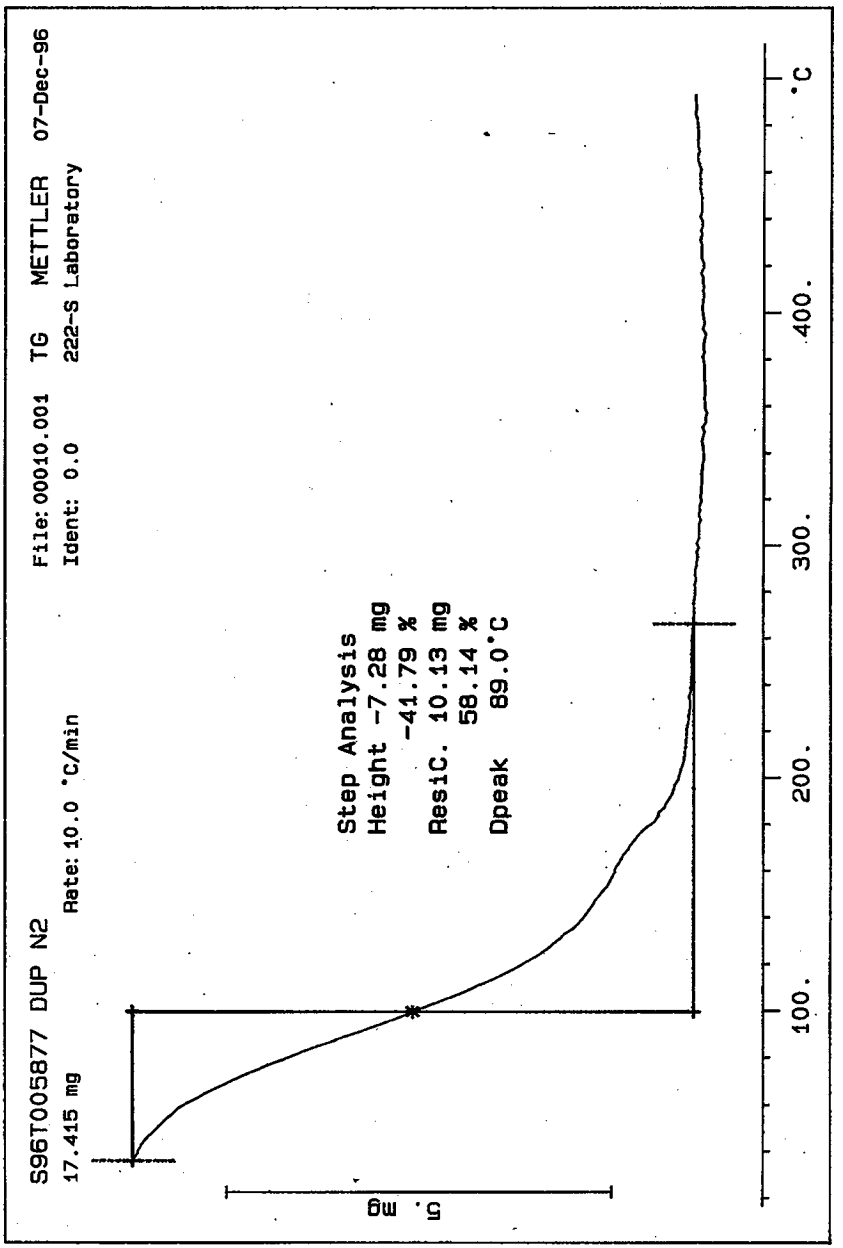


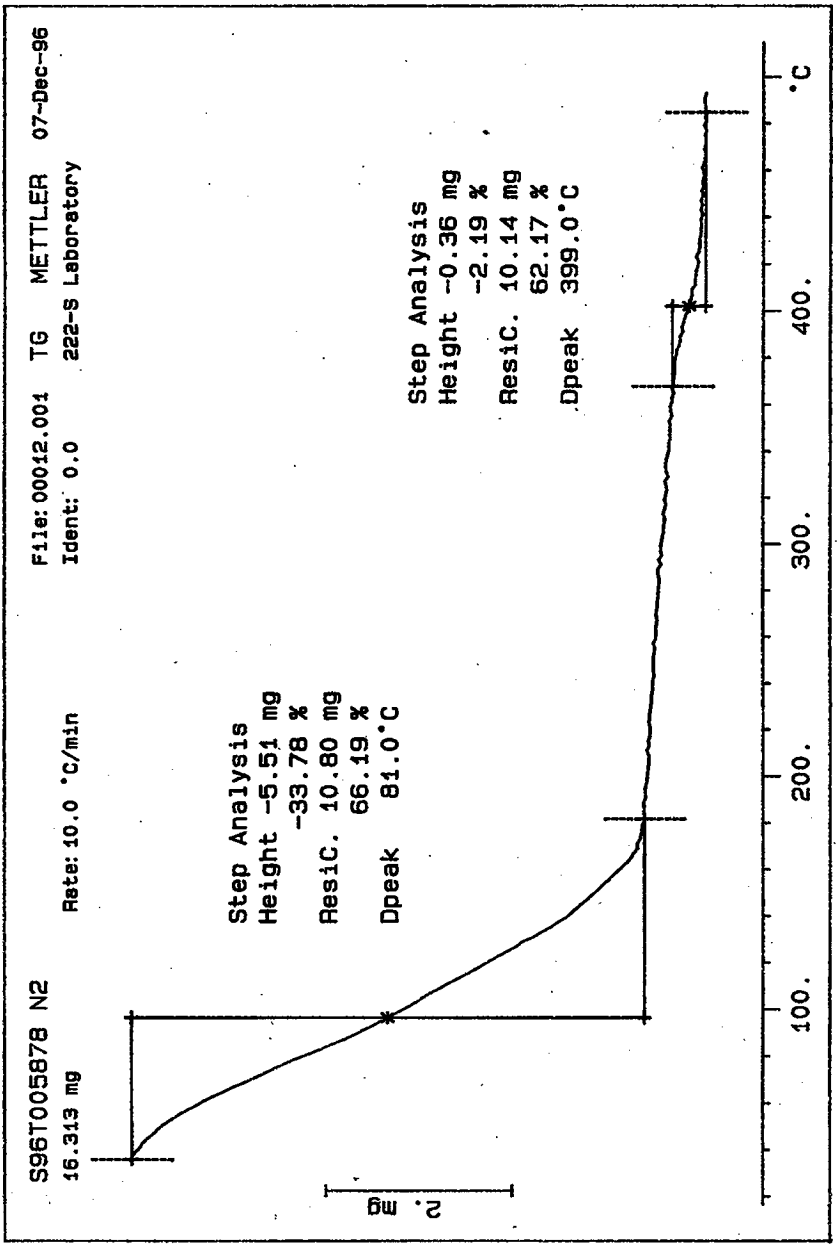
12-14-96

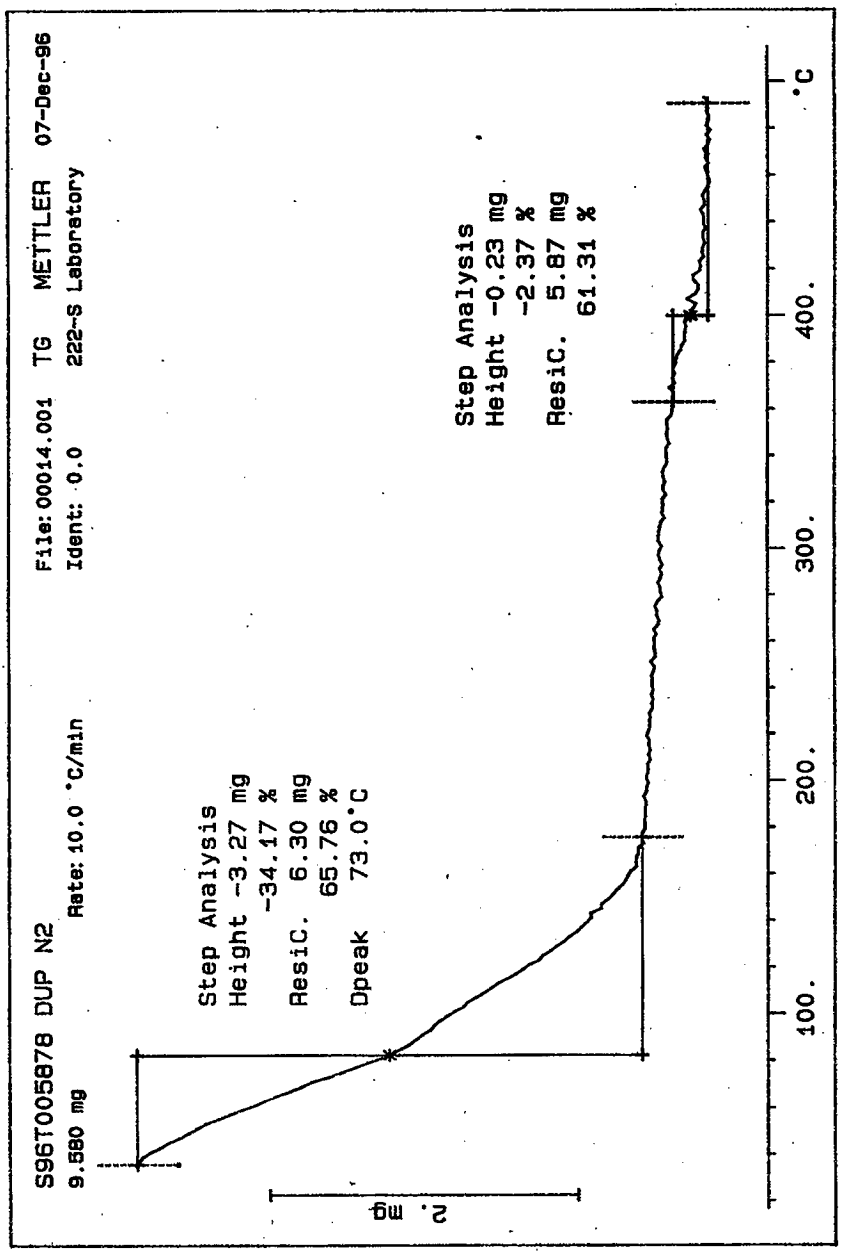

S96T005876 N2
33.424 mg
Rate: 10.0 °C/min
File: 00004.001 TG METTLER 06-Dec-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -7.74 mg
-23.17 %
ResiC. 25.68 mg
76.83 %
Dpeak 127.0°C
Step Analysis
Height -2.34 mg
-6.99 %
ResiC. 23.33 mg
69.81 %
Dpeak 411.0°C
5. mg
100.
200.
300.
400.
°C


S96T005876 DUP N2
30.711 mg
Rate: 10.0 °C/min
File: 00006.001 TG METTLER 06-Dec-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -7.19 mg
-23.40 %
ResiC. 23.51 mg
76.55 %
Dpeak 125.0°C
Step Analysis
Height -2.18 mg
-7.09 %
ResiC. 21.28 mg
69.28 %
Dpeak 409.0°C
5. mg
100.
200.
300.
400.
°C


S96T005877 N2
18.431 mg
Rate: 10.0 °C/min
File: 00008.001
Ident: 0.0
TG METTLER 06-Dec-96
222-S Laboratory
Step Analysis
Height -8.02 mg
-43.53 %
ResiC. 10.40 mg
56.44 %
Dpeak 93.0°C
5. mg
100.
200.
300.
400.
°C


S96T005877 DUP N2
17.415 mg
Rate: 10.0 °C/min
File: 00010.001 TG METTLER 07-Dec-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -7.28 mg
-41.79 %
ResiC. 10.13 mg
58.14 %
Dpeak 89.0°C
5. mg
100.
200.
300.
400.
°C


S96T005878 N2
16.313 mg
Rate: 10.0 °C/min
File: 00012.001 TG METTLER 07-Dec-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -5.51 mg
-33.78 %
ResiC. 10.80 mg
66.19 %
Dpeak 81.0°C
Step Analysis
Height -0.36 mg
-2.19 %
ResiC. 10.14 mg
62.17 %
Dpeak 399.0°C
2. mg
100.
200.
300.
400.
°C


S96T005878 DUP N2
9.580 mg
Rate: 10.0 °C/min
File: 00014.001 TG METTLER 07-Dec-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -3.27 mg
-34.17 %
ResiC. 6.30 mg
65.76 %
Dpeak 73.0°C
Step Analysis
Height -0.23 mg
-2.37 %
ResiC. 5.87 mg
61.31 %
2. mg
100.
200.
300.
400.
°C

LABCORE Data Entry Template for Worklist# 15229

Analyst: KRM **Instrument:** TGA0 3 **Book #** 97N8A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: BY-112 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-03	SOLID	59.4	58.83	N/A	%
96001393	BY-112	2 SAMPLE	S96T005879	0		TGA-03	SOLID	N/A	32.89		%
96001393	BY-112	3 DUP	S96T005879	0		TGA-03	SOLID	32.89	33.03	N/A	%
96001393	BY-112	4 SAMPLE	S96T005880	0		TGA-03	SOLID	N/A	37.56		%
96001393	BY-112	5 DUP	S96T005880	0		TGA-03	SOLID	37.56	36.86	N/A	%
96001466	BY-112	6 SAMPLE	S96T005917	0		TGA-03	SOLID	N/A	39.43		%
96001466	BY-112	7 DUP	S96T005917	0		TGA-03	SOLID	39.43	21.83	N/A	%

Final page for worklist # 15229

See attached for signature 12-16-96 BGV
Analyst Signature **Date**

12-17-96
Analyst Signature **Date**

Verified/Validated by
Blandina
Valenzuela 12-18-96

Data Entry Comments: S96T005917 should be rerun due to difference in results.

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

worklistrpt Version 2.1 05/15/95
11/25/96 11:55

LABCORE Data Entry Template for Worklist# 15229

Analyst: KRM **Instrument:** TGA0 **Book #** 97N8A

Method: LA-560-112 Rev/Mod _____

Worklist Comment: BY-112 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID			N/A	%
96001393	BY-112	2 SAMPLE	S96T005879	0		TGA-01	SOLID	N/A			%
96001393	BY-112	3 DUP	S96T005879	0		TGA-01	SOLID			N/A	%
96001393	BY-112	4 SAMPLE	S96T005880	0		TGA-01	SOLID	N/A			%
96001393	BY-112	5 DUP	S96T005880	0		TGA-01	SOLID			N/A	%
96001466	BY-112	6 SAMPLE	S96T005917	0		TGA-01	SOLID	N/A			%
96001466	BY-112	7 DUP	S96T005917	0		TGA-01	SOLID			N/A	%

Final page for worklist # 15229

Analyst Signature **Date** 12-14-96

Analyst Signature **Date**

TGA-03 instrument was used. 12-16-96

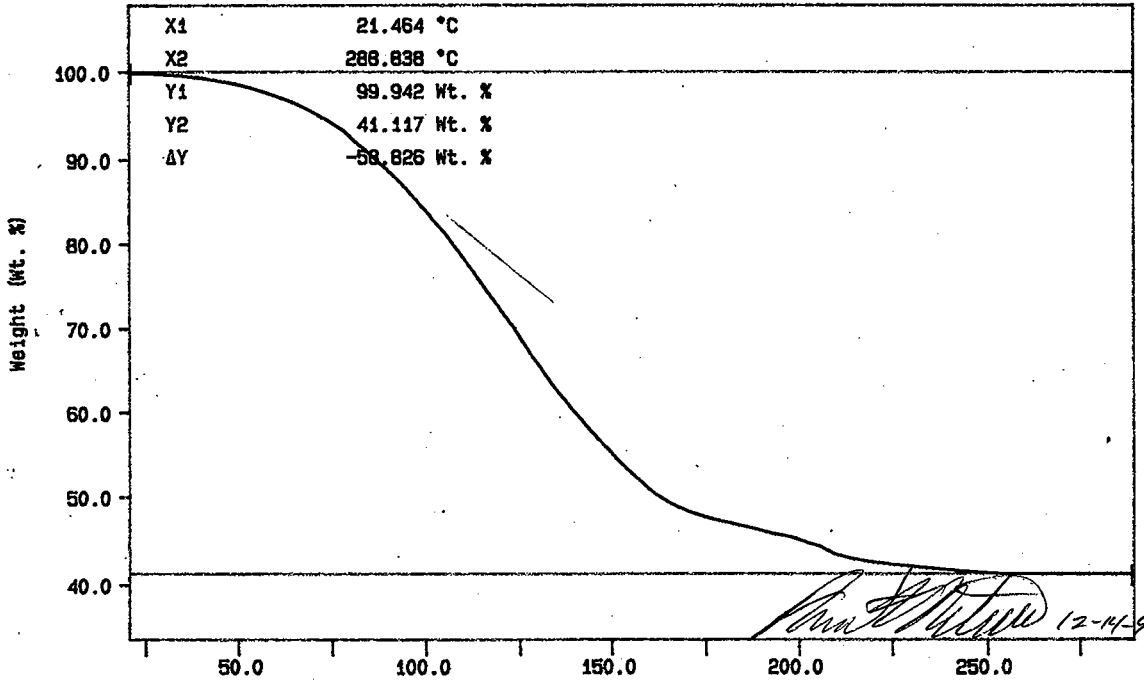
Blandina Valenzuela

Data Entry Comments:

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

Curve 1: TGA
File info: TER121401 Sat Dec 14 05:05:39 1996
Sample Weight: 19.667 mg
TGA STD ~~82N8-A~~ 97N8A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 307 TO 313

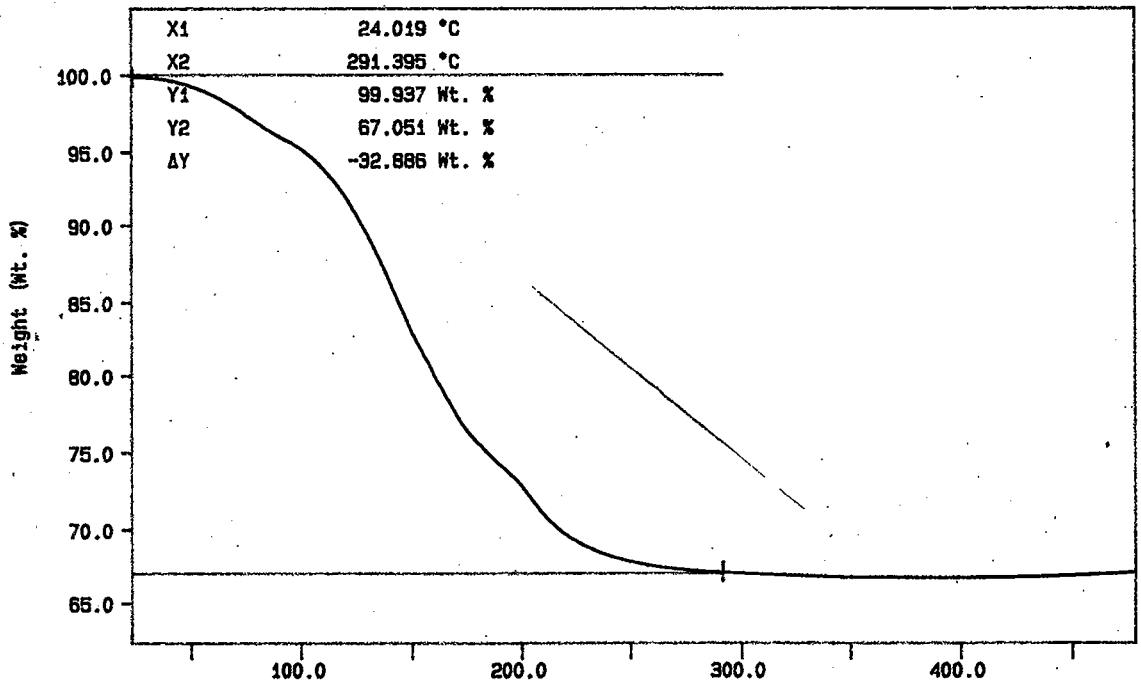


N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 14 05:19:35 1996

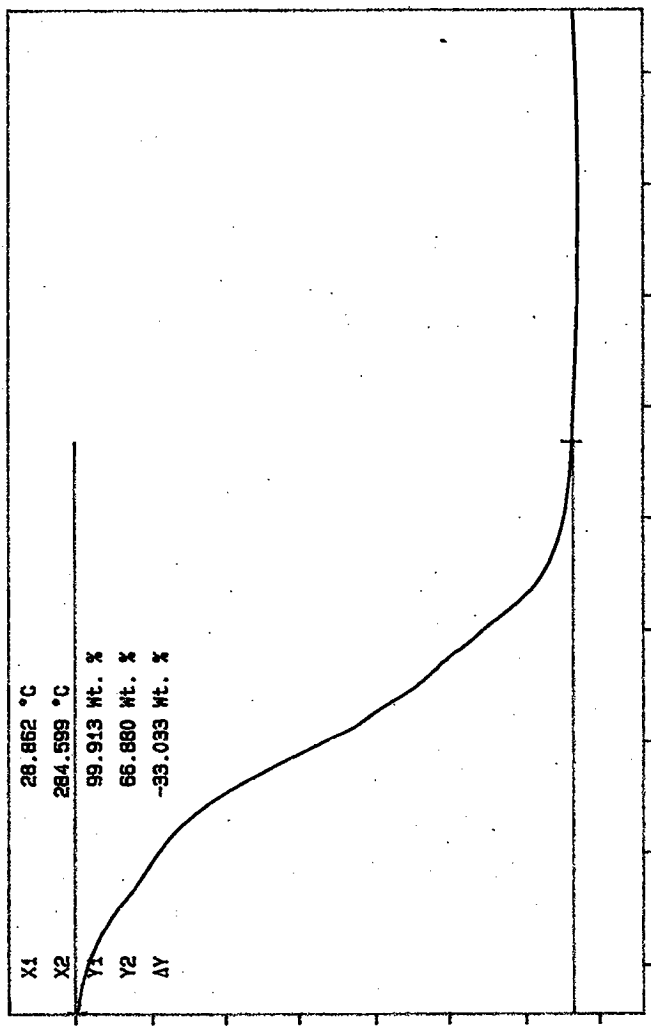
307

Curve 1: TGA
File info: SAM121401 Sat Dec 14 06:25:00 1996
Sample Weight: 28.905 mg
S96T005879

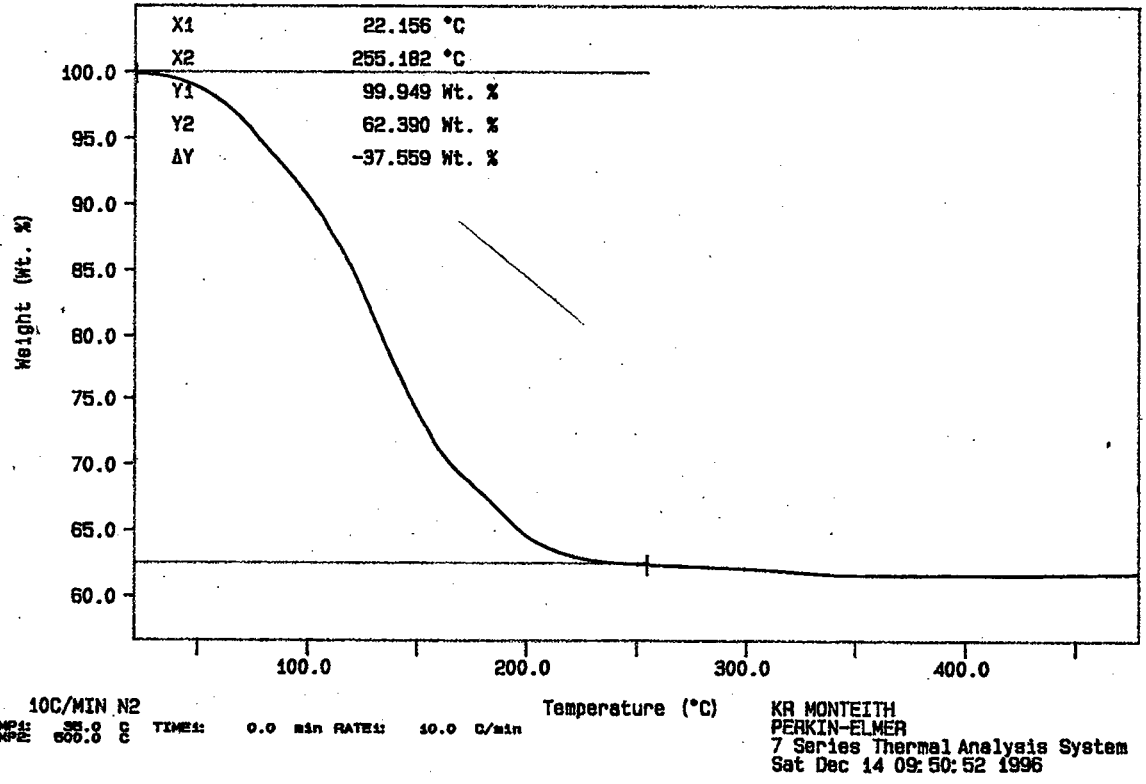


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 14 07:34:54 1996


Curve 1: TGA
File info: SAM121402 Sat Dec 14 08:20:43 1996
Sample Weight: 34.987 mg
S96T005879 DUP
X1 28.862 °C
X2 284.599 °C
Y1 99.913 Wt. %
Y2 66.880 Wt. %
ΔY -33.033 Wt. %
Weight (Wt. %)
100.0
95.0
90.0
85.0
80.0
75.0
70.0
65.0
100.0
200.0
300.0
400.0
Temperature (°C)
10C/MIN N2
TEMP: 30.0 C TIME: 0.0 min RATE: 10.0 C/min
TEMP: 600.0 C
KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 14 08:21:00 1996

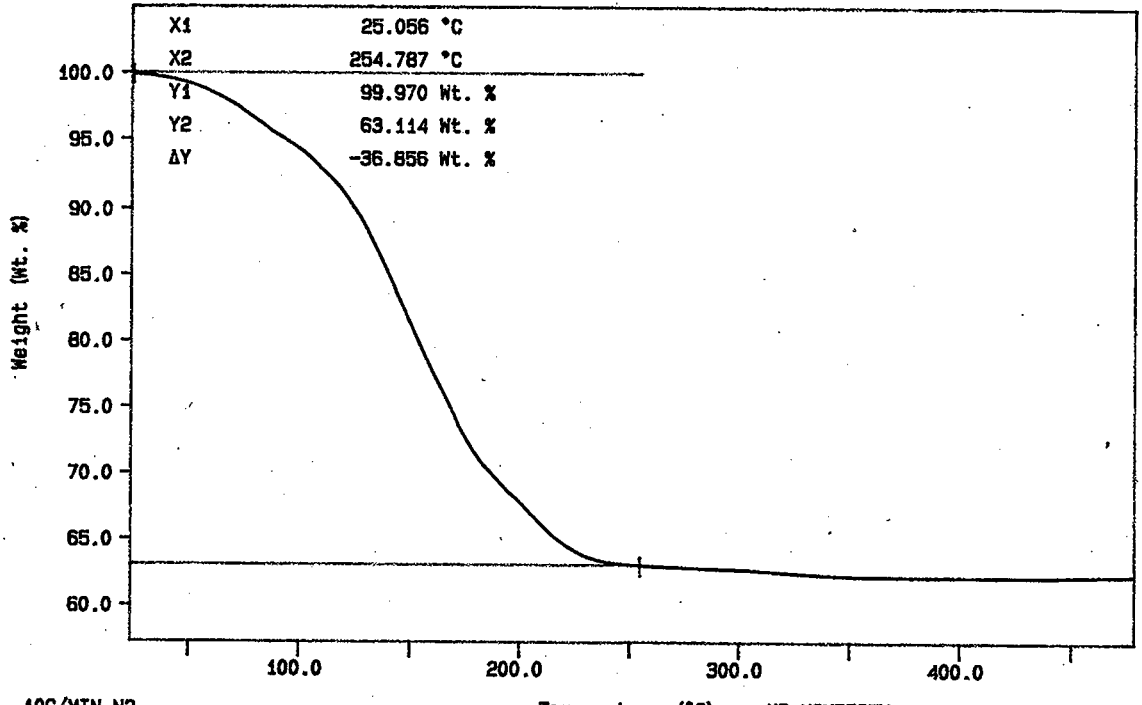
Curve 1: TGA
File info: SAM121403 Sat Dec 14 09:36:45 1996
Sample Weight: 23.042 mg
S969T005880



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

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 14 09:50:52 1996

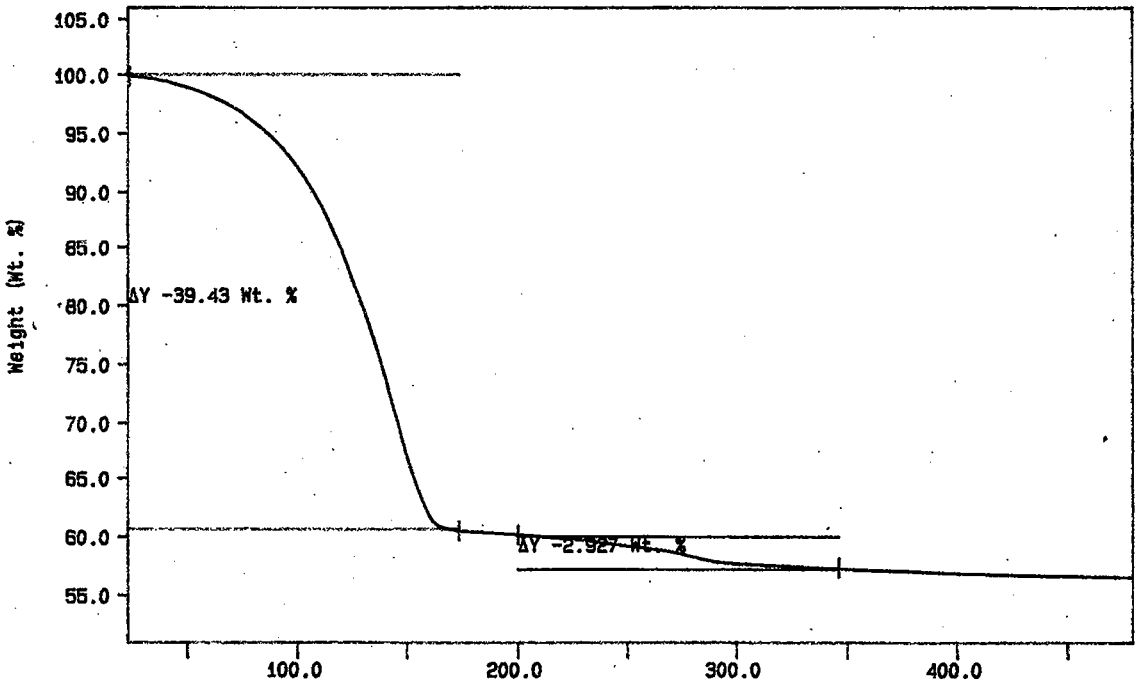
Curve 1: TGA
File info: SAM121404 Sat Dec 14 12:18:13 1996
Sample Weight: 37.132 mg
S96T005880 DUP



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

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Dec 14 12:45:28 1996

Curve 1: TGA
File info: SAM121405 Sat Dec 14 13:31:51 1996
Sample Weight: 26.540 mg
S96T005917

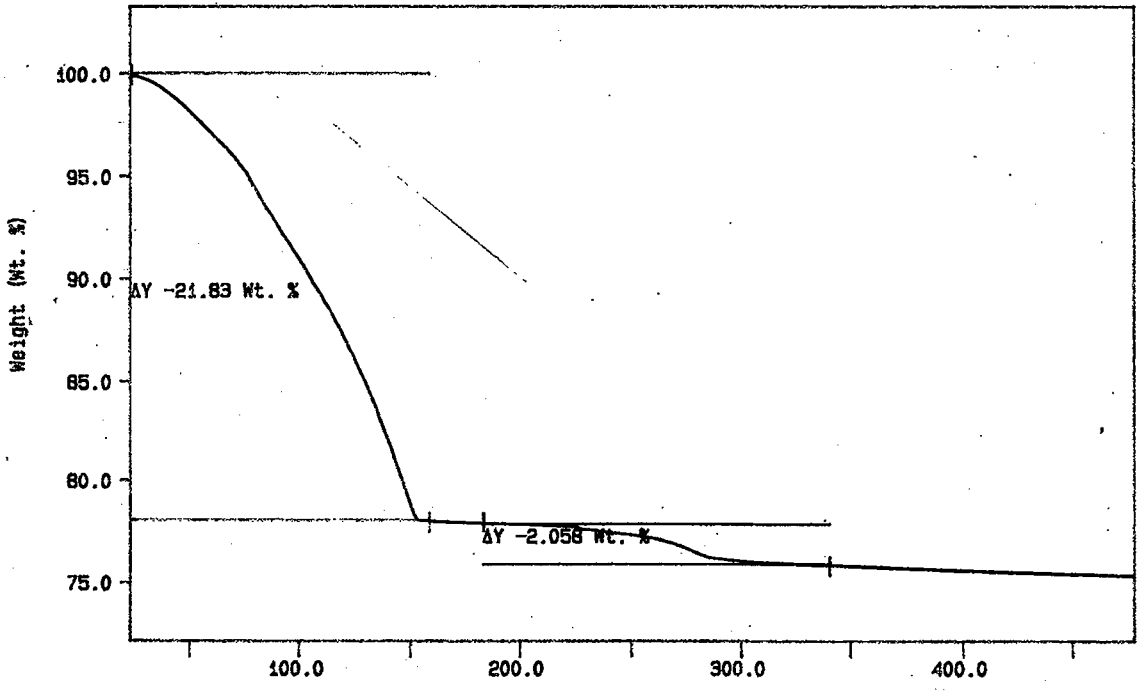


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Dec 16 11:57:17 1996

312

Curve 1: TGA
File info: SAM121406 Sat Dec 14 15:15:17 1996
Sample Weight: 20.507 mg
S96T005917 DUP



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

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Dec 16 12:03:16 1996

LABCORE Completed Worklist Report for Worklist# 15230

Analyst: eal **Instrument:** TGA03 **Book#** 97N8A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: BY-112 TGA, RUN UNDER N2. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	TGA-03	SOLID	5.94e01	58.13	97.862	% Recovery
2	SAMPLE	S96T005918		0	TGA-03	SOLID	N/A	15.73		%
3	DUP	S96T005918		0	TGA-03	SOLID	15.73	15.00	4.751	RPD
4	SAMPLE	S96T005919		0	TGA-03	SOLID	N/A	21.15		%
5	DUP	S96T005919		0	TGA-03	SOLID	21.15	15.94	28.094	RPD
6	SAMPLE	S96T005920		0	TGA-03	SOLID	N/A	18.25		%
7	DUP	S96T005920		0	TGA-03	SOLID	18.25	21.46	16.167	RPD

Final page for worklist# 15230

See attached for signatures 12-18-96
Analyst Signature **Date**

Analyst Signature **Date**

Blandina Valenzuela 12-18-96
Reviewer Signature **Date**

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

LABCORE Data Entry Template for Worklist# 15230

Analyst: [signature] **Instrument:** TGA0 _____ **Book #** 9MBA

Method: LA-560-112 Rev/Mod _____

Worklist Comment: BY-112 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID			N/A	%
96001466	BY-112	2	SAMPLE	S96T005918	0		TGA-01	SOLID	N/A			%
96001466	BY-112	3	DUP	S96T005918	0		TGA-01	SOLID			N/A	%
96001466	BY-112	4	SAMPLE	S96T005919	0		TGA-01	SOLID	N/A			%
96001466	BY-112	5	DUP	S96T005919	0		TGA-01	SOLID			N/A	%
96001466	BY-112	6	SAMPLE	S96T005920	0		TGA-01	SOLID	N/A			%
96001466	BY-112	7	DUP	S96T005920	0		TGA-01	SOLID			N/A	%

Final page for worklist # 15230

[signature] 12/16/96
Analyst Signature **Date**

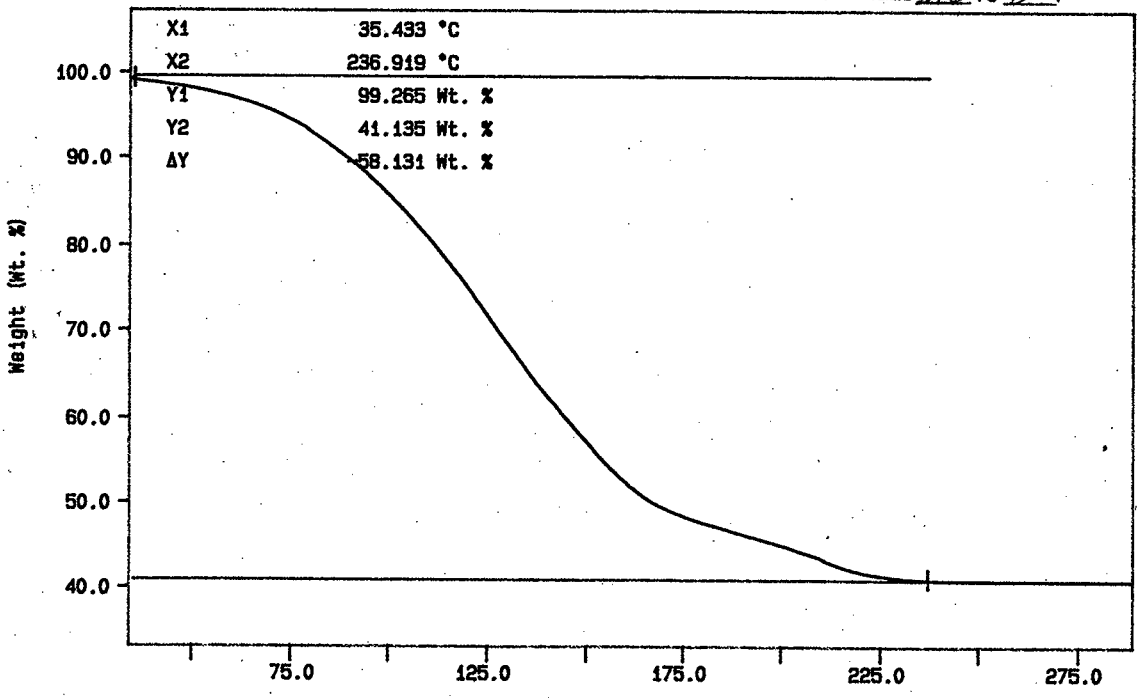
Analyst Signature **Date**

Data Entry Comments: S96T00

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

Curve 1: TGA
File info: TER121501 Sun Dec 15 05:38:22 1996
Sample Weight: 23.064 mg
TGA STD 97N8-A

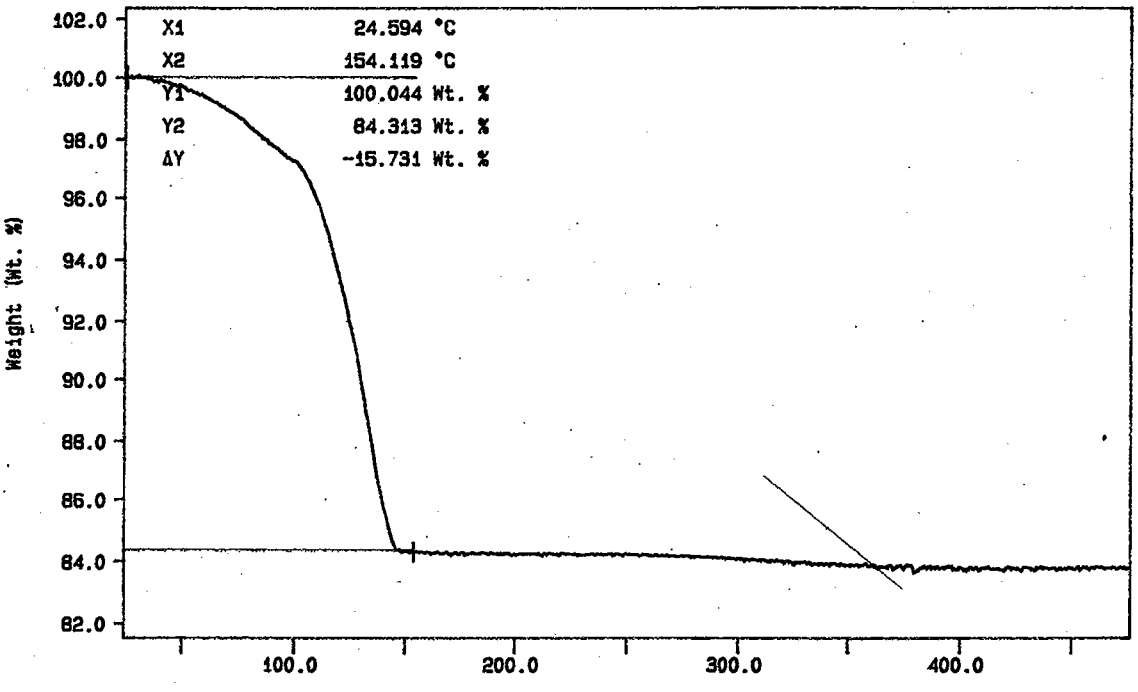
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 316 TO 322



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

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Dec 18 06:40:46 1996

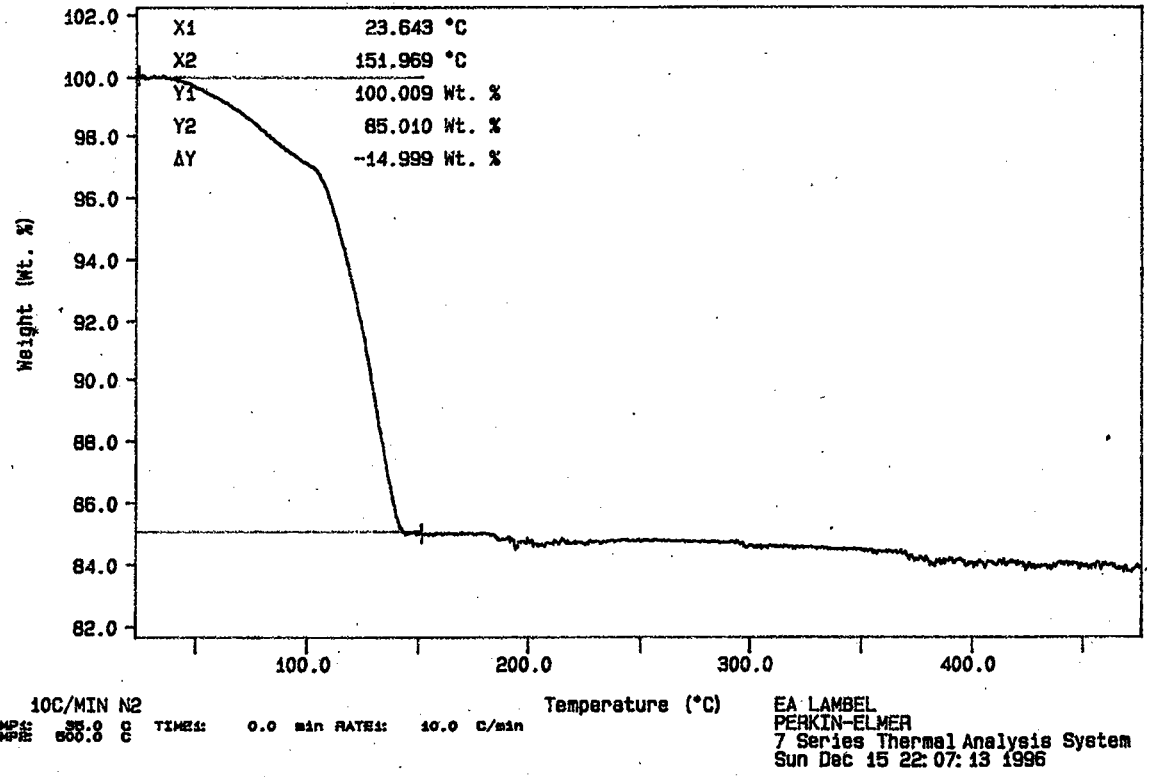
Curve 1: TGA SAM121505
File info: qsav1 Sun Dec 15 19:06:33 1996
Sample Weight: 21.590 mg
S96T005918



10C/MIN N2
TEMP1: 25.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

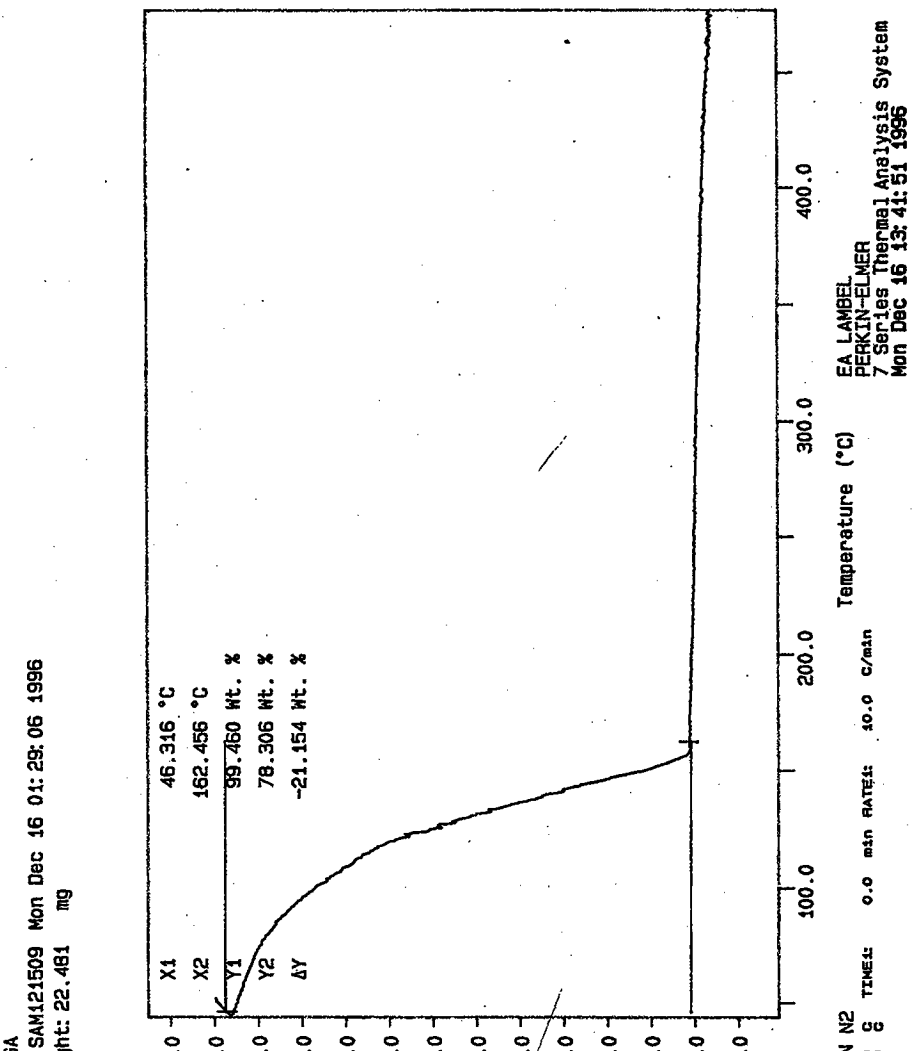
EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Dec 15 20:30:33 1996

Curve 1: TGA
File info: SAM121506 Sun Dec 15 21:25:47 1996
Sample Weight: 21.973 mg
S96T005918DUP

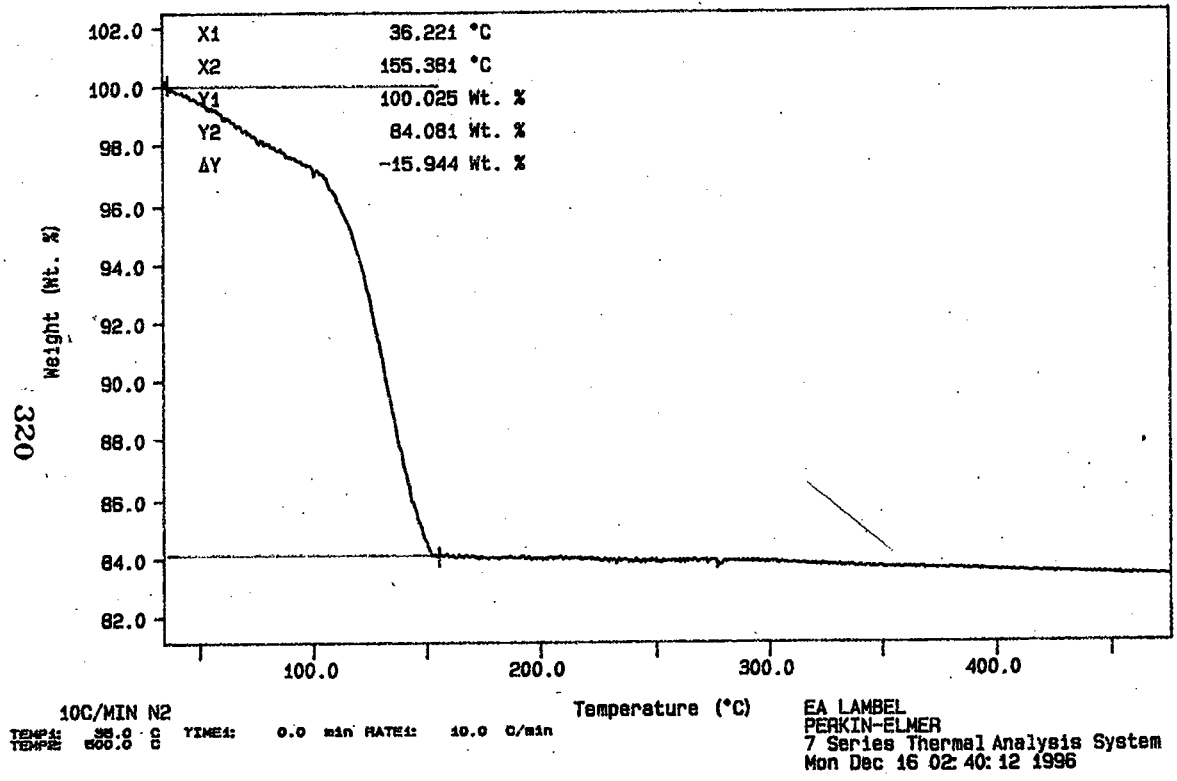


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Dec 15 22:07:13 1996


Curve 1: TGA
File info: SAM121509 Mon Dec 16 01:29:06 1996
Sample Weight: 22.481 mg
S96T005919
X1 46.316 °C
X2 162.456 °C
Y1 99.460 Wt. %
Y2 78.306 Wt. %
ΔY -21.154 Wt. %
Weight (Wt. %)
102.0
100.0
98.0
96.0
94.0
92.0
90.0
88.0
86.0
84.0
82.0
80.0
78.0
76.0
100.0
200.0
300.0
400.0
Temperature (°C)
10C/MIN N2
TEMP1: 38.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C
EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Dec 16 13:41:51 1996

Curve 1: TGA
File info: SAM121510 Mon Dec 16 02:32:55 1996
Sample Weight: 16.563 mg
S96T005919DUP

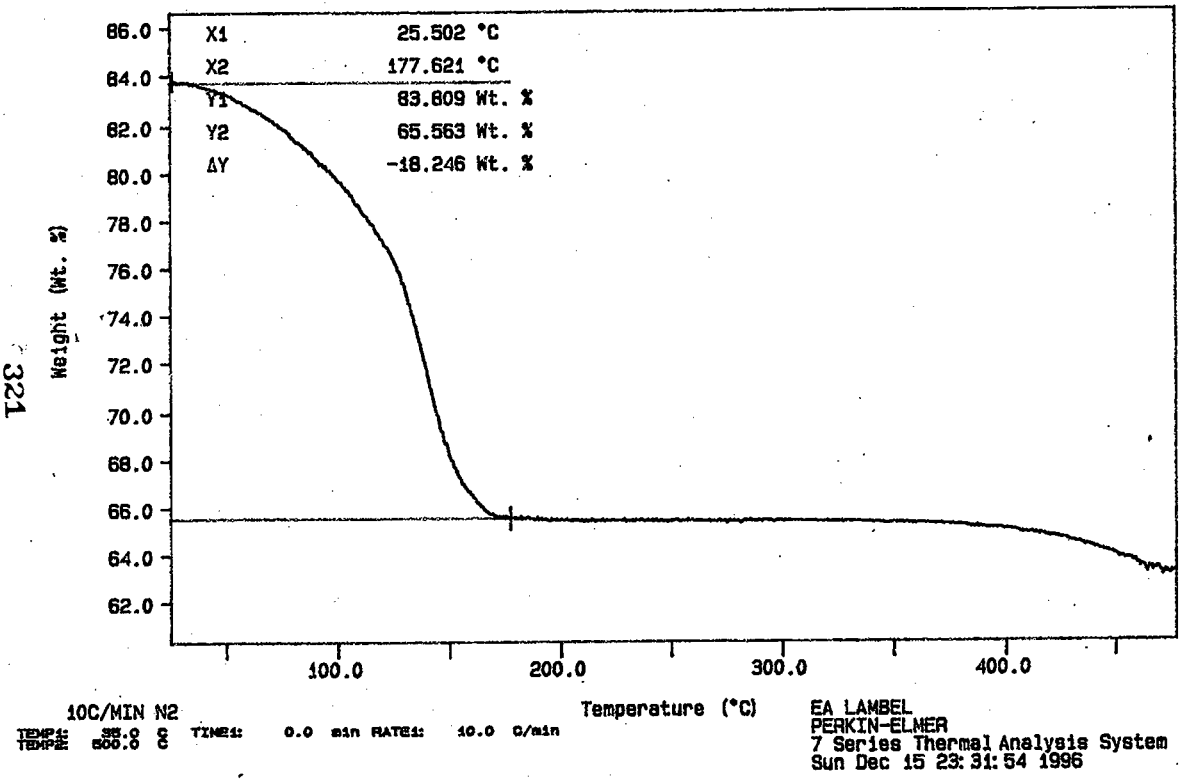


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Dec 16 02:40:12 1996

320

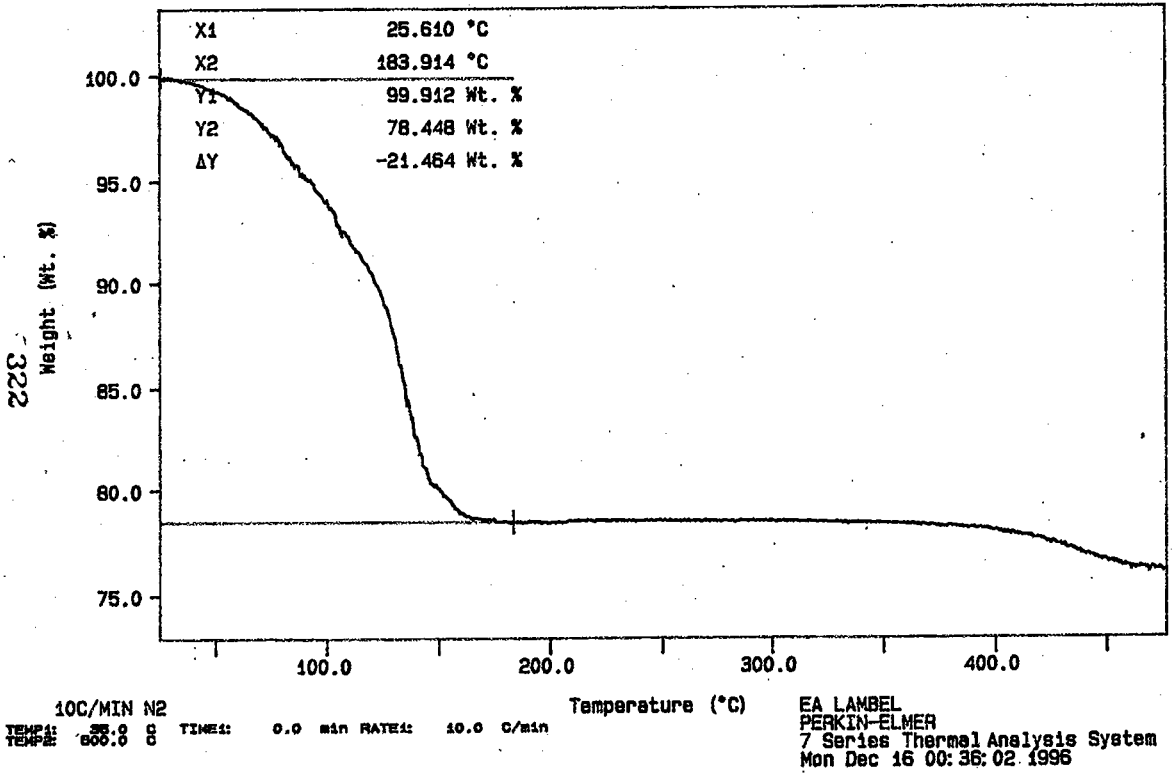
Curve 1: TGA
File info: SAM121507 Sun Dec 15 22:59:43 1996
Sample Weight: 21.973 mg
S96T005920



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

EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Dec 15 23:31:54 1996

Curve 1: TGA
File info: SAM121508 Mon Dec 16 00:28:00 1996
Sample Weight: 16.617 mg
S96T005920DUP



10C/MIN N2
TEMP1: 25.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Dec 16 00:36:02 1996

322

LABCORE Data Entry Template for Worklist# 15231

Analyst: DcD **Instrument:** TGA0 1 **Book #** 97N8-A

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

Worklist Comment: BY-112 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	59.4	58.16	N/A	%
96001466	BY-112	2 SAMPLE	S96T005921	0		TGA-01	SOLID	N/A	36.42		%
96001466	BY-112	3 DUP	S96T005921	0		TGA-01	SOLID	36.42	36.86	N/A	%
96001466	BY-112	4 SAMPLE	S96T005922	0		TGA-01	SOLID	N/A	29.71		%
96001466	BY-112	5 DUP	S96T005922	0		TGA-01	SOLID	29.71	27.66	N/A	%

Final page for worklist # 15231

David C Dunham 12-15-96
Analyst Signature **Date**

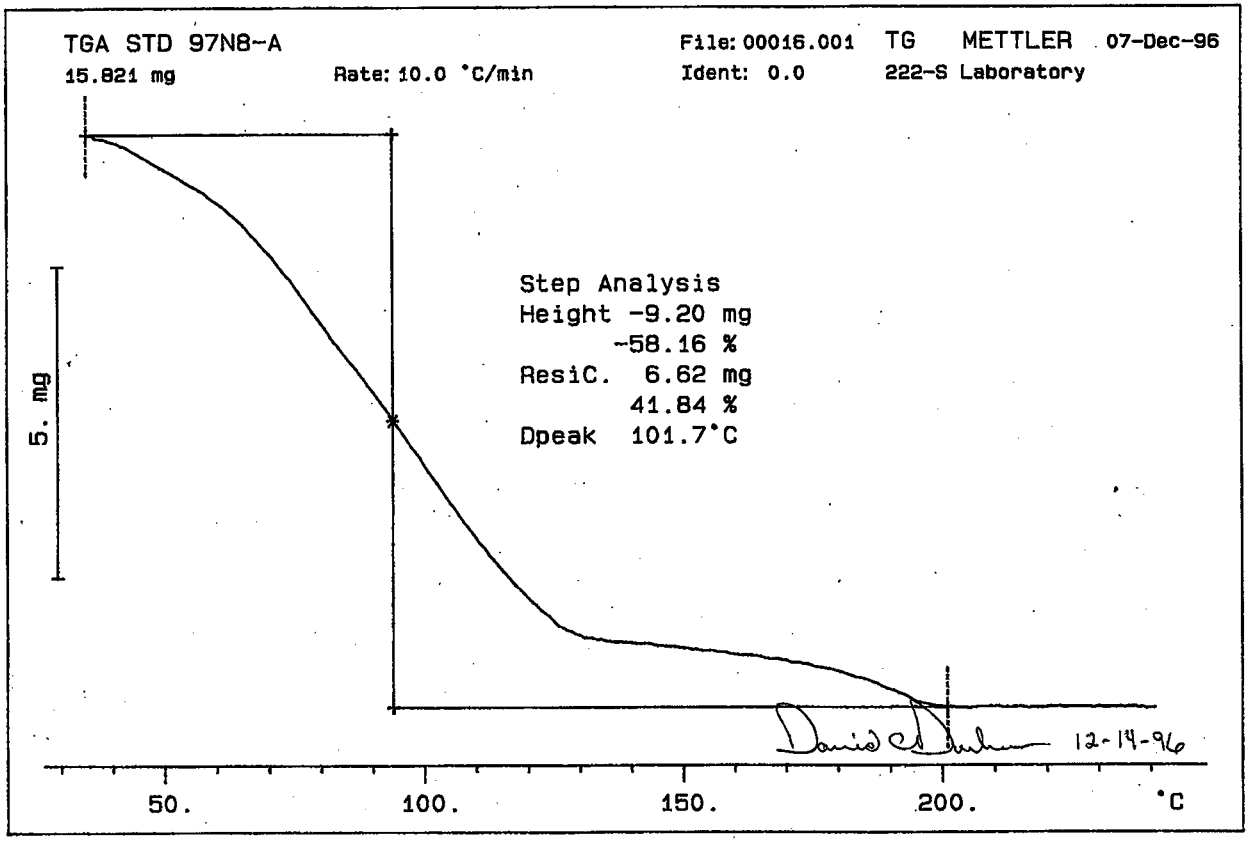
12-17-96
Analyst Signature **Date**

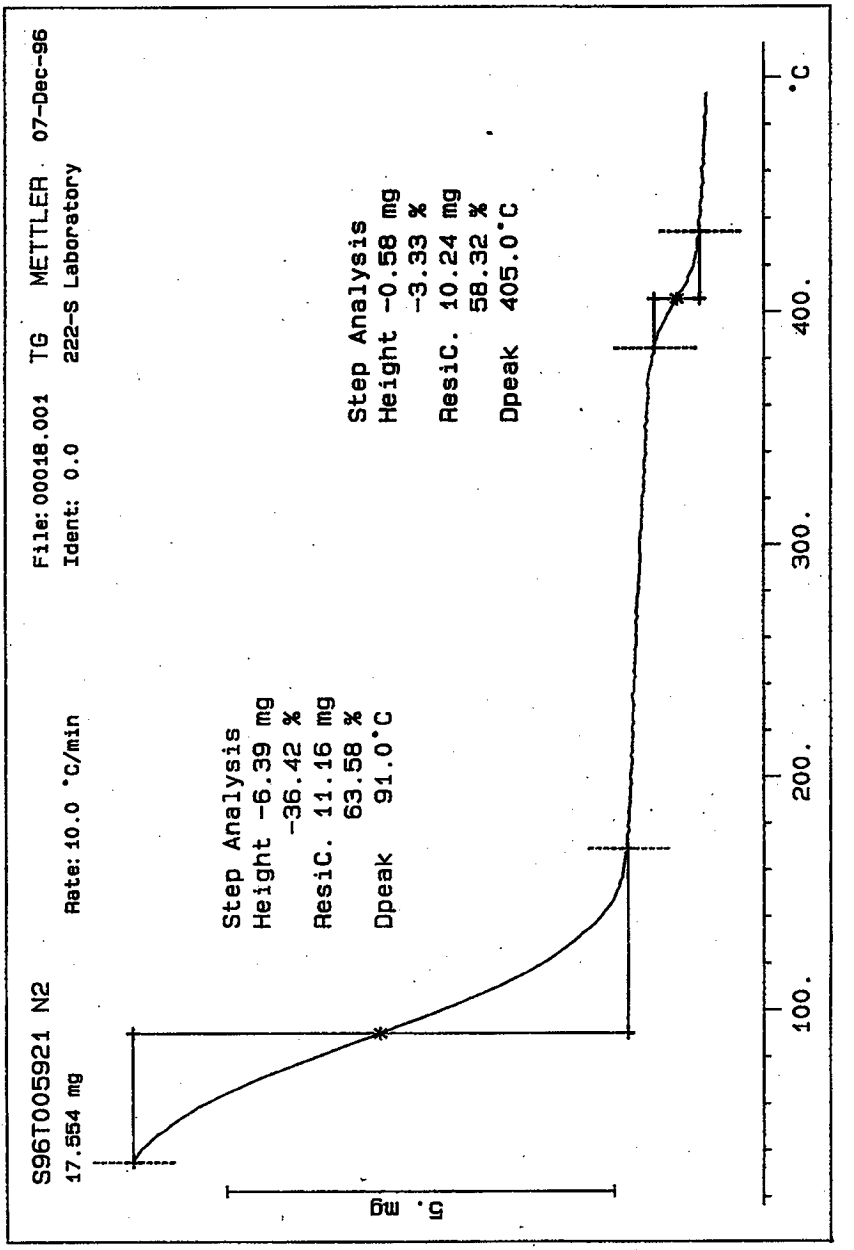
Verified/Validated by
Blandina
Valenzuela 12-18-96

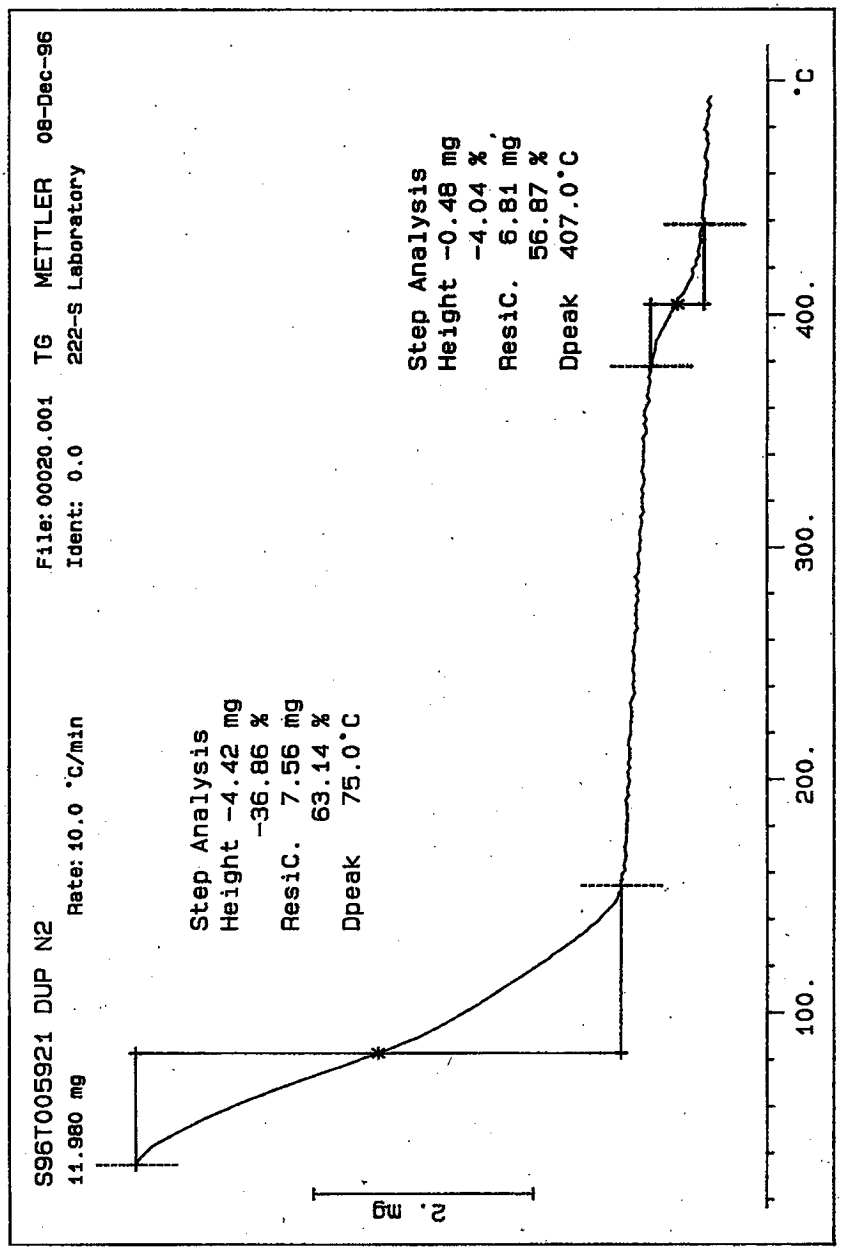
Data Entry Comments:

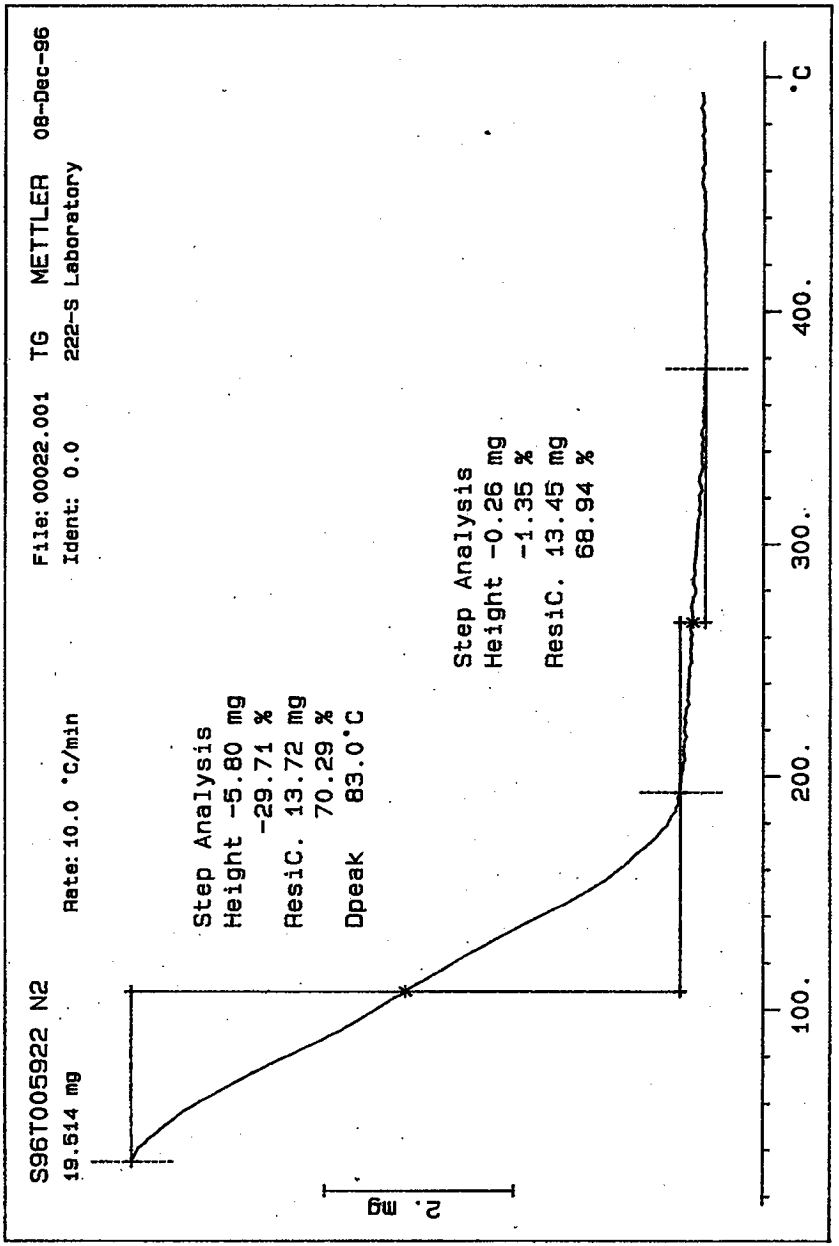
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

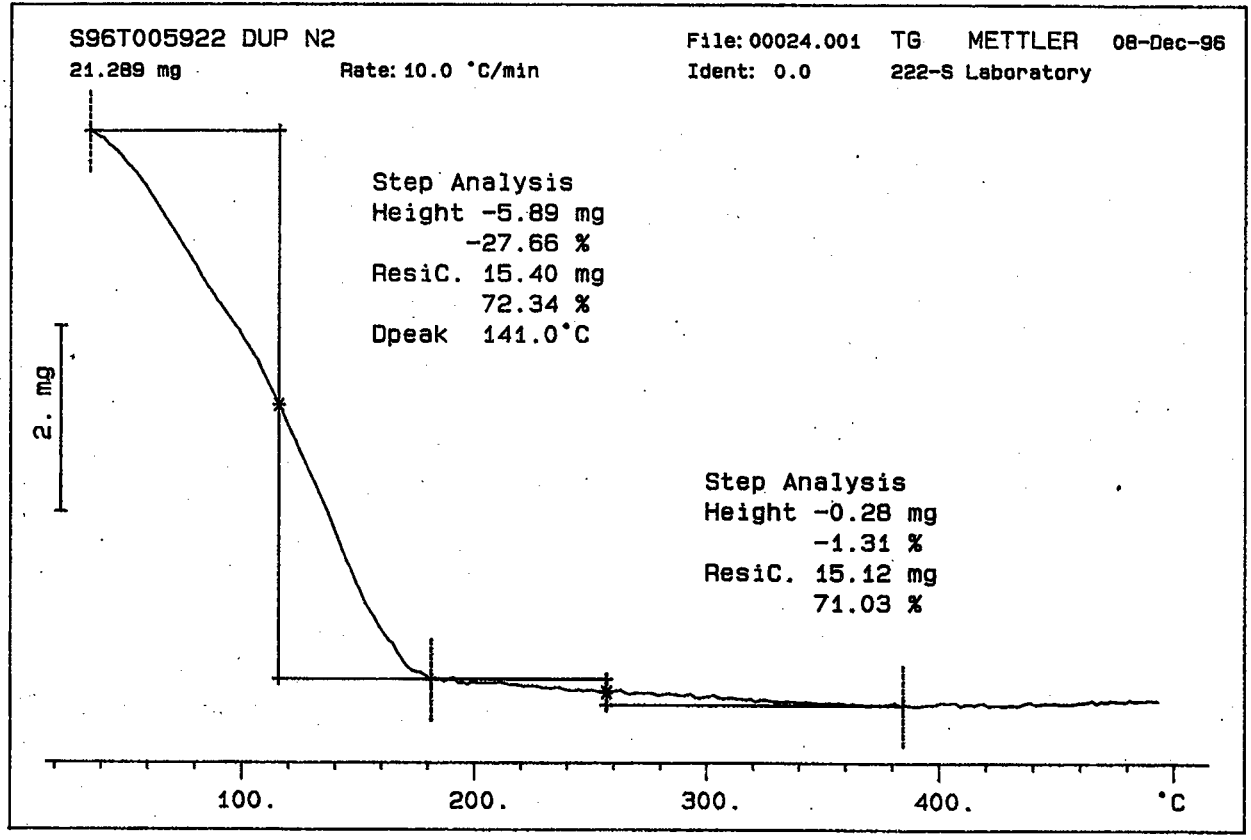
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 324 TO 328.




S96T005921 N2
17.554 mg
Rate: 10.0 °C/min
File: 00018.001 TG METTLER 07-Dec-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -6.39 mg
-36.42 %
ResiC. 11.16 mg
63.58 %
Dpeak 91.0°C
Step Analysis
Height -0.58 mg
-3.33 %
ResiC. 10.24 mg
58.32 %
Dpeak 405.0°C
5. mg
100.
200.
300.
400.
°C


S96T005921 DUP N2
11.980 mg
Rate: 10.0 °C/min
File: 00020.001 TG METTLER 08-Dec-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -4.42 mg
-36.86 %
ResiC. 7.56 mg
63.14 %
Dpeak 75.0°C
Step Analysis
Height -0.48 mg
-4.04 %
ResiC. 6.81 mg
56.87 %
Dpeak 407.0°C
mg
100.
200.
300.
400.
°C


S96T005922 N2
19.514 mg
Rate: 10.0 °C/min
File: 00022.001 TG METTLER 08-Dec-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -5.80 mg
-29.71 %
ResiC. 13.72 mg
70.29 %
Dpeak 83.0°C
Step Analysis
Height -0.26 mg
-1.35 %
ResiC. 13.45 mg
68.94 %
2. mg
100.
200.
300.
400.
°C


S96T005922 DUP N2
21.289 mg
Rate: 10.0 °C/min
File: 00024.001 TG METTLER 08-Dec-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height -5.89 mg
-27.66 %
ResiC. 15.40 mg
72.34 %
Dpeak 141.0°C
2. mg
Step Analysis
Height -0.28 mg
-1.31 %
ResiC. 15.12 mg
71.03 %
100.
200.
300.
400.
°C

LABCORE Completed Worklist Report for Worklist# 15232

Analyst: dcd **Instrument:** TGA03 **Book#** 97N8A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: BY-112 TGA, RUN UNDER N2. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	TGA-03	SOLID	5.94e01	58.13	97.862	% Recovery
2	SAMPLE	S96T005950		0	TGA-03	SOLID	N/A	32.32		%
3	DUP	S96T005950		0	TGA-03	SOLID	32.32	34.77	7.304	RPD
4	SAMPLE	S96T005951		0	TGA-03	SOLID	N/A	40.34		%
5	DUP	S96T005951		0	TGA-03	SOLID	40.34	40.06	0.697	RPD

Final page for worklist# 15232

See attached for signatures 12-18-96
Analyst Signature **Date**

Analyst Signature **Date**

Blandina Valenzuela 12-18-96
Reviewer Signature **Date**

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

worklistrpt Version 2.1 05/15/95
11/25/96 11:56

LABCORE Data Entry Template for Worklist# 15232

Analyst: DcD **Instrument:** TGA0 **Book #** 97N8-A

Method: LA-560-112 Rev/Mod _____

Worklist Comment: BY-112 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID			N/A	%
96001466	BY-112	2 SAMPLE	S96T005950	0		TGA-01	SOLID	N/A			%
96001466	BY-112	3 DUP	S96T005950	0		TGA-01	SOLID			N/A	%
96001466	BY-112	4 SAMPLE	S96T005951	0		TGA-01	SOLID	N/A			%
96001466	BY-112	5 DUP	S96T005951	0		TGA-01	SOLID			N/A	%
96001466	BY-112	6 DUP	S96T005951	0		TGA-01	SOLID			N/A	%

Final page for worklist # 15232

David C Dunham 12-15-96
Analyst Signature **Date**

Analyst Signature **Date**

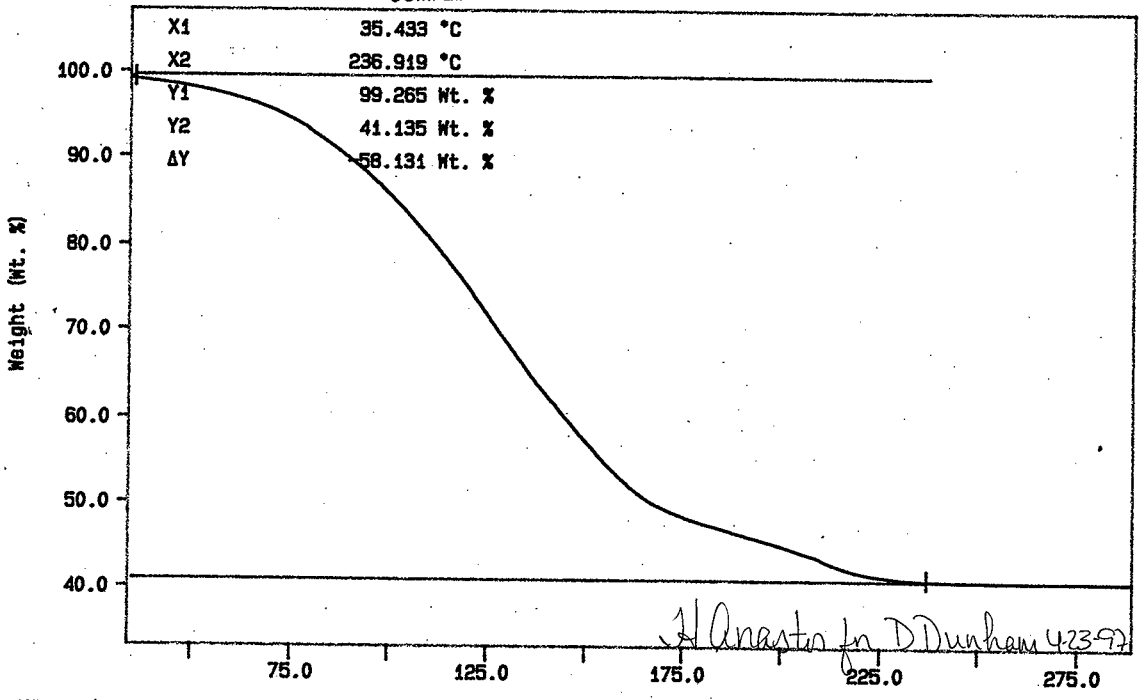
TGA-03 instrument was used.
12-16-96
Blandina Valenzuela

Data Entry Comments:

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

Curve 1: TGA
File info: TER121501 Sun Dec 15 05:38:22 1996
Sample Weight: 23.064 mg
TGA STD 97N8-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 331 TO 335



H Anastas for D Dunham 4-23-97

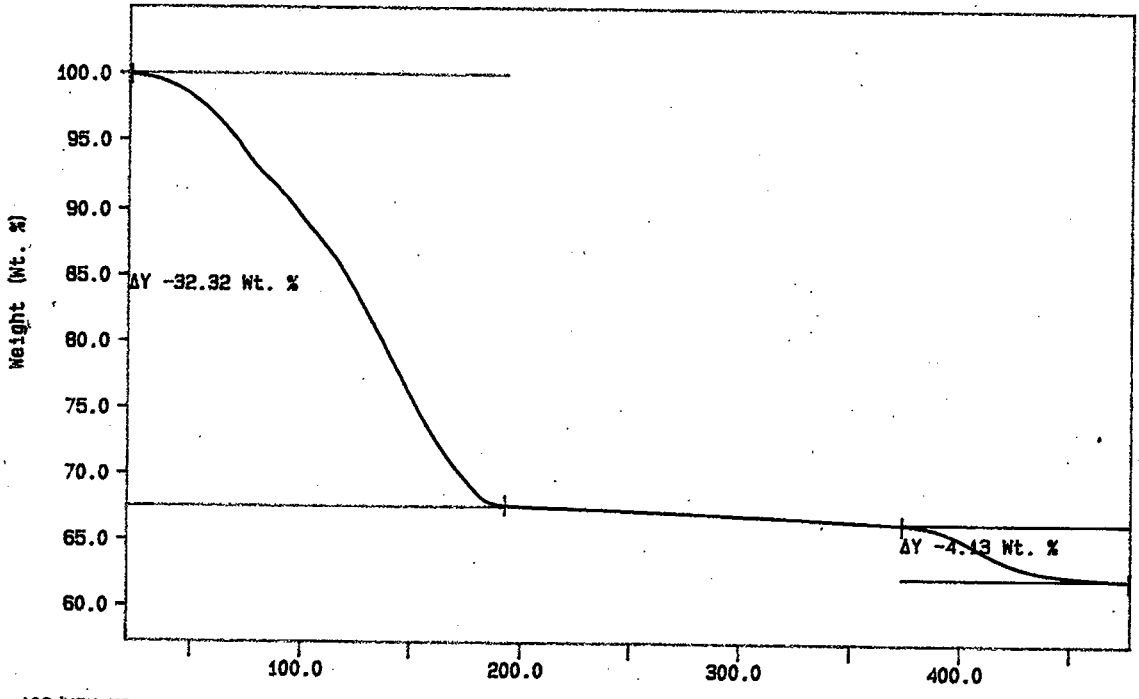
N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Dec 18 06:40:53 1996

331

HNF-SD-WM-DP-229, REV. 0

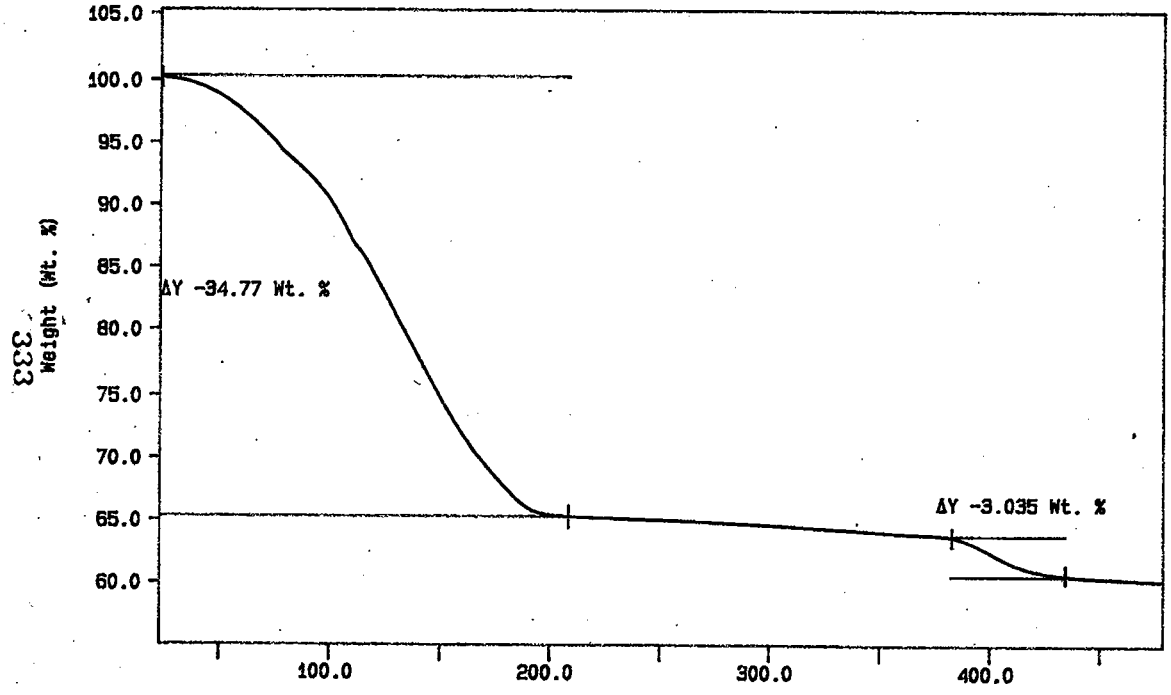
Curve 1: TGA
File info: SAM121501 Sun Dec 15 10:45:42 1996
Sample Weight: 17.189 mg
S96T005950



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

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Dec 15 11:42:12 1996

Curve 1: TGA
File info: SAM121502 Sun Dec 15 12:57:31 1996
Sample Weight: 15.682 mg
S96T005950 DUP

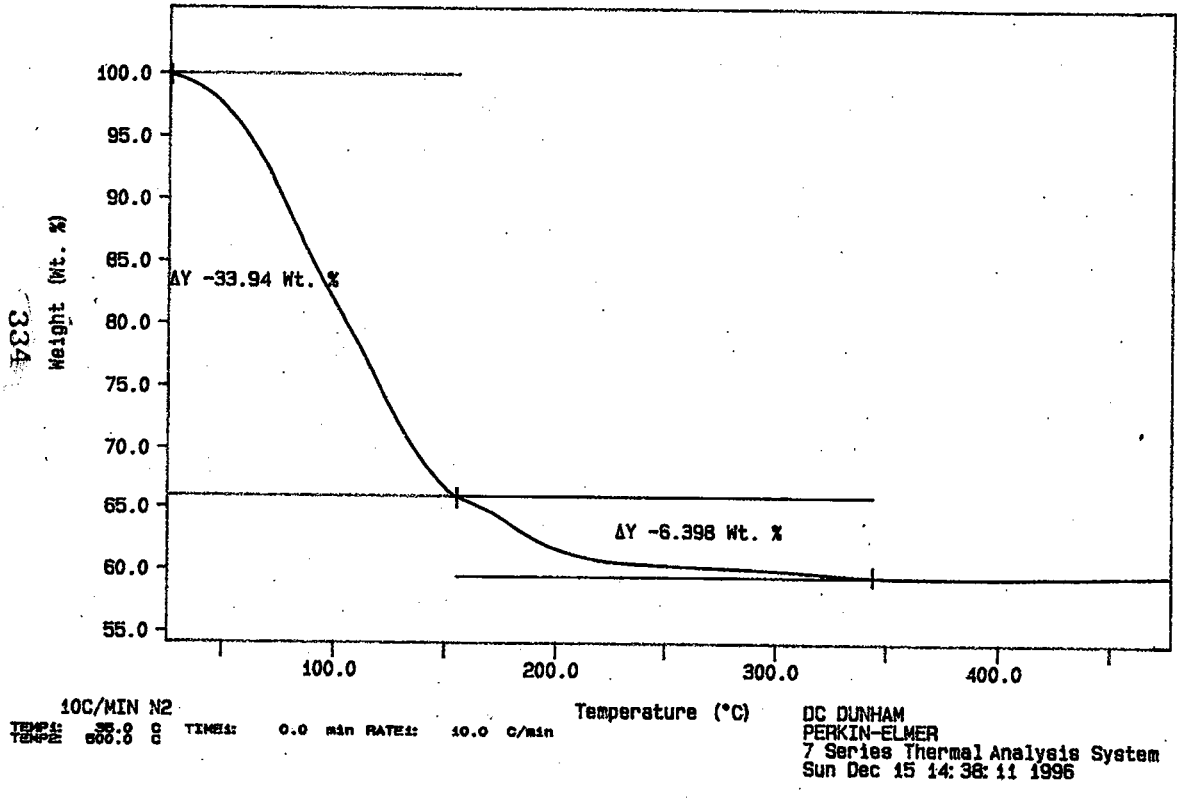


10C/MIN N2
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Dec 15 13:08:26 1996

333

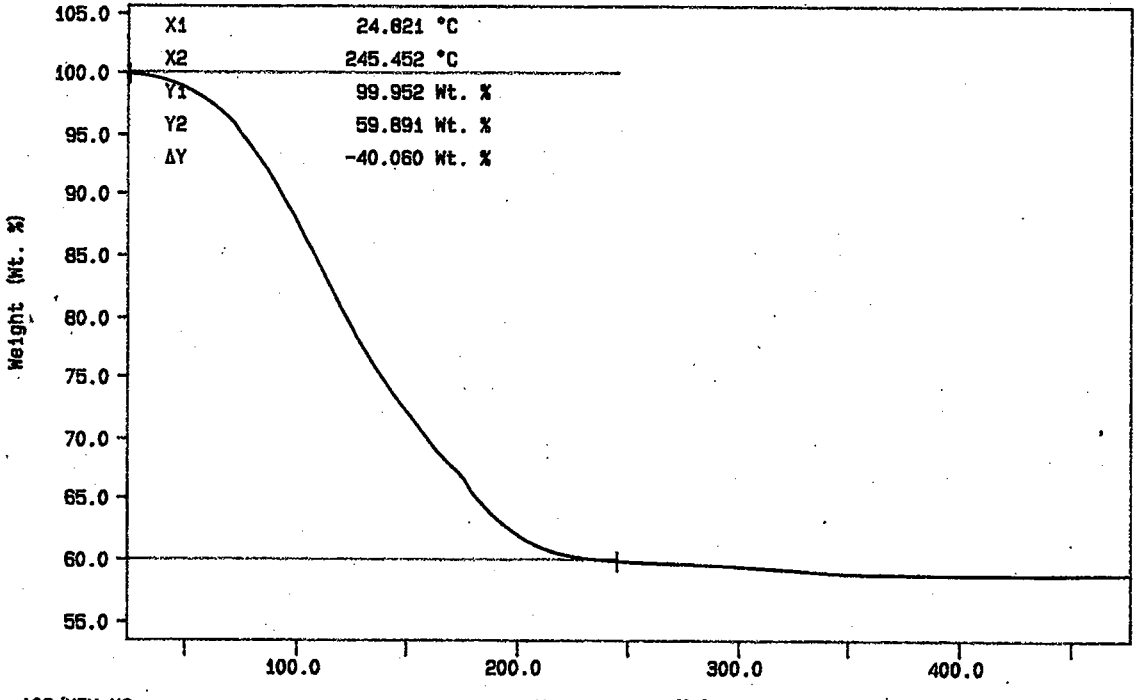
Curve 1: TGA
File info: SAM121503 Sun Dec 15 14:11:57 1996
Sample Weight: 12.010 mg
S96T005951



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

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Dec 15 14:38:11 1996

Curve 1: TGA
File info: SAM121504 Sun Dec 15 15:36:42 1996
Sample Weight: 11.625 mg
S96T005951 DUP



10C/MIN N2
TEMP1: 25.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 600.0 C

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Dec 15 15:40:21 1996

LABCORE Data Entry Template for Worklist# 15697

Analyst: JDS **Instrument:** TGA0 3 **Book #** 97N8-A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: Please run BY-112 under N2. Rerun. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-03	SOLID	59.4	58.60	N/A	%
96001466	BY-112	2 SAMPLE	S96T005917	1		TGA-03	SOLID	N/A	43.02		%
96001466	BY-112	3 DUP	S96T005917	1		TGA-03	SOLID	43.02	39.42	N/A	%

Final page for worklist # 15697

JAH Sph 12/18/96
Analyst Signature **Date**

H Anastos 12.19.96
Analyst Signature **Date**

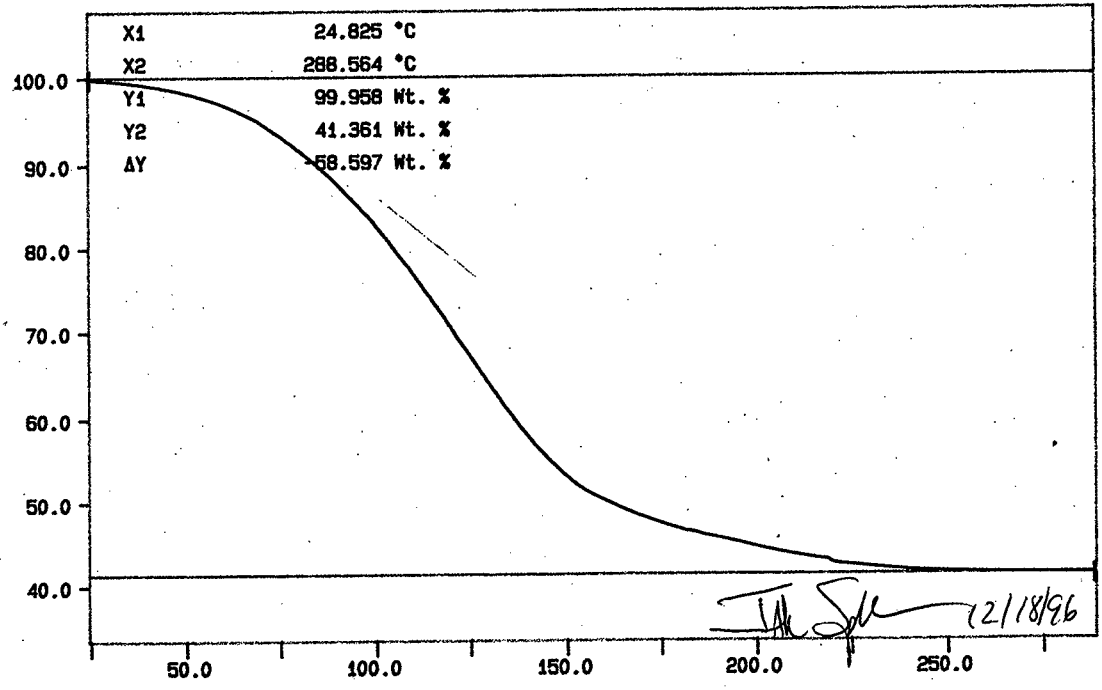
Validated 12.19.96 by H Anastos

Data Entry Comments:

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

Curve 1: TGA
File info: TER121802 Wed Dec 18 07:15:51 1996
Sample Weight: 19.514 mg
TGA STD 97N8-A

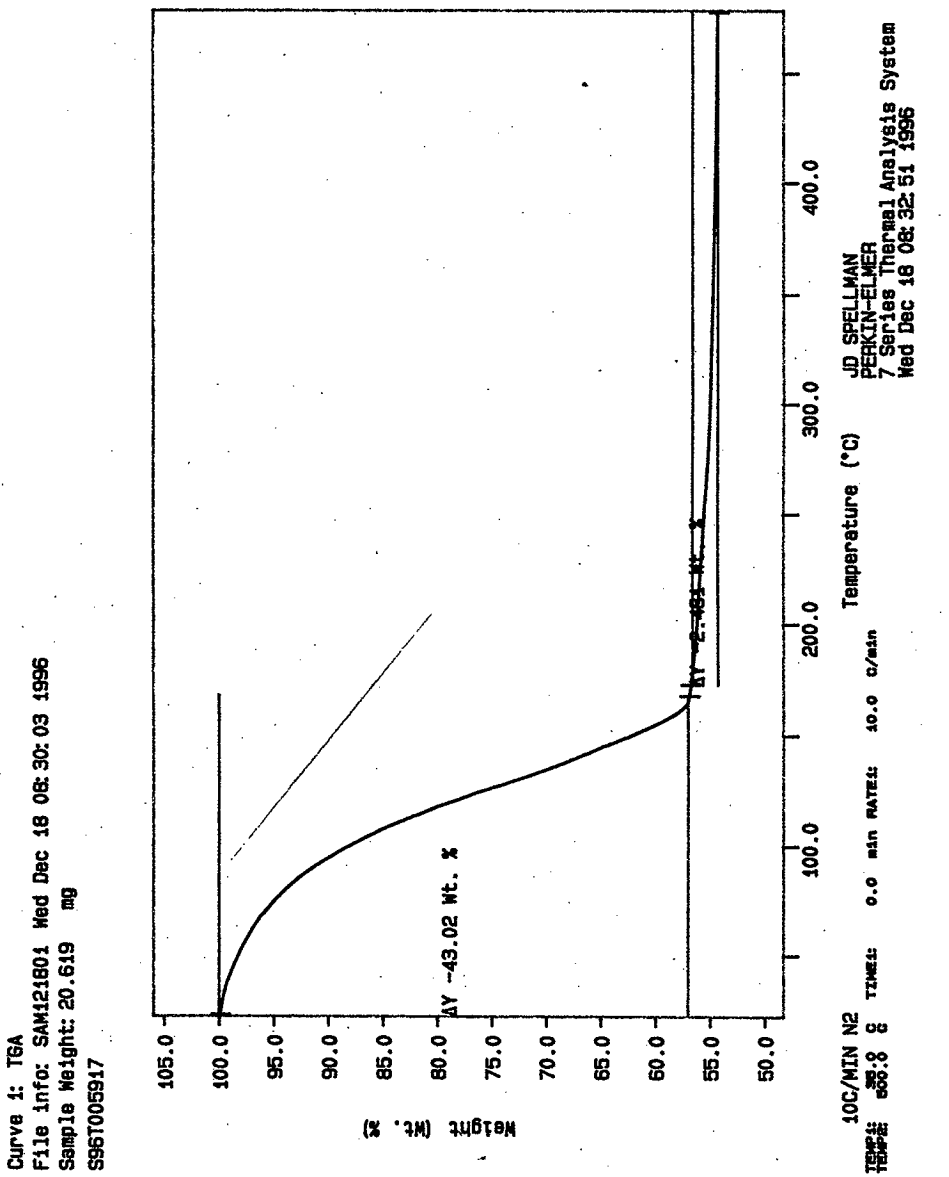
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 337 TO 339.



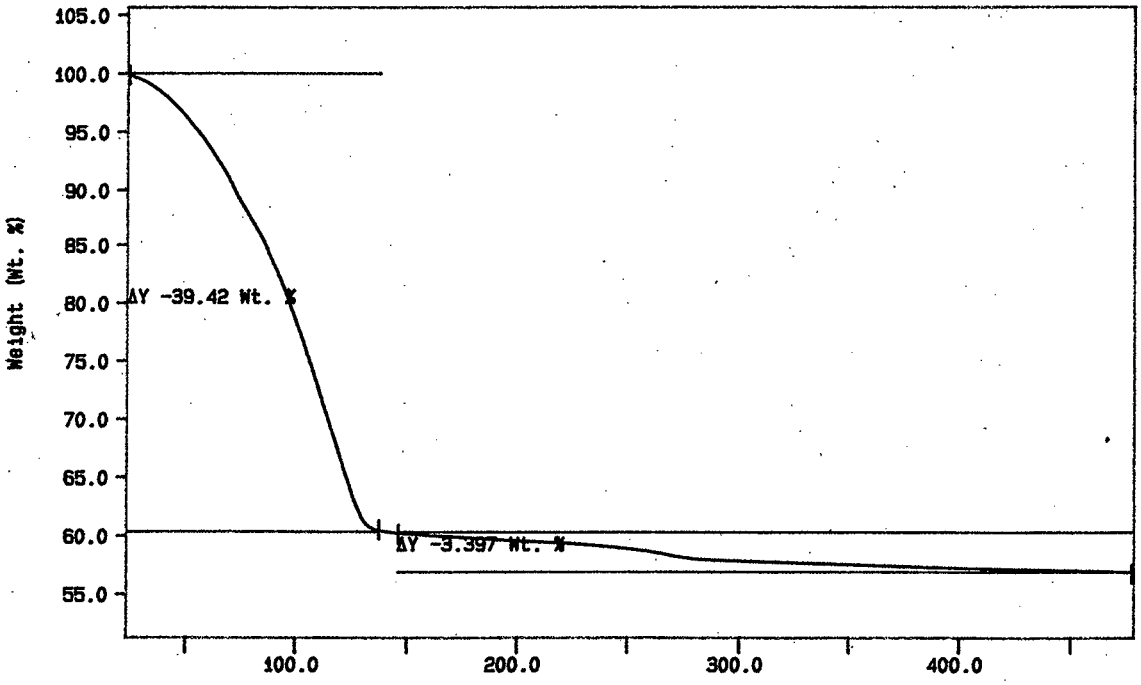
N2 10C/MIN
TEMP1: 35.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 300.0 C

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Dec 18 07:16:59 1996

337


Curve 1: TGA
File info: SAM121801 Wed Dec 18 08:30:03 1996
Sample Weight: 20.619 mg
S96T005917
Weight (Wt. %)
105.0
100.0
95.0
90.0
85.0
80.0
75.0
70.0
65.0
60.0
55.0
50.0
ΔY -43.02 Wt. %
ΔY -2.481 Wt. %
100.0
200.0
300.0
400.0
Temperature (°C)
10C/MIN N2
TEMP: 30.8 C TIME: 0.0 min RATE: 10.0 C/min
TEMP: 600.8 C
JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Dec 18 08:32:51 1996

Curve 1: TGA
File info: SAM121802 Wed Dec 18 10:22:52 1996
Sample Weight: 8.570 mg
S96T005917DUP



10C/MIN N2
TEMP1: 25.0 C TIME1: 0.0 min RATE1: 10.0 C/min
TEMP2: 500.0 C

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Dec 18 11:24:47 1996

LABCORE Data Entry Template for Worklist# 15243

Analyst: ADP **Instrument:** BA001 **Book #** 133N16A

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

Worklist Comment: BY-112 SPG. RCJ

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-------TEST------	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				SPG-01	LIQUID	1.398	1.398	N/A	Sp.G.
96001393	BY-112	2	SAMPLE	S96T005907	0		SPG-01	LIQUID	N/A	1.474	0.010	Sp.G.
96001393	BY-112	3	DUP	S96T005907	0		SPG-01	LIQUID	1.474	1.478	N/A	Sp.G.
96001466	BY-112	4	SAMPLE	S96T005909	0		SPG-01	LIQUID	N/A	.986	0.010	Sp.G.
96001466	BY-112	5	DUP	S96T005909	0		SPG-01	LIQUID	.986	.983	N/A	Sp.G.
96001466	BY-112	6	SAMPLE	S96T005960	0		SPG-01	LIQUID	N/A	1.462	0.010	Sp.G.
96001466	BY-112	7	DUP	S96T005960	0		SPG-01	LIQUID	1.462	1.470	N/A	Sp.G.

Final page for worklist # 15243

Anthony Parentes 1-14-97
Analyst Signature **Date**

[illegible] 1-14/97
Analyst Signature **Date**

Approved RW Schroeder 1/14/97

Data Entry Comments:

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

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

WORKLIST #	ANALYST INITIALS	ANALYSIS DATE	ANALYSIS TIME	INSTRUMENT CODE
15243	ADP	1-14-97	0300	

☐ SAMPLE ☑ STANDARD ☐ DUPLICATE

SAMPLE # = STD # = 133N16-A

		REPLICATE
TARE WEIGHT (g)	1.8733	1.9065
GROSS WEIGHT (g)	1.9789	2.0116
VOL. of SOLUTION (mL)	.07538	.07538

☐ SAMPLE ☑ DUPLICATE

SAMPLE # = S96T005909 STD # =

		REPLICATE
TARE WEIGHT (g)	1.9041	
GROSS WEIGHT (g)	1.9782	
VOL. of SOLUTION (mL)	.07538	

☑ SAMPLE ☐ STANDARD ☐ DUPLICATE

SAMPLE # = S96T005907 STD # =

		REPLICATE
TARE WEIGHT (g)	1.8983	
GROSS WEIGHT (g)	1.9944	
VOL. of SOLUTION (mL)	.07538	

☑ SAMPLE ☐ STANDARD ☐ DUPLICATE

SAMPLE # = S96T005960 STD # =

		REPLICATE
TARE WEIGHT (g)	1.8918	
GROSS WEIGHT (g)	2.0020	
VOL. of SOLUTION (mL)	.07538	

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☐ SAMPLE ☑ STANDARD ☑ DUPLICATE

SAMPLE # = S96T005907 STD # =

		REPLICATE
TARE WEIGHT (g)	1.8792	
GROSS WEIGHT (g)	1.9906	
VOL. of SOLUTION (mL)	.07538	

☐ SAMPLE ☑ STANDARD ☑ DUPLICATE

SAMPLE # = S96T005960 STD # =

		REPLICATE
TARE WEIGHT (g)	1.8405	
GROSS WEIGHT (g)	1.9513	
VOL. of SOLUTION (mL)	.07538	

☑ SAMPLE ☐ STANDARD ☐ DUPLICATE

SAMPLE # = S96T005909 STD # =

		REPLICATE
TARE WEIGHT (g)	1.8556	
GROSS WEIGHT (g)	1.9299	
VOL. of SOLUTION (mL)	.07538	

☐ SAMPLE ☐ STANDARD ☐ DUPLICATE

SAMPLE # = STD # =

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

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		STD	REPLICATE
STD	Gross Weight (W2)	1.9789	2.0116
Work List	Tare Weight (W1)	1.8733	1.9065
15243	Weight of Solution (W2-W1)	0.1056	0.1051
Test Code	Volume of Solution µL	75.3800	75.3800
	Specific Gravity	1.4009	1.3943
Matrix	Specific Gravity (Average)	1.3976	
LIQUID			
Sample #			
STD			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
adp	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
01/14/97	v RESULT v		
Time	Specific Gravity Average =	1.398	
03:00 AM			

Data Entry by:	S. J. P.	Date:	01/14/97
Approved by:	R W Schneider	Date:	1/14/97

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		sample	REPLICATE
sample	Gross Weight (W2)	1.9994	0.0000
Work List	Tare Weight (W1)	1.8883	0.0000
15243	Weight of Solution (W2-W1)	0.1111	0
Test Code	Volume of Solution µL	75.3800	0.0000
	Specific Gravity	1.4739	NA
Matrix			
LIQUID			
Sample #			
S96T005907			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
adp	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
01/14/97	v RESULT v		
Time	Specific Gravity =	1.474	
03:00 AM			

Data Entry by:	S. J. P.	Date:	01/14/97
Approved by:	R W Schroeder	Date:	1/14/97

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		sample	REPLICATE
sample	Gross Weight (W2)	1.9906	0.0000
Work List	Tare Weight (W1)	1.8792	0.0000
15243	Weight of Solution (W2-W1)	0.1114	0
Test Code	Volume of Solution µL	75.3800	0.0000
	Specific Gravity	1.4778	NA
Matrix			
LIQUID			
Sample #			
S96T005907 DUP			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
adp	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
01/14/97	v RESULT v		
Time	Specific Gravity =	1.478	
03:00 AM			

Data Entry by:	S.J.P.	Date:	01/14/97
Approved by:	R W Schroeder	Date:	1/14/97

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		sample	REPLICATE
sample	Gross Weight (W2)	1.9299	0.0000
Work List	Tare Weight (W1)	1.8556	0.0000
15243	Weight of Solution (W2-W1)	0.0743	0
Test Code	Volume of Solution µL	75.3800	0.0000
	Specific Gravity	0.9857	NA
Matrix			
LIQUID			
Sample #			
S96T005909			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
adp	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
01/14/97	v RESULT v		
Time	Specific Gravity =	0.986	
03:00 AM			

Data Entry by:	S.S.P.	Date:	01/14/97
Approved by:	R W Schwedes	Date:	1/14/97

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		sample	REPLICATE
sample	Gross Weight (W2)	1.9782	0.0000
Work List	Tare Weight (W1)	1.9041	0.0000
15243	Weight of Solution (W2-W1)	0.0741	0
Test Code	Volume of Solution µL	75.3800	0.0000
	Specific Gravity	0.9830	NA
Matrix			
LIQUID			
Sample #			
S96T005909 DUP			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
adp	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
01/14/97	v RESULT v		
Time	Specific Gravity =	0.983	
03:00 AM			

Data Entry by:	S.S.P.	Date:	01/14/97
Approved by:	R.W. Schroeder	Date:	1/14/97

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		sample	REPLICATE
sample	Gross Weight (W2)	2.0020	0.0000
Work List	Tare Weight (W1)	1.8918	0.0000
15243	Weight of Solution (W2-W1)	0.1102	0
Test Code	Volume of Solution µL	75.3800	0.0000
	Specific Gravity	1.4619	NA
Matrix			
LIQUID			
Sample #			
S96T005960			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
adp	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
01/14/97	v RESULT v		
Time	Specific Gravity =	1.462	
03:00 AM			

Data Entry by:	S. J. P.	Date:	01/14/97
Approved by:	R W Schweda	Date:	1/14/97

Form 510112L1 Rev. 1.1

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

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

Type		sample	REPLICATE
sample	Gross Weight (W2)	1.9513	0.0000
Work List	Tare Weight (W1)	1.8405	0.0000
15243	Weight of Solution (W2-W1)	0.1108	0
Test Code	Volume of Solution µL	75.3800	0.0000
	Specific Gravity	1.4699	NA
Matrix			
LIQUID			
Sample #			
S96T005960 DUP			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
adp	Specific Gravity = [(W2-W1) * 1000 µL/mL] / [Vol. of Solution µL * 1.000 g/mL]		
Date			
01/14/97	v RESULT v		
Time	Specific Gravity =	1.470	
03:00 AM			

Data Entry by:	S. J. P.	Date:	01/14/97
Approved by:	R W Schroeder	Date:	1/14/97

Form 510112L1 Rev. 1.1

LABCORE Completed Worklist Report for Worklist# 15210

Analyst: rag **Instrument:** IC01 **Book#** 36N2D-C

Method: LAS331DS Rev/Mod D-1

Worklist Comment: BY-112 IC. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	CCB		0	@IC-QC	F	QC	1		<1.20e-2		ug/mL
1	CCB		0	@IC-QC	CL	QC	1		<1.70e-2		ug/mL
1	CCB		0	@IC-QC	NO2	QC	1		<1.08e-1		ug/mL
1	CCB		0	@IC-QC	BR	QC	1		<1.25e-1		ug/mL
1	CCB		0	@IC-QC	NO3	QC	1		<1.39e-1		ug/mL
1	CCB		0	@IC-QC	PO4	QC	1		<1.20e-1		ug/mL
1	CCB		0	@IC-QC	SO4	QC	1		<1.38e-1		ug/mL
1	CCB		0	@IC-QC	OXALATE2	QC	1		<1.05e-1		ug/mL
2	CCV		0	@IC-QC	F	QC	5.90e01		6.57e+01	111.356	% Recovery
2	CCV		0	@IC-QC	CL	QC	7.90e01		7.65e+01	96.835	% Recovery
2	CCV		0	@IC-QC	NO2	QC	5.41e02		5.19e+02	95.933	% Recovery
2	CCV		0	@IC-QC	BR	QC	5.89e02		5.88e+02	99.830	% Recovery
2	CCV		0	@IC-QC	NO3	QC	5.94e02		6.02e+02	101.347	% Recovery
2	CCV		0	@IC-QC	PO4	QC	5.44e02		5.32e+02	97.794	% Recovery
2	CCV		0	@IC-QC	SO4	QC	6.31e02		6.41e+02	101.585	% Recovery
2	CCV		0	@IC-QC	OXALATE2	QC	5.25e02		5.64e+02	107.429	% Recovery
3	SAMPLE	S96T005907	0	@IC-01	F-02	LIQUID	N/A		6.240e+02	122.400	ug/mL
3	SAMPLE	S96T005907	0	@IC-01	CL-02	LIQUID	N/A		1.041e+04	173.400	ug/mL
3	SAMPLE	S96T005907	0	@IC-01	NO2-02	LIQUID	N/A		1.311e+05	1102.000	ug/mL
3	SAMPLE	S96T005907	0	@IC-01	BR-02	LIQUID	N/A	<	1.275e+03	1275.000	ug/mL
3	SAMPLE	S96T005907	0	@IC-01	NO3-02	LIQUID	N/A		1.722e+05	1418.000	ug/mL
3	SAMPLE	S96T005907	0	@IC-01	PO4-02	LIQUID	N/A	<	1.224e+03	1224.000	ug/mL
3	SAMPLE	S96T005907	0	@IC-01	SO4-02	LIQUID	N/A		2.702e+03	1408.000	ug/mL
3	SAMPLE	S96T005907	0	@IC-01	OXALATE2	LIQUID	N/A	<	1.071e+03	1071.000	ug/mL
4	DUP	S96T005907	0	@IC-01	F-02	LIQUID	6.24e+02		6.18e+02	0.966	RPD
4	DUP	S96T005907	0	@IC-01	CL-02	LIQUID	1.04e+04		1.04e+04	0.000	RPD
4	DUP	S96T005907	0	@IC-01	NO2-02	LIQUID	1.31e+05		1.31e+05	0.000	RPD
4	DUP	S96T005907	0	@IC-01	BR-02	LIQUID	<1.28e3		<1.28e3		RPD
4	DUP	S96T005907	0	@IC-01	NO3-02	LIQUID	1.72e+05		1.70e+05	1.170	RPD
4	DUP	S96T005907	0	@IC-01	PO4-02	LIQUID	<1.22e3		1.81e+03		RPD
4	DUP	S96T005907	0	@IC-01	SO4-02	LIQUID	2.70e+03		2.92e+03	7.829	RPD
4	DUP	S96T005907	0	@IC-01	OXALATE2	LIQUID	<1.07e3		1.06e+04		RPD
5	SPK	S96T005907	0	@IC-01	F-02	LIQUID	5.90e01		5.80e+01	98.305	% Recovery
5	SPK	S96T005907	0	@IC-01	CL-02	LIQUID	7.90e01		4.30e+01	54.430	% Recovery
5	SPK	S96T005907	0	@IC-01	NO2-02	LIQUID	5.41e02		5.77e+02	106.654	% Recovery
5	SPK	S96T005907	0	@IC-01	BR-02	LIQUID	5.89e02		5.64e+02	95.756	% Recovery
5	SPK	S96T005907	0	@IC-01	NO3-02	LIQUID	5.94e02		6.53e+02	109.933	% Recovery
5	SPK	S96T005907	0	@IC-01	PO4-02	LIQUID	5.44e02		5.17e+02	95.037	% Recovery
5	SPK	S96T005907	0	@IC-01	SO4-02	LIQUID	6.31e02		5.90e+02	93.502	% Recovery
5	SPK	S96T005907	0	@IC-01	OXALATE2	LIQUID	5.25e02		5.09e+02	96.952	% Recovery
6	SAMPLE	S96T005960	0	@IC-01	F-02	LIQUID	N/A		8.038e+02	61.810	ug/mL

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

LABCORE Completed Worklist Report for Worklist# 15210

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
6	SAMPLE	S96T005960	0	@IC-01	CL-02	LIQUID	N/A		7.702e+03	87.570	ug/mL
6	SAMPLE	S96T005960	0	@IC-01	NO2-02	LIQUID	N/A		1.503e+05	556.300	ug/mL
6	SAMPLE	S96T005960	0	@IC-01	BR-02	LIQUID	N/A	<	6.439e+02	643.900	ug/mL
6	SAMPLE	S96T005960	0	@IC-01	NO3-02	LIQUID	N/A		2.124e+05	716.000	ug/mL
6	SAMPLE	S96T005960	0	@IC-01	PO4-02	LIQUID	N/A		1.479e+03	618.100	ug/mL
6	SAMPLE	S96T005960	0	@IC-01	SO4-02	LIQUID	N/A	<	7.108e+02	710.800	ug/mL
6	SAMPLE	S96T005960	0	@IC-01	OXALATE2	LIQUID	N/A		5.403e+02	540.900	ug/mL
7	DUP	S96T005960	0	@IC-01	F-02	LIQUID	8.10e+02		7.24e+02	11.213	RPD
7	DUP	S96T005960	0	@IC-01	CL-02	LIQUID	7.70e+03		7.67e+03	0.390	RPD
7	DUP	S96T005960	0	@IC-01	NO2-02	LIQUID	1.50e+05		1.48e+05	1.342	RPD
7	DUP	S96T005960	0	@IC-01	BR-02	LIQUID	<6.44e2		<6.44e2		RPD
7	DUP	S96T005960	0	@IC-01	NO3-02	LIQUID	2.12e+05		2.07e+05	2.387	RPD
7	DUP	S96T005960	0	@IC-01	PO4-02	LIQUID	1.48e+03		1.41e+03	4.844	RPD
7	DUP	S96T005960	0	@IC-01	SO4-02	LIQUID	<7.11e2		1.74e+04		RPD
7	DUP	S96T005960	0	@IC-01	OXALATE2	LIQUID	8.40e+02		7.50e+02	11.321	RPD
8	SPK	S96T005960	0	@IC-01	F-02	LIQUID	5.90e01		5.19e+01	87.966	% Recovery
8	SPK	S96T005960	0	@IC-01	CL-02	LIQUID	7.90e01		6.46e+01	81.772	% Recovery
8	SPK	S96T005960	0	@IC-01	NO2-02	LIQUID	5.41e02		2.30e+02	42.514	% Recovery
8	SPK	S96T005960	0	@IC-01	BR-02	LIQUID	5.89e02		5.43e+02	92.190	% Recovery
8	SPK	S96T005960	0	@IC-01	NO3-02	LIQUID	5.94e02		3.40e+01	5.724	% Recovery
8	SPK	S96T005960	0	@IC-01	PO4-02	LIQUID	5.44e02		4.97e+02	91.360	% Recovery
8	SPK	S96T005960	0	@IC-01	SO4-02	LIQUID	6.31e02		6.51e+02	103.170	% Recovery
8	SPK	S96T005960	0	@IC-01	OXALATE2	LIQUID	5.25e02		7.51e+02	143.048	% Recovery
9	SAMPLE	S96T005909	0	@IC-01	F-02	LIQUID	N/A		6.900e-01	0.132	ug/mL
9	SAMPLE	S96T005909	0	@IC-01	CL-02	LIQUID	N/A		8.740e+00	0.187	ug/mL
9	SAMPLE	S96T005909	0	@IC-01	NO2-02	LIQUID	N/A		1.740e+01	1.188	ug/mL
9	SAMPLE	S96T005909	0	@IC-01	BR-02	LIQUID	N/A	<	1.375e+00	1.375	ug/mL
9	SAMPLE	S96T005909	0	@IC-01	NO3-02	LIQUID	N/A		4.366e+01	1.529	ug/mL
9	SAMPLE	S96T005909	0	@IC-01	PO4-02	LIQUID	N/A	<	1.320e+00	1.320	ug/mL
9	SAMPLE	S96T005909	0	@IC-01	SO4-02	LIQUID	N/A		1.695e+01	1.518	ug/mL
9	SAMPLE	S96T005909	0	@IC-01	OXALATE2	LIQUID	N/A	<	1.155e+00	1.155	ug/mL
10	DUP	S96T005909	0	@IC-01	F-02	LIQUID	6.90e-01		6.56e-01	5.052	RPD
10	DUP	S96T005909	0	@IC-01	CL-02	LIQUID	8.74e+00		9.02e+00	3.153	RPD
10	DUP	S96T005909	0	@IC-01	NO2-02	LIQUID	1.74e+01		1.79e+01	2.833	RPD
10	DUP	S96T005909	0	@IC-01	BR-02	LIQUID	<1.38e0		<1.38e0		RPD
10	DUP	S96T005909	0	@IC-01	NO3-02	LIQUID	4.37e+01		4.43e+01	1.364	RPD
10	DUP	S96T005909	0	@IC-01	PO4-02	LIQUID	<1.32e0		<1.32e0		RPD
10	DUP	S96T005909	0	@IC-01	SO4-02	LIQUID	1.69e+01		1.68e+01	0.593	RPD
10	DUP	S96T005909	0	@IC-01	OXALATE2	LIQUID	<1.16e0		<1.16e0		RPD

Final page for worklist# 15210

Analyst Signature **Date**

Analyst Signature **Date**

N Anastn 1-21-97
Reviewer Signature **Date**

Validated 1-21-97

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

LABCORE Data Entry Template for Worklist# 15210

Analyst: RA **Instrument:** IC0 IC01 **Book#** 36N20-C

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

Worklist Comment: BY-112 IC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	CCB				@IC-QC	QC		
2	CCV				@IC-QC	QC		
3	SAMPLE	S96T005907	0		@IC-01	LIQUID	96001393	BY-112
	Analytes Requested:	BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
4	DUP	S96T005907	0		@IC-01	LIQUID		
5	SPK	S96T005907	0		@IC-01	LIQUID		
6	SAMPLE	S96T005960	0		@IC-01	LIQUID	96001466	BY-112
	Analytes Requested:	BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
7	DUP	S96T005960	0		@IC-01	LIQUID		
8	SPK	S96T005960	0		@IC-01	LIQUID		
9	SAMPLE	S96T005909	0		@IC-01	LIQUID	96001466	BY-112
	Analytes Requested:	BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
10	DUP	S96T005909	0		@IC-01	LIQUID		

Final page for worklist # 15210

Rae Ann Green 1-8-96
Analyst Signature **Date**

Analyst Signature **Date**

15210JA.CSV uploaded 1-21-97 HLA
Validated 1-21-97

Data Entry Comments: Ran trip on S96T005907, because sam + dup differed for BR, SO4

Ran S96T005960 at dilution factors 5151 + 10201

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

A-0010-IC DATA FILE/WORKLIST RESOLUTION 21-Jan-97

Worklist#: 15210

		Seq	Type	Sample #
-	=>	1	CCB	
	=>	2	CCV	
	=>	3	SAMPLE	S96T005907
	=>	4	DUP	S96T005907
	=>	5	SPK	S96T005907
	=>	6	SAMPLE	S96T005960
	=>	7	DUP	S96T005960
	=>	8	SPK	S96T005960
	=>	9	SAMPLE	S96T005909
	=>	10	DUP	S96T005909
+				

Data File: 15210JA.CSV

	Seq#	Data File	Sample Name	Dilution
-	1	97010691.d01	CCB	1.00
	2	97010691.d02	CCV 36N20-C	101.00
	3	97010691.d03	S96T005907	10201.00
	4	97010691.d04	S96T005907 DUP	10201.00
		97010691.d06	S96T005907 TRIP	10201.00
	5	97010691.d05	S96T005907 SPIKE	10201.00
	6	97010691.d10	S96T005960	5151.00
	7	97010691.d11	S96T005960 DUP	5151.00
	8	97010691.d16	S96T005960 SPIKE	5151.00
		97010691.d08	S96T005960	10201.00
		97010691.d14	S96T005960 DUP	10201.00
		97010691.d15	S96T005960 SPIKE	10201.00
	9	97010691.d26	S96T005909	11.00
	10	97010691.d27	S96T005909 DUP	11.00
+				

Save(F4) Abort(Shift-F3) ListFiles(Shift-F1) UploadFile(F8)

Data Reprocessed On 01/21/1997 11:50:32

```
Sample Name: CCB                                  Date: 01/08/1997 07:01:40
Data File  : F:\DATA\97010691.d01
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 1                    Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

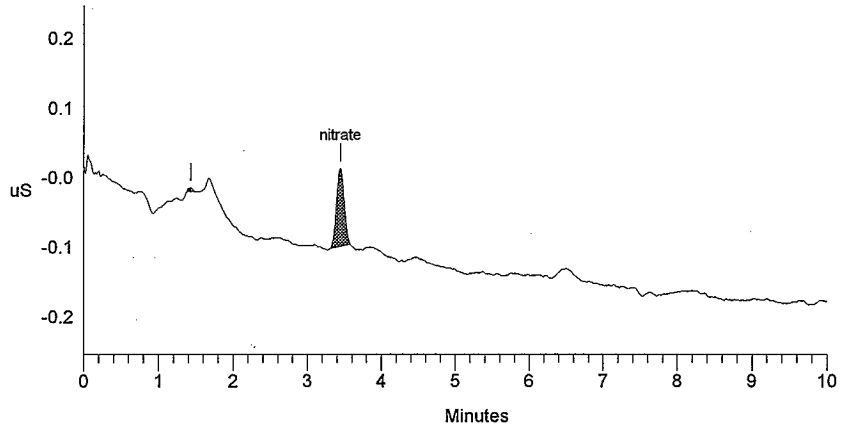
H Analtn for RAG 4-23-97

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
2	3.45	nitrate	0.097	113	817	1	-3.72
		Totals	0.097	113	817		

File: 97010691.d01 Sample: CCB



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 353 TO 362

Data Reprocessed On 01/21/1997 11:50:33

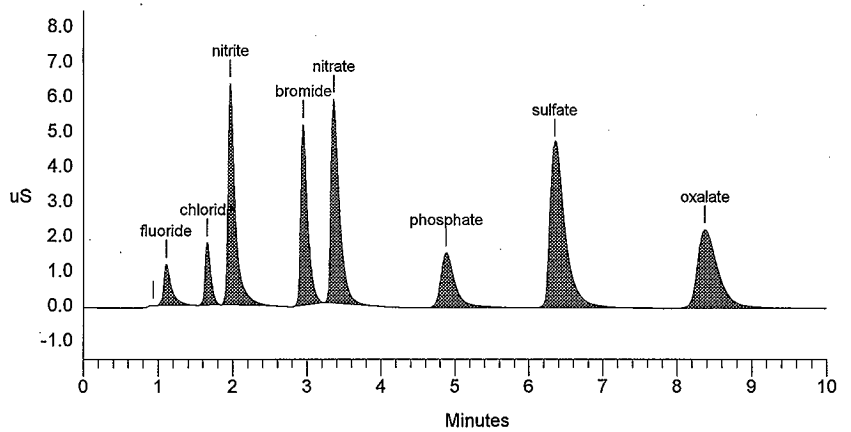
```
Sample Name: CCV 36N20-C                    Date: 01/08/1997 07:17:34
Data File  : F:\DATA\97010691.d02
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 2                  Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	18	63	2	
2	1.11	fluoride	65.736	1180	8774	2	2.47
3	1.65	chloride	76.455	1783	9611	1	-0.80
4	1.97	nitrite	518.524	6347	43476	1	-3.28
5	2.95	bromide	587.705	5187	34349	1	-0.11
6	3.36	nitrate	601.826	5845	47415	1	-6.15
7	4.88	phosphate	532.305	1568	21229	1	-1.61
8	6.35	sulfate	641.415	4726	68076	1	-4.03
9	8.37	oxalate	564.413	2255	43216	1	-3.68
		Totals	3588.379	28908	276208		

File: 97010691.d02 Sample: CCV 36N20-C



Data Reprocessed On 01/21/1997 11:50:33

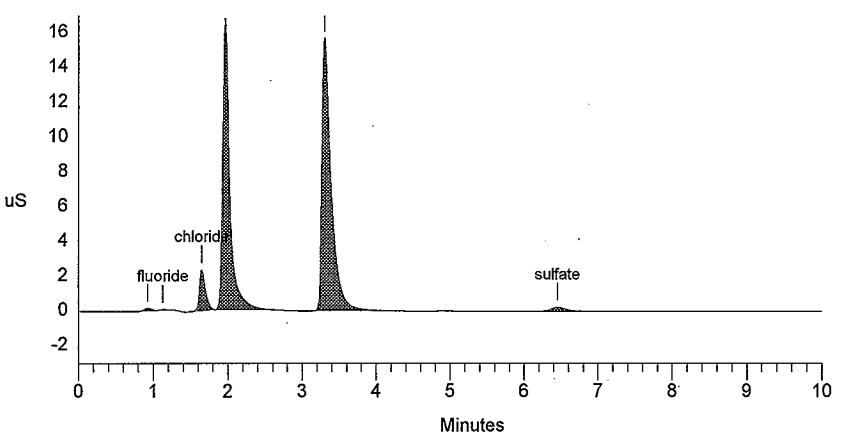
Sample Name: S96T005907		Date: 01/08/1997 07:39:53	
Data File : F:\DATA\97010691.d03			
Method : C:\DX\METHOD\KIT.MET			
ACI Address: 1 System: 1 Inject#: 3			Detector:CDM-1
Analyst :	Column: AG4A/AS4A anion column		

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	10201	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	141	879	1	
2	1.13	fluoride	623.991	46	189	1	4.32
3	1.65	chloride	10413.727	2365	13039	1	-1.20
4	1.96	nitrite	131069.081	16638	112566	1	-3.61
5	3.30	nitrate	172198.346	15685	137959	1	0.00
6	6.45	sulfate	2702.504	241	3661	1	-2.42
		Totals	317007.649	35118	268292		

File: 97010691.d03 Sample: S96T005907



Data Reprocessed On 01/21/1997 11:50:35

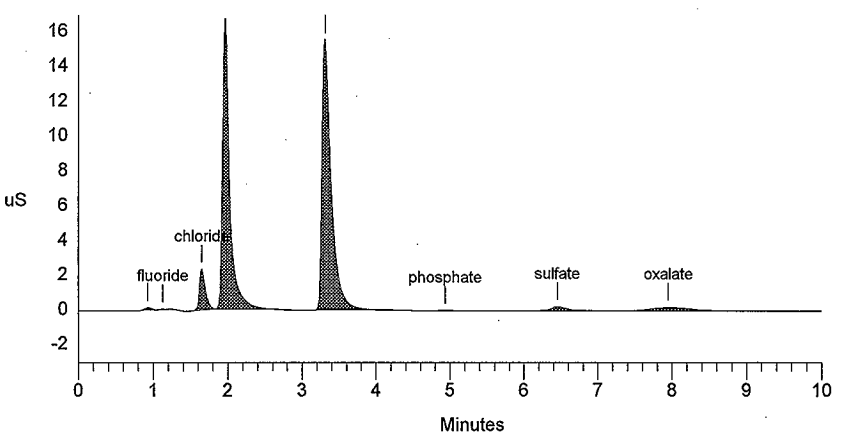
Sample Name: S96T005907 DUP Date: 01/08/1997 07:50:49
Data File : F:\DATA\97010691.d04
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 4 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	10201	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	141	877	1	
2	1.13	fluoride	618.202	43	181	1	4.32
3	1.65	chloride	10437.013	2368	13069	1	-1.20
4	1.96	nitrite	130923.290	16623	112435	1	-3.61
5	3.31	nitrate	170224.541	15589	136309	1	-0.10
6	4.93	phosphate	1805.398	21	364	1	-0.54
7	6.45	sulfate	2922.298	240	3885	1	-2.42
8	7.95	oxalate	10598.396	196	7588	1	-8.59
		Totals	327529.139	35221	274708		

File: 97010691.d04 Sample: S96T005907 DUP



Data Reprocessed On 01/21/1997 11:50:36

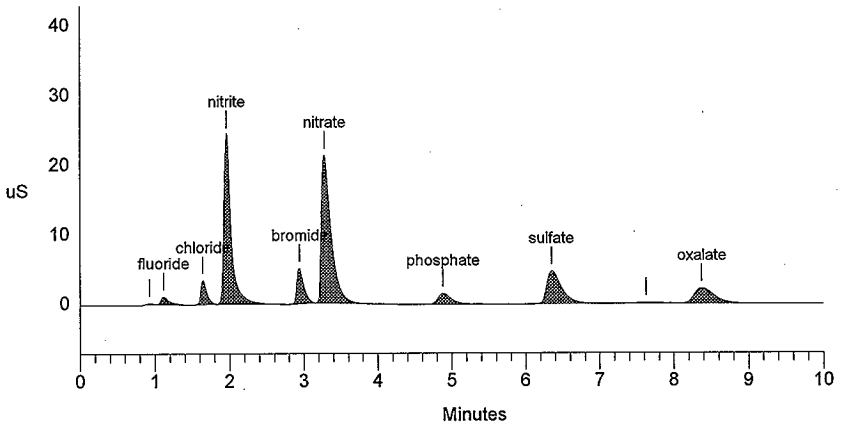
Sample Name: S96T005907 SPIKE Date: 01/08/1997 08:02:01
Data File : F:\DATA\97010691.d05
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 5 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	10201	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	145	801	2	
2	1.11	fluoride	6479.269	1086	8541	2	3.09
3	1.64	chloride	14752.680	3410	18634	1	-1.60
4	1.96	nitrite	189339.829	24324	165376	1	-3.61
5	2.94	bromide	57008.301	5097	32939	1	0.00
6	3.28	nitrate	238121.141	21276	194101	1	0.00
7	4.88	phosphate	52213.910	1553	20597	1	-1.61
8	6.35	sulfate	62295.114	4691	65449	1	-4.03
9	7.63		0.000	133	3758	1	
10	8.37	oxalate	51458.865	2157	38927	1	-3.68
		Totals	671669.110	63872	549124		

File: 97010691.d05 Sample: S96T005907 SPIKE



Data Reprocessed On 01/21/1997 11:50:40

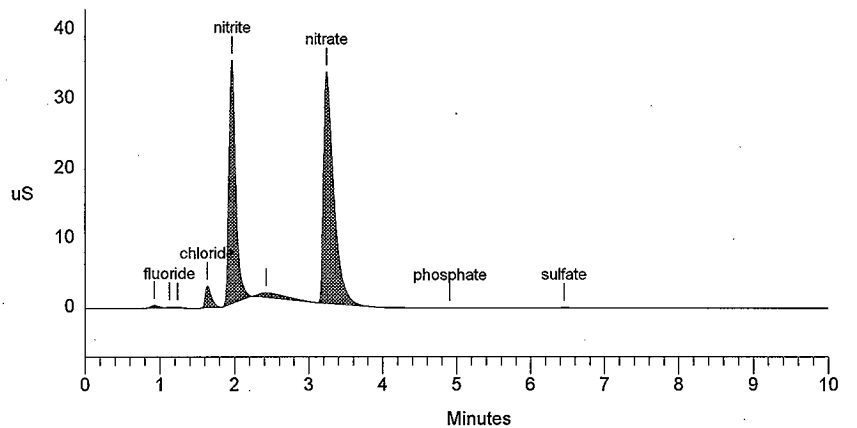
Sample Name: S96T005960 Date: 01/08/1997 08:44:39
Data File : F:\DATA\97010691.d08
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 8 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	10201	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	340	2388	2	
2	1.13	fluoride	1432.883	204	1324	2	4.32
3	1.23		0.000	214	1791	2	
4	1.63	chloride	14305.639	3143	18054	1	-2.00
5	1.97	nitrite	253837.030	34956	225637	1	-3.28
6	2.43		0.000	706	18988	1	
7	3.24	nitrate	380157.821	33245	322843	1	0.00
8	4.91	phosphate	2741.373	45	734	1	-1.08
9	6.45	sulfate	903.089	125	1828	1	-2.42
		Totals	653377.834	72978	593587		

File: 97010691.d08 Sample: S96T005960



Data Reprocessed On 01/21/1997 11:50:40

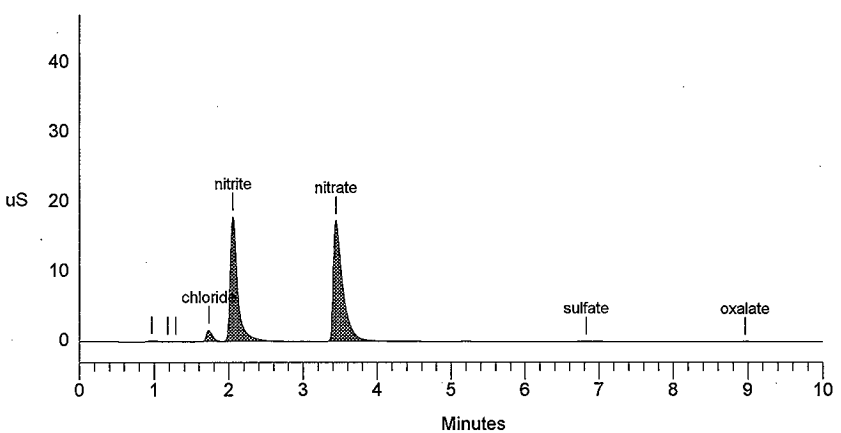
```
Sample Name: S96T005960 DUP                    Date: 01/08/1997 11:32:18
Data File  : F:\DATA\97010691.d14
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 14                  Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	10201	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.97		0.000	190	1402	2	
2	1.18		0.000	115	725	2	
3	1.29		0.000	122	1107	2	
4	1.73	chloride	7598.856	1638	9455	1	3.60
5	2.05	nitrite	146858.816	17881	126731	1	0.98
6	3.44	nitrate	195800.988	17368	157824	1	-3.91
7	6.83	sulfate	796.311	82	1719	1	3.23
8	8.96	oxalate	1138.277	18	395	1	3.07
		Totals	352193.248	37415	299358		

File: 97010691.d14 Sample: S96T005960 DUP



Data Reprocessed On 01/21/1997 11:50:39

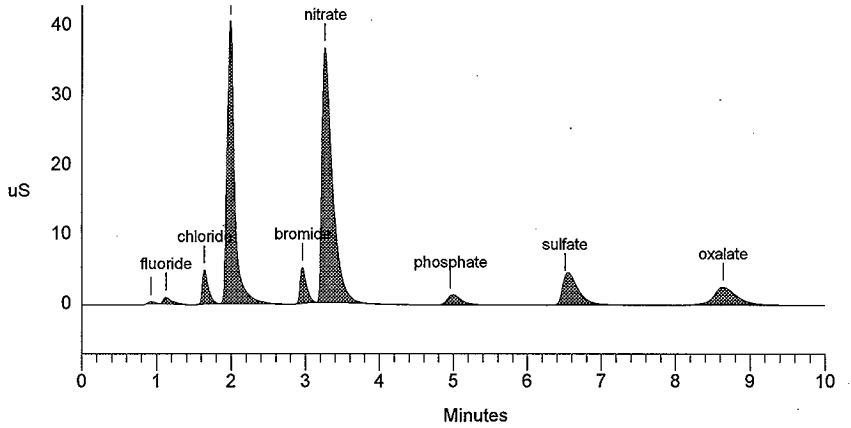
```
Sample Name: S96T005960 SPIKE                Date: 01/08/1997 12:01:18
Data File  : F:\DATA\97010691.d16
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 16                  Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	5151	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	339	2187	2	
2	1.13	fluoride	3432.962	1033	9006	2	4.32
3	1.64	chloride	10965.004	4945	27799	1	-1.60
4	1.99	nitrite	161921.270	40610	290286	1	-2.30
5	2.96	bromide	27446.778	5191	31351	1	0.00
6	3.26	nitrate	214106.225	36615	365109	1	0.00
7	4.96	phosphate	26605.025	1358	20791	1	0.00
8	6.51	sulfate	32861.215	3969	68388	1	-1.61
9	8.64	oxalate	38749.544	2590	58543	1	-0.61
		Totals	516088.023	96650	873459		

File: 97010691.d16 Sample: S96T005960 SPIKE



Data Reprocessed On 01/21/1997 11:50:42

HNF-SD-WM-DP-229, REV. 0

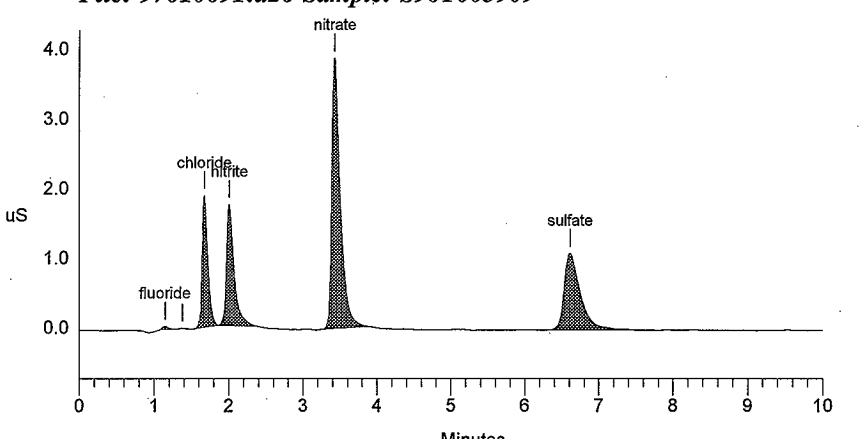
Sample Name: S96T005909 Date: 01/08/1997 13:36:44
Data File : F:\DATA\97010691.d26
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 26 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	11	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.15	fluoride	0.690	42	212	1	6.17
2	1.38		0.000	13	73	1	
3	1.67	chloride	8.740	1890	10097	1	0.40
4	2.01	nitrite	17.396	1738	12459	1	-1.31
5	3.43	nitrate	43.657	3880	31449	1	-4.28
6	6.61	sulfate	16.952	1102	16976	1	0.00
		Totals	87.435	8665	71267		

File: 97010691.d26 Sample: S96T005909



Data Reprocessed On 01/21/1997 11:50:43

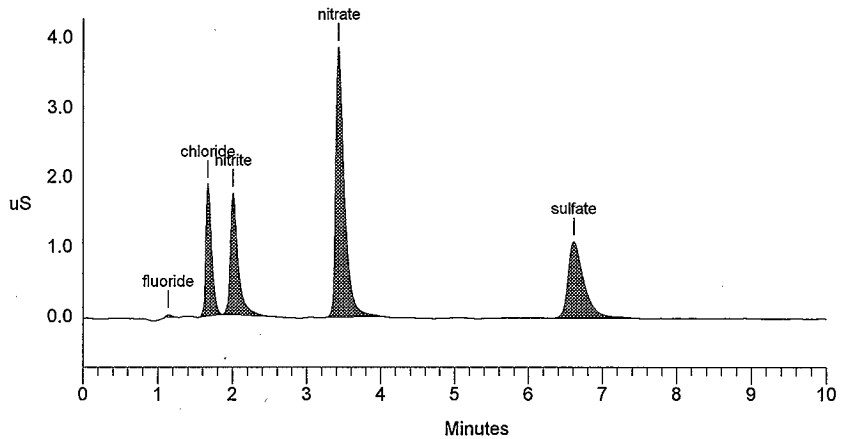
Sample Name: S96T005909 DUP		Date: 01/08/1997 13:47:28	
Data File : F:\DATA\97010691.d27			
Method : C:\DX\METHOD\KIT.MET			
ACI Address: 1 System: 1 Inject#: 27			Detector:CDM-1
Analyst :	Column: AG4A/AS4A anion column		

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	11	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.14	fluoride	0.656	37	167	1	5.56
2	1.67	chloride	9.023	1888	10430	1	0.00
3	2.01	nitrite	17.929	1742	12879	1	-1.31
4	3.43	nitrate	44.334	3867	31941	1	-4.28
5	6.61	sulfate	16.753	1095	16786	1	0.00
		Totals	88.694	8629	72203		

File: 97010691.d27 Sample: S96T005909 DUP



LABCORE Completed Worklist Report for Worklist# 15470

Analyst: kgh **Instrument:** IC01 **Book#** 36N20 C

Method: LA533105 Rev/Mod D-1

Worklist Comment: BY-112 IC. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	CCB		0		@IC-QC F	QC	1		<1.20e-2		ug/mL
1	CCB		0		@IC-QC CL	QC	1		<1.70e-2		ug/mL
1	CCB		0		@IC-QC NO2	QC	1		<1.08e-1		ug/mL
1	CCB		0		@IC-QC BR	QC	1		<1.25e-1		ug/mL
1	CCB		0		@IC-QC NO3	QC	1		<1.39e-1		ug/mL
1	CCB		0		@IC-QC PO4	QC	1		<1.20e-1		ug/mL
1	CCB		0		@IC-QC SO4	QC	1		<1.38e-1		ug/mL
1	CCB		0		@IC-QC OXALATE2	QC	1		<1.05e-1		ug/mL
2	CCV		0		@IC-QC F	QC	5.90e01		5.85e+01	99.153	% Recovery
2	CCV		0		@IC-QC CL	QC	7.90e01		7.88e+01	99.747	% Recovery
2	CCV		0		@IC-QC NO2	QC	5.41e02		5.34e+02	98.706	% Recovery
2	CCV		0		@IC-QC BR	QC	5.89e02		5.94e+02	100.849	% Recovery
2	CCV		0		@IC-QC NO3	QC	5.94e02		5.98e+02	100.673	% Recovery
2	CCV		0		@IC-QC PO4	QC	5.44e02		5.42e+02	99.632	% Recovery
2	CCV		0		@IC-QC SO4	QC	6.31e02		6.58e+02	104.279	% Recovery
2	CCV		0		@IC-QC OXALATE2	QC	5.25e02		5.74e+02	109.333	% Recovery
3	BLNK-PREP		0		@IC-01 F-02	SOLID	1		<1.20e-2		ug/g
3	BLNK-PREP		0		@IC-01 CL-02	SOLID	1		<1.70e-2		ug/g
3	BLNK-PREP		0		@IC-01 NO2-02	SOLID	1		<1.08e-1		ug/g
3	BLNK-PREP		0		@IC-01 BR-02	SOLID	1		<1.25e-1		ug/g
3	BLNK-PREP		0		@IC-01 NO3-02	SOLID	1		<1.39e-1		ug/g
3	BLNK-PREP		0		@IC-01 PO4-02	SOLID	1		<1.20e-1		ug/g
3	BLNK-PREP		0		@IC-01 SO4-02	SOLID	1		<1.38e-1		ug/g
3	BLNK-PREP		0		@IC-01 OXALATE2	SOLID	1		<1.05e-1		ug/g
4	SAMPLE	S96T005898	0	W	@IC-01 F-02	SOLID	N/A		7.358e+03	25.460	ug/g
4	SAMPLE	S96T005898	0	W	@IC-01 CL-02	SOLID	N/A		1.713e+02	36.080	ug/g
4	SAMPLE	S96T005898	0	W	@IC-01 NO2-02	SOLID	N/A		3.108e+03	229.200	ug/g
4	SAMPLE	S96T005898	0	W	@IC-01 BR-02	SOLID	N/A	<	2.653e+02	265.300	ug/g
4	SAMPLE	S96T005898	0	W	@IC-01 NO3-02	SOLID	N/A		5.370e+04	295.000	ug/g
4	SAMPLE	S96T005898	0	W	@IC-01 PO4-02	SOLID	N/A		4.869e+03	254.600	ug/g
4	SAMPLE	S96T005898	0	W	@IC-01 SO4-02	SOLID	N/A		1.758e+04	292.900	ug/g
4	SAMPLE	S96T005898	0	W	@IC-01 OXALATE2	SOLID	N/A		4.862e+02	222.900	ug/g
5	DUP	S96T005898	0	W	@IC-01 F-02	SOLID	7.36e+03		6.96e+03	5.587	RPD
5	DUP	S96T005898	0	W	@IC-01 CL-02	SOLID	1.71e+02		1.88e+02	9.471	RPD
5	DUP	S96T005898	0	W	@IC-01 NO2-02	SOLID	3.11e+03		3.10e+03	0.322	RPD
5	DUP	S96T005898	0	W	@IC-01 BR-02	SOLID	<2.65e2		<2.83e2		RPD
5	DUP	S96T005898	0	W	@IC-01 NO3-02	SOLID	5.37e+04		6.30e+04	15.938	RPD
5	DUP	S96T005898	0	W	@IC-01 PO4-02	SOLID	4.87e+03		9.78e+03	67.031	RPD
5	DUP	S96T005898	0	W	@IC-01 SO4-02	SOLID	1.76e+04		1.73e+04	1.719	RPD
5	DUP	S96T005898	0	W	@IC-01 OXALATE2	SOLID	4.86e+02		4.86e+02	0.000	RPD
6	SPK	S96T005898	0	W	@IC-01 F-02	SOLID	5.90e01		6.89e+01	116.780	% Recovery

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

LABCORE Completed Worklist Report for Worklist# 15470

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
6	SPK	S96T005898	0	W	@IC-01	CL-02	SOLID	7.90e01	7.72e+01	97.722	% Recovery
6	SPK	S96T005898	0	W	@IC-01	NO2-02	SOLID	5.41e02	5.37e+02	99.261	% Recovery
6	SPK	S96T005898	0	W	@IC-01	BR-02	SOLID	5.89e02	5.54e+02	94.058	% Recovery
6	SPK	S96T005898	0	W	@IC-01	NO3-02	SOLID	5.94e02	6.31e+02	106.229	% Recovery
6	SPK	S96T005898	0	W	@IC-01	PO4-02	SOLID	5.44e02	1.36e+03	250.000	% Recovery
6	SPK	S96T005898	0	W	@IC-01	SO4-02	SOLID	6.31e02	6.66e+02	105.547	% Recovery
6	SPK	S96T005898	0	W	@IC-01	OXALATE2	SOLID	5.25e02	5.38e+02	102.476	% Recovery
7	SAMPLE	S96T005897	0	W	@IC-01	F-02	SOLID	N/A	6.316e+03	27.140	ug/g
7	SAMPLE	S96T005897	0	W	@IC-01	CL-02	SOLID	N/A	2.681e+02	38.450	ug/g
7	SAMPLE	S96T005897	0	W	@IC-01	NO2-02	SOLID	N/A	5.285e+03	244.200	ug/g
7	SAMPLE	S96T005897	0	W	@IC-01	BR-02	SOLID	N/A	4.665e+02	282.700	ug/g
7	SAMPLE	S96T005897	0	W	@IC-01	NO3-02	SOLID	N/A	1.179e+04	314.400	ug/g
7	SAMPLE	S96T005897	0	W	@IC-01	PO4-02	SOLID	N/A	3.781e+04	271.400	ug/g
7	SAMPLE	S96T005897	0	W	@IC-01	SO4-02	SOLID	N/A	3.953e+03	312.100	ug/g
7	SAMPLE	S96T005897	0	W	@IC-01	OXALATE2	SOLID	N/A	8.564e+03	237.500	ug/g
8	DUP	S96T005897	0	W	@IC-01	F-02	SOLID	6.32e+03	6.21e+03	1.756	RPD
8	DUP	S96T005897	0	W	@IC-01	CL-02	SOLID	2.68e+02	2.11e+02	23.800	RPD
8	DUP	S96T005897	0	W	@IC-01	NO2-02	SOLID	5.28e+03	4.26e+03	21.384	RPD
8	DUP	S96T005897	0	W	@IC-01	BR-02	SOLID	4.66e+02	4.02e+02	14.747	RPD
8	DUP	S96T005897	0	W	@IC-01	NO3-02	SOLID	1.18e+04	9.49e+03	21.700	RPD
8	DUP	S96T005897	0	W	@IC-01	PO4-02	SOLID	3.78e+04	3.91e+04	3.381	RPD
8	DUP	S96T005897	0	W	@IC-01	SO4-02	SOLID	3.95e+03	2.62e+03	40.487	RPD
8	DUP	S96T005897	0	W	@IC-01	OXALATE2	SOLID	8.56e+03	3.04e+03	95.172	RPD
9	SAMPLE	S96T005899	0	W	@IC-01	F-02	SOLID	N/A	4.658e+03	25.530	ug/g
9	SAMPLE	S96T005899	0	W	@IC-01	CL-02	SOLID	N/A	2.453e+02	36.170	ug/g
9	SAMPLE	S96T005899	0	W	@IC-01	NO2-02	SOLID	N/A	4.068e+03	229.800	ug/g
9	SAMPLE	S96T005899	0	W	@IC-01	BR-02	SOLID	N/A	< 2.660e+02	266.000	ug/g
9	SAMPLE	S96T005899	0	W	@IC-01	NO3-02	SOLID	N/A	2.650e+04	295.800	ug/g
9	SAMPLE	S96T005899	0	W	@IC-01	PO4-02	SOLID	N/A	1.843e+03	255.300	ug/g
9	SAMPLE	S96T005899	0	W	@IC-01	SO4-02	SOLID	N/A	1.747e+04	293.600	ug/g
9	SAMPLE	S96T005899	0	W	@IC-01	OXALATE2	SOLID	N/A	4.112e+03	223.400	ug/g
10	DUP	S96T005899	0	W	@IC-01	F-02	SOLID	4.66e+03	5.49e+03	16.355	RPD
10	DUP	S96T005899	0	W	@IC-01	CL-02	SOLID	2.45e+02	3.31e+02	29.861	RPD
10	DUP	S96T005899	0	W	@IC-01	NO2-02	SOLID	4.07e+03	5.17e+03	23.810	RPD
10	DUP	S96T005899	0	W	@IC-01	BR-02	SOLID	<2.66e2	<2.81e2		RPD
10	DUP	S96T005899	0	W	@IC-01	NO3-02	SOLID	2.65e+04	2.47e+04	7.031	RPD
10	DUP	S96T005899	0	W	@IC-01	PO4-02	SOLID	1.84e+03	9.53e+02	63.516	RPD
10	DUP	S96T005899	0	W	@IC-01	SO4-02	SOLID	1.75e+04	2.07e+04	16.754	RPD
10	DUP	S96T005899	0	W	@IC-01	OXALATE2	SOLID	4.11e+03	1.16e+04	95.353	RPD

Comments Section:

Comments for sample# S96T005898 and test @IC-01 .

High Recovery for PO4 spike is due to matrix interference.
There is another peak eluding with PO4. hla 1/24/97

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

worklistdata Version 1.0 05/15/96
01/24/97 10:41

LABCORE Completed Worklist Report for Worklist# 15470

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

Final page for worklist# 15470

Analyst Signature **Date**

Analyst Signature **Date**

H Anastos 1-24-97
Reviewer Signature **Date**

Multiple QC failures - PC notified.
Validated 1-24-97 HLA

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

LABCORE Data Entry Template for Worklist# 15470

KH 1-9-97

Analyst: KGH ~~RDS~~ **Instrument:** IC0 IC01 **Book#** 36N20-C

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

Worklist Comment: BY-112 IC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	CCB				@IC-QC	QC		
2	CCV				@IC-QC	QC		
3	BLNK-PREP				@IC-01	SOLID		
4	SAMPLE	S96T005898	0	W	@IC-01	SOLID	96001393	BY-112
	Analytes Requested:	BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
5	DUP	S96T005898	0	W	@IC-01	SOLID		
6	SPK	S96T005898	0	W	@IC-01	SOLID		
7	SAMPLE	S96T005897	0	W	@IC-01	SOLID	96001393	BY-112
	Analytes Requested:	BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
8	DUP	S96T005897	0	W	@IC-01	SOLID		
9	SAMPLE	S96T005899	0	W	@IC-01	SOLID	96001393	BY-112
	Analytes Requested:	BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
10	DUP	S96T005899	0	W	@IC-01	SOLID		

Final page for worklist # 15470

Richard Higbee 1-8-96
Analyst Signature **Date**

Analyst Signature **Date**

15470JA.CSV uploaded 1-24-97 HEA

Data Entry Comments: Several QC failures - due to matrix interferences. HEA 1-24-97

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

A-0010-IC DATA FILE/WORKLIST RESOLUTION 24-Jan-97

Worklist#: 15470

	Seq	Type	Sample #
=>	1	CCB	
=>	2	CCV	
=>	3	BLNK-PREP	
=>	4	SAMPLE	S96T005898
=>	5	DUP	S96T005898
=>	6	SPK	S96T005898
=>	7	SAMPLE	S96T005897
=>	8	DUP	S96T005897
=>	9	SAMPLE	S96T005899
=>	10	DUP	S96T005899

Data File: 15470JA.CSV

Seq#	Data File	Sample Name	Dilution
1	97010701.d06	BLANK	1.00
2	97010701.d07	36N20-C STD	101.00
3	97010701.d08	BLANK-PREP	1.00
4	97010701.d11	S96T005898SAM	11.00
5	97010701.d12	S96T005898DUP	11.00
6	97010701.d14	S96T005898SPK	11.00
7	97010701.d15	S96T005897SAM	11.00
8	97010701.d16	S96T005897DUP	11.00
9	97010701.d17	S96T005899SAM	11.00
10	97010701.d18	S96T005899DUP	11.00

Save(F4) Abort(Shift-F3) ListFiles(Shift-F1) UploadFile(F8)

```
Sample Name: BLANK                          Date: 01/09/1997 00:23:03
Data File  : C:\DX\DATA\97010701.D06
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 6                  Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

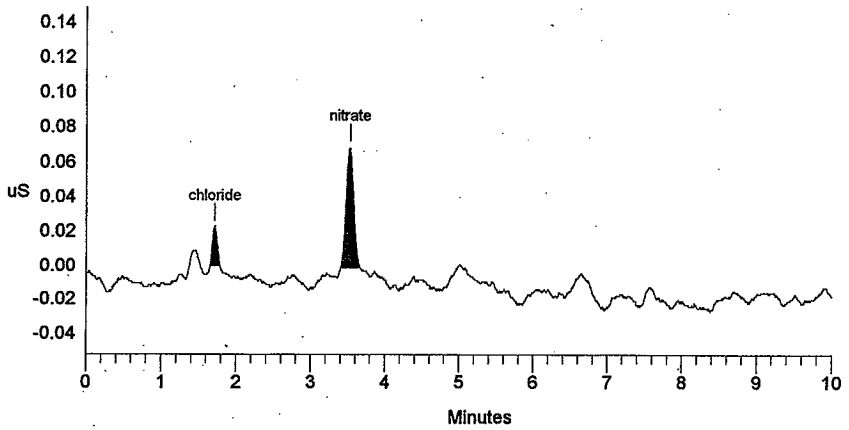
JManastra for KGH 4-23-97

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.71	chloride	0.012	22	98	1	2.80
2	3.53	nitrate	0.054	69	480	1	-1.49
		Totals	0.066	91	578		

File: 97010701.D06 Sample: BLANK



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 368 TO 377.

Data Reprocessed On 01/24/1997 10:01:11

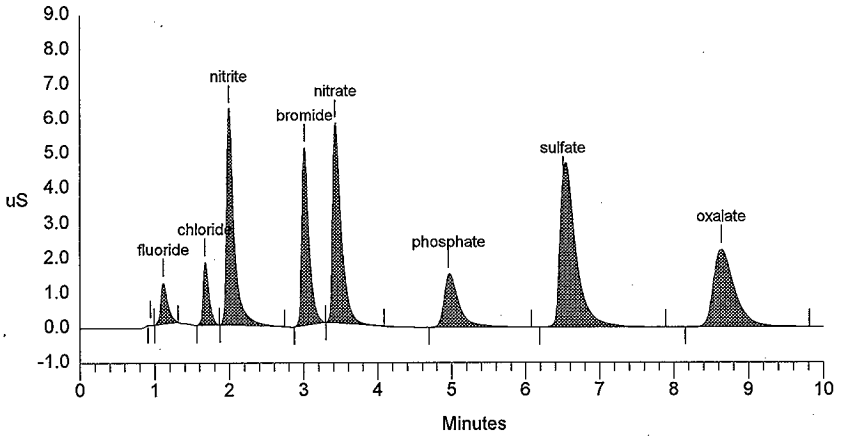
```
Sample Name: 36N20-C STD                    Date: 01/09/1997 01:43:37
Data File  : F:\DATA\97010701.D07
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 7              Detector:CDM-1
Analyst    :               Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
2	1.11	fluoride	58.453	1188	7705	1	3.09
3	1.67	chloride	78.840	1806	9916	1	0.40
4	1.99	nitrite	534.305	6206	44851	1	-1.97
5	3.01	bromide	594.140	5087	34739	1	-3.11
6	3.43	nitrate	597.944	5722	47106	1	-4.28
7	4.96	phosphate	541.974	1516	21628	1	0.00
8	6.51	sulfate	658.312	4188	69881	1	-1.61
9	8.64	oxalate	574.367	2235	43994	1	-0.61
		Totals	3638.334	27949	279819		

File: 97010701.D07 Sample: 36N20-C STD



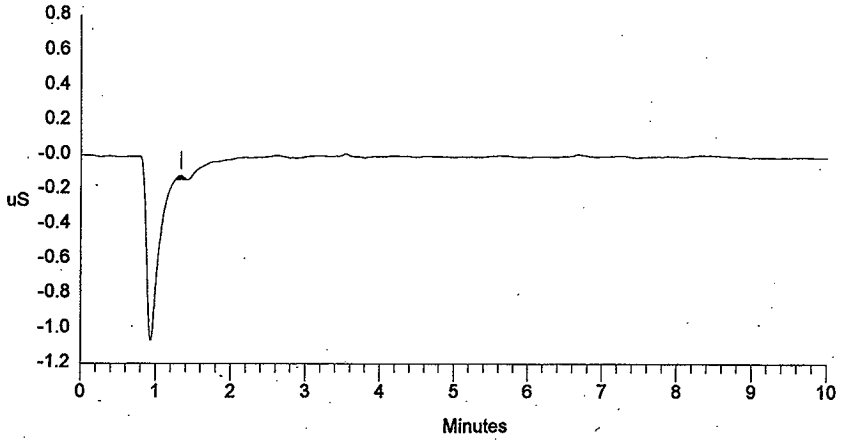
```
Sample Name: BLANK-PREP                          Date: 01/09/1997 01:55:41
Data File  : C:\DX\DATA\97010701.D08
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 8                    Detector:CDM-1
Analyst    :               Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.33		0.000	24	136	1	
		Totals	0.000	24	136		

File: 97010701.D08 Sample: BLANK-PREP



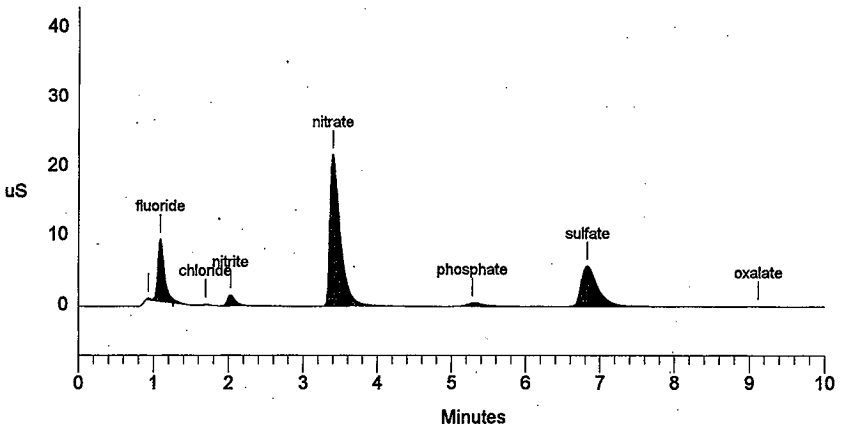
Sample Name: S96T005898SAM Date: 01/09/1997 02:38:49
Data File : C:\DX\DATA\97010701.D11
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 11 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	11	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	244	894	2	
2	1.09	fluoride	38.137	8888	55885	2	0.62
3	1.69	chloride	0.888	167	966	1	1.60
4	2.03	nitrite	16.108	1534	11445	1	-0.33
5	3.39	nitrate	278.311	21816	211531	1	-5.21
6	5.28	phosphate	25.238	487	8957	1	6.45
7	6.83	sulfate	91.095	5734	89017	1	3.23
8	9.12	oxalate	2.520	65	1305	1	4.91
		Totals	452.296	38935	379999		

File: 97010701.D11 Sample: S96T005898SAM



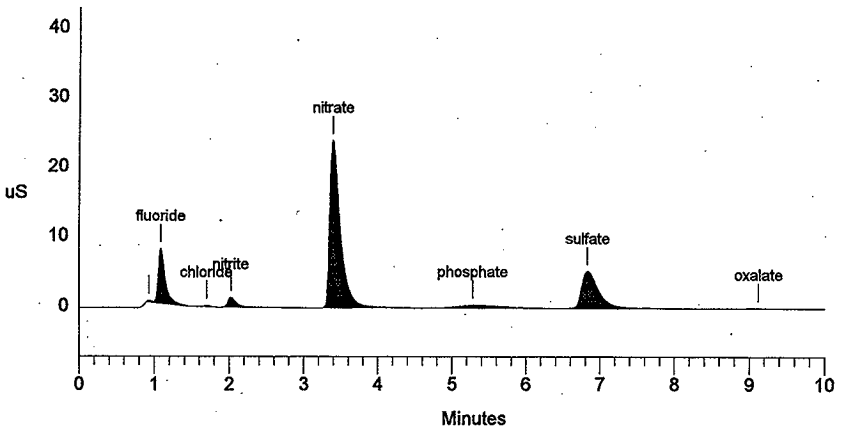
Sample Name: S96T005898DUP Date: 01/09/1997 02:53:56
Data File : C:\DX\DATA\97010701.D12
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 12 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	11	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	208	810	2	
2	1.09	fluoride	33.796	7765	48498	2	0.62
3	1.70	chloride	0.911	179	992	1	2.00
4	2.03	nitrite	15.067	1402	10625	1	-0.33
5	3.39	nitrate	305.697	24015	233993	1	-5.40
6	5.28	phosphate	47.483	431	17270	1	6.45
7	6.83	sulfate	83.823	5251	81818	1	3.23
8	9.12	oxalate	2.362	54	1194	1	4.91
		Totals	489.138	39305	395200		

File: 97010701.D12 Sample: S96T005898DUP



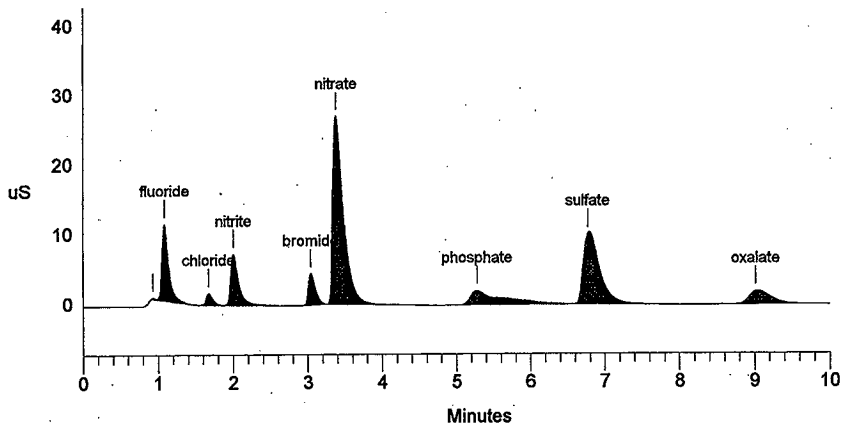
Sample Name: S96T005898SPK Date: 01/09/1997 04:44:32
Data File : C:\DX\DATA\97010701.D14
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 14 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	11	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	222	776	2	
2	1.09	fluoride	45.023	10934	68344	2	0.62
3	1.67	chloride	8.607	1650	9940	1	0.40
4	2.01	nitrite	69.772	7293	54143	1	-1.31
5	3.04	bromide	55.386	4495	29562	1	-2.25
6	3.38	nitrate	341.442	26903	263840	1	-5.59
7	5.28	phosphate	161.411	2030	61668	1	6.45
8	6.77	sulfate	157.690	10058	156403	1	2.42
9	9.01	oxalate	56.361	1873	39551	1	3.68
		Totals	895.692	65458	684226		

File: 97010701.D14 Sample: S96T005898SPK



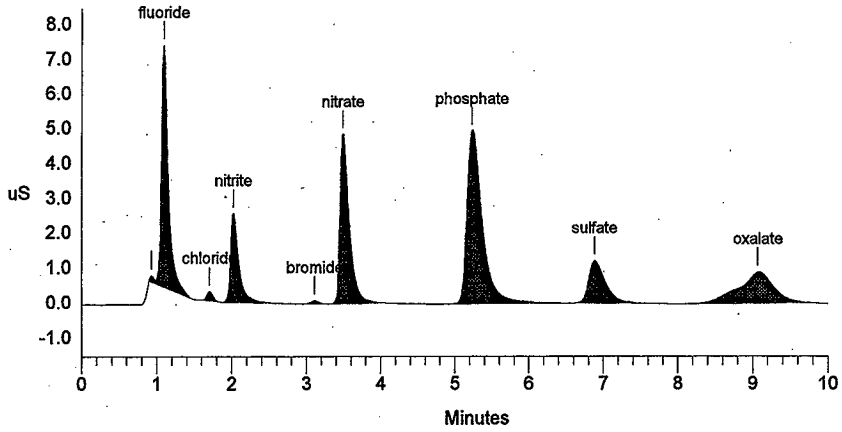
Sample Name: S96T005897SAM Date: 01/09/1997 04:56:09
Data File : C:\DX\DATA\97010701.D15
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 15 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	11	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	171	633	2	
2	1.09	fluoride	30.723	6934	43457	2	1.23
3	1.70	chloride	1.304	260	1444	1	2.00
4	2.02	nitrite	25.706	2532	19014	1	-0.66
5	3.11	bromide	2.269	88	594	1	-0.11
6	3.49	nitrate	57.350	4850	41420	1	-2.61
7	5.23	phosphate	183.910	4943	70833	1	5.38
8	6.88	sulfate	19.228	1200	19145	1	4.03
9	9.07	oxalate	41.654	886	29038	1	4.29
		Totals	362.145	21863	225577		

File: 97010701.D15 Sample: S96T005897SAM

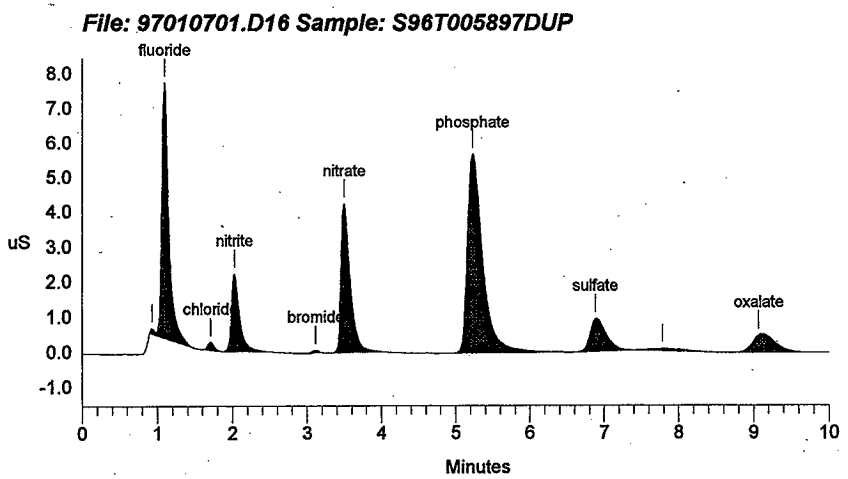


Sample Name: S96T005897DUP Date: 01/09/1997 05:08:58
Data File : C:\DX\DATA\97010701.D16
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 16 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	11	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	152	568	2	
2	1.09	fluoride	32.902	7334	47016	2	1.23
3	1.71	chloride	1.117	223	1230	1	2.40
4	2.03	nitrite	22.586	2203	16551	1	-0.33
5	3.11	bromide	2.129	78	519	1	0.11
6	3.50	nitrate	50.270	4263	36257	1	-2.23
7	5.23	phosphate	207.196	5697	80472	1	5.38
8	6.88	sulfate	13.877	928	14051	1	4.03
9	7.79		0.000	66	2025	1	
10	9.07	oxalate	16.109	492	10896	1	4.29
		Totals	346.187	21436	209584		



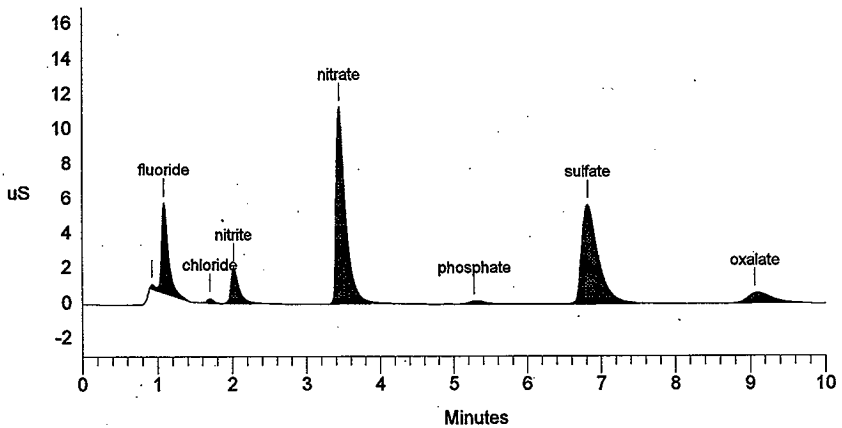
```
Sample Name: S96T005899SAM                    Date: 01/09/1997 05:20:23
Data File  : C:\DX\DATA\97010701.D17
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 17                  Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	11	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	260	1155	2	
2	1.09	fluoride	24.080	5162	33022	2	0.62
3	1.70	chloride	1.268	240	1404	1	2.00
4	2.02	nitrite	21.029	2027	15323	1	-0.66
5	3.45	nitrate	137.000	11292	100648	1	-3.72
6	5.28	phosphate	9.530	180	3149	1	6.45
7	6.83	sulfate	90.297	5703	88225	1	3.23
8	9.07	oxalate	21.258	591	14541	1	4.29
		Totals	304.462	25455	257467		

File: 97010701.D17 Sample: S96T005899SAM



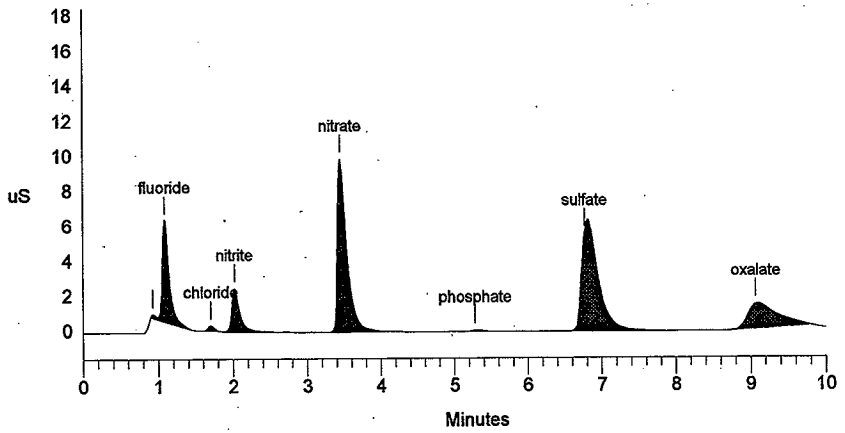
```
Sample Name: S96T005899DUP                    Date: 01/09/1997 05:31:22
Data File  : C:\DX\DATA\97010701.D18
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 18                 Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	11	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	216	884	2	
2	1.09	fluoride	26.850	5750	37301	2	0.62
3	1.70	chloride	1.618	303	1806	1	2.00
4	2.02	nitrite	25.273	2452	18672	1	-0.66
5	3.45	nitrate	120.840	9895	88454	1	-3.54
6	5.28	phosphate	4.663	87	1361	1	6.45
7	6.77	sulfate	101.222	5610	99093	1	2.42
8	9.07	oxalate	56.661	1433	39767	1	4.29
		Totals	337.128	25745	287338		

File: 97010701.D18 Sample: S96T005899DUP



LABCORE Completed Worklist Report for Worklist# 15471

Analyst: krq **Instrument:** IC02 **Book#** 36N20-C

Method: LA533105Rev/Mod D-1

Worklist Comment: BY-112 IC. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	CCB		0		@IC-QC F	QC	1		<1.20e-2		ug/mL
1	CCB		0		@IC-QC CL	QC	1		<1.70e-2		ug/mL
1	CCB		0		@IC-QC NO2	QC	1		<1.08e-1		ug/mL
1	CCB		0		@IC-QC BR	QC	1		<1.25e-1		ug/mL
1	CCB		0		@IC-QC NO3	QC	1		<1.39e-1		ug/mL
1	CCB		0		@IC-QC PO4	QC	1		<1.20e-1		ug/mL
1	CCB		0		@IC-QC SO4	QC	1		<1.38e-1		ug/mL
1	CCB		0		@IC-QC OXALATE2	QC	1		<1.05e-1		ug/mL
2	CCV		0		@IC-QC F	QC	5.90e01		5.92e+01	100.339	% Recovery
2	CCV		0		@IC-QC CL	QC	7.90e01		7.81e+01	98.861	% Recovery
2	CCV		0		@IC-QC NO2	QC	5.41e02		5.25e+02	97.043	% Recovery
2	CCV		0		@IC-QC BR	QC	5.89e02		5.73e+02	97.284	% Recovery
2	CCV		0		@IC-QC NO3	QC	5.94e02		5.83e+02	98.148	% Recovery
2	CCV		0		@IC-QC PO4	QC	5.44e02		5.24e+02	96.324	% Recovery
2	CCV		0		@IC-QC SO4	QC	6.31e02		6.23e+02	98.732	% Recovery
2	CCV		0		@IC-QC OXALATE2	QC	5.25e02		5.47e+02	104.190	% Recovery
3	BLNK-PREP		0		@IC-01 F-02	SOLID	1		<1.20e-2		ug/g
3	BLNK-PREP		0		@IC-01 CL-02	SOLID	1		<1.70e-2		ug/g
3	BLNK-PREP		0		@IC-01 NO2-02	SOLID	1		<1.08e-1		ug/g
3	BLNK-PREP		0		@IC-01 BR-02	SOLID	1		<1.25e-1		ug/g
3	BLNK-PREP		0		@IC-01 NO3-02	SOLID	1		<1.39e-1		ug/g
3	BLNK-PREP		0		@IC-01 PO4-02	SOLID	1		<1.20e-1		ug/g
3	BLNK-PREP		0		@IC-01 SO4-02	SOLID	1		<1.38e-1		ug/g
3	BLNK-PREP		0		@IC-01 OXALATE2	SOLID	1		<1.05e-1		ug/g
4	SAMPLE	S96T005900	0	W	@IC-01 F-02	SOLID	N/A		2.652e+03	2.355	ug/g
4	SAMPLE	S96T005900	0	W	@IC-01 CL-02	SOLID	N/A		7.729e+02	3.337	ug/g
4	SAMPLE	S96T005900	0	W	@IC-01 NO2-02	SOLID	N/A		1.430e+04	21.200	ug/g
4	SAMPLE	S96T005900	0	W	@IC-01 BR-02	SOLID	N/A	<	2.453e+01	24.530	ug/g
4	SAMPLE	S96T005900	0	W	@IC-01 NO3-02	SOLID	N/A		6.781e+04	27.280	ug/g
4	SAMPLE	S96T005900	0	W	@IC-01 PO4-02	SOLID	N/A		2.760e+03	23.550	ug/g
4	SAMPLE	S96T005900	0	W	@IC-01 SO4-02	SOLID	N/A		1.950e+04	27.090	ug/g
4	SAMPLE	S96T005900	0	W	@IC-01 OXALATE2	SOLID	N/A		3.021e+04	20.610	ug/g
5	DUP	S96T005900	0	W	@IC-01 F-02	SOLID	2.65e+03		6.39e+03	82.743	RPD
5	DUP	S96T005900	0	W	@IC-01 CL-02	SOLID	7.73e+02		1.19e+03	42.486	RPD
5	DUP	S96T005900	0	W	@IC-01 NO2-02	SOLID	1.43e+04		2.04e+04	35.159	RPD
5	DUP	S96T005900	0	W	@IC-01 BR-02	SOLID	<2.45e1		<5.46e2		RPD
5	DUP	S96T005900	0	W	@IC-01 NO3-02	SOLID	6.78e+04		1.87e+05	93.564	RPD
5	DUP	S96T005900	0	W	@IC-01 PO4-02	SOLID	2.76e+03		4.04e+03	37.647	RPD
5	DUP	S96T005900	0	W	@IC-01 SO4-02	SOLID	1.95e+04		2.83e+04	36.820	RPD
5	DUP	S96T005900	0	W	@IC-01 OXALATE2	SOLID	3.02e+04		1.05e+05	110.651	RPD
6	SPK	S96T005900	0	W	@IC-01 F-02	SOLID	5.90e01		2.57e+02	435.593	% Recovery

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

LABCORE Completed Worklist Report for Worklist# 15471

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
6	SPK	S96T005900	0	W @IC-01	CL-02	SOLID	7.90e01		9.03e+01	114.304	% Recovery
6	SPK	S96T005900	0	W @IC-01	NO2-02	SOLID	5.41e02		7.54e+02	139.372	% Recovery
6	SPK	S96T005900	0	W @IC-01	BR-02	SOLID	5.89e02		5.83e+02	98.981	% Recovery
6	SPK	S96T005900	0	W @IC-01	NO3-02	SOLID	5.94e02		1.69e+03	284.512	% Recovery
6	SPK	S96T005900	0	W @IC-01	PO4-02	SOLID	5.44e02		6.19e+02	113.787	% Recovery
6	SPK	S96T005900	0	W @IC-01	SO4-02	SOLID	6.31e02		1.32e+03	209.192	% Recovery
6	SPK	S96T005900	0	W @IC-01	OXALATE2	SOLID	5.25e02		1.77e+03	527.619	% Recovery
7	SAMPLE	S96T005901	0	W @IC-01	F-02	SOLID	N/A		2.913e+02	2.367	ug/g
7	SAMPLE	S96T005901	0	W @IC-01	CL-02	SOLID	N/A		5.286e+01	3.353	ug/g
7	SAMPLE	S96T005901	0	W @IC-01	NO2-02	SOLID	N/A		9.440e+02	21.300	ug/g
7	SAMPLE	S96T005901	0	W @IC-01	BR-02	SOLID	N/A	<	2.465e+01	24.650	ug/g
7	SAMPLE	S96T005901	0	W @IC-01	NO3-02	SOLID	N/A		8.336e+03	27.420	ug/g
7	SAMPLE	S96T005901	0	W @IC-01	PO4-02	SOLID	N/A		2.211e+02	23.670	ug/g
7	SAMPLE	S96T005901	0	W @IC-01	SO4-02	SOLID	N/A		1.279e+03	27.220	ug/g
7	SAMPLE	S96T005901	0	W @IC-01	OXALATE2	SOLID	N/A		4.706e+03	20.710	ug/g
8	DUP	S96T005901	0	W @IC-01	F-02	SOLID	2.91e+02		1.34e+02	73.882	RPD
8	DUP	S96T005901	0	W @IC-01	CL-02	SOLID	5.29e+01		1.15e+02	73.973	RPD
8	DUP	S96T005901	0	W @IC-01	NO2-02	SOLID	9.44e+02		2.16e+03	78.351	RPD
8	DUP	S96T005901	0	W @IC-01	BR-02	SOLID	<2.46e1		<2.49e1		RPD
8	DUP	S96T005901	0	W @IC-01	NO3-02	SOLID	8.34e+03		3.06e+03	92.632	RPD
8	DUP	S96T005901	0	W @IC-01	PO4-02	SOLID	2.21e+02		3.88e+02	54.844	RPD
8	DUP	S96T005901	0	W @IC-01	SO4-02	SOLID	1.28e+03		5.40e+02	81.319	RPD
8	DUP	S96T005901	0	W @IC-01	OXALATE2	SOLID	4.71e+03		1.10e+03	124.269	RPD
9	SAMPLE	S96T005902	0	W @IC-01	F-02	SOLID	N/A		4.707e+03	49.160	ug/g
9	SAMPLE	S96T005902	0	W @IC-01	CL-02	SOLID	N/A		2.083e+03	69.640	ug/g
9	SAMPLE	S96T005902	0	W @IC-01	NO2-02	SOLID	N/A		3.977e+04	442.300	ug/g
9	SAMPLE	S96T005902	0	W @IC-01	BR-02	SOLID	N/A	<	5.120e+02	512.000	ug/g
9	SAMPLE	S96T005902	0	W @IC-01	NO3-02	SOLID	N/A		8.408e+04	569.300	ug/g
9	SAMPLE	S96T005902	0	W @IC-01	PO4-02	SOLID	N/A		9.975e+03	491.600	ug/g
9	SAMPLE	S96T005902	0	W @IC-01	SO4-02	SOLID	N/A		1.889e+04	565.300	ug/g
9	SAMPLE	S96T005902	0	W @IC-01	OXALATE2	SOLID	N/A		4.983e+04	430.100	ug/g
10	DUP	S96T005902	0	W @IC-01	F-02	SOLID	4.71e+03		3.61e+03	26.442	RPD
10	DUP	S96T005902	0	W @IC-01	CL-02	SOLID	2.08e+03		2.17e+03	4.235	RPD
10	DUP	S96T005902	0	W @IC-01	NO2-02	SOLID	3.98e+04		4.08e+04	2.481	RPD
10	DUP	S96T005902	0	W @IC-01	BR-02	SOLID	<5.12e2		<5.46e2		RPD
10	DUP	S96T005902	0	W @IC-01	NO3-02	SOLID	8.41e+04		7.34e+04	13.587	RPD
10	DUP	S96T005902	0	W @IC-01	PO4-02	SOLID	9.98e+03		2.75e+03	113.590	RPD
10	DUP	S96T005902	0	W @IC-01	SO4-02	SOLID	1.89e+04		1.71e+04	10.000	RPD
10	DUP	S96T005902	0	W @IC-01	OXALATE2	SOLID	4.98e+04		5.02e+04	0.800	RPD

Comments Section:

Comments for sample# S96T005900 and test @IC-01
Samples S96T005900, 5901, + 5902 have multiple QC failures. Samples should be reprepped prior to any reanalysis. PC contacted. hla 1/21/97

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

LABCORE Completed Worklist Report for Worklist# 15471

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

Final page for worklist# 15471

Analyst Signature **Date**

Analyst Signature **Date**

H Anastos 1-21-97
Reviewer Signature **Date**

Validated, suggested reprep.
1-21-97 HA

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

LABCORE Data Entry Template for Worklist# 15471

Analyst: KHA **Instrument:** IC0 IC02 **Book#** 36100-C

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

Worklist Comment: BY-112 IC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	CCB				@IC-QC	QC		
2	CCV				@IC-QC	QC		
3	BLNK-PREP				@IC-01	SOLID		
4	SAMPLE	S96T005900	0	W	@IC-01	SOLID	96001393	BY-112
	Analytes Requested:				BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02			
5	DUP	S96T005900	0	W	@IC-01	SOLID		
6	SPK	S96T005900	0	W	@IC-01	SOLID		
7	SAMPLE	S96T005901	0	W	@IC-01	SOLID	96001393	BY-112
	Analytes Requested:				BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02			
8	DUP	S96T005901	0	W	@IC-01	SOLID		
9	SAMPLE	S96T005902	0	W	@IC-01	SOLID	96001393	BY-112
	Analytes Requested:				BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02			
10	DUP	S96T005902	0	W	@IC-01	SOLID		

Final page for worklist # 15471

Analyst Signature Date 1/11/97

Analyst Signature Date

Data Entry Comments: Samples have multiple QC failures + should be reprepped prior to any reanalysis. HLA 1-21-97

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

A-0010-IC DATA FILE/WORKLIST RESOLUTION 21-Jan-97

Worklist#: 15471

		Seq	Type	Sample #
-	=>	1	CCB	
	=>	2	CCV	
	=>	3	BLNK-PREP	
	=>	4	SAMPLE	S96T005900
	=>	5	DUP	S96T005900
	=>	6	SPK	S96T005900
	=>	7	SAMPLE	S96T005901
	=>	8	DUP	S96T005901
	=>	9	SAMPLE	S96T005902
	=>	10	DUP	S96T005902
+				

Data File: 15471JA.CSV

	Seq#	Data File	Sample Name	Dilution
-	2	97011201.d03	CCV 36N20-C	101.00
	1	97011191.d07	CCB	1.00
	3	97011221.d04	BLANK PREP 15471	1.00
	4	97011191.d13	S96T005900 SAMPL	1.00
	5	97011201.d12	S96T005900 DUP	21.00
	6	97011221.d05	S96T005900 SPIKE	21.00
	7	97011191.d14	S96T005901 SAMPL	1.00
	8	97011201.d14	S96T005901 DUP	1.00
	9	97011191.d15	S96T005902 SAMPL	21.00
	10	97011211.d11	S96T005902 DUP	21.00
+				

Save(F4) Abort(Shift-F3) ListFiles(Shift-F1) UploadFile(F8)

Data Reprocessed On 01/12/1997 15:01:56

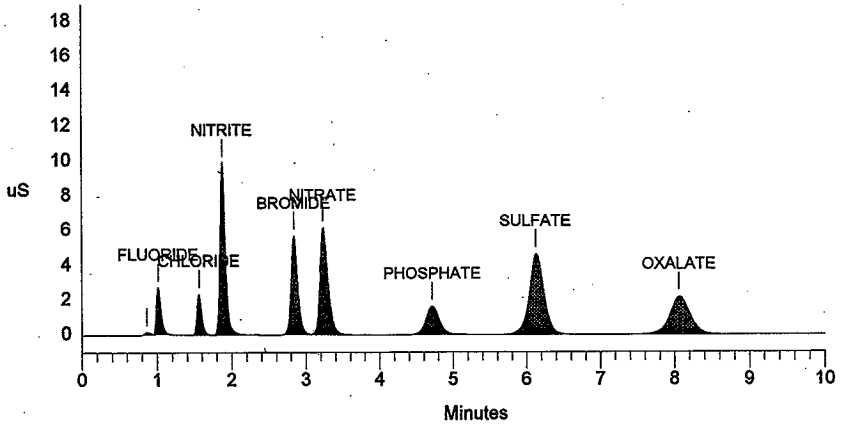
Sample Name: CCV 36N20-C Date: 01/11/1997 12:39:48
Data File : C:\DX\DATA\97011201.D03
Method : C:\DX\METHOD\ANIONSA.MET HNF-SD-WM-DP-229, REV. 0
ACI Address: 1 System: 1 Inject#: 3 Detector:CDM-1
Analyst Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	96	409	2	
2	1.02	FLUORIDE	59.171	2675	11423	2	-3.17
3	1.56	CHLORIDE	78.108	2341	10240	1	-1.05
4	1.88	NITRITE	525.194	9867	49030	1	-2.26
5	2.84	BROMIDE	573.063	5650	34939	2	-2.63
6	3.24	NITRATE	583.396	6137	46092	2	-3.96
7	4.72	PHOSPHATE	523.924	1649	20328	1	-6.04
8	6.13	SULFATE	623.163	4630	63444	1	0.00
9	8.06	OXALATE	547.102	2179	40321	1	-7.00
		Totals	3513.121	35224	276227		

File: 97011201.D03 Sample: CCV 36N20-C



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 382 TO 392.

Data Reprocessed On 01/21/1997 13:31:11

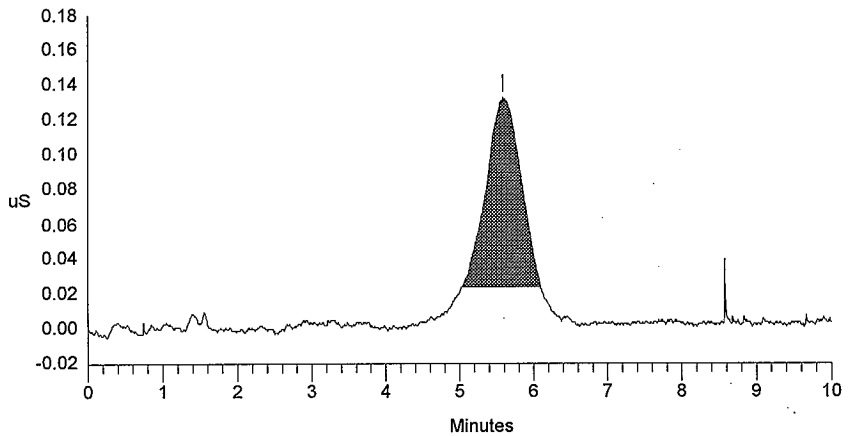
```
Sample Name: CCB                                  Date: 01/11/1997 08:48:17
Data File  : E:\DATA\97011191.d07
Method     : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1  System: 1  Inject#: 7                      Detector:CDM-1
Analyst    :               Column:
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	5.58		0.000	108	3460	1	
		Totals	0.000	108	3460		

File: 97011191.d07 Sample: CCB



Data Reprocessed On 01/21/1997 13:31:12

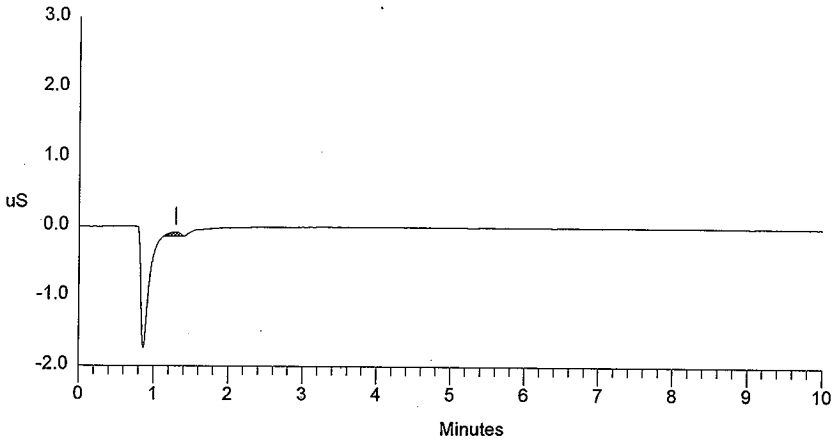
Sample Name: BLANK PREP 15471 Date: 01/11/1997 15:43:09
Data File : E:\DATA\97011221.d04
Method : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1 System: 1 Inject#: 4 Detector:CDM-1
Analyst : Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.29		0.000	60	624	1	
		Totals	0.000	60	624		

File: 97011221.d04 Sample: BLANK PREP 15471



Data Reprocessed On 01/21/1997 13:43:27

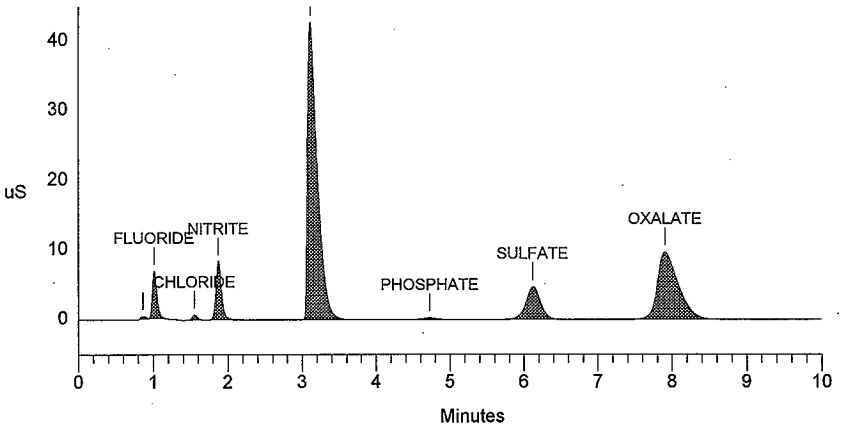
Sample Name: S96T005900 SAMPLE Date: 01/11/1997 11:51:43
Data File : E:\DATA\97011191.D13
Method : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1 System: 1 Inject#: 13 Detector:CDM-1
Analyst : Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	21	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	335	1514	2	
2	1.01	FLUORIDE	13.510	6752	29168	2	0.00
3	1.55	CHLORIDE	3.938	720	3423	1	0.00
4	1.87	NITRITE	72.852	8313	43372	1	0.00
5	3.11	NITRATE	345.471	42730	393290	1	0.00
6	4.72	PHOSPHATE	14.062	280	3241	1	0.07
7	6.12	SULFATE	99.369	4744	65113	1	-0.05
8	7.90	OXALATE	153.930	9695	187710	1	0.04
		Totals	703.133	73569	726830		

File: 97011191.D13 Sample: S96T005900 SAMPLE



Data Reprocessed On 01/21/1997 13:31:14

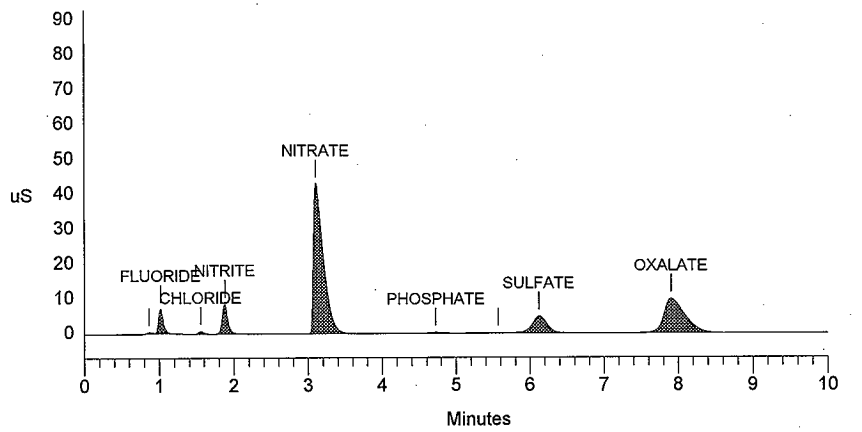
```
Sample Name: S96T005900 DUP                    Date: 01/11/1997 14:33:39
Data File  : E:\DATA\97011201.d12
Method     : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1  System: 1  Inject#: 12                  Detector:CDM-1
Analyst    :               Column:
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	21	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	312	1329	2	
2	1.02	FLUORIDE	30.734	6890	29354	2	-3.17
3	1.55	CHLORIDE	5.709	738	3521	1	-1.90
4	1.88	NITRITE	97.979	8546	43844	1	-2.26
5	3.10	NITRATE	897.440	42953	398131	1	0.11
6	4.72	PHOSPHATE	19.402	277	3168	1	-5.91
7	5.57		0.000	114	2351	2	
8	6.12	SULFATE	136.177	4812	66787	2	-0.05
9	7.90	OXALATE	505.472	9794	189506	1	0.04
		Totals	1692.914	74437	737991		

File: 97011201.d12 Sample: S96T005900 DUP



Data Reprocessed On 01/21/1997 13:31:15

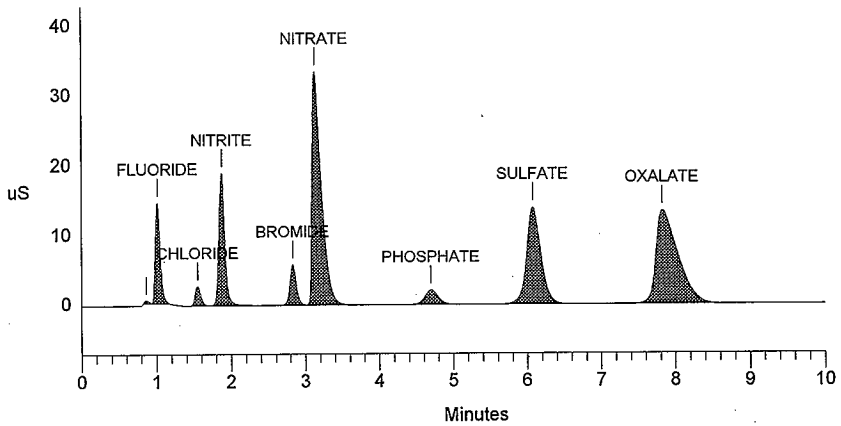
```
Sample Name: S96T005900 SPIKE                Date: 01/11/1997 15:55:47
Data File  : E:\DATA\97011221.d05
Method     : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1  System: 1  Inject#: 5                    Detector:CDM-1
Analyst    :                Column:
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	21	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	396	1525	2	
2	1.02	FLUORIDE	64.986	14476	64288	2	-3.17
3	1.55	CHLORIDE	21.990	2752	13959	2	-1.90
4	1.88	NITRITE	223.657	18945	102530	2	-2.26
5	2.83	BROMIDE	116.618	5825	34165	2	-3.08
6	3.13	NITRATE	684.418	33452	290592	2	0.00
7	4.70	PHOSPHATE	137.768	2118	25963	1	-6.44
8	6.08	SULFATE	362.435	13957	185819	1	-0.05
9	7.82	OXALATE	708.765	13497	273405	1	0.04
		Totals	2320.638	105419	992248		

File: 97011221.d05 Sample: S96T005900 SPIKE



Data Reprocessed On 01/21/1997 13:31:16

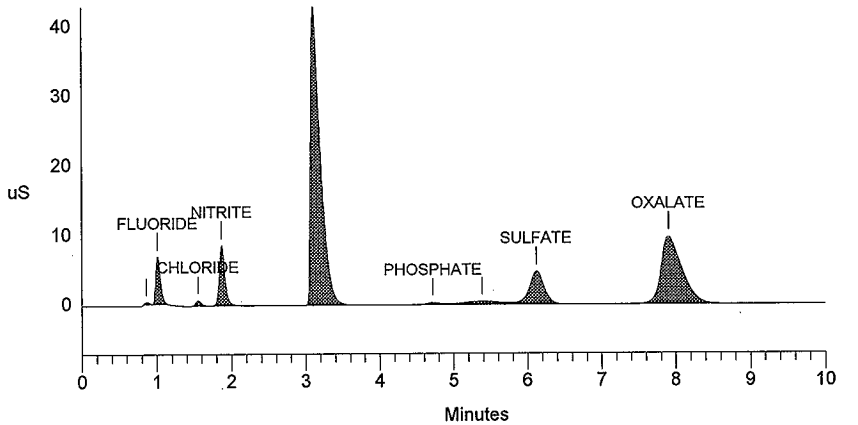
Sample Name: S96T005901 SAMPLE Date: 01/11/1997 12:04:23
Data File : E:\DATA\97011191.d14
Method : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1 System: 1 Inject#: 14 Detector:CDM-1
Analyst : Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	331	1402	2	
2	1.01	FLUORIDE	1.477	6807	29644	2	-3.81
3	1.55	CHLORIDE	0.268	736	3472	1	-1.90
4	1.87	NITRITE	4.786	8610	45014	1	-2.60
5	3.11	NITRATE	42.261	42874	392851	1	0.00
6	4.72	PHOSPHATE	1.121	308	3951	2	-6.04
7	5.38		0.000	463	15769	2	
8	6.12	SULFATE	6.484	4789	66781	2	-0.05
9	7.90	OXALATE	23.859	9718	187734	1	0.04
		Totals	80.257	74635	746616		

File: 97011191.d14 Sample: S96T005901 SAMPLE



Data Reprocessed On 01/21/1997 13:31:17

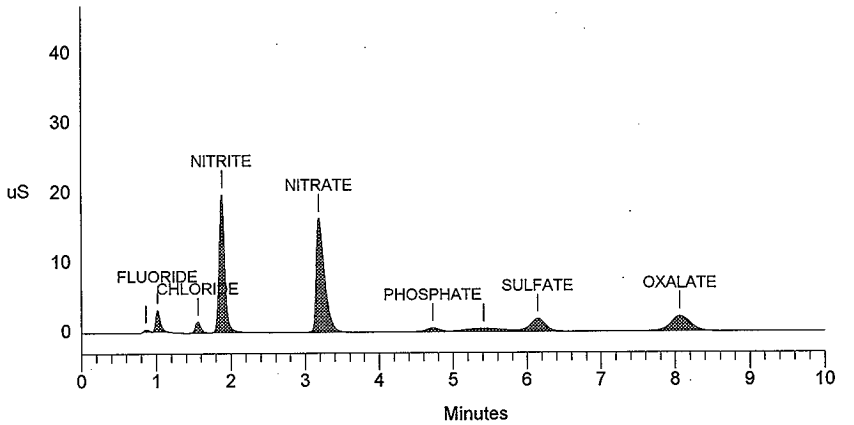
```
Sample Name: S96T005901 DUP                    Date: 01/11/1997 14:58:57
Data File  : E:\DATA\97011201.d14
Method     : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1  System: 1  Inject#: 14                  Detector:CDM-1
Analyst    :                Column:
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	331	1483	2	
2	1.02	FLUORIDE	0.673	3103	13174	2	-3.17
3	1.56	CHLORIDE	0.576	1546	7586	1	-1.48
4	1.88	NITRITE	10.842	19826	104435	1	-1.91
5	3.19	NITRATE	15.371	16419	128272	1	0.00
6	4.72	PHOSPHATE	1.947	558	7239	2	-5.91
7	5.41		0.000	475	16805	2	
8	6.14	SULFATE	2.708	1852	27123	2	-6.92
9	8.06	OXALATE	5.497	2194	40935	1	-7.00
		Totals	37.614	46305	347052		

File: 97011201.d14 Sample: S96T005901 DUP



Data Reprocessed On 01/21/1997 13:31:18

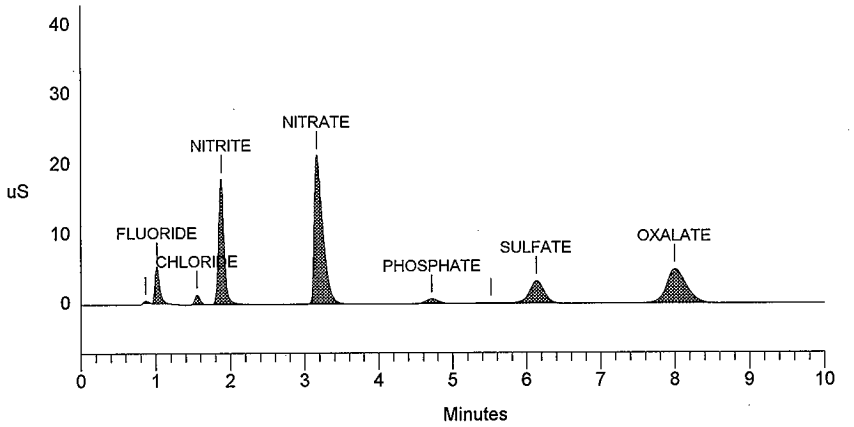
```
Sample Name: S96T005902 SAMPLE              Date: 01/11/1997 15:11:37
Data File  : E:\DATA\97011191.d15
Method     : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1  System: 1  Inject#: 15                  Detector:CDM-1
Analyst    :               Column:
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	21	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	361	1575	2	
2	1.02	FLUORIDE	24.133	5332	22868	2	-3.17
3	1.55	CHLORIDE	10.682	1404	6680	1	-1.90
4	1.88	NITRITE	203.911	17993	93221	1	-2.26
5	3.16	NITRATE	431.100	21319	174680	1	0.11
6	4.72	PHOSPHATE	51.140	721	9194	2	-6.04
7	5.52		0.000	141	4222	2	
8	6.13	SULFATE	96.860	3316	47002	2	0.00
9	8.00	OXALATE	255.475	4957	92617	1	-0.04
		Totals	1073.302	55546	452059		

File: 97011191.d15 Sample: S96T005902 SAMPLE



Data Reprocessed On 01/21/1997 13:31:18

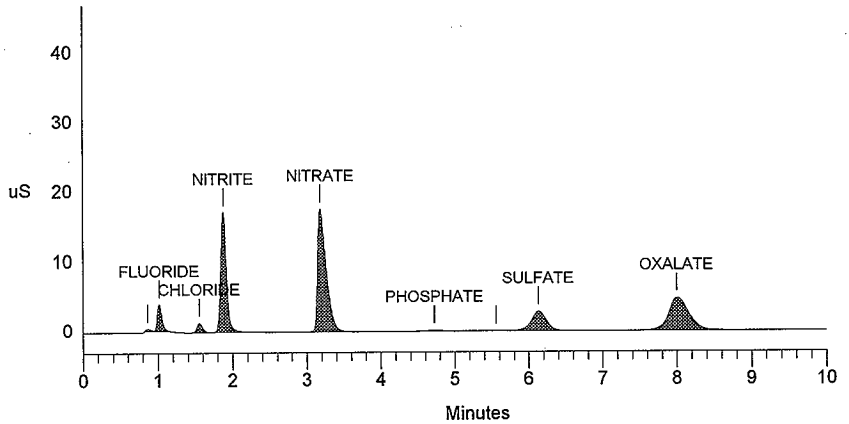
Sample Name: S96T005902 DUP Date: 01/11/1997 17:11:36
Data File : E:\DATA\97011211.d11
Method : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1 System: 1 Inject#: 11 Detector:CDM-1
Analyst : Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	21	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	349	1600	2	
2	1.02	FLUORIDE	17.348	3836	16276	2	-3.17
3	1.55	CHLORIDE	10.429	1344	6518	1	-1.90
4	1.88	NITRITE	196.082	17171	89540	1	-2.26
5	3.18	NITRATE	352.779	17600	140956	1	0.10
6	4.72	PHOSPHATE	13.240	172	2005	1	-5.91
7	5.56		0.000	62	1346	2	
8	6.13	SULFATE	82.242	2821	39708	2	0.00
9	8.00	OXALATE	241.463	4679	87368	1	-0.04
		Totals	913.582	48032	385315		

File: 97011211.d11 Sample: S96T005902 DUP



LABCORE Completed Worklist Report for Worklist# 15473

Analyst: krq **Instrument:** IC02 **Book#** 36N20C

Method: LA533105 Rev/Mod D-1

Worklist Comment: BY-112 IC. RCJ

	Seq Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	CCB		0		@IC-QC F	QC	1	<1.20e-2		ug/mL
1	CCB		0		@IC-QC CL	QC	1	<1.70e-2		ug/mL
1	CCB		0		@IC-QC NO2	QC	1	<1.08e-1		ug/mL
1	CCB		0		@IC-QC BR	QC	1	<1.25e-1		ug/mL
1	CCB		0		@IC-QC NO3	QC	1	<1.39e-1		ug/mL
1	CCB		0		@IC-QC PO4	QC	1	<1.20e-1		ug/mL
1	CCB		0		@IC-QC SO4	QC	1	<1.38e-1		ug/mL
1	CCB		0		@IC-QC OXALATE2	QC	1	<1.05e-1		ug/mL
2	CCV		0		@IC-QC F	QC	5.90e01	5.88e+01	99.661	% Recovery
2	CCV		0		@IC-QC CL	QC	7.90e01	7.94e+01	100.506	% Recovery
2	CCV		0		@IC-QC NO2	QC	5.41e02	5.27e+02	97.412	% Recovery
2	CCV		0		@IC-QC BR	QC	5.89e02	5.79e+02	98.302	% Recovery
2	CCV		0		@IC-QC NO3	QC	5.94e02	5.80e+02	97.643	% Recovery
2	CCV		0		@IC-QC PO4	QC	5.44e02	5.24e+02	96.324	% Recovery
2	CCV		0		@IC-QC SO4	QC	6.31e02	6.26e+02	99.208	% Recovery
2	CCV		0		@IC-QC OXALATE2	QC	5.25e02	5.48e+02	104.381	% Recovery
3	BLNK-PREP		0		@IC-01 F-02	SOLID	1	<1.20e-2		ug/g
3	BLNK-PREP		0		@IC-01 CL-02	SOLID	1	<1.70e-2		ug/g
3	BLNK-PREP		0		@IC-01 NO2-02	SOLID	1	<1.08e-1		ug/g
3	BLNK-PREP		0		@IC-01 BR-02	SOLID	1	<1.25e-1		ug/g
3	BLNK-PREP		0		@IC-01 NO3-02	SOLID	1	1.50e-01	0.150	ug/g
3	BLNK-PREP		0		@IC-01 PO4-02	SOLID	1	<1.20e-1		ug/g
3	BLNK-PREP		0		@IC-01 SO4-02	SOLID	1	<1.38e-1		ug/g
3	BLNK-PREP		0		@IC-01 OXALATE2	SOLID	1	<1.05e-1		ug/g
4	SAMPLE	S96T005935	0	W	@IC-01 F-02	SOLID	N/A	1.234e+04	91.800	ug/g
4	SAMPLE	S96T005935	0	W	@IC-01 CL-02	SOLID	N/A	3.725e+02	130.100	ug/g
4	SAMPLE	S96T005935	0	W	@IC-01 NO2-02	SOLID	N/A	5.474e+03	826.100	ug/g
4	SAMPLE	S96T005935	0	W	@IC-01 BR-02	SOLID	N/A <	9.563e+02	956.500	ug/g
4	SAMPLE	S96T005935	0	W	@IC-01 NO3-02	SOLID	N/A	1.435e+04	1064.000	ug/g
4	SAMPLE	S96T005935	0	W	@IC-01 PO4-02	SOLID	N/A	1.063e+05	918.000	ug/g
4	SAMPLE	S96T005935	0	W	@IC-01 SO4-02	SOLID	N/A	5.194e+03	1056.000	ug/g
4	SAMPLE	S96T005935	0	W	@IC-01 OXALATE2	SOLID	N/A	2.744e+03	803.200	ug/g
5	DUP	S96T005935	0	W	@IC-01 F-02	SOLID	1.23e+04	1.23e+04	0.000	RPD
5	DUP	S96T005935	0	W	@IC-01 CL-02	SOLID	3.72e+02	3.95e+02	5.997	RPD
5	DUP	S96T005935	0	W	@IC-01 NO2-02	SOLID	5.47e+03	5.53e+03	1.091	RPD
5	DUP	S96T005935	0	W	@IC-01 BR-02	SOLID	<9.56e2	<1.02e3		RPD
5	DUP	S96T005935	0	W	@IC-01 NO3-02	SOLID	1.44e+04	1.43e+04	0.697	RPD
5	DUP	S96T005935	0	W	@IC-01 PO4-02	SOLID	1.06e+05	1.06e+05	0.000	RPD
5	DUP	S96T005935	0	W	@IC-01 SO4-02	SOLID	5.19e+03	5.23e+03	0.768	RPD
5	DUP	S96T005935	0	W	@IC-01 OXALATE2	SOLID	2.74e+03	2.69e+03	1.842	RPD
6	SPK	S96T005935	0	W	@IC-01 F-02	SOLID	5.90e01	6.83e+01	115.763	% Recovery

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

LABCORE Completed Worklist Report for Worklist# 15473

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
6	SPK	S96T005935	0	W	@IC-01	CL-02	SOLID	7.90e01		8.75e+01	110.759 % Recovery
6	SPK	S96T005935	0	W	@IC-01	NO2-02	SOLID	5.41e02		5.31e+02	98.152 % Recovery
6	SPK	S96T005935	0	W	@IC-01	BR-02	SOLID	5.89e02		6.08e+02	103.226 % Recovery
6	SPK	S96T005935	0	W	@IC-01	NO3-02	SOLID	5.94e02		7.03e+02	118.350 % Recovery
6	SPK	S96T005935	0	W	@IC-01	PO4-02	SOLID	5.44e02		6.42e+02	118.015 % Recovery
6	SPK	S96T005935	0	W	@IC-01	SO4-02	SOLID	6.31e02		6.86e+02	108.716 % Recovery
6	SPK	S96T005935	0	W	@IC-01	OXALATE2	SOLID	5.25e02		4.78e+02	91.048 % Recovery
7	SAMPLE	S96T005936	0	W	@IC-01	F-02	SOLID	N/A		1.948e+03	89.220 ug/g
7	SAMPLE	S96T005936	0	W	@IC-01	CL-02	SOLID	N/A		2.158e+02	126.400 ug/g
7	SAMPLE	S96T005936	0	W	@IC-01	NO2-02	SOLID	N/A		2.858e+03	803.200 ug/g
7	SAMPLE	S96T005936	0	W	@IC-01	BR-02	SOLID	N/A	<	9.295e+02	929.500 ug/g
7	SAMPLE	S96T005936	0	W	@IC-01	NO3-02	SOLID	N/A		4.663e+05	1034.000 ug/g
7	SAMPLE	S96T005936	0	W	@IC-01	PO4-02	SOLID	N/A		6.453e+03	892.200 ug/g
7	SAMPLE	S96T005936	0	W	@IC-01	SO4-02	SOLID	N/A		3.944e+03	1026.000 ug/g
7	SAMPLE	S96T005936	0	W	@IC-01	OXALATE2	SOLID	N/A		1.304e+03	780.600 ug/g
8	DUP	S96T005936	0	W	@IC-01	F-02	SOLID	1.95e+03		5.22e+03	91.213 RPD
8	DUP	S96T005936	0	W	@IC-01	CL-02	SOLID	2.16e+02		2.67e+02	21.118 RPD
8	DUP	S96T005936	0	W	@IC-01	NO2-02	SOLID	2.86e+03		4.03e+03	33.962 RPD
8	DUP	S96T005936	0	W	@IC-01	BR-02	SOLID	<9.30e2		<9.82e2	RPD
8	DUP	S96T005936	0	W	@IC-01	NO3-02	SOLID	4.66e+05		2.27e+04	181.420 RPD
8	DUP	S96T005936	0	W	@IC-01	PO4-02	SOLID	6.45e+03		1.81e+04	94.908 RPD
8	DUP	S96T005936	0	W	@IC-01	SO4-02	SOLID	3.94e+03		9.45e+03	82.300 RPD
8	DUP	S96T005936	0	W	@IC-01	OXALATE2	SOLID	1.30e+03		5.97e+03	128.473 RPD
9	SAMPLE	S96T005937	0	W	@IC-01	F-02	SOLID	N/A		6.378e+03	100.900 ug/g
9	SAMPLE	S96T005937	0	W	@IC-01	CL-02	SOLID	N/A		2.927e+02	142.900 ug/g
9	SAMPLE	S96T005937	0	W	@IC-01	NO2-02	SOLID	N/A		4.498e+03	908.100 ug/g
9	SAMPLE	S96T005937	0	W	@IC-01	BR-02	SOLID	N/A	<	1.051e+03	1051.000 ug/g
9	SAMPLE	S96T005937	0	W	@IC-01	NO3-02	SOLID	N/A		2.399e+04	1169.000 ug/g
9	SAMPLE	S96T005937	0	W	@IC-01	PO4-02	SOLID	N/A		2.191e+03	1009.000 ug/g
9	SAMPLE	S96T005937	0	W	@IC-01	SO4-02	SOLID	N/A		8.076e+03	1160.000 ug/g
9	SAMPLE	S96T005937	0	W	@IC-01	OXALATE2	SOLID	N/A	<	8.829e+02	882.700 ug/g
10	DUP	S96T005937	0	W	@IC-01	F-02	SOLID	6.38e+03		6.70e+03	4.893 RPD
10	DUP	S96T005937	0	W	@IC-01	CL-02	SOLID	2.93e+02		2.72e+02	7.434 RPD
10	DUP	S96T005937	0	W	@IC-01	NO2-02	SOLID	4.50e+03		4.34e+03	3.620 RPD
10	DUP	S96T005937	0	W	@IC-01	BR-02	SOLID	<1.05e3		<9.52e2	RPD
10	DUP	S96T005937	0	W	@IC-01	NO3-02	SOLID	2.40e+04		4.76e+04	65.922 RPD
10	DUP	S96T005937	0	W	@IC-01	PO4-02	SOLID	2.19e+03		7.70e+03	111.426 RPD
10	DUP	S96T005937	0	W	@IC-01	SO4-02	SOLID	8.08e+03		7.57e+03	6.518 RPD
10	DUP	S96T005937	0	W	@IC-01	OXALATE2	SOLID	<8.83e2		<8.00e2	RPD

Comments Section:

Comments for sample# S96T005936 **and test** @IC-01 .
NO3 result for sample over calibration. Sample should be re prepped prior to any reanalysis. PC contacted. hla 1/21/97

Comments for sample# S96T005937 **and test** @IC-01 .
There appear to be matrix interferences with F and PO4

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

LABCORE Completed Worklist Report for Worklist# 15473

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

want to reprep prior to any reanalysis. PC contacted. hla 1/21/97

Final page for worklist# 15473

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

H Anastos 1-21-97
Reviewer Signature **Date**

Validated 1-21-97 HLA

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

LABCORE Data Entry Template for Worklist# 15473

Analyst: KRC **Instrument:** IC0 IC02 **Book#** 36N20-C

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

Worklist Comment: BY-112 IC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	CCB				@IC-QC	QC		
2	CCV				@IC-QC	QC		
3	BLNK-PREP				@IC-01	SOLID		
4	SAMPLE	S96T005935	0	W	@IC-01	SOLID	96001466	BY-112
	Analytes Requested:				BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02			
5	DUP	S96T005935	0	W	@IC-01	SOLID		
6	SPK	S96T005935	0	W	@IC-01	SOLID		
7	SAMPLE	S96T005936	0	W	@IC-01	SOLID	96001466	BY-112
	Analytes Requested:				BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02			
8	DUP	S96T005936	0	W	@IC-01	SOLID		
9	SAMPLE	S96T005937	0	W	@IC-01	SOLID	96001466	BY-112
	Analytes Requested:				BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02			
10	DUP	S96T005937	0	W	@IC-01	SOLID		

Final page for worklist # 15473

Analyst Signature **Date** 1/11/97

Analyst Signature **Date**

15473JA.CSV uploaded 1-21-97 Hea

Data Entry Comments: S96T005936 has multiple QC failures and should be reprepped prior to any reanalysis. 5937 may need reprep/reanalysis. Hea 1-21-97

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

A-0010-IC DATA FILE/WORKLIST RESOLUTION 21-Jan-97

Worklist#: 15473

	Seq	Type	Sample #
=>	1	CCB	
=>	2	CCV	
=>	3	BLNK-PREP	
=>	4	SAMPLE	S96T005935
=>	5	DUP	S96T005935
=>	6	SPK	S96T005935
=>	7	SAMPLE	S96T005936
=>	8	DUP	S96T005936
=>	9	SAMPLE	S96T005937
=>	10	DUP	S96T005937

Data File: 15473JA.CSV

Seq#	Data File	Sample Name	Dilution
1	97011191.d01	CCB	1.00
2	97011191.d08	CCV 36N20-C	101.00
3	97011201.d04	BLANK PREP 15473	1.00
4	97011211.d05	S96T005935 SAMPL	41.00
5	97011211.d06	S96T005935 DUP	41.00
6	97011211.d07	S96T005935 SPIKE	41.00
7	97011221.d09	S96T005936 SAMPL	41.00
8	97011211.d10	S96T005936 DUP	41.00
	97011211.d08	S96T005936 SAMPL	41.00
	97011211.d09	S96T005936 DUP	1.00
9	97011201.d10	S96T005937 SAMPL	41.00
10	97011201.d11	S96T005937 DUP	41.00

Save(F4) Abort(Shift-F3) ListFiles(Shift-F1) UploadFile(F8)

Data Reprocessed On 01/21/1997 14:10:28

Sample Name:	CCB	Date:	01/11/1997 07:32:21
Data File :	E:\DATA\97011191.d01		
Method :	C:\DX\METHOD\ANIONSA.MET		
ACI Address:	1 System: 1 Inject#: 1		Detector:CDM-1
Analyst :	Column:		

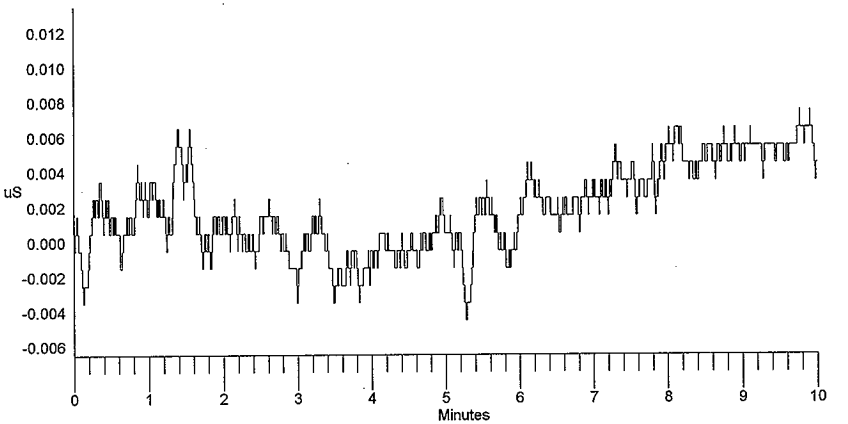
D Anastos for KRQ 4-23-97

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	50

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

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

File: 97011191.d01 Sample: CCB



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 398 TO 407.

Data Reprocessed On 01/21/1997 14:10:30

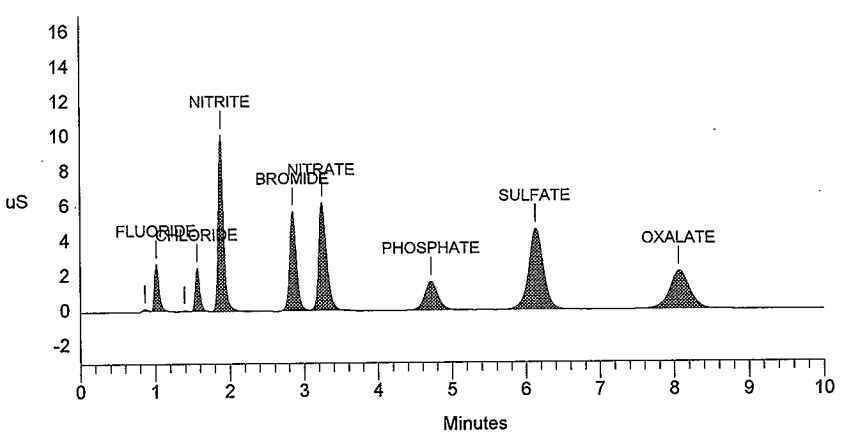
Sample Name: CCV 36N20-C Date: 01/11/1997 09:00:55
Data File : E:\DATA\97011191.d08
Method : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1 System: 1 Inject#: 8 Detector:CDM-1
Analyst : Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	102	423	2	
2	1.02	FLUORIDE	58.794	2671	11348	2	-3.17
3	1.39		0.000	51	295	2	
4	1.56	CHLORIDE	79.413	2470	10415	2	-1.05
5	1.88	NITRITE	527.452	10102	49247	1	-1.91
6	2.85	BROMIDE	578.550	5648	35288	2	-2.40
7	3.24	NITRATE	579.953	6174	45809	2	-3.76
8	4.72	PHOSPHATE	524.174	1645	20338	1	-6.04
9	6.13	SULFATE	626.142	4629	63757	1	0.00
10	8.06	OXALATE	547.775	2175	40372	1	-7.00
		Totals	3522.252	35666	277292		

File: 97011191.d08 Sample: CCV 36N20-C



Data Reprocessed On 01/21/1997 14:10:31

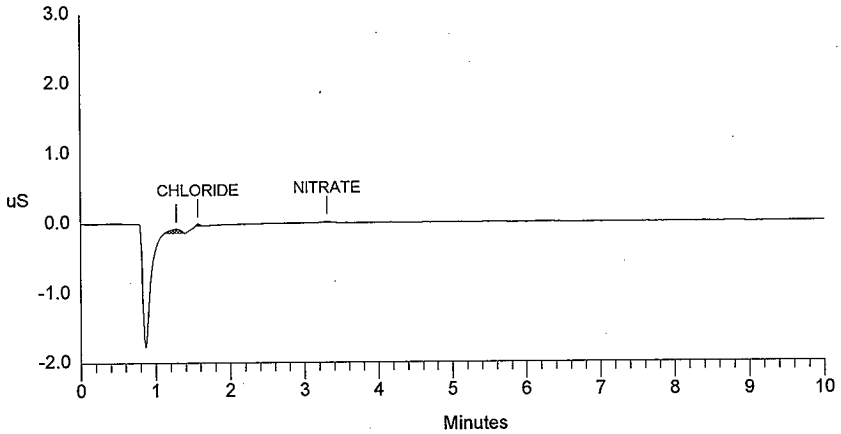
```
Sample Name: BLANK PREP 15473                Date: 01/11/1997 09:57:52
Data File  : E:\DATA\97011201.d04
Method     : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1  System: 1  Inject#: 4                  Detector:CDM-1
Analyst    :                Column:
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.28		0.000	59	607	1	
2	1.57	CHLORIDE	0.013	31	98	1	-0.63
3	3.31	NITRATE	0.150	21	102	1	-1.78
		Totals	0.163	111	807		

File: 97011201.d04 Sample: BLANK PREP 15473



Data Reprocessed On 01/21/1997 14:10:32

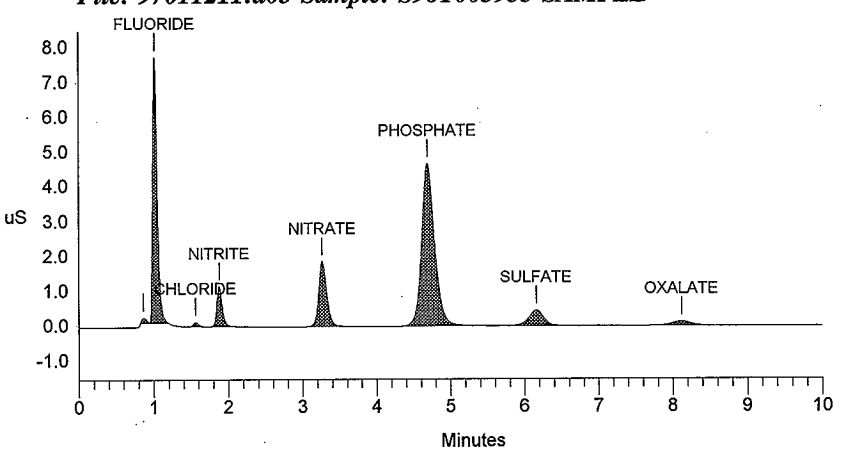
Sample Name: S96T005935 SAMPLE Date: 01/11/1997 13:05:05
Data File : E:\DATA\97011211.d05
Method : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1 System: 1 Inject#: 5 Detector:CDM-1
Analyst : Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	159	673	2	
2	1.02	FLUORIDE	66.114	7629	32455	2	-3.17
3	1.56	CHLORIDE	1.996	131	568	1	-1.48
4	1.88	NITRITE	29.335	1154	5813	1	-2.26
5	3.26	NITRATE	76.879	1866	14045	1	-3.17
6	4.69	PHOSPHATE	569.464	4679	57034	1	-6.57
7	6.16	SULFATE	27.834	449	6209	1	-6.72
8	8.12	OXALATE	14.703	125	2229	1	-6.38
		Totals	786.325	16192	119025		

File: 97011211.d05 Sample: S96T005935 SAMPLE



Data Reprocessed On 01/21/1997 14:10:33

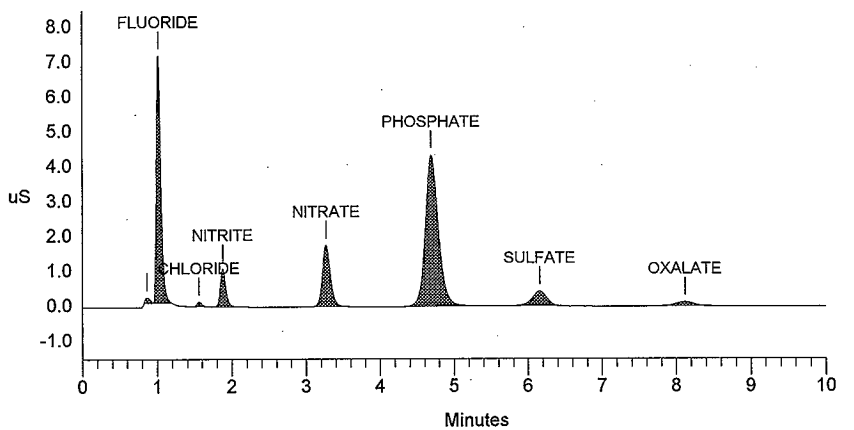
Sample Name:	S96T005935 DUP	Date:	01/11/1997 13:17:44
Data File :	E:\DATA\97011211.d06		
Method :	C:\DX\METHOD\ANIONSA.MET		
ACI Address: 1	System: 1 Inject#: 6		Detector:CDM-1
Analyst :	Column:		

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	160	693	2	
2	1.02	FLUORIDE	61.317	7087	30019	2	-3.17
3	1.56	CHLORIDE	1.976	136	561	1	-1.48
4	1.88	NITRITE	27.674	1086	5426	1	-2.26
5	3.27	NITRATE	71.677	1753	13014	1	-2.97
6	4.69	PHOSPHATE	529.102	4339	52758	1	-6.57
7	6.16	SULFATE	26.126	425	5782	1	-6.72
8	8.12	OXALATE	13.450	121	2002	1	-6.38
		Totals	731.320	15107	110255		

File: 97011211.d06 Sample: S96T005935 DUP



Data Reprocessed On 01/21/1997 14:10:34

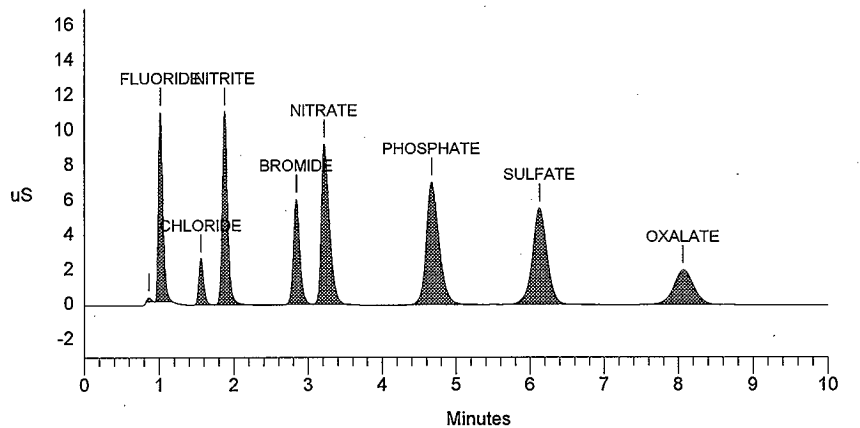
```
Sample Name: S96T005935 SPIKE                Date: 01/11/1997 13:30:22
Data File  : E:\DATA\97011211.d07
Method     : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1  System: 1  Inject#: 7                  Detector:CDM-1
Analyst    :               Column:
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	242	994	2	
2	1.02	FLUORIDE	93.442	10880	46543	2	-3.17
3	1.56	CHLORIDE	36.980	2644	11983	1	-1.48
4	1.88	NITRITE	241.599	11055	55769	1	-2.26
5	2.84	BROMIDE	243.100	6033	36580	2	-2.63
6	3.22	NITRATE	358.133	9228	70904	2	-4.55
7	4.67	PHOSPHATE	826.417	7053	85090	1	-6.97
8	6.13	SULFATE	302.069	5553	76203	1	0.00
9	8.06	OXALATE	205.956	2003	37325	1	-7.00
		Totals	2307.695	54692	421391		

File: 97011211.d07 Sample: S96T005935 SPIKE



Data Reprocessed On 01/21/1997 14:10:36

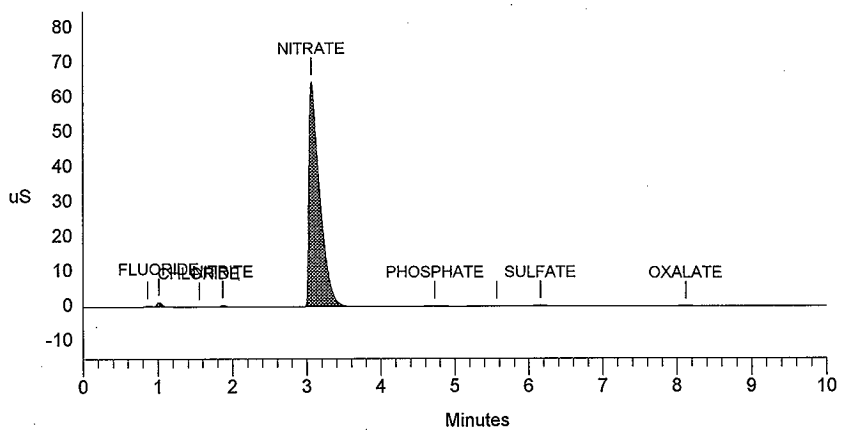
```
Sample Name: S96T005936 SAMPLE              Date: 01/11/1997 16:46:18
Data File  : E:\DATA\97011221.d09
Method     : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1  System: 1  Inject#: 9                  Detector:CDM-1
Analyst    :                Column:
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	251	1102	2	
2	1.01	FLUORIDE	10.744	1174	4945	2	-3.81
3	1.55	CHLORIDE	1.190	71	308	1	-1.90
4	1.87	NITRITE	15.757	520	2649	1	-2.60
5	3.06	NITRATE	2570.913	64596	652331	1	0.11
6	4.73	PHOSPHATE	35.584	254	2946	1	-5.78
7	5.57		0.000	112	3205	2	
8	6.16	SULFATE	21.745	328	4688	2	-6.72
9	8.12	OXALATE	7.189	54	866	1	-6.38
		Totals	2663.121	67359	673041		

File: 97011221.d09 Sample: S96T005936 SAMPLE



Data Reprocessed On 01/21/1997 14:10:37

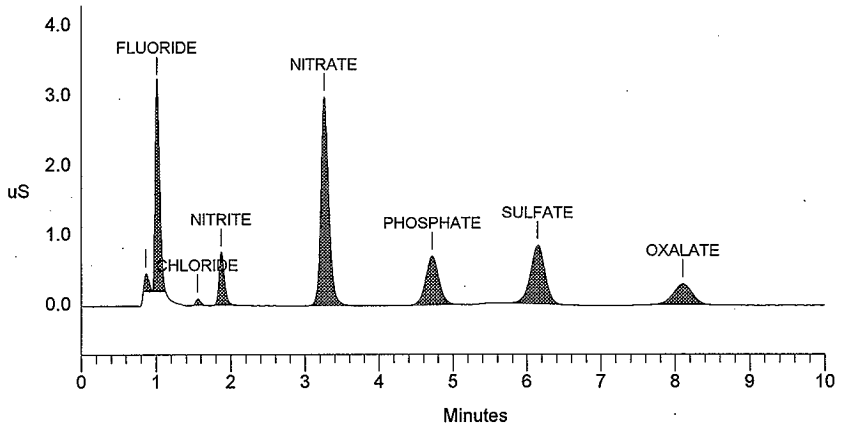
Sample Name: S96T005936 DUP		Date: 01/11/1997 16:58:57	
Data File : E:\DATA\97011211.d10			
Method : C:\DX\METHOD\ANIONSA.MET			
ACI Address: 1 System: 1 Inject#: 10		Detector:CDM-1	
Analyst :	Column:		

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	251	1048	2	
2	1.01	FLUORIDE	27.256	3017	13013	2	-3.81
3	1.55	CHLORIDE	1.391	86	373	1	-1.90
4	1.87	NITRITE	20.999	746	3870	1	-2.60
5	3.26	NITRATE	118.201	2983	22254	1	-3.36
6	4.72	PHOSPHATE	94.292	695	8651	1	-6.04
7	6.14	SULFATE	49.288	834	11577	1	-6.92
8	8.10	OXALATE	31.163	296	5220	1	-6.54
		Totals	342.590	8907	66006		

File: 97011211.d10 Sample: S96T005936 DUP



Data Reprocessed On 01/21/1997 14:10:41

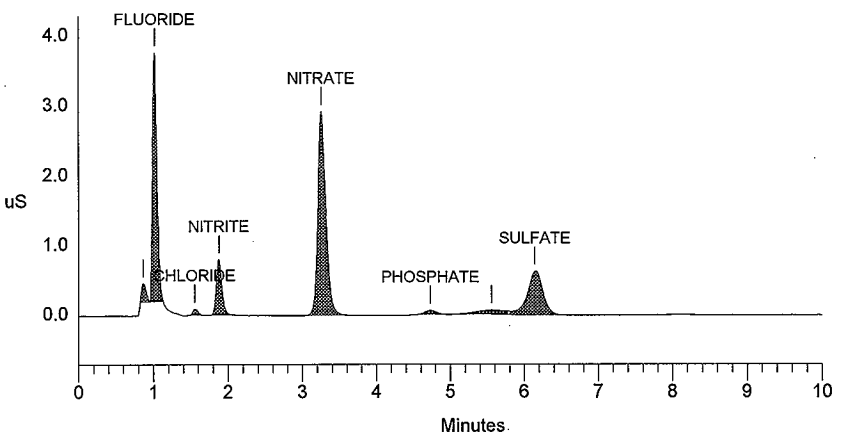
Sample Name:	S96T005937 SAMPLE	Date:	01/11/1997 14:08:21
Data File :	E:\DATA\97011201.d10		
Method :	C:\DX\METHOD\ANIONSA.MET		
ACI Address:	1 System: 1 Inject#: 10		Detector:CDM-1
Analyst :	Column:		

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	260	1096	2	
2	1.02	FLUORIDE	31.100	3565	14907	2	-3.17
3	1.55	CHLORIDE	1.427	86	385	1	-1.90
4	1.88	NITRITE	21.930	791	4087	1	-2.26
5	3.26	NITRATE	116.976	2923	22010	1	-3.36
6	4.73	PHOSPHATE	10.684	55	543	1	-5.78
7	5.56		0.000	63	1633	2	
8	6.14	SULFATE	39.379	624	9095	2	-6.92
		Totals	221.498	8367	53756		

File: 97011201.d10 Sample: S96T005937 SAMPLE



Data Reprocessed On 01/21/1997 14:10:42

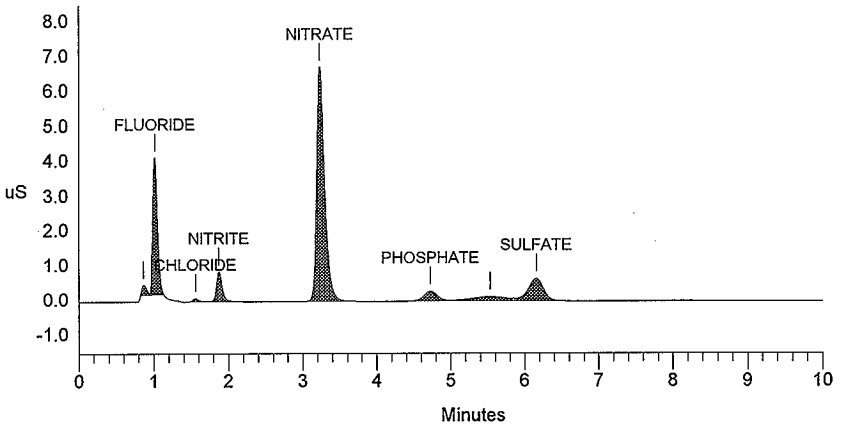
```
Sample Name: S96T005937 DUP                    Date: 01/11/1997 14:20:59
Data File  : E:\DATA\97011201.d11
Method     : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1  System: 1  Inject#: 11                  Detector:CDM-1
Analyst    :               Column:
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	284	1217	2	
2	1.02	FLUORIDE	36.041	3938	17351	2	-3.17
3	1.56	CHLORIDE	1.462	91	396	1	-1.48
4	1.87	NITRITE	23.375	849	4424	1	-2.60
5	3.23	NITRATE	256.002	6700	49985	1	-4.15
6	4.72	PHOSPHATE	41.472	283	3516	2	-5.91
7	5.53		0.000	129	4132	2	
8	6.16	SULFATE	40.737	652	9435	2	-6.72
		Totals	399.089	12926	90456		

File: 97011201.d11 Sample: S96T005937 DUP



LABCORE Completed Worklist Report for Worklist# 15474

Analyst: kgh **Instrument:** IC01 **Book#** 36N20C

Method: LA533-105 Rev/Mod D-1

Worklist Comment: BY-112 IC. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	CCB		0		@IC-QC F	QC	1	<1.20e-2		ug/mL
1	CCB		0		@IC-QC CL	QC	1	<1.70e-2		ug/mL
1	CCB		0		@IC-QC NO2	QC	1	<1.08e-1		ug/mL
1	CCB		0		@IC-QC BR	QC	1	<1.25e-1		ug/mL
1	CCB		0		@IC-QC NO3	QC	1	<1.39e-1		ug/mL
1	CCB		0		@IC-QC PO4	QC	1	<1.20e-1		ug/mL
1	CCB		0		@IC-QC SO4	QC	1	<1.38e-1		ug/mL
1	CCB		0		@IC-QC OXALATE2	QC	1	<1.05e-1		ug/mL
2	CCV		0		@IC-QC F	QC	5.90e01	6.61e+01	112.034	% Recovery
2	CCV		0		@IC-QC CL	QC	7.90e01	7.75e+01	98.101	% Recovery
2	CCV		0		@IC-QC NO2	QC	5.41e02	5.21e+02	96.303	% Recovery
2	CCV		0		@IC-QC BR	QC	5.89e02	5.76e+02	97.793	% Recovery
2	CCV		0		@IC-QC NO3	QC	5.94e02	6.03e+02	101.515	% Recovery
2	CCV		0		@IC-QC PO4	QC	5.44e02	5.18e+02	95.221	% Recovery
2	CCV		0		@IC-QC SO4	QC	6.31e02	6.65e+02	105.388	% Recovery
2	CCV		0		@IC-QC OXALATE2	QC	5.25e02	5.66e+02	107.810	% Recovery
3	BLNK-PREP		0		@IC-01 F-02	SOLID	1	<1.20e-2		ug/g
3	BLNK-PREP		0		@IC-01 CL-02	SOLID	1	6.20e-02	0.062	ug/g
3	BLNK-PREP		0		@IC-01 NO2-02	SOLID	1	<1.08e-1		ug/g
3	BLNK-PREP		0		@IC-01 BR-02	SOLID	1	<1.25e-1		ug/g
3	BLNK-PREP		0		@IC-01 NO3-02	SOLID	1	<1.39e-1		ug/g
3	BLNK-PREP		0		@IC-01 PO4-02	SOLID	1	<1.20e-1		ug/g
3	BLNK-PREP		0		@IC-01 SO4-02	SOLID	1	<1.38e-1		ug/g
3	BLNK-PREP		0		@IC-01 OXALATE2	SOLID	1	<1.05e-1		ug/g
4	SAMPLE	S96T005938	0	W	@IC-01 F-02	SOLID	N/A	5.329e+03	25.230	ug/g
4	SAMPLE	S96T005938	0	W	@IC-01 CL-02	SOLID	N/A	1.009e+03	35.750	ug/g
4	SAMPLE	S96T005938	0	W	@IC-01 NO2-02	SOLID	N/A	1.861e+04	227.100	ug/g
4	SAMPLE	S96T005938	0	W	@IC-01 BR-02	SOLID	N/A <	2.629e+02	262.900	ug/g
4	SAMPLE	S96T005938	0	W	@IC-01 NO3-02	SOLID	N/A	5.725e+04	292.400	ug/g
4	SAMPLE	S96T005938	0	W	@IC-01 PO4-02	SOLID	N/A	2.766e+03	252.300	ug/g
4	SAMPLE	S96T005938	0	W	@IC-01 SO4-02	SOLID	N/A	2.027e+04	290.300	ug/g
4	SAMPLE	S96T005938	0	W	@IC-01 OXALATE2	SOLID	N/A	4.105e+04	220.900	ug/g
5	DUP	S96T005938	0	W	@IC-01 F-02	SOLID	5.33e+03	5.16e+03	3.241	RPD
5	DUP	S96T005938	0	W	@IC-01 CL-02	SOLID	1.01e+03	1.05e+03	3.883	RPD
5	DUP	S96T005938	0	W	@IC-01 NO2-02	SOLID	1.86e+04	1.92e+04	3.175	RPD
5	DUP	S96T005938	0	W	@IC-01 BR-02	SOLID	<2.63e2	<2.71e2		RPD
5	DUP	S96T005938	0	W	@IC-01 NO3-02	SOLID	5.72e+04	6.51e+04	12.919	RPD
5	DUP	S96T005938	0	W	@IC-01 PO4-02	SOLID	2.77e+03	2.36e+03	15.984	RPD
5	DUP	S96T005938	0	W	@IC-01 SO4-02	SOLID	2.03e+04	1.92e+04	5.570	RPD
5	DUP	S96T005938	0	W	@IC-01 OXALATE2	SOLID	4.10e+04	3.59e+04	13.264	RPD
6	SPK	S96T005938	0	W	@IC-01 F-02	SOLID	5.90e01	6.17e+01	104.576	% Recovery

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

LABCORE Completed Worklist Report for Worklist# 15474

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
6	SPK	S96T005938	0	W	@IC-01	CL-02	SOLID	7.90e01	7.81e+01	98.861	% Recovery
6	SPK	S96T005938	0	W	@IC-01	NO2-02	SOLID	5.41e02	5.59e+02	103.327	% Recovery
6	SPK	S96T005938	0	W	@IC-01	BR-02	SOLID	5.89e02	5.59e+02	94.907	% Recovery
6	SPK	S96T005938	0	W	@IC-01	NO3-02	SOLID	5.94e02	5.77e+02	97.138	% Recovery
6	SPK	S96T005938	0	W	@IC-01	PO4-02	SOLID	5.44e02	5.28e+02	97.059	% Recovery
6	SPK	S96T005938	0	W	@IC-01	SO4-02	SOLID	6.31e02	6.68e+02	105.864	% Recovery
6	SPK	S96T005938	0	W	@IC-01	OXALATE2	SOLID	5.25e02	3.56e+02	67.810	% Recovery
7	SAMPLE	S96T005939	0	W	@IC-01	F-02	SOLID	N/A	6.935e+03	49.730	ug/g
7	SAMPLE	S96T005939	0	W	@IC-01	CL-02	SOLID	N/A	1.385e+03	70.450	ug/g
7	SAMPLE	S96T005939	0	W	@IC-01	NO2-02	SOLID	N/A	2.547e+04	447.500	ug/g
7	SAMPLE	S96T005939	0	W	@IC-01	BR-02	SOLID	N/A <	5.181e+02	518.100	ug/g
7	SAMPLE	S96T005939	0	W	@IC-01	NO3-02	SOLID	N/A	1.087e+05	576.000	ug/g
7	SAMPLE	S96T005939	0	W	@IC-01	PO4-02	SOLID	N/A	3.905e+03	497.300	ug/g
7	SAMPLE	S96T005939	0	W	@IC-01	SO4-02	SOLID	N/A	2.600e+04	572.000	ug/g
7	SAMPLE	S96T005939	0	W	@IC-01	OXALATE2	SOLID	N/A	1.110e+05	435.100	ug/g
8	DUP	S96T005939	0	W	@IC-01	F-02	SOLID	6.94e+03	7.94e+03	13.441	RPD
8	DUP	S96T005939	0	W	@IC-01	CL-02	SOLID	1.38e+03	1.51e+03	8.997	RPD
8	DUP	S96T005939	0	W	@IC-01	NO2-02	SOLID	2.55e+04	2.76e+04	7.910	RPD
8	DUP	S96T005939	0	W	@IC-01	BR-02	SOLID	<5.18e2	<5.11e2		RPD
8	DUP	S96T005939	0	W	@IC-01	NO3-02	SOLID	1.09e+05	8.19e+04	28.392	RPD
8	DUP	S96T005939	0	W	@IC-01	PO4-02	SOLID	3.90e+03	3.50e+04	159.897	RPD
8	DUP	S96T005939	0	W	@IC-01	SO4-02	SOLID	2.60e+04	3.07e+04	16.578	RPD
8	DUP	S96T005939	0	W	@IC-01	OXALATE2	SOLID	1.11e+05	1.30e+05	15.768	RPD
9	SAMPLE	S96T005958	0	W	@IC-01	F-02	SOLID	N/A	5.699e+03	53.260	ug/g
9	SAMPLE	S96T005958	0	W	@IC-01	CL-02	SOLID	N/A	2.304e+03	75.450	ug/g
9	SAMPLE	S96T005958	0	W	@IC-01	NO2-02	SOLID	N/A	4.202e+04	479.400	ug/g
9	SAMPLE	S96T005958	0	W	@IC-01	BR-02	SOLID	N/A <	5.549e+02	554.800	ug/g
9	SAMPLE	S96T005958	0	W	@IC-01	NO3-02	SOLID	N/A	8.738e+04	617.000	ug/g
9	SAMPLE	S96T005958	0	W	@IC-01	PO4-02	SOLID	N/A	3.462e+03	532.600	ug/g
9	SAMPLE	S96T005958	0	W	@IC-01	SO4-02	SOLID	N/A	1.670e+04	612.600	ug/g
9	SAMPLE	S96T005958	0	W	@IC-01	OXALATE2	SOLID	N/A	1.185e+05	466.000	ug/g
10	DUP	S96T005958	0	W	@IC-01	F-02	SOLID	5.70e+03	5.37e+03	5.962	RPD
10	DUP	S96T005958	0	W	@IC-01	CL-02	SOLID	2.30e+03	2.20e+03	4.444	RPD
10	DUP	S96T005958	0	W	@IC-01	NO2-02	SOLID	4.20e+04	4.05e+04	3.636	RPD
10	DUP	S96T005958	0	W	@IC-01	BR-02	SOLID	<5.55e2	<5.42e2		RPD
10	DUP	S96T005958	0	W	@IC-01	NO3-02	SOLID	8.74e+04	8.30e+04	5.164	RPD
10	DUP	S96T005958	0	W	@IC-01	PO4-02	SOLID	3.46e+03	5.03e+03	36.985	RPD
10	DUP	S96T005958	0	W	@IC-01	SO4-02	SOLID	1.67e+04	1.58e+04	5.538	RPD
10	DUP	S96T005958	0	W	@IC-01	OXALATE2	SOLID	1.18e+05	1.16e+05	1.709	RPD

Comments Section:

Comments for sample# S96T005938 **and test** @IC-01 .
Matrix interference with the determination of oxalate. Poor spike due to interference causing baseline problems.hla 1/20 /97

Comments for sample# S96T005939 **and test** @IC-01 .

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

LABCORE Completed Worklist Report for Worklist# 15474

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

Broadening of the PO4 peak shows probable interference with that determination. Will not be rerun unless requested. hla 1/21/97

Comments for sample# S96T005958 **and test** @IC-01 .
Broadening of the PO4 peak indicates a matrix interference which is probably causing the high RPD. Sample will not be rerun unless requested. hla 1/21/97

Final page for worklist# 15474

Analyst Signature **Date**

Analyst Signature **Date**

H Anastn 1-21-97
Reviewer Signature **Date**
Validated 1-21-97

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

LABCORE Data Entry Template for Worklist# 15474

Analyst: KGH **Instrument:** IC0 IC01 **Book#** 36N-20C

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

Worklist Comment: BY-112 IC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	CCB				@IC-QC	QC		
2	CCV				@IC-QC	QC		
	Blank-Prep							
3	SAMPLE	S96T005938	0	W	@IC-01	SOLID	96001466	BY-112
		Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
4	DUP	S96T005938	0	W	@IC-01	SOLID		
5	SPK	S96T005938	0	W	@IC-01	SOLID		
6	SAMPLE	S96T005939	0	W	@IC-01	SOLID	96001466	BY-112
		Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
7	DUP	S96T005939	0	W	@IC-01	SOLID		
8	SAMPLE	S96T005958	0	W	@IC-01	SOLID	96001466	BY-112
		Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
9	DUP	S96T005958	0	W	@IC-01	SOLID		

Final page for worklist # 15474

[signature] 1-9-97
Analyst Signature **Date**

Analyst Signature **Date**

15474JA2.CSV uploaded 1-21-97 HLA

Data Entry Comments: Added a prep blank.

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

A-0010-IC DATA FILE/WORKLIST RESOLUTION 20-Jan-97

Worklist#: 15474

		Seq	Type	Sample #
-	=>	1	CCB	
	=>	2	CCV	
	=>	3	BLNK-PREP	
	=>	4	SAMPLE	S96T005938
	=>	5	DUP	S96T005938
	=>	6	SPK	S96T005938
	=>	7	SAMPLE	S96T005939
	=>	8	DUP	S96T005939
	=>	9	SAMPLE	S96T005958
	=>	10	DUP	S96T005958
+				

Data File: 15474JA.CSV

	Seq#	Data File	Sample Name	Dilution
-	1	97010911.d01	BLANK	1.00
	2	97010911.d02	36N20-C STD	101.00
	3	97010911.d03	PREP-BLANK	1.00
	4	97010911.d04	S96T005938 SAM	11.00
	5	97010911.d05	S96T005938 DUP	11.00
	6	97010911.d06	S96T005938 SPK	11.00
	7	97010911.d09	S96T005939 SAM	21.00
	8	97010911.d08	S96T005939 SAM	21.00
	9	97010921.d10	S96T005958SAM	21.00
	10	97010921.d11	S96T005958DUP	21.00
+				

Save(F4) Abort(Shift-F3) ListFiles(Shift-F1) UploadFile(F8)

Data Reprocessed On 01/20/1997 16:04:36

```
Sample Name: BLANK                              Date: 01/09/1997 21:18:33
Data File  : F:\DATA\97010911.d01
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 1                    Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

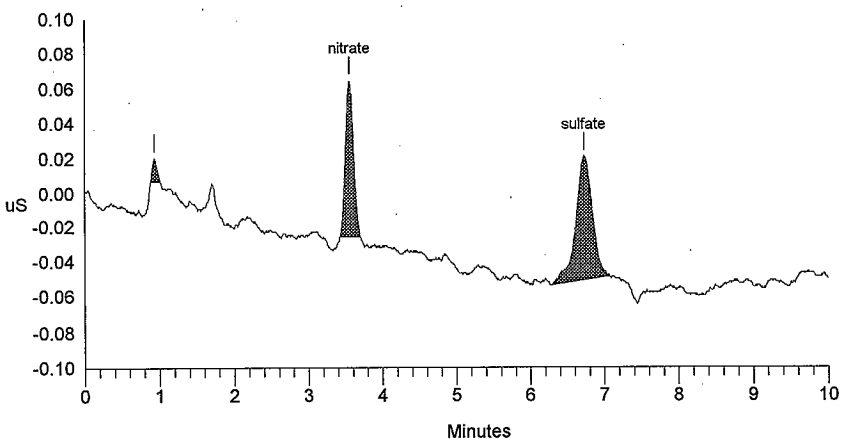
JAnastn for KGH 4-23-97

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	13	54	1	
2	3.55	nitrate	0.079	89	674	1	-0.74
3	6.72	sulfate	0.019	70	1107	1	1.61
		Totals	0.098	172	1836		

File: 97010911.d01 Sample: BLANK



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 413 TO 422

Data Reprocessed On 01/20/1997 16:04:38

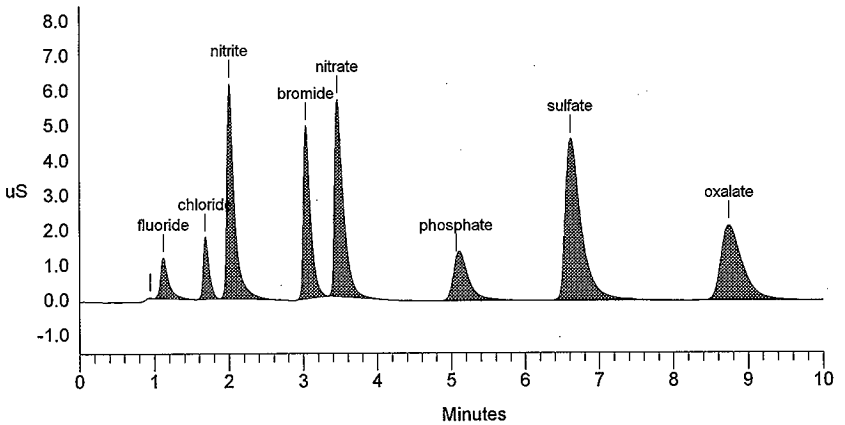
Sample Name: 36N20-C STD Date: 01/09/1997 21:29:41
Data File : F:\DATA\97010911.d02
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 2 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.94		0.000	23	78	2	
2	1.12	fluoride	66.083	1168	8825	2	3.70
3	1.68	chloride	77.510	1765	9746	1	0.80
4	2.01	nitrite	521.421	6165	43728	1	-1.31
5	3.03	bromide	575.645	4944	33618	1	-2.47
6	3.46	nitrate	603.114	5653	47518	1	-3.35
7	5.07	phosphate	518.484	1221	20660	1	2.15
8	6.61	sulfate	665.173	4633	70614	1	0.00
9	8.75	oxalate	565.973	2155	43338	1	0.61
		Totals	3593.403	27726	278124		

File: 97010911.d02 Sample: 36N20-C STD



Data Reprocessed On 01/20/1997 16:04:39

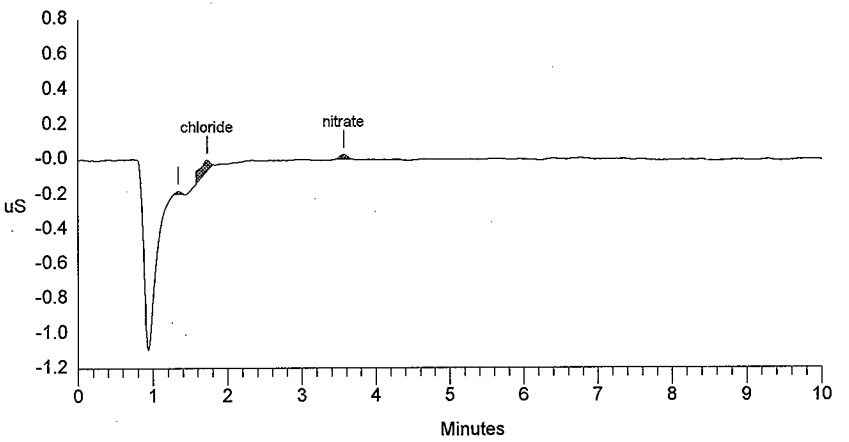
```
Sample Name: PREP-BLANK                          Date: 01/09/1997 21:43:07
Data File  : F:\DATA\97010911.d03
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 3                    Detector:CDM-1
Analyst    :               Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.34		0.000	18	99	1	
2	1.73	chloride	0.062	65	724	1	3.60
3	3.57	nitrate	0.018	27	198	1	-0.37
		Totals	0.080	110	1020		

File: 97010911.d03 Sample: PREP-BLANK



Data Reprocessed On 01/20/1997 16:04:40

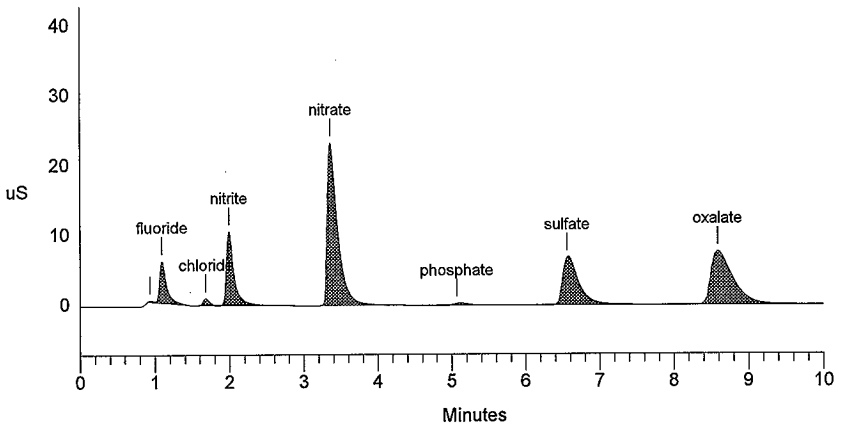
```
Sample Name: S96T005938 SAM                    Date: 01/09/1997 21:54:39
Data File  : F:\DATA\97010911.d04
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 4                    Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	11	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	221	995	2	
2	1.09	fluoride	27.873	5970	38906	2	1.23
3	1.68	chloride	5.277	1016	6043	1	0.80
4	1.99	nitrite	97.308	10582	76415	1	-1.97
5	3.36	nitrate	299.407	23335	228803	1	-6.15
6	5.07	phosphate	14.465	284	4968	1	2.15
7	6.56	sulfate	106.008	6775	103875	1	-0.81
8	8.59	oxalate	214.682	7635	156101	1	-1.23
		Totals	765.020	55820	616106		

File: 97010911.d04 Sample: S96T005938 SAM



Data Reprocessed On 01/20/1997 16:04:41

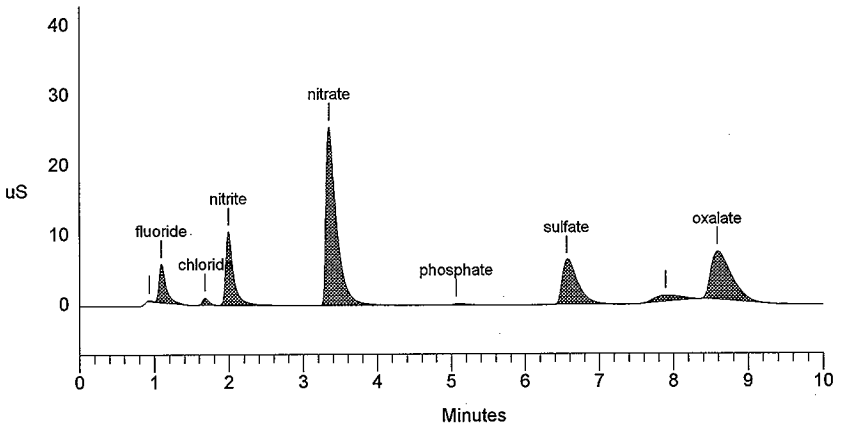
Sample Name: S96T005938 DUP Date: 01/09/1997 22:06:06
Data File : F:\DATA\97010911.d05
Method : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 5 Detector:CDM-1
Analyst : Column: AG4A/AS4A anion column

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	11	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	212	881	2	
2	1.09	fluoride	26.201	5477	36289	2	1.23
3	1.68	chloride	5.342	1008	6118	1	0.80
4	1.99	nitrite	97.662	10497	76703	1	-1.97
5	3.35	nitrate	330.420	25533	254570	1	-6.52
6	5.07	phosphate	11.995	230	4057	1	2.15
7	6.56	sulfate	97.327	6396	95211	1	-0.81
8	7.89		0.000	878	22382	1	
9	8.59	oxalate	181.946	6894	131471	1	-1.23
		Totals	750.892	57124	627682		

File: 97010911.d05 Sample: S96T005938 DUP



Data Reprocessed On 01/20/1997 16:04:42

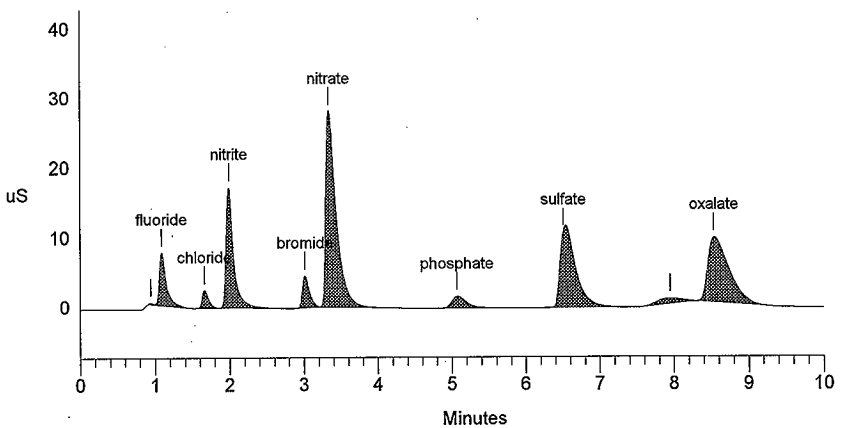
```
Sample Name: S96T005938 SPK                    Date: 01/09/1997 22:17:29
Data File  : F:\DATA\97010911.d06
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 6                  Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	11	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.94		0.000	224	878	2	
2	1.09	fluoride	34.047	7590	48917	2	0.62
3	1.66	chloride	13.082	2583	15244	1	-0.40
4	1.99	nitrite	153.222	17243	122444	1	-1.97
5	3.01	bromide	55.856	4579	29822	1	-3.11
6	3.33	nitrate	357.156	28003	277160	1	-6.89
7	5.07	phosphate	67.276	1705	24760	1	2.15
8	6.51	sulfate	172.803	10831	172082	1	-1.61
9	7.95		0.000	756	17686	1	
10	8.53	oxalate	250.270	9304	183214	1	-1.84
		Totals	1103.713	82816	892207		

File: 97010911.d06 Sample: S96T005938 SPK



Data Reprocessed On 01/21/1997 11:09:33

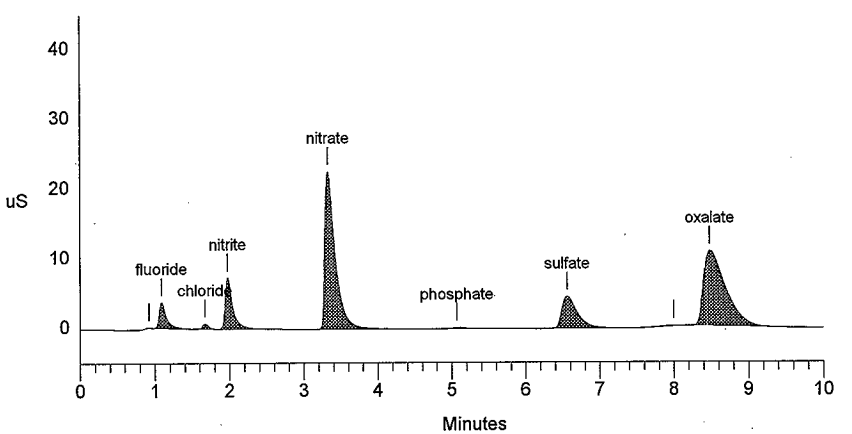
```
Sample Name: S96T005939 SAM                    Date: 01/09/1997 22:55:26
Data File  : F:\DATA\97010911.D09
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 9                  Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	21	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.92		0.000	101	429	2	
2	1.09	fluoride	35.141	3702	24556	2	0.62
3	1.67	chloride	7.017	753	4182	1	0.00
4	1.97	nitrite	129.034	7352	52388	1	-2.95
5	3.33	nitrate	550.798	22645	219859	1	-0.10
6	5.07	phosphate	19.786	211	3457	1	2.15
7	6.56	sulfate	131.763	4587	67254	1	-0.81
8	8.00		0.000	152	2854	1	
9	8.48	oxalate	562.404	10751	217491	1	-2.45
		Totals	1435.943	50255	592470		

File: 97010911.D09 Sample: S96T005939 SAM



Data Reprocessed On 01/20/1997 16:04:44

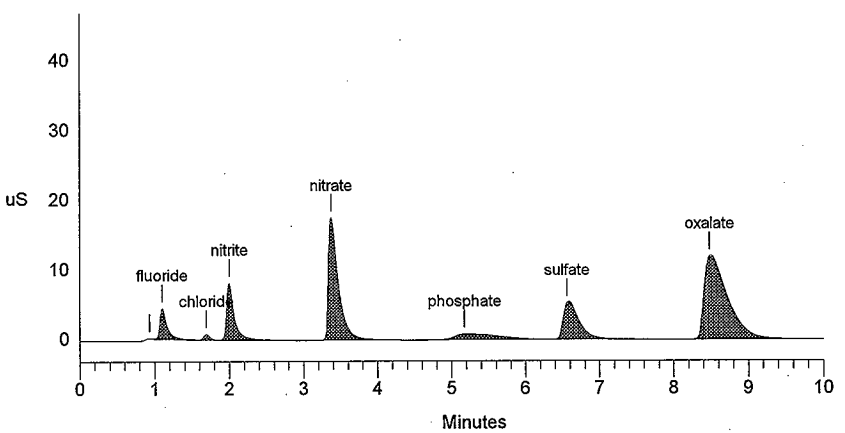
```
Sample Name: S96T005939 SAM Dup          Date: 01/09/1997 22:42:58
Data File  : F:\DATA\97010911.d08
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 8              Detector:CDM-1
Analyst    :               Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	21	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	96	389	2	
2	1.10	fluoride	40.829	4403	28956	2	1.85
3	1.69	chloride	7.759	816	4633	1	1.20
4	2.00	nitrite	142.086	8154	57890	1	-1.64
5	3.37	nitrate	420.722	17521	165101	1	-5.77
6	5.17	phosphate	179.630	822	35051	1	4.30
7	6.56	sulfate	157.651	5238	80590	1	-0.81
8	8.48	oxalate	665.732	11993	260158	1	-2.45
		Totals	1614.410	49043	632766		

File: 97010911.d08 Sample: S96T005939 SAM



Data Reprocessed On 01/20/1997 16:04:45

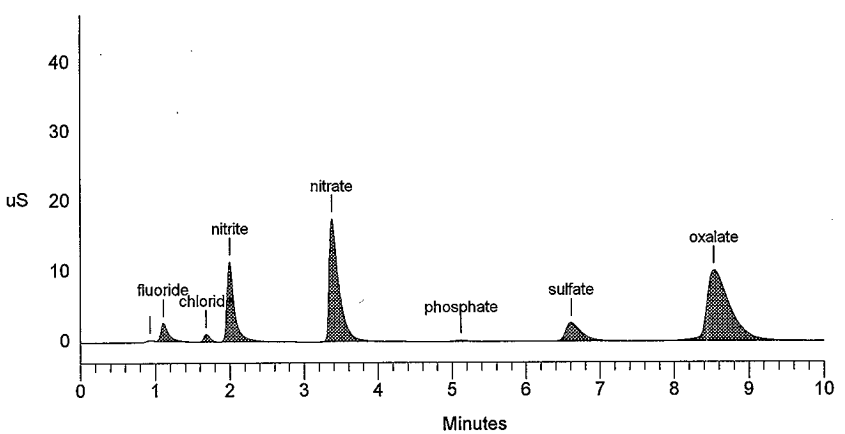
```
Sample Name: S96T005958SAM                    Date: 01/09/1997 23:06:44
Data File  : F:\DATA\97010921.d10
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 10                 Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	21	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	112	505	2	
2	1.11	fluoride	26.964	2619	18400	2	2.47
3	1.68	chloride	10.899	1107	6546	1	0.80
4	2.00	nitrite	198.806	11407	81978	1	-1.64
5	3.37	nitrate	413.415	17518	162083	1	-5.77
6	5.12	phosphate	16.380	209	2800	1	3.23
7	6.61	sulfate	79.013	2661	40394	1	0.00
8	8.53	oxalate	560.412	10061	216677	1	-1.84
		Totals	1305.889	45693	529382		

File: 97010921.d10 Sample: S96T005958SAM



Data Reprocessed On 01/20/1997 16:04:46

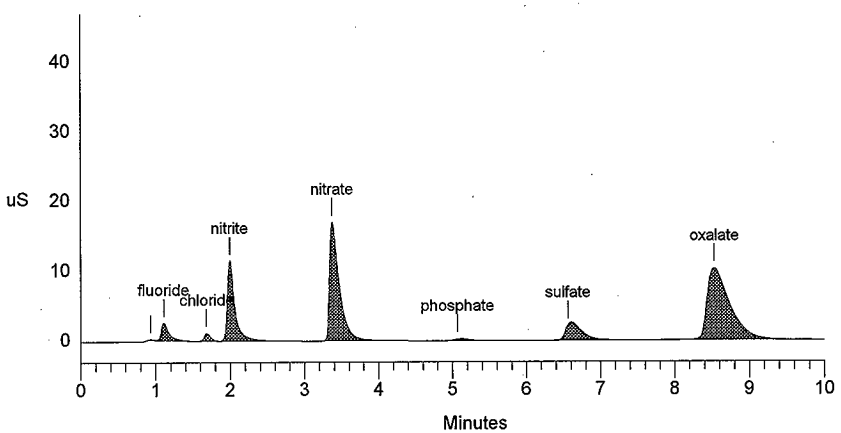
```
Sample Name: S96T005958DUP                    Date: 01/09/1997 23:17:54
Data File  : F:\DATA\97010921.d11
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 11                  Detector:CDM-1
Analyst    :               Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	21	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	123	568	2	
2	1.11	fluoride	26.013	2502	17696	2	2.47
3	1.68	chloride	10.640	1113	6387	1	0.80
4	1.99	nitrite	195.972	11404	80767	1	-1.97
5	3.37	nitrate	401.806	16987	157300	1	-5.77
6	5.07	phosphate	24.360	250	4339	1	2.15
7	6.56	sulfate	76.602	2152	39177	1	-0.81
8	8.53	oxalate	561.635	10240	217177	1	-1.84
		Totals	1297.028	44769	523411		

File: 97010921.d11 Sample: S96T005958DUP



LABCORE Completed Worklist Report for Worklist# 15475

Analyst: krq **Instrument:** IC02 **Book#** 36N20C

Method: LA-533705 Rev/Mod D-1

Worklist Comment: BY-112 IC. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	CCB			0	@IC-QC	F	QC	1	<1.20e-2		ug/mL
1	CCB			0	@IC-QC	CL	QC	1	<1.70e-2		ug/mL
1	CCB			0	@IC-QC	NO2	QC	1	<1.08e-1		ug/mL
1	CCB			0	@IC-QC	BR	QC	1	<1.25e-1		ug/mL
1	CCB			0	@IC-QC	NO3	QC	1	<1.39e-1		ug/mL
1	CCB			0	@IC-QC	PO4	QC	1	<1.20e-1		ug/mL
1	CCB			0	@IC-QC	SO4	QC	1	<1.38e-1		ug/mL
1	CCB			0	@IC-QC	OXALATE2	QC	1	<1.05e-1		ug/mL
2	CCV			0	@IC-QC	F	QC	5.90e01	6.13e+01	103.898	% Recovery
2	CCV			0	@IC-QC	CL	QC	7.90e01	7.95e+01	100.633	% Recovery
2	CCV			0	@IC-QC	NO2	QC	5.41e02	5.45e+02	100.739	% Recovery
2	CCV			0	@IC-QC	BR	QC	5.89e02	5.81e+02	98.642	% Recovery
2	CCV			0	@IC-QC	NO3	QC	5.94e02	5.80e+02	97.643	% Recovery
2	CCV			0	@IC-QC	PO4	QC	5.44e02	5.22e+02	95.956	% Recovery
2	CCV			0	@IC-QC	SO4	QC	6.31e02	6.25e+02	99.049	% Recovery
2	CCV			0	@IC-QC	OXALATE2	QC	5.25e02	5.50e+02	104.762	% Recovery
3	BLNK-PREP			0	@IC-01	F-02	SOLID	1	<4.92e-1		ug/g
3	BLNK-PREP			0	@IC-01	CL-02	SOLID	1	<6.97e-1		ug/g
3	BLNK-PREP			0	@IC-01	NO2-02	SOLID	1	<4.43e0		ug/g
3	BLNK-PREP			0	@IC-01	BR-02	SOLID	1	<5.12e0		ug/g
3	BLNK-PREP			0	@IC-01	NO3-02	SOLID	1	7.05e+00	7.050	ug/g
3	BLNK-PREP			0	@IC-01	PO4-02	SOLID	1	<4.92e0		ug/g
3	BLNK-PREP			0	@IC-01	SO4-02	SOLID	1	<5.66e0		ug/g
3	BLNK-PREP			0	@IC-01	OXALATE2	SOLID	1	<4.30e0		ug/g
4	SAMPLE	S96T005940	0	W	@IC-01	F-02	SOLID	N/A	1.596e+04	100.700	ug/g
4	SAMPLE	S96T005940	0	W	@IC-01	CL-02	SOLID	N/A	2.216e+03	142.700	ug/g
4	SAMPLE	S96T005940	0	W	@IC-01	NO2-02	SOLID	N/A	3.184e+04	906.500	ug/g
4	SAMPLE	S96T005940	0	W	@IC-01	BR-02	SOLID	N/A <	1.049e+03	1049.000	ug/g
4	SAMPLE	S96T005940	0	W	@IC-01	NO3-02	SOLID	N/A	8.674e+04	1167.000	ug/g
4	SAMPLE	S96T005940	0	W	@IC-01	PO4-02	SOLID	N/A	2.507e+03	1007.000	ug/g
4	SAMPLE	S96T005940	0	W	@IC-01	SO4-02	SOLID	N/A	7.179e+04	1159.000	ug/g
4	SAMPLE	S96T005940	0	W	@IC-01	OXALATE2	SOLID	N/A	6.203e+03	881.500	ug/g
5	DUP	S96T005940	0	W	@IC-01	F-02	SOLID	1.60e+04	1.56e+04	2.532	RPD
5	DUP	S96T005940	0	W	@IC-01	CL-02	SOLID	2.22e+03	2.15e+03	3.204	RPD
5	DUP	S96T005940	0	W	@IC-01	NO2-02	SOLID	3.18e+04	3.75e+04	16.450	RPD
5	DUP	S96T005940	0	W	@IC-01	BR-02	SOLID	<1.05e3	<9.81e2		RPD
5	DUP	S96T005940	0	W	@IC-01	NO3-02	SOLID	8.67e+04	5.66e+04	42.010	RPD
5	DUP	S96T005940	0	W	@IC-01	PO4-02	SOLID	2.51e+03	1.86e+03	29.748	RPD
5	DUP	S96T005940	0	W	@IC-01	SO4-02	SOLID	7.18e+04	6.75e+04	6.174	RPD
5	DUP	S96T005940	0	W	@IC-01	OXALATE2	SOLID	6.20e+03	1.55e+04	85.714	RPD
6	SPK	S96T005940	0	W	@IC-01	F-02	SOLID	5.90e01	5.97e+01	101.186	% Recovery

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

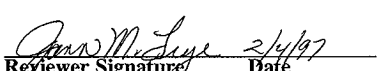
LABCORE Completed Worklist Report for Worklist# 15475

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
6	SPK	S96T005940	0	W	@IC-01 CL-02	SOLID	7.90e01	7.27e+01	92.025	% Recovery
6	SPK	S96T005940	0	W	@IC-01 NO2-02	SOLID	5.41e02	5.56e+02	102.773	% Recovery
6	SPK	S96T005940	0	W	@IC-01 BR-02	SOLID	5.89e02	5.98e+02	101.528	% Recovery
6	SPK	S96T005940	0	W	@IC-01 NO3-02	SOLID	5.94e02	6.49e+02	109.259	% Recovery
6	SPK	S96T005940	0	W	@IC-01 PO4-02	SOLID	5.44e02	5.22e+02	95.956	% Recovery
6	SPK	S96T005940	0	W	@IC-01 SO4-02	SOLID	6.31e02	6.54e+02	103.645	% Recovery
6	SPK	S96T005940	0	W	@IC-01 OXALATE2	SOLID	5.25e02	5.56e+02	105.905	% Recovery
7	SAMPLE	S96T005959	0	W	@IC-01 F-02	SOLID	N/A	2.882e+03	103.500	ug/g
7	SAMPLE	S96T005959	0	W	@IC-01 CL-02	SOLID	N/A	3.017e+03	146.700	ug/g
7	SAMPLE	S96T005959	0	W	@IC-01 NO2-02	SOLID	N/A	5.490e+04	931.500	ug/g
7	SAMPLE	S96T005959	0	W	@IC-01 BR-02	SOLID	N/A <	1.078e+03	1078.000	ug/g
7	SAMPLE	S96T005959	0	W	@IC-01 NO3-02	SOLID	N/A	9.703e+04	1199.000	ug/g
7	SAMPLE	S96T005959	0	W	@IC-01 PO4-02	SOLID	N/A	3.269e+03	1035.000	ug/g
7	SAMPLE	S96T005959	0	W	@IC-01 SO4-02	SOLID	N/A	1.141e+04	1190.000	ug/g
7	SAMPLE	S96T005959	0	W	@IC-01 OXALATE2	SOLID	N/A	3.456e+04	905.700	ug/g
8	DUP	S96T005959	0	W	@IC-01 F-02	SOLID	2.88e+03	2.80e+03	2.817	RPD
8	DUP	S96T005959	0	W	@IC-01 CL-02	SOLID	3.02e+03	2.88e+03	4.746	RPD
8	DUP	S96T005959	0	W	@IC-01 NO2-02	SOLID	5.49e+04	5.08e+04	7.758	RPD
8	DUP	S96T005959	0	W	@IC-01 BR-02	SOLID	<1.08e3	<1.03e3		RPD
8	DUP	S96T005959	0	W	@IC-01 NO3-02	SOLID	9.70e+04	1.28e+05	27.556	RPD
8	DUP	S96T005959	0	W	@IC-01 PO4-02	SOLID	3.27e+03	2.58e+03	23.590	RPD
8	DUP	S96T005959	0	W	@IC-01 SO4-02	SOLID	1.14e+04	1.32e+04	14.634	RPD
8	DUP	S96T005959	0	W	@IC-01 OXALATE2	SOLID	3.46e+04	3.73e+04	7.510	RPD
9	SPK	S96T005959	0	W	@IC-01 F-02	SOLID	5.90e01	5.98e+01	101.356	% Recovery
9	SPK	S96T005959	0	W	@IC-01 CL-02	SOLID	7.90e01	7.65e+01	96.835	% Recovery
9	SPK	S96T005959	0	W	@IC-01 NO2-02	SOLID	5.41e02	5.60e+02	103.512	% Recovery
9	SPK	S96T005959	0	W	@IC-01 BR-02	SOLID	5.89e02	5.93e+02	100.679	% Recovery
9	SPK	S96T005959	0	W	@IC-01 NO3-02	SOLID	5.94e02	7.17e+02	120.707	% Recovery
9	SPK	S96T005959	0	W	@IC-01 PO4-02	SOLID	5.44e02	5.38e+02	98.897	% Recovery
9	SPK	S96T005959	0	W	@IC-01 SO4-02	SOLID	6.31e02	6.70e+02	106.181	% Recovery
9	SPK	S96T005959	0	W	@IC-01 OXALATE2	SOLID	5.25e02	5.61e+02	106.857	% Recovery

Final page for worklist# 15475

Analyst Signature **Date**

Analyst Signature **Date**



Reviewer Signature **Date**

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

LABCORE Data Entry Template for Worklist# 15475

Analyst: KRO **Instrument:** IC0 IC02 **Book#** 36N20-C

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

Worklist Comment: BY-112 IC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	CCB				@IC-QC	QC		
2	CCV				@IC-QC	QC		
3	BLNK-PREP				@IC-01	SOLID		
4	SAMPLE	S96T005940	0	W	@IC-01	SOLID	96001466	BY-112
	Analytes Requested:				BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02			
5	DUP	S96T005940	0	W	@IC-01	SOLID		
6	SPK	S96T005940	0	W	@IC-01	SOLID		
7	SAMPLE	S96T005959	0	W	@IC-01	SOLID	96001466	BY-112
	Analytes Requested:				BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02			
8	DUP	S96T005959	0	W	@IC-01	SOLID		
9	SPK	S96T005959	0	W	@IC-01	SOLID		

Final page for worklist # 15475

Analyst Signature Date 1/14/97

Analyst Signature Date

15475JA2.CSV

~~uploaded~~ Uploaded 2/3/97

JMF

Validated 2/4/97

Data Entry Comments:

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

A-0010-IC DATA FILE/WORKLIST RESOLUTION 04-Feb-97

Worklist#: 15475

	Seq	Type	Sample #
=>	1	CCB	
=>	2	CCV	
=>	3	BLNK-PREP	
=>	4	SAMPLE	S96T005940
=>	5	DUP	S96T005940
=>	6	SPK	S96T005940
=>	7	SAMPLE	S96T005959
=>	8	DUP	S96T005959
=>	9	SPK	S96T005959

Data File: 15475JA2.CSV

Seq#	Data File	Sample Name	Dilution
1	97011211.d04	CCB	1.00
2	97011201.d02	CCV 36N20-C	101.00
3	97011221.d06	BLANK PREP 15475	41.00
4	97011221.d07	S96T005940 SAMPL	41.00
5	97011231.d07	S96T005940 DUP	41.00
6	97011231.d08	S96T005940 SPIKE	41.00
7	97011221.d08	S96T005959 SAMPL	41.00
8	97011231.d09	S96T005959 DUP	41.00
9	97011221.d10	S96T005959 SPIKE	41.00

Save(F4) Abort(Shift-F3) ListFiles(Shift-F1) UploadFile(F8)

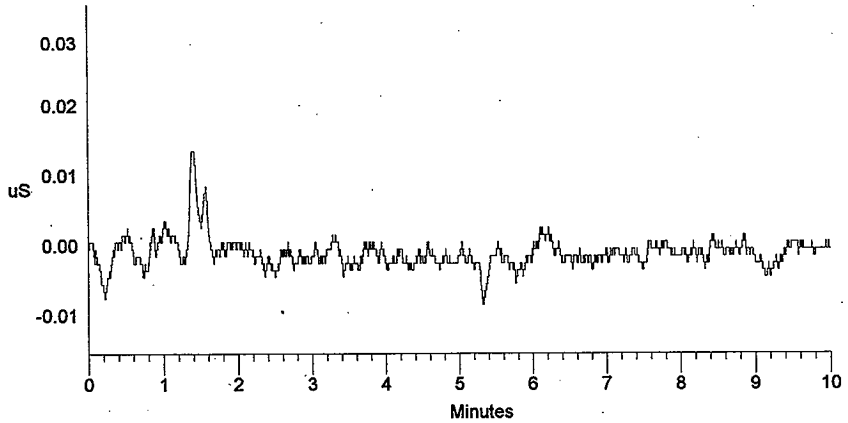
```
Sample Name: CCB                                Date: 01/11/1997 12:52:26
Data File  : C:\DX\DATA\97011211.D04
Method     : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1  System: 1  Inject#: 4                    Detector:CDM-1
Analyst    :                Column:
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	50

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

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

File: 97011211.D04 Sample: CCB



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 427 TO 427

Data Reprocessed On 01/23/1997 13:15:06

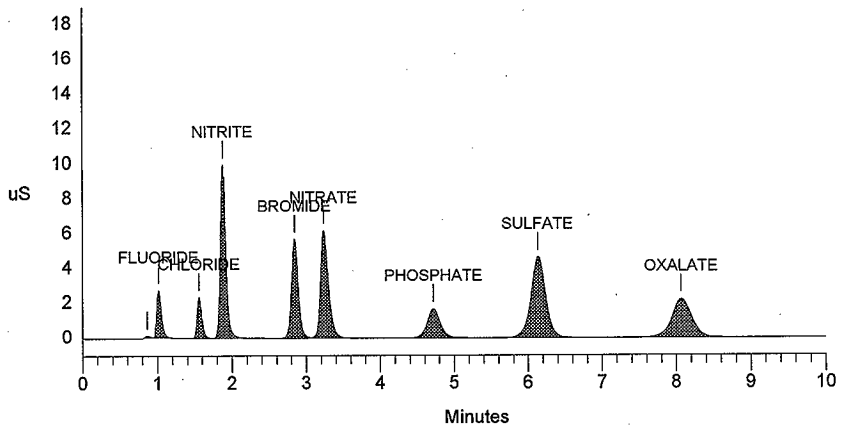
Sample Name:	CCV 36N20-C	Date:	01/11/1997 12:27:10
Data File :	E:\DATA\97011201.D02		
Method :	C:\DX\METHOD\ANIONSA.MET		
ACI Address:	1 System: 1 Inject#: 2	Detector:	CDM-1
Analyst :	Column:		

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	96	398	2	
2	1.02	FLUORIDE	61.307	2689	11849	2	-3.17
3	1.56	CHLORIDE	79.506	2327	10428	2	-1.48
4	1.88	NITRITE	544.729	9933	50910	2	-2.26
5	2.84	BROMIDE	580.836	5684	35433	2	-2.63
6	3.24	NITRATE	580.224	6163	45831	2	-3.96
7	4.72	PHOSPHATE	521.958	1652	20248	1	-6.04
8	6.13	SULFATE	625.409	4636	63680	1	0.00
9	8.06	OXALATE	549.803	2189	40525	1	-7.00
		Totals	3543.772	35368	279302		

File: 97011201.D02 Sample: CCV 36N20-C



Data Reprocessed On 01/23/1997 13:09:07

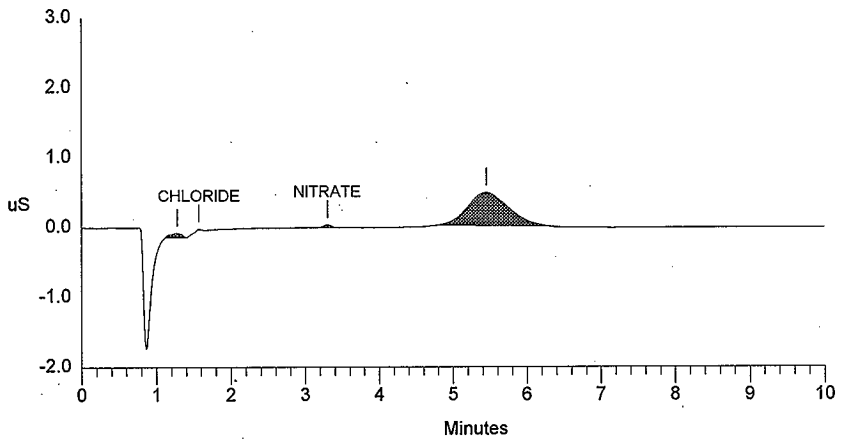
Sample Name:	BLANK PREP 15475	Date:	01/11/1997 16:08:25
Data File :	E:\DATA\97011221.D06		
Method :	C:\DX\METHOD\ANIONSA.MET		
ACI Address: 1	System: 1 Inject#: 6		Detector:CDM-1
Analyst :	Column:		

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.28		0.000	61	681	1	
2	1.57	CHLORIDE	0.406	20	57	1	-0.63
3	3.30	NITRATE	7.049	42	279	1	-1.98
4	5.45		0.000	486	18760	1	
		Totals	7.455	609	19777		

File: 97011221.D06 Sample: BLANK PREP 15475



Data Reprocessed On 01/23/1997 13:18:21

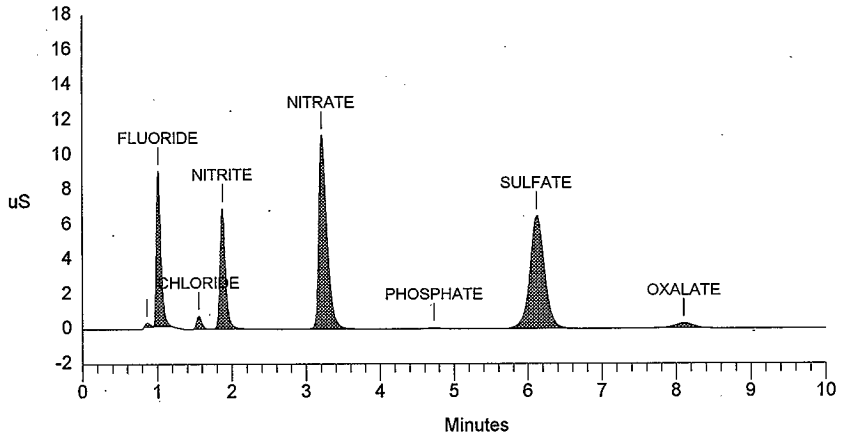
```
Sample Name: S96T005940 SAMPLE              Date: 01/11/1997 16:21:03
Data File  : E:\DATA\97011221.D07
Method     : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1  System: 1  Inject#: 7                  Detector:CDM-1
Analyst    :                Column:
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	219	949	2	
2	1.02	FLUORIDE	77.943	8926	38509	2	-3.17
3	1.56	CHLORIDE	10.825	748	3417	1	-1.48
4	1.88	NITRITE	155.505	6931	35393	1	-2.26
5	3.21	NITRATE	423.617	11077	84488	1	-4.75
6	4.73	PHOSPHATE	12.245	67	693	1	-5.78
7	6.12	SULFATE	350.628	6457	88924	1	-0.05
8	8.10	OXALATE	30.295	286	5062	1	-6.54
		Totals	1061.058	34712	257435		

File: 97011221.D07 Sample: S96T005940 SAMPLE



Data Reprocessed On 01/23/1997 13:40:19

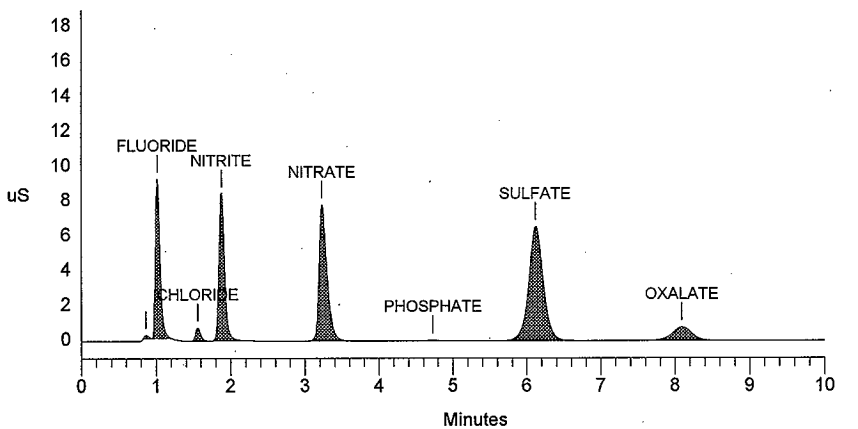
Sample Name: S96T005940 DUP Date: 01/11/1997 17:40:10
Data File : E:\DATA\97011231.D07
Method : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1 System: 1 Inject#: 7 Detector:CDM-1
Analyst : Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	200	841	2	
2	1.02	FLUORIDE	81.431	9153	40307	2	-3.17
3	1.56	CHLORIDE	11.220	742	3545	1	-1.48
4	1.88	NITRITE	196.099	8419	44981	1	-2.26
5	3.23	NITRATE	295.965	7764	58132	1	-4.15
6	4.73	PHOSPHATE	9.696	44	447	1	-5.78
7	6.12	SULFATE	352.643	6529	89454	1	-0.05
8	8.09	OXALATE	80.957	771	14300	1	-6.69
		Totals	1028.010	33622	252008		

File: 97011231.D07 Sample: S96T005940 DUP



Data Reprocessed On 01/23/1997 13:28:48

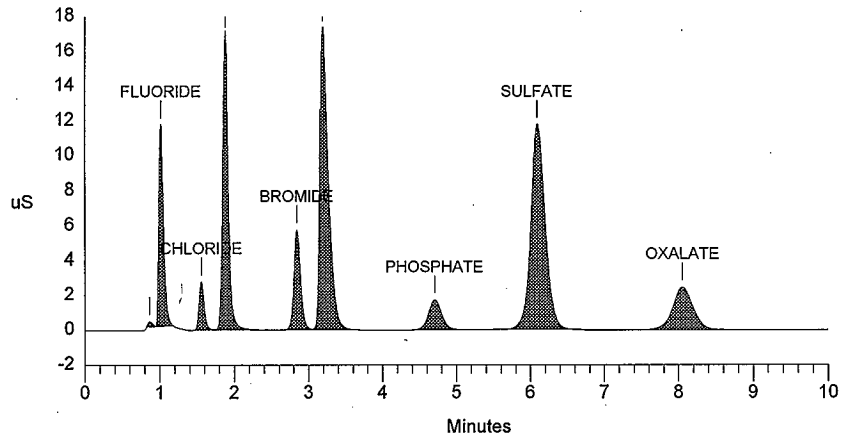
Sample Name: S96T005940 SPIKE Date: 01/11/1997 17:52:48
Data File : E:\DATA\97011231.D08
Method : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1 System: 1 Inject#: 8 Detector:CDM-1
Analyst : Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	292	1239	2	
2	1.02	FLUORIDE	101.831	11555	50941	2	-3.17
3	1.56	CHLORIDE	39.900	2762	12951	2	-1.48
4	1.88	NITRITE	377.954	16993	88367	2	-2.26
5	2.84	BROMIDE	239.001	5763	35937	2	-2.63
6	3.19	NITRATE	683.313	17352	139771	2	0.00
7	4.70	PHOSPHATE	221.154	1716	21172	1	-6.31
8	6.09	SULFATE	612.121	11780	159285	1	0.00
9	8.05	OXALATE	252.783	2465	46037	1	-0.00
		Totals	2528.058	70679	555701		

File: 97011231.D08 Sample: S96T005940 SPIKE



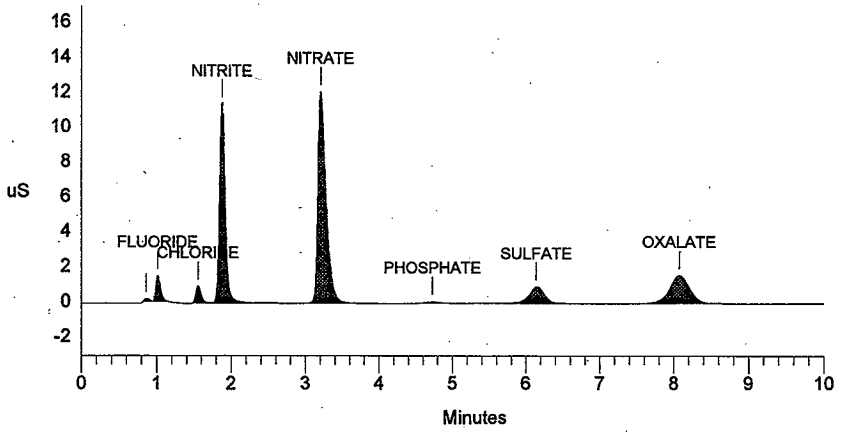
Sample Name: S96T005959 SAMPLE Date: 01/11/1997 16:33:41
Data File : C:\DX\DATA\97011221.D08
Method : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1 System: 1 Inject#: 8 Detector:CDM-1
Analyst Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	178	814	2	
2	1.02	FLUORIDE	13.697	1472	6380	2	-3.17
3	1.56	CHLORIDE	14.338	964	4556	1	-1.48
4	1.88	NITRITE	260.933	11386	60366	1	-2.26
5	3.21	NITRATE	461.177	12139	92342	1	-4.75
6	4.73	PHOSPHATE	15.537	91	1010	1	-5.78
7	6.14	SULFATE	54.227	929	12815	1	-6.92
8	8.08	OXALATE	164.247	1600	29605	1	-6.84
		Totals	984.158	28759	207890		

File: 97011221.D08 Sample: S96T005959 SAMPLE



Data Reprocessed On 01/23/1997 13:33:31

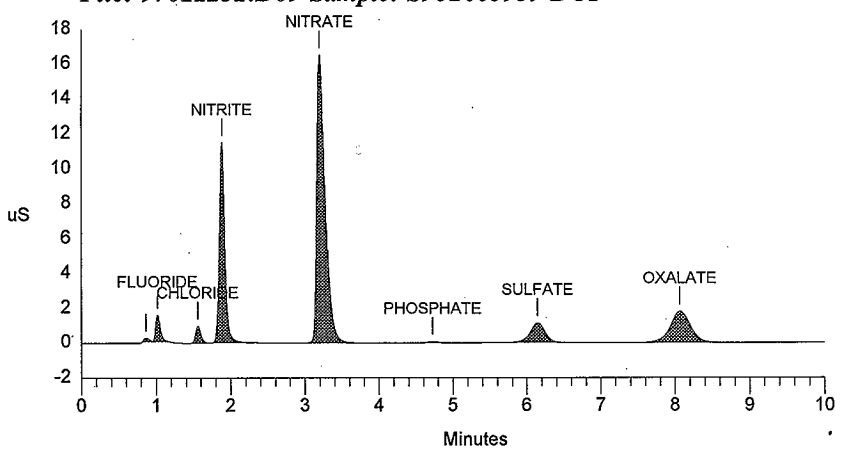
Sample Name: S96T005959 DUP Date: 01/11/1997 18:05:26
Data File : E:\DATA\97011231.D09
Method : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1 System: 1 Inject#: 9 Detector:CDM-1
Analyst : Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	194	888	1	
2	1.02	FLUORIDE	13.963	1521	6509	1	-3.17
3	1.56	CHLORIDE	14.376	971	4569	1	-1.48
4	1.88	NITRITE	253.266	11470	58542	1	-1.91
5	3.20	NITRATE	638.268	16524	130013	1	-0.10
6	4.72	PHOSPHATE	12.845	69	751	1	-5.91
7	6.14	SULFATE	65.704	1141	15696	1	-6.92
8	8.06	OXALATE	186.029	1812	33632	1	-7.00
		Totals	1184.451	33702	250601		

File: 97011231.D09 Sample: S96T005959 DUP



Data Reprocessed On 01/23/1997 13:36:14

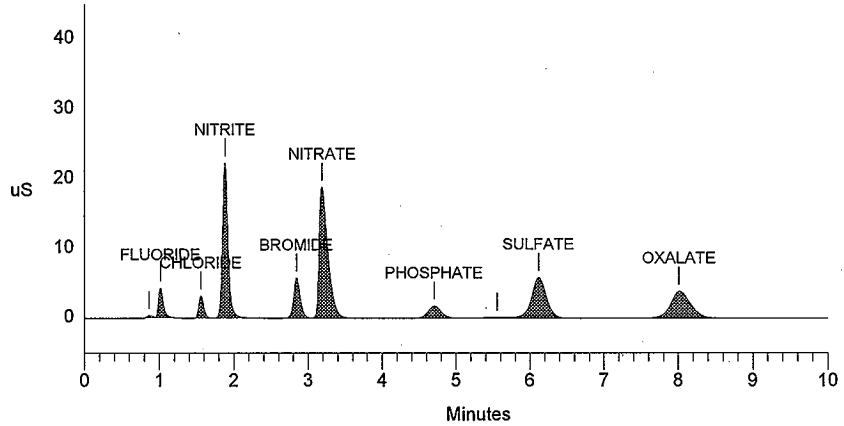
Sample Name: S96T005959 SPIKE Date: 01/11/1997 18:18:05
Data File : E:\DATA\97011221.D10
Method : C:\DX\METHOD\ANIONSA.MET
ACI Address: 1 System: 1 Inject#: 10 Detector:CDM-1
Analyst : Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.86		0.000	289	1362	2	
2	1.02	FLUORIDE	37.615	4206	18132	2	-3.17
3	1.56	CHLORIDE	44.948	3190	14631	1	-1.48
4	1.88	NITRITE	484.741	22284	114185	1	-1.91
5	2.84	BROMIDE	237.054	5759	35632	2	-2.63
6	3.19	NITRATE	748.127	18875	153943	2	0.00
7	4.70	PHOSPHATE	230.800	1757	22136	3	-6.31
8	5.56		0.000	130	3297	4	
9	6.12	SULFATE	322.144	5853	81450	2	-0.05
10	8.01	OXALATE	388.672	3855	71595	1	0.00
		Totals	2494.100	66197	516362		

File: 97011221.D10 Sample: S96T005959 SPIKE



A-0010-IC DATA FILE/WORKLIST RESOLUTION 27-Jan-97

Worklist#: 15475

	Seq	Type	Sample #
=>	1	CCB	
=>	2	CCV	
=>	3	BLNK-PREP	
=>	4	SAMPLE	S96T005940
=>	5	DUP	S96T005940
=>	6	SPK	S96T005940
=>	7	SAMPLE	S96T005959
=>	8	DUP	S96T005959
=>	9	SPK	S96T005959

Data File: 15475JA3.CSV

Seq#	Data File	Sample Name	Dilution
1	97011211.d04	CCB	1.00
2	97011211.d02	CCV 36N20-C	101.00
3	97011221.d06	BLANK PREP 15475	41.00
4	97011221.d07	S96T005940 SAMPL	41.00
5	97011231.d07	S96T005940 DUP	41.00
6	97011231.d08	S96T005940 SPIKE	41.00
7	97011221.d08	S96T005959 SAMPL	41.00
8	97011231.d09	S96T005959 DUP	41.00
9	97011221.d10	S96T005959 SPIKE	41.00

Save(F4) Abort(Shift-F3) ListFiles(Shift-F1) UploadFile(F8)

A-0010-IC DATA FILE/WORKLIST RESOLUTION 27-Jan-97

Worklist#: 15475

	Seq	Type	Sample #
=>	1	CCB	
=>	2	CCV	
=>	3	BLNK-PREP	
=>	4	SAMPLE	S96T005940
=>	5	DUP	S96T005940
=>	6	SPK	S96T005940
=>	7	SAMPLE	S96T005959
=>	8	DUP	S96T005959
=>	9	SPK	S96T005959

Data File: 15475JA3.CSV

Seq#	Data File	Sample Name	Dilution
1	97011211.d04	CCB	1.00
2	97011211.d02	CCV 36N20-C	101.00
3	97011221.d06	BLANK PREP 15475	41.00
4	97011221.d07	S96T005940 SAMPL	41.00
5	97011231.d07	S96T005940 DUP	41.00
6	97011231.d08	S96T005940 SPIKE	41.00
7	97011221.d08	S96T005959 SAMPL	41.00
8	97011231.d09	S96T005959 DUP	41.00
9	97011221.d10	S96T005959 SPIKE	41.00

Error: E_US100F String cannot be converted to numeric due to incorrect syntax.
(Mon Jan 27 10:27:39 199

[PRESS RETURN]

LABCORE Completed Worklist Report for Worklist# 16297

Analyst: dcd **Instrument:** IC01 **Book#** 36N201

Method: 14533-105 Rev/Mod D-1

Worklist Comment: Rerun BY-112 for oxalate using 41 DF. bdv

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	CCB			0	@IC-QC F	QC	1	<1.20e-2		ug/mL
1	CCB			0	@IC-QC CL	QC	1	<1.70e-2		ug/mL
1	CCB			0	@IC-QC NO2	QC	1	<1.08e-1		ug/mL
1	CCB			0	@IC-QC BR	QC	1	<1.25e-1		ug/mL
1	CCB			0	@IC-QC NO3	QC	1	<1.33e-1		ug/mL
1	CCB			0	@IC-QC PO4	QC	1	<1.20e-1		ug/mL
1	CCB			0	@IC-QC SO4	QC	1	<1.38e-1		ug/mL
1	CCB			0	@IC-QC OXALATE2	QC	1	<1.05e-1		ug/mL
2	CCV			0	@IC-QC F	QC	5.9000e1	5.98e+01	101.356	% Recovery
2	CCV			0	@IC-QC CL	QC	7.9000e1	7.67e+01	97.089	% Recovery
2	CCV			0	@IC-QC NO2	QC	5.4200e2	5.91e+02	109.041	% Recovery
2	CCV			0	@IC-QC BR	QC	5.8900e2	5.82e+02	98.812	% Recovery
2	CCV			0	@IC-QC NO3	QC	5.9400e2	5.93e+02	100.842	% Recovery
2	CCV			0	@IC-QC PO4	QC	5.4400e2	5.51e+02	101.287	% Recovery
2	CCV			0	@IC-QC SO4	QC	6.3100e2	6.37e+02	100.951	% Recovery
2	CCV			0	@IC-QC OXALATE2	QC	5.3300e2	5.35e+02	100.375	% Recovery
3	BLNK-PREP			0	@IC-01 F-02	SOLID	1	<4.92e-1		ug/g
3	BLNK-PREP			0	@IC-01 CL-02	SOLID	1	<6.97e-1		ug/g
3	BLNK-PREP			0	@IC-01 NO2-02	SOLID	1	<4.43e0		ug/g
3	BLNK-PREP			0	@IC-01 BR-02	SOLID	1	<5.12e0		ug/g
3	BLNK-PREP			0	@IC-01 NO3-02	SOLID	1	<5.70e0		ug/g
3	BLNK-PREP			0	@IC-01 PO4-02	SOLID	1	<4.92e0		ug/g
3	BLNK-PREP			0	@IC-01 SO4-02	SOLID	1	<5.66e0		ug/g
3	BLNK-PREP			0	@IC-01 OXALATE2	SOLID	1	<4.30e0		ug/g
4	SAMPLE	S96T005903		0 W	@IC-01 OXALATE2	SOLID	N/A	2.452e+03	886.000	ug/g
5	DUP	S96T005903		0 W	@IC-01 F-02	SOLID	?	4.77e+04		RPD
5	DUP	S96T005903		0 W	@IC-01 CL-02	SOLID	?	2.31e+03		RPD
5	DUP	S96T005903		0 W	@IC-01 NO2-02	SOLID	?	5.52e+04		RPD
5	DUP	S96T005903		0 W	@IC-01 BR-02	SOLID	?	<1.03e3		RPD
5	DUP	S96T005903		0 W	@IC-01 NO3-02	SOLID	?	6.46e+04		RPD
5	DUP	S96T005903		0 W	@IC-01 PO4-02	SOLID	?	8.10e+03		RPD
5	DUP	S96T005903		0 W	@IC-01 SO4-02	SOLID	?	1.16e+05		RPD
5	DUP	S96T005903		0 W	@IC-01 OXALATE2	SOLID	2.45e+03	1.27e+03	63.441	RPD
6	SPK	S96T005903		0 W	@IC-01 F-02	SOLID	5.9000e1	0.00e+00	0.000	% Recovery
6	SPK	S96T005903		0 W	@IC-01 CL-02	SOLID	7.9000e1	0.00e+00	0.000	% Recovery
6	SPK	S96T005903		0 W	@IC-01 NO2-02	SOLID	5.4200e2	0.00e+00	0.000	% Recovery
6	SPK	S96T005903		0 W	@IC-01 BR-02	SOLID	5.8900e2	0.00e+00	0.000	% Recovery
6	SPK	S96T005903		0 W	@IC-01 NO3-02	SOLID	5.9400e2	0.00e+00	0.000	% Recovery
6	SPK	S96T005903		0 W	@IC-01 PO4-02	SOLID	5.4400e2	0.00e+00	0.000	% Recovery
6	SPK	S96T005903		0 W	@IC-01 SO4-02	SOLID	6.3100e2	0.00e+00	0.000	% Recovery
6	SPK	S96T005903		0 W	@IC-01 OXALATE2	SOLID	5.3300e2	2.13e+02	39.962	% Recovery

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

LABCORE Completed Worklist Report for Worklist# 16297

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
7	SAMPLE	S96T005904	0	W	@IC-01	OXALATE2	SOLID	N/A	2.295e+04	760.600	ug/g
8	DUP	S96T005904	0	W	@IC-01	F-02	SOLID	?	7.73e+03		RPD
8	DUP	S96T005904	0	W	@IC-01	CL-02	SOLID	?	2.76e+03		RPD
8	DUP	S96T005904	0	W	@IC-01	NO2-02	SOLID	?	6.01e+04		RPD
8	DUP	S96T005904	0	W	@IC-01	BR-02	SOLID	?	<1.04e3		RPD
8	DUP	S96T005904	0	W	@IC-01	NO3-02	SOLID	?	8.73e+04		RPD
8	DUP	S96T005904	0	W	@IC-01	PO4-02	SOLID	?	3.24e+03		RPD
8	DUP	S96T005904	0	W	@IC-01	SO4-02	SOLID	?	3.54e+04		RPD
8	DUP	S96T005904	0	W	@IC-01	OXALATE2	SOLID	2.30e+04	2.35e+04	2.151	RPD

Final page for worklist# 16297

Analyst Signature Date

Analyst Signature Date

Reviewer Signature Date 1/28/97

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

LABCORE Data Entry Template for Worklist# 16297

Analyst: DCD **Instrument:** IC0 IC01 **Book#** 36N20-D

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

Worklist Comment: Rerun BY-112 for oxalate using 41 DF. bdv

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	CCB				@IC-QC	QC		
2	CCV				@IC-QC	QC		
3	BLNK-PREP				@IC-01	SOLID		
4	SAMPLE	S96T005903	0	W	@IC-01	SOLID	96001393	BY-112
	Analytes Requested: OXALATE2							
5	DUP	S96T005903	0	W	@IC-01	SOLID		
6	SPK	S96T005903	0	W	@IC-01	SOLID		
7	SAMPLE	S96T005904	0	W	@IC-01	SOLID	96001393	BY-112
	Analytes Requested: OXALATE2							
8	DUP	S96T005904	0	W	@IC-01	SOLID		

Final page for worklist # 16297

David C. Duncan 1-23-97
Analyst Signature **Date**

Analyst Signature **Date**

Uploaded 1-26-97 by Gary Hammitt

Validated 1/28/97 JM Tingey

NO_2 CCV failed but was not needed for this WKL.

Data Entry Comments:

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

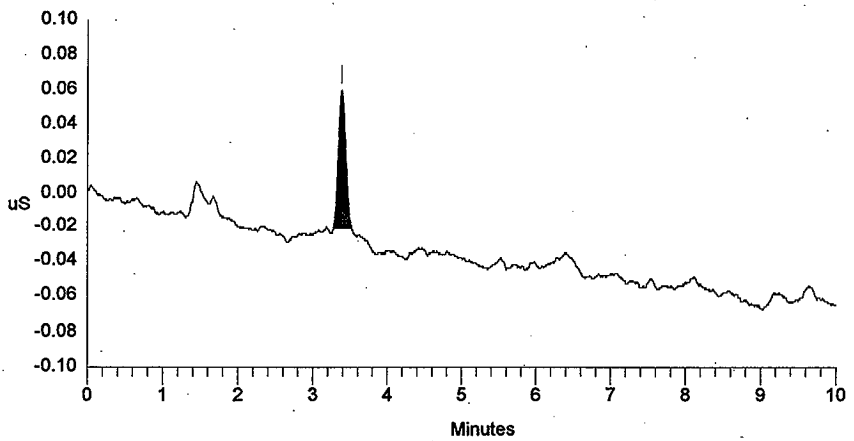
```
Sample Name: CCB                                  Date: 01/23/1997 19:30:49
Data File  : C:\DX\DATA\97012311.D02
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 2                    Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	1	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	3.39		0.000	80	539	1	
		Totals	0.000	80	539		

File: 97012311.D02 Sample: CCB



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 441 TO 448.

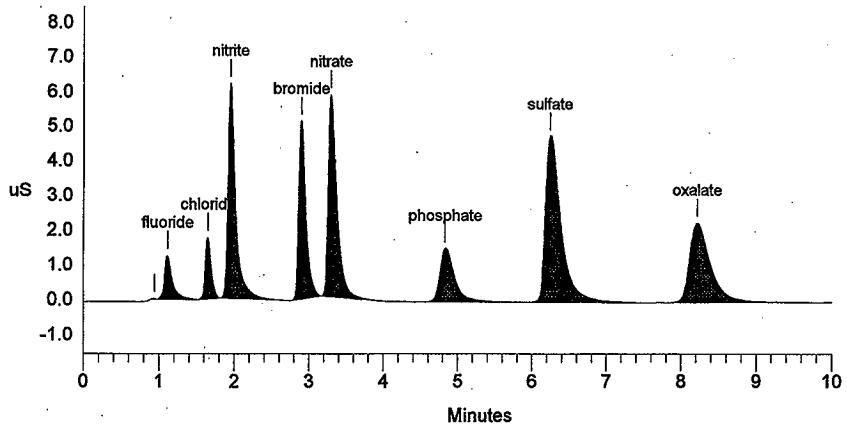
```
Sample Name: CCV 36N20-D                          Date: 01/23/1997 19:44:11
Data File  : C:\DX\DATA\97012311.D03
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 3                    Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	101	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
2	1.11	fluoride	59.831	1254	8945	2	3.09
3	1.65	chloride	76.702	1769	9410	1	1.65
4	1.95	nitrite	591.279	6208	43167	1	-0.68
5	2.89	bromide	582.417	5127	33545	1	1.88
6	3.29	nitrate	599.417	5831	46648	1	4.22
7	4.83	phosphate	551.318	1543	21164	1	2.26
8	6.24	sulfate	637.262	4759	68946	1	2.63
9	8.21	oxalate	535.339	2281	43194	1	3.36
		Totals	3633.565	28772	275019		

File: 97012311.D03 Sample: CCV 36N20-D



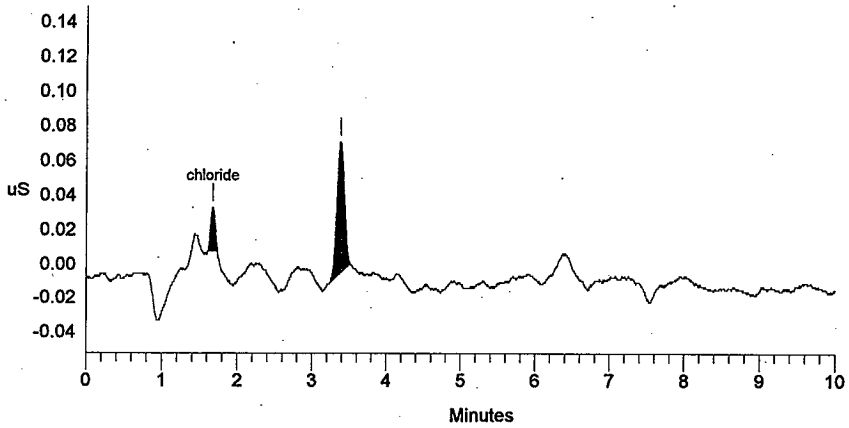
```
Sample Name: PREP-BLANK                          Date: 01/23/1997 20:01:26
Data File  : C:\DX\DATA\97012311.D04
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 4                    Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.67	chloride	-0.140	25	102	1	3.29
2	3.39		0.000	75	516	1	
		Totals	-0.140	100	618		

File: 97012311.D04 Sample: PREP-BLANK



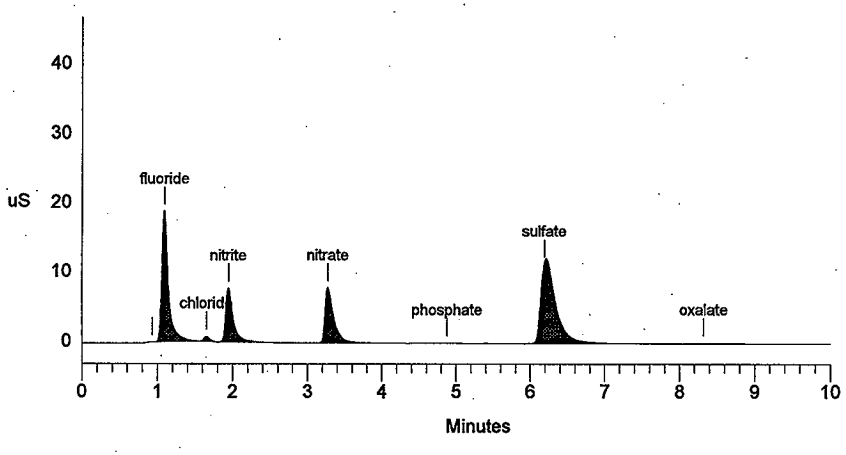
```
Sample Name: S96T005903 SAM                    Date: 01/23/1997 20:14:38
Data File  : C:\DX\DATA\97012311.D05
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 5                  Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

alibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
xternal	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	26	70	1	
2	1.09	fluoride	232.926	18858	112700	1	1.23
3	1.65	chloride	13.106	736	4004	1	2.06
4	1.95	nitrite	300.830	7746	54513	1	-0.68
5	3.27	nitrate	337.907	7939	65130	1	3.59
6	4.88	phosphate	5.957	43	514	1	3.39
7	6.19	sulfate	620.265	11445	167861	1	1.75
8	8.32	oxalate	11.912	114	2314	1	4.70
		Totals	1522.902	46905	407106		

File: 97012311.D05 Sample: S96T005903 SAM



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

Document number: SD-WM-DP-229

Section 2 **of** 2

Title: Tank 241-BY-112, Cores 174 and 177 Analytical Results for the Final Report.

Date: 5/1/97 **Revision:** A000

Originator: Nuzum JL
Co: RFSH

Recipient:
Co:

References: EDT-620398

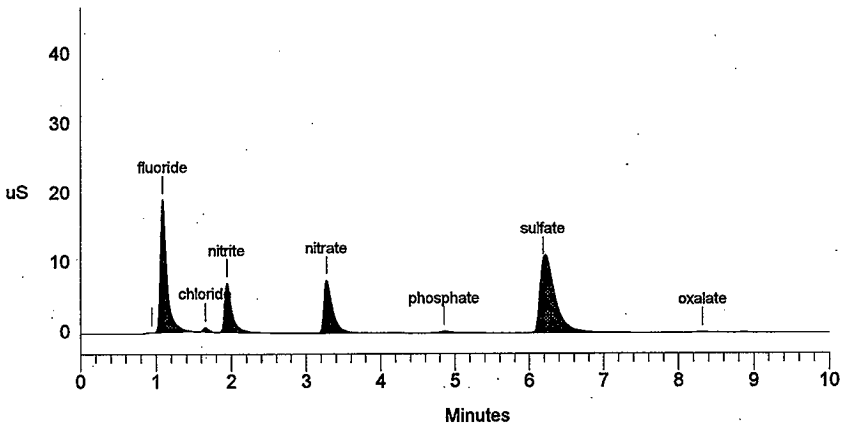
```
Sample Name: S96T005903 DUP                    Date: 01/23/1997 20:26:03
Data File  : C:\DX\DATA\97012311.D06
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 6                  Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.94		0.000	23	56	1	
2	1.09	fluoride	237.783	19118	116014	1	0.62
3	1.65	chloride	11.505	674	3530	1	2.06
4	1.94	nitrite	275.220	7040	49722	1	-1.02
5	3.27	nitrate	322.506	7532	62102	1	3.59
6	4.85	phosphate	40.434	262	3731	1	2.82
7	6.19	sulfate	576.842	10350	155632	1	1.75
8	8.32	oxalate	6.347	72	1217	1	4.70
		Totals	1470.637	45070	392005		

File: 97012311.D06 Sample: S96T005903 DUP



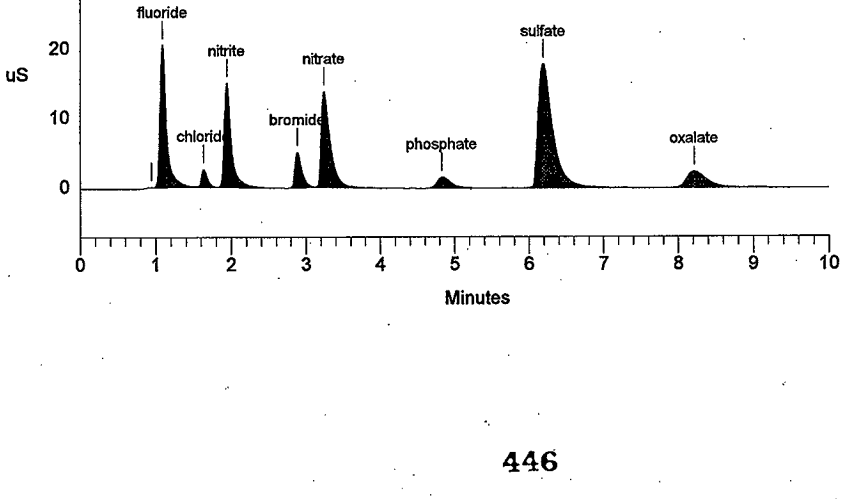
```
Sample Name: S96T005903 SPIKE                    Date: 01/23/1997 20:36:52
Data File  : C:\DX\DATA\97012311.D07
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 7                    Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.94		0.000	35	99	1	
2	1.09	fluoride	245.413	20448	121384	1	0.62
3	1.63	chloride	44.043	2517	13350	1	0.82
4	1.94	nitrite	539.821	14961	100093	1	-1.02
5	2.89	bromide	227.878	5051	32292	1	1.64
6	3.24	nitrate	584.743	13696	114671	1	2.53
7	4.83	phosphate	224.692	1561	21250	1	2.26
8	6.19	sulfate	877.666	17829	242555	1	1.75
9	8.21	oxalate	224.906	2357	44720	1	3.36
		Totals	2969.163	78454	690414		

File: 97012311.D07 Sample: S96T005903 SPIKE



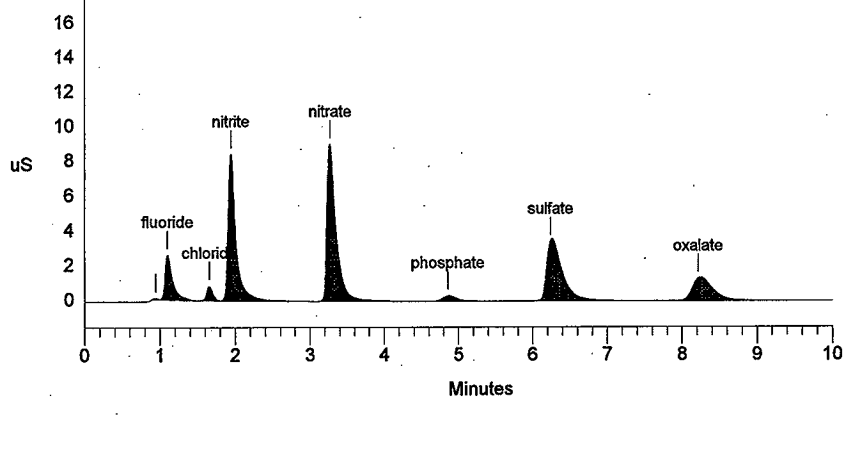
```
Sample Name: S96T005904 SAM                    Date: 01/23/1997 20:47:36
Data File  : C:\DX\DATA\97012311.D08
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 8                  Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.94		0.000	52	197	2	
2	1.10	fluoride	45.547	2547	17462	2	1.85
3	1.65	chloride	14.741	822	4490	1	2.06
4	1.94	nitrite	326.299	8387	59295	1	-1.02
5	3.27	nitrate	385.933	9010	74618	1	3.38
6	4.85	phosphate	49.393	317	4570	1	2.82
7	6.24	sulfate	193.288	3433	51714	1	2.63
8	8.21	oxalate	129.929	1272	25705	1	3.36
		Totals	1145.129	25840	238049		

File: 97012311.D08 Sample: S96T005904 SAM



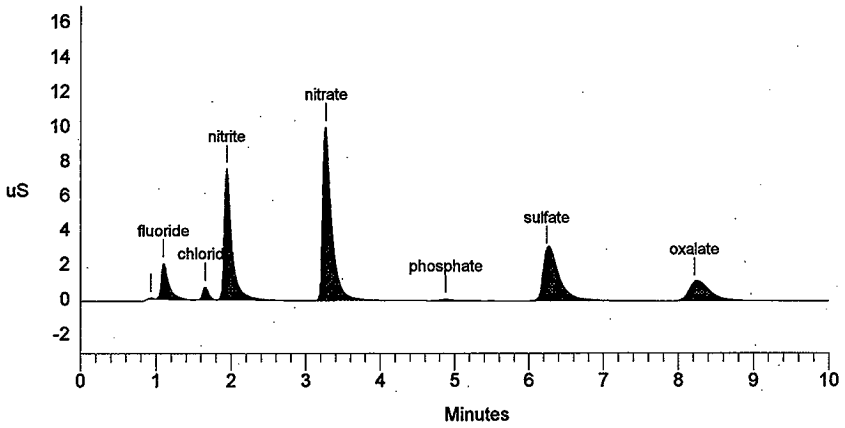
```
Sample Name: S96T005904 DUP                    Date: 01/23/1997 20:59:09
Data File  : C:\DX\DATA\97012311.D09
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1  System: 1  Inject#: 9                  Detector:CDM-1
Analyst    :                Column: AG4A/AS4A anion column
```

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area Reject
External	1	41	3000	5Hz	0.00	10.00	50

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

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.93		0.000	47	193	2	
2	1.10	fluoride	37.988	2027	14400	2	1.85
3	1.65	chloride	13.582	751	4146	1	2.06
4	1.94	nitrite	295.226	7574	53463	1	-1.02
5	3.27	nitrate	429.032	10011	83193	1	3.38
6	4.88	phosphate	15.919	93	1442	1	3.39
7	6.24	sulfate	173.995	2922	46666	1	2.63
8	8.21	oxalate	115.525	1084	22836	1	3.36
		Totals	1081.268	24508	226338		

File: 97012311.D09 Sample: S96T005904 DUP



File #: 9701146.TXT

LABCORE Data Entry Template for Worklist# 15412

Analyst: JK Sato **Instrument:** ICP01-3 JK 1-14-97 **Book#** 65848

Method: LA-505-~~151~~/161 Rev/Mod B-1

Worklist Comment: JK 1-14-97 ICP BY-112 (Direct)

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	ICV				@ICP-QC	QC		
2	ICB				@ICP-QC	QC		
3	LLS				@ICP-QC	QC		
4	ICSA				@ICP-QC	QC		
5	ICSAB				@ICP-QC	QC		
6	SERDIL	S96T005907	0	D	@ICP-D01	LIQUID		
7	SAMPLE	S96T005907	0	D	@ICP-D01	LIQUID	96001393	BY-112

Analytes Requested: AG-D-01 , AL-D-01 , AS-D-01 , B-D-01 , BA-D-01 , BE-D-01 , BI-D-01 , CA-D-01 , CD-D-01 , CE-D-01 , CO-D-01 , CR-D-01 , CU-D-01 , FE-D-01 , K-D-01 , LA-D-01 , LI-D-01 , MG-D-01 , MN-D-01 , MO-D-01 , NA-D-01 , ND-D-01 , NI-D-01 , P-D-01 , PB-D-01 , S-D-01 , SB-D-01 , SE-D-01 , SI-D-01 , SM-D-01 , SR-D-01 , TI-D-01 , TL-D-01 , U-D-01 , V-D-01 , ZN-D-01 , ZR-D-01

8	DUP	S96T005907	0	D	@ICP-D01	LIQUID		
9	SPK 1 ppm Sample X Spike X 1ppm	S96T005907	0	D	@ICP-D01	LIQUID		
10	CCV				@ICP-QC	QC		
11	CCB				@ICP-QC	QC		
12	SAMPLE	S96T005909	0	D	@ICP-D01	LIQUID	96001466	BY-112

Analytes Requested: AG-D-01 , AL-D-01 , AS-D-01 , B-D-01 , BA-D-01 , BE-D-01 , BI-D-01 , CA-D-01 , CD-D-01 , CE-D-01 , CO-D-01 , CR-D-01 , CU-D-01 , FE-D-01 , K-D-01 , LA-D-01 , LI-D-01 , MG-D-01 , MN-D-01 , MO-D-01 , NA-D-01 , ND-D-01 , NI-D-01 , P-D-01 , PB-D-01 , S-D-01 , SB-D-01 , SE-D-01 , SI-D-01 , SM-D-01 , SR-D-01 , TI-D-01 , TL-D-01 , U-D-01 , V-D-01 , ZN-D-01 , ZR-D-01

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 15412

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
13	DUP	S96T005909	0	D	@ICP-D01	LIQUID		
14	SERDIL	S96T005960	0	D	@ICP-D01	LIQUID		
15	SAMPLE	S96T005960	0	D	@ICP-D01	LIQUID	96001466	BY-112

Analytes Requested: AG-D-01 , AL-D-01 , AS-D-01 , B-D-01 , BA-D-01 , BE-D-01 , BI-D-01 , CA-D-01 , CD-D-01 , CE-D-01 , CO-D-01 , CR-D-01 , CU-D-01 , FE-D-01 , K-D-01 , LA-D-01 , LI-D-01 , MG-D-01 , MN-D-01 , MO-D-01 , NA-D-01 , ND-D-01 , NI-D-01 , P-D-01 , PB-D-01 , S-D-01 , SB-D-01 , SE-D-01 , SI-D-01 , SM-D-01 , SR-D-01 , TI-D-01 , TL-D-01 , U-D-01 , V-D-01 , ZN-D-01 , ZR-D-01

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
16	DUP	S96T005960	0	D	@ICP-D01	LIQUID		
17	SPK 1 ppm sample X spike X 10 ppm	S96T005960	0	D	@ICP-D01	LIQUID		
18	ICSA				@ICP-QC	QC		
19	ICSAB				@ICP-QC	QC		
20	CCV				@ICP-QC	QC		
21	CCB				@ICP-QC	QC		

Final page for worklist # 15412

JK Lido 01-14-97
Analyst Signature **Date**

Reviewed by:
Saul M. Parvez 1/15/97
Analyst Signature **Date**

S96T005907_L, .025-15-2-8, DF3005
S96T005907 .025-15 601
S96T005907_D .025-15 601
S96T005907_Q .025-15 601, .025 ml sample + 3 ml SSTS + 12 ml HNO3
S96T005907_X, .025-15-1-9, 6010
S96T005907_QX, .025-15-1-9, 6010, 1 ml sample + 1 ml each WHC1+2 + 7 ml HNO3
S96T005909 , ~~.025-15~~ , ~~601~~ 3-3 ml, DF 2
S96T005909_D, ~~.025-15~~ , ~~601~~ 3-3 , 2 JK 1-14-97
S96T005960_L, .025-15-2-8, DF3005
S96T005960 .025-15 601
S96T005960_D .025-15 601
S96T005960_Q .025-15 601, .025 ml sample + 3 ml SSTS + 12 ml HNO3
S96T005960_X .025-15-1-9, 6010

Data Entry Comments:
S96T005960_QX, .025-15-1-9, 6010, 1 ml sample + 1 ml each WHC1+2 + 7 ml HNO3

Spike recovery calculation:

S96T005907 $C_R = \left(\frac{9371}{601}\right) - \left(\frac{8816}{601}\right) \times 100 = 92.3\%$

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

Post Spike:

S96T005907

$$Al = \frac{\left(\frac{113800}{6010}\right) - \left(\frac{56560}{6010}\right)}{10} \times 100 = 95.2\%$$

$$Na = \frac{\left(\frac{303300}{6010}\right) - \left(\frac{245700}{6010}\right)}{10} \times 100 = 95.8\%$$

S96T005960

$$Al = \frac{\left(\frac{113100}{6010}\right) - \left(\frac{54440}{6010}\right)}{10} \times 100 = 97.6\%$$

$$Na = \frac{\left(\frac{308400}{6010}\right) - \left(\frac{248200}{6010}\right)}{10} \times 100 = 100.2\%$$

$$K = \frac{\left(\frac{73410}{6010}\right) - \left(\frac{11050}{6010}\right)}{10} \times 100 = 103.8\%$$

$$P = \frac{\left(\frac{63010}{6010}\right) - \left(\frac{461.1}{6010}\right)}{10} \times 100 = 104.1\%$$

Analysis Report Summary Tue 01-14-97 10:40:07 AM page 1

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	970114A	ICP2	01/14/97	08:54	DKS	Q	CONC
2	ICB	970114A	ICP2	01/14/97	08:58	DKS	Q	CONC
3	LLS	970114A	ICP2	01/14/97	09:00	DKS	Q	CONC
4	ICSA	970114A	ICP2	01/14/97	09:03	DKS	Q	CONC
5	ICSAB	970114A	ICP2	01/14/97	09:06	DKS	Q	CONC
6	S96T005907_L	970114A	ICP2	01/14/97	09:13	DKS	S	CONC
7	S96T005907	970114A	ICP2	01/14/97	09:16	DKS	S	CONC
8	S96T005907_D	970114A	ICP2	01/14/97	09:19	DKS	S	CONC
9	S96T005907_A	970114A	ICP2	01/14/97	09:23	DKS	S	CONC
10	S96T005907_X	970114A	ICP2	01/14/97	09:27	DKS	S	CONC
11	S96T005907_AX	970114A	ICP2	01/14/97	09:31	DKS	S	CONC
12	CCV	970114A	ICP2	01/14/97	09:35	DKS	Q	CONC
13	CCB	970114A	ICP2	01/14/97	09:39	DKS	Q	CONC
14	S96T005909	970114A	ICP2	01/14/97	09:44	DKS	S	CONC
15	S96T005909_D	970114A	ICP2	01/14/97	09:47	DKS	S	CONC
16	S96T005960_L	970114A	ICP2	01/14/97	09:51	DKS	S	CONC
17	S96T005960	970114A	ICP2	01/14/97	09:55	DKS	S	CONC
18	S96T005960_D	970114A	ICP2	01/14/97	09:58	DKS	S	CONC
19	S96T005960_A	970114A	ICP2	01/14/97	10:01	DKS	S	CONC
20	S96T005960_X	970114A	ICP2	01/14/97	10:05	DKS	S	CONC
~~21~~	~~S96T005960_AX~~	~~970114A~~	~~ICP2~~	~~01/14/97~~	~~10:09~~	~~DKS~~	~~S~~	~~CONC~~
22	S96T005960_AX	970114A	ICP2	01/14/97	10:18	DKS	S	CONC
23	ICSA	970114A	ICP2	01/14/97	10:27	DKS	Q	CONC
24	ICSAB	970114A	ICP2	01/14/97	10:30	DKS	Q	CONC
25	CCV_1	970114A	ICP2	01/14/97	10:33	DKS	Q	CONC
26	CCB_1	970114A	ICP2	01/14/97	10:37	DKS	Q	CONC

JK 1-14-97

JK [illegible]
01-14-97
BY-112
Worklist # 15412

S96T005907
S96T005909
S96T005960

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 452 TO 456

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#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.882	4.876	5.156	5.105	4.956	5.086
2	ICB	.0003	.0056	-.0103	.0065	.0000	.0000
3	LLS	.0224	.1081	.1976	.1088	.0997	.0103
4	ICSA	.0027	245.4	-.0087	.0042	.0020	.0001
5	ICSAB	.9575	243.7	-.0314	-.0080	.4796	.4845
6	S96T005907_L	17.63	56890.	-69.10	54.45	-.2555	1.213
7	S96T005907	17.43	56670.	-50.58	35.10	-.0243	.8642
8	S96T005907_D	17.18	56510.	-56.03	35.09	-.0577	.9183
9	S96T005907_A	531.2	56430.	586.3	633.3	585.4	609.4
10	S96T005907_X	15.86	56560.	-42.96	39.35	-.7437	2.151
11	S96T005907_AX	57210.	113800.	61920.	60170.	61330.	62440.
12	CCV	4.904	4.847	5.128	5.070	4.995	5.070
13	CCB	.0031	.0093	-.0094	.0050	.0001	.0003
14	S96T005909	.0071	2.827	-.0223	1.989	.0122	.0003
15	S96T005909_D	.0055	2.792	-.0162	2.020	.0121	.0004
16	S96T005960_L	18.31	53980.	-54.40	42.36	-.2526	1.748
17	S96T005960	17.96	53980.	-48.90	40.25	.0544	.8638
18	S96T005960_D	17.86	54550.	-40.99	39.04	.0258	.9180
19	S96T005960_A	511.2	50530.	539.8	4348.	546.9	565.8
20	S96T005960_X	19.35	54440.	-87.96	51.42	.0246	2.413
~~21~~	~~S96T005960_AX~~	~~62540.~~	~~124300.~~	~~69190.~~	~~73.85~~	~~68310.~~	~~70590.~~
22	S96T005960_AX	59420.	113100.	62210.	60910.	62150.	63090.
23	ICSA	.0040	249.3	-.0372	.0022	.0018	.0004
24	ICSAB	.9597	246.3	-.0380	.0050	.4916	.4928
25	CCV_1	4.933	4.927	5.238	5.181	5.065	5.173
26	CCB_1	.0015	.0062	-.0176	.0065	-.0000	.0002

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#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	5.006	4.972	5.023	5.040	5.158	5.006
2	ICB	-.0152	-.0001	-.0006	.0023	.0030	-.0002
3	LLS	.1895	.1979	.0103	.2204	.0468	.0209
4	ICSA	-.0548	253.8	.0015	.0216	.0008	.0087
5	ICSAB	-.0171	252.6	.9444	.0180	.4830	.4871
6	S96T005907_L	-39.61	-14.65	-.6891	15.21	10.96	9021.
7	S96T005907	-14.07	11.92	.4219	1.636	3.244	8816.
8	S96T005907_D	-1.311	-.0761	.0868	-3.730	5.432	8837.
9	S96T005907_A	611.6	608.3	600.2	606.3	616.3	9371.
10	S96T005907_X	-5.415	-61.73	-2.304	-44.01	8.368	9068.
11	S96T005907_AX	60810.	61950.	60860.	61790.	130.8	70170.
12	CCV	5.051	5.069	5.060	5.044	5.206	5.043
13	CCB	-.0091	.0020	-.0005	.0063	.0039	-.0004
14	S96T005909	-.0575	16.46	-.0010	.0199	.0046	.0596
15	S96T005909_D	-.0699	16.40	-.0020	.0128	.0023	.0615
16	S96T005960_L	-126.2	-19.67	-.2693	4.704	9.079	13410.
17	S96T005960	-7.875	14.74	.2961	5.139	5.361	13180.
18	S96T005960_D	-19.08	4.963	.0378	2.572	5.132	13320.
19	S96T005960_A	560.6	565.0	556.4	559.2	576.2	12730.
20	S96T005960_X	-88.08	8.067	-1.993	44.27	12.11	13530.
~~21~~	~~S96T005960_AX~~	~~68000.~~	~~68200.~~	~~67170.~~	~~68450.~~	~~96.50~~	~~82270.~~
22	S96T005960_AX	61730.	61750.	60670.	62370.	121.5	74540.
23	ICSA	-.0451	257.7	.0005	.0172	.0018	.0092

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#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
24	ICSAB	-.0022	255.2	.9529	.0237	.4903	.5041
25	CCV_1	5.073	5.077	5.068	5.107	5.232	5.065
26	CCB_1	-.0095	.0013	-.0012	.0004	.0015	.0000

#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	5.358	-.0016	5.031	5.293	4.973	4.836
2	ICB	.0009	.0002	-.0003	.0537	.0003	.0001
3	LLS	.0220	.0008	.1026	Q.8644	.1022	.0216
4	ICSA	-.0101	-.0304	95.33	.3632	-.0039	.0018
5	ICSAB	.4935	-.0273	94.62	.1983	-.0044	1.021
6	S96T005907_L	.7711	1.955	-3.580	10850.	-.0487	-.0007
7	S96T005907	-1.376	.3274	1.336	10150.	-.7169	.2155
8	S96T005907_D	-1.381	.1564	.1023	10160.	-.5562	.0722
9	S96T005907_A	629.1	.2054	596.5	10760.	597.9	587.8
10	S96T005907_X	2.827	3.143	-4.064	10050.	-11.22	4.294
11	S96T005907_AX	-30.27	23.46	60620.	72610.	60990.	59600.
12	CCV	5.331	-.0011	5.041	5.263	5.000	4.741
13	CCB	.0014	.0008	-.0001	.1399	.0004	.0007
14	S96T005909	.0059	.0134	-.0017	2.328	.0002	.0102
15	S96T005909_D	.0055	.0132	-.0022	2.061	.0001	.0088
16	S96T005960_L	-1.933	.8558	-1.781	9621.	-1.307	2.149
17	S96T005960	-3.238	.3746	2.731	9940.	.2947	.2861
18	S96T005960_D	-3.696	.2029	4.217	10090.	-.2962	.1433
19	S96T005960_A	582.8	.1502	552.4	9717.	555.4	546.6
20	S96T005960_X	-2.658	.7077	-6.148	11050.	1.798	-2.151
~~21~~	~~S96T005960_AX~~	~~-34.74~~	~~21.85~~	~~67260.~~	~~80960.~~	~~67580.~~	~~67090.~~
22	S96T005960_AX	-25.32	19.82	60820.	73410.	61370.	60610.
23	ICSA	-.0096	-.0322	96.86	.2320	-.0058	.0015
24	ICSAB	.5036	-.0294	95.82	.2667	-.0039	1.031
25	CCV_1	5.430	-.0016	5.071	5.428	5.045	4.891
26	CCB_1	.0007	-.0004	-.0002	.1861	-.0006	-.0005

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#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	5.040	4.922	5.170	5.201	4.996	5.020
2	ICB	.0114	.0002	.0014	.0039	.0037	.0001
3	LLS	.2184	.0200	.1006	.2151	.2041	Q.0513
4	ICSA	259.5	-.0068	-.0097	202.2	.0058	-.0098
5	ICSAB	257.0	.4482	-.0116	200.8	.0068	.9604
6	S96T005907_L	9.337	.4343	103.3	247500.	12.78	1.081
7	S96T005907	-8.633	.1285	100.1	243800.	1.486	3.250
8	S96T005907_D	-10.89	.1331	99.53	244000.	1.811	2.329
9	S96T005907_A	583.2	574.0	720.4	241000.	600.1	601.7
10	S96T005907_X	-22.31	2.207	97.44	245700.	9.495	-10.42
11	S96T005907_AX	61050.	60510.	60830.	303300.	61260.	60580.
12	CCV	4.986	4.952	5.203	5.086	4.993	5.054
13	CCB	.0062	.0005	-.0016	.0104	.0046	-.0019
14	S96T005909	.7516	.0024	.0104	73.23	.0059	.0103
15	S96T005909_D	.7463	.0015	.0207	73.89	.0055	-.0024
16	S96T005960_L	-14.57	1.357	98.99	245800.	5.239	-1.697
17	S96T005960	-12.53	.8323	93.96	243200.	1.268	4.437

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#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
18	S96T005960_D	-15.44	.6322	97.27	246400.	2.344	3.456
19	S96T005960_A	627.7	532.9	4449.	226200.	560.5	543.8
20	S96T005960_X	-7.599	2.306	94.18	248200.	2.891	-13.32
~~21~~	~~S96T005960_AX~~	~~66780.~~	~~67200.~~	~~-4.968~~	~~339500.~~	~~67860.~~	~~67140.~~
22	S96T005960_AX	61670.	60560.	60710.	308400.	61740.	60400.
23	ICSA	263.2	-.0069	-.0112	204.8	.0039	-.0029
24	ICSAB	259.8	.4512	.0094	202.5	.0254	.9553
25	CCV_1	5.046	4.958	5.239	5.189	5.067	5.083
26	CCB_1	.0029	-.0002	-.0007	-.0078	.0041	-.0002

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#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.137	4.919	5.050	4.911	4.805	4.967
2	ICB	.0089	.0085	-.0043	.0064	.0125	.0107
3	LLS	.4248	.2183	.2061	.1003	.2132	Q.1901
4	ICSA	.0190	.0536	-.0108	.0203	.0048	.0111
5	ICSAB	.0320	1.003	-.0220	.0058	-.0194	.0098
6	S96T005907_L	353.2	41.31	292.0	10.92	65.40	490.2
7	S96T005907	381.8	25.01	330.9	5.649	15.35	438.1
8	S96T005907_D	389.4	30.26	328.2	9.112	19.24	453.5
9	S96T005907_A	1011.	616.3	933.3	599.0	612.5	1034.
10	S96T005907_X	458.5	81.65	304.6	8.649	253.4	685.3
11	S96T005907_AX	63330.	62250.	61890.	61430.	59440.	64810.
12	CCV	5.080	4.962	5.027	4.932	4.817	5.001
13	CCB	.0073	.0089	-.0082	.0138	.0343	.0264
14	S96T005909	.1593	.0101	6.952	.0099	.0460	2.783
15	S96T005909_D	.1495	-.0046	6.946	.0018	.0338	2.768
16	S96T005960_L	366.5	39.11	332.2	37.75	94.80	500.1
17	S96T005960	386.6	18.16	317.1	11.04	29.12	405.7
18	S96T005960_D	407.5	17.84	331.3	15.02	34.57	379.8
19	S96T005960_A	4878.	553.6	4768.	4382.	584.7	4913.
20	S96T005960_X	461.1	23.79	187.0	22.04	121.3	690.3
~~21~~	~~S96T005960_AX~~	~~416.4~~	~~68930.~~	~~-22.42~~	~~66-90~~	~~66380.~~	~~704.5~~
22	S96T005960_AX	63010.	61980.	61830.	61140.	59790.	64600.
23	ICSA	.0292	.0332	-.0036	.0027	-.0092	.0206
24	ICSAB	.0115	1.031	.0487	.0102	.0009	.0193
25	CCV_1	5.187	4.964	5.107	4.980	4.867	5.011
26	CCB_1	.0153	.0003	.0008	-.0006	.0149	.0068

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#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	4.912	4.929	.0225	4.977	4.839	9.766
2	ICB	.0004	.0000	.0055	.0003	-.0196	.0005
3	LLS	.2145	.0202	.0053	.0211	.3990	.5303
4	ICSA	-.0017	.0016	.0091	.0022	-.0295	.0962
5	ICSAB	-.0058	.0017	.0062	.0015	.0048	.0779
6	S96T005907_L	5.809	.1573	18.39	2.307	-36.18	13.10
7	S96T005907	1.453	.0003	.6663	2.245	-2.672	-8.660
8	S96T005907_D	-3.353	.0008	-.8729	1.934	3.346	-9.285
9	S96T005907_A	591.0	589.6	1.012	595.7	567.4	1174.
10	S96T005907_X	32.84	.3062	-8.999	2.926	-279.2	133.6
11	S96T005907_AX	59350.	59750.	223.6	55660.	58570.	4873.

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#	Sample Name	Sm	Sr	Th	Ti	Tl	U
12	CCV	4.926	4.938	.0213	4.975	4.854	9.814
13	CCB	.0092	.0001	.0042	.0003	-.0061	.0425
14	S96T005909	.0218	.0720	.0033	-.0015	-.0715	.1529
15	S96T005909_D	.0096	.0723	.0041	-.0010	-.0649	.0906
16	S96T005960_L	7.728	-.0017	14.18	1.542	-101.1	27.01
17	S96T005960	1.060	.0617	1.893	3.282	9.306	10.89
18	S96T005960_D	-.3908	-.0003	1.984	3.136	2.834	1.719
19	S96T005960_A	546.5	547.5	16.41	3988.	513.5	1075.
20	S96T005960_X	16.72	-.0005	28.61	1.622	-113.3	2.375
21	~~S96T005960_AX~~	~~65970.~~	~~66420~~	~~125.6~~	~~25.92~~	~~64940.~~	~~5419.~~
22	S96T005960_AX	59870.	60250	323.0	55720.	58440.	4753.
23	ICSA	-.0067	.0016	.0079	.0005	-.0426	.0502
24	ICSAB	-.0049	.0016	.0163	.0010	-.0378	.0416
25	CCV_1	4.983	5.007	.0282	5.045	4.911	9.939
26	CCB_1	-.0035	-.0001	.0059	.0008	-.0156	-.0373

#	Sample Name	V	Y	Zn	Zr
1	ICV	5.118	.0058	5.225	5.052
2	ICB	-.0004	-.0001	.0009	-.0001
3	LLS	.1056	.0008	.0217	.0217
4	ICSA	-.0021	.0069	.0048	-.0045
5	ICSAB	.4792	.0068	.9835	-.0036
6	S96T005907_L	3.758	.4656	1.852	1.778
7	S96T005907	2.259	.0037	-.4486	2.271
8	S96T005907_D	2.152	-.1374	-.0071	2.174
9	S96T005907_A	613.4	.8205	627.9	611.4
10	S96T005907_X	6.456	1.357	4.736	6.946
11	S96T005907_AX	66.18	89.81	-185.4	62270.
12	CCV	5.149	.0061	5.257	5.082
13	CCB	.0016	.0005	.0005	.0011
14	S96T005909	.0027	.0015	.0132	.0014
15	S96T005909_D	-.0010	.0007	.0066	-.0015
16	S96T005960_L	3.185	-.0115	-.8319	3.177
17	S96T005960	3.926	.1367	-.0200	2.383
18	S96T005960_D	3.486	-.0007	-.5802	2.167
19	S96T005960_A	572.5	1.098	581.7	4382.
20	S96T005960_X	2.066	-.0010	10.21	-.0464
21	~~S96T005960_AX~~	~~65.90~~	~~91.93~~	~~-179.4~~	~~-37.18~~
22	S96T005960_AX	56.91	88.45	-185.1	62270.
23	ICSA	-.0025	.0066	.0054	-.0059
24	ICSAB	.4856	.0066	.9894	-.0055
25	CCV_1	5.199	.0060	5.276	5.116
26	CCB_1	-.0016	-.0004	-.0008	-.0018

JK 1-14-97

01-14-97

LABCORE Data Entry Template for Worklist# 15514

Analyst: J. CORRELL **Instrument:** ICP01 _____ **Book#** 65848A

Method: LA-505-151/~~161~~ Rev/Mod D-3
per 1-1357

Worklist Comment: ICP BY-112 (FUSION)

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	ICV				@ICP-QC	QC		
2	ICB				@ICP-QC	QC		
3	LLS				@ICP-QC	QC		
4	ICSA				@ICP-QC	QC		
5	ICSAB				@ICP-QC	QC		
6	PREPBLKARL				@ICP-F01	SOLID		
7	SAMPLE	S96T005889	0	F	@ICP-F01	SOLID	96001393	BY-112
	Analytes Requested:	AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01						
8	DUP	S96T005889	0	F	@ICP-F01	SOLID		
9	CCV				@ICP-QC	QC		
10	CCB				@ICP-QC	QC		
11	SERDIL	S96T005890	0	F	@ICP-F01	SOLID		
12	SAMPLE	S96T005890	0	F	@ICP-F01	SOLID	96001393	BY-112
	Analytes Requested:	AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01						

Data Entry Comments: Sample result calculation.

S96T005890 $Al = 3.707\ \frac{ug}{ml} \times \frac{1}{2.0372\ g \times \frac{1L}{1000ml}} = 1.82e+3\ \frac{ug}{g}$

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

LABCORE Data Entry Template for Worklist# 15514

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
13	DUP	S96T005890	0	F	@ICP-F01	SOLID		
14	SPK ~~DIL X~~ 10PPM SPK	S96T005890	0	F	@ICP-F01	SOLID		
15	SAMPLE	S96T005891	0	F	@ICP-F01	SOLID	96001393	BY-112

Analytes Requested: AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
16	DUP	S96T005891	0	F	@ICP-F01	SOLID		
17	ICSA				@ICP-QC	QC		
18	ICSAB				@ICP-QC	QC		
19	CCV				@ICP-QC	QC		
20	CCB				@ICP-QC	QC		

Final page for worklist # 15514

[signature] 1-14-97
Analyst Signature Date

Reviewed by: [signature] 1/15/97
Analyst Signature Date

		DF
PREPBLK	.250-9.75	1
S96T005889		
SAM	.250-9.75	40
DUP	.250-9.75	40
S96T005890		
DIL SX	.250-9.75-2-8	200
SAM	.250-9.75	40
DUP	.250-9.75	40
P.SPK	.250-2-7.75	40
10PPM PSPK	.250-1-1-7.75	40
96T005891		
SAM	.250-9.75	40
DUP	.250-9.75	40

Data Entry Comments: Spike recovery calculation:

S96T005890 $Al = \frac{\left(\frac{41.607}{40}\right) - \left(\frac{3.705}{40}\right)}{1} \times 100 = 94.8\%$

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

01/14/97 11:59 ☎509 372 2929 WESTINGHOUSE ★★★ MO-924 200# 002

Identity 1: ICV Identity 2: Quality Control 10:38 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	5.055	5.024	5.197	5.013	4.988	5.211	5.235	4.933
S.D.	0.009	0.015	0.040	0.008	0.031	0.012	0.012	0.014
% R.S.D.	0.176	0.296	0.761	0.162	0.623	0.238	0.238	0.278

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	5.253	4.919	4.954	4.927	4.831	4.931	4.984	10.714
S.D.	0.013	0.011	0.014	0.007	0.013	0.018	0.010	0.033
% R.S.D.	0.239	0.220	0.277	0.146	0.276	0.361	0.208	0.311

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	5.103	4.883	5.048	5.137	5.184	4.940	5.216	5.245
S.D.	0.021	0.010	0.016	0.063	0.037	0.013	0.017	0.017
% R.S.D.	0.412	0.198	0.309	1.219	0.720	0.271	0.324	0.317

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	5.242	5.515	4.903	4.959	5.079	4.993	5.133	5.083
S.D.	0.024	0.032	0.009	0.005	0.014	0.014	0.014	0.039
% R.S.D.	0.464	0.577	0.191	0.110	0.284	0.286	0.268	0.775

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	4.954	5.095	5.159	5.026	5.081
S.D.	0.012	0.071	0.013	0.009	0.008
% R.S.D.	0.244	1.397	0.254	0.187	0.166

John Worrell
1-14-97

FILE NO: 970114B.DAT

WL # 15514

5967005889, 5890 5891
B4-112 FUSION

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 459 TO 479

Identity 1: ICB Identity 2: Quality Control 10:42 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.003	-0.001	-0.005	0.004	-0.027	-0.006	-0.003	-0.002
S.D.	0.001	0.000	0.011	0.002	0.004	0.002	0.000	0.000
% R.S.D.	33.922	20.829	221.525	39.949	16.358	43.642	11.327	20.377

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	-0.001	0.004	0.005	-0.007	0.000	-0.005	-0.017	0.100
S.D.	0.000	0.003	0.001	0.002	0.000	0.002	0.001	0.040
% R.S.D.	12.429	74.571	25.076	25.528	13.323	36.676	7.402	39.524

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.120	0.040	-0.002	-0.006	0.003	0.000	0.004	-0.023
S.D.	0.010	0.006	0.000	0.019	0.002	0.000	0.004	0.002
% R.S.D.	8.046	16.291	18.494	319.878	90.854	283778.318	103.641	8.244

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.003	-0.023	-0.004	-0.026	0.001	0.000	0.003	-0.049
S.D.	0.000	0.018	0.001	0.008	0.001	0.001	0.001	0.023
% R.S.D.	9.955	75.762	19.854	30.971	98.229	226.582	27.437	47.478

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.000	-0.030	-0.005	0.000	-0.094
S.D.	0.000	0.012	0.001	0.000	0.021
% R.S.D.	84.094	39.169	15.898	34.083	22.272

Identity 1: LLS Identity 2: Quality Control 10:44 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.025	0.020	0.186	0.197	0.087	0.032	0.020	0.019
S.D.	0.001	0.000	0.011	0.007	0.008	0.007	0.000	0.000
% R.S.D.	3.503	0.515	5.676	3.340	9.332	20.806	1.522	1.517

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.020	0.039	0.105	0.097	0.189	0.020	0.193	0.591
S.D.	0.000	0.002	0.001	0.004	0.001	0.002	0.006	0.056
% R.S.D.	1.222	4.125	0.735	4.404	0.413	10.035	3.166	9.492

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.132	0.252	0.100	0.375	0.203	0.198	0.191	0.194
S.D.	0.019	0.011	0.000	0.004	0.002	0.000	0.006	0.006
% R.S.D.	14.459	4.287	0.100	1.095	0.791	0.185	3.335	2.952

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	0.095	0.189	0.018	0.199	0.020	0.011	0.103	0.468
S.D.	0.001	0.016	0.001	0.011	0.000	0.001	0.001	0.015
% R.S.D.	1.101	8.514	3.052	5.736	2.077	6.543	1.149	3.309

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.019	0.089	0.098	0.011	0.437
S.D.	0.000	0.003	0.001	0.000	0.020
% R.S.D.	1.728	3.479	0.937	0.096	4.663

Identity 1: ICSA Identity 2: Quality Control 10:47 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-0.001	0.002	-0.039	-0.032	196.162	0.007	-0.000	0.000
S.D.	0.001	0.000	0.005	0.001	0.798	0.004	0.000	0.000
% R.S.D.	104.093	8.327	13.019	2.630	0.407	58.720	357.900	101.090

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.005	0.005	0.010	92.251	101.504	0.004	-0.062	-0.095
S.D.	0.001	0.003	0.001	0.182	0.197	0.001	0.007	0.051
% R.S.D.	9.489	48.494	7.420	0.197	0.194	19.599	11.585	53.319

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.002	0.001	0.002	0.049	0.026	96.186	0.041	187.986
S.D.	0.016	0.004	0.000	0.018	0.006	0.055	0.004	0.960
% R.S.D.	943.388	634.807	14.649	37.668	23.730	0.057	9.927	0.511

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.006	0.003	0.002	-0.032	-0.001	0.005	0.013	-0.067
S.D.	0.001	0.031	0.001	0.003	0.001	0.001	0.000	0.015
% R.S.D.	10.174	1045.065	49.217	10.459	46.357	14.014	3.183	23.077

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.002	0.020	0.003	0.003	-0.026
S.D.	0.001	0.020	0.000	0.000	0.037
% R.S.D.	49.246	99.602	15.318	10.802	140.480

01/14/97 12:10 ☎509 372 2929 WESTINGHOUSE 333 MO-924 2004 图004

Identity 1: ICSAB Identity 2: Quality Control 10:51 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.001	0.002	-0.027	-0.047	194.967	0.498	0.499	0.938
S.D.	0.001	0.000	0.010	0.001	0.580	0.002	0.000	0.002
% R.S.D.	118.480	4.478	37.736	3.209	0.297	0.457	0.070	0.266

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.997	0.950	0.016	94.686	100.710	0.485	-0.053	-0.050
S.D.	0.002	0.006	0.002	0.256	0.202	0.003	0.012	0.028
% R.S.D.	0.214	0.609	9.296	0.270	0.201	0.550	22.008	57.070

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.045	0.016	0.497	0.040	0.024	102.001	0.059	189.729
S.D.	0.007	0.003	0.000	0.001	0.017	0.251	0.005	0.601
% R.S.D.	14.924	19.923	0.081	3.182	73.229	0.247	9.156	0.317

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.007	0.079	1.007	0.975	-0.000	0.969	0.016	0.053
S.D.	0.003	0.027	0.001	0.013	0.000	0.000	0.000	0.007
% R.S.D.	40.320	33.853	0.062	1.285	91.057	0.026	3.056	13.967

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.485	0.022	0.498	0.493	0.037
S.D.	0.002	0.009	0.001	0.000	0.007
% R.S.D.	0.342	42.810	0.135	0.029	20.172

01/14/97 12:11 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W ☑005

Identity 1: prepblkarl Identity 2: .250ml-9.75ml 10:54 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.008	0.001	0.015	0.029	-0.008	-0.011	-0.003	-0.002
S.D.	0.001	0.000	0.008	0.004	0.004	0.002	0.000	0.000
% R.S.D.	9.398	4.441	54.187	12.969	50.204	23.038	18.370	20.190

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.026	0.046	0.011	0.003	0.012	-0.001	-0.020	0.244
S.D.	0.000	0.000	0.000	0.002	0.001	0.002	0.009	0.029
% R.S.D.	1.273	0.911	0.126	55.235	8.239	344.568	45.591	11.696

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.123	0.051	-0.001	0.006	0.016	0.005	-0.004	2.801
S.D.	0.012	0.007	0.000	0.008	0.006	0.001	0.003	0.026
% R.S.D.	10.008	12.810	7.024	133.089	39.713	25.478	64.470	0.935

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.004	0.007	-0.005	-0.018	0.002	-0.001	-0.001	414.366
S.D.	0.001	0.022	0.001	0.014	0.001	0.001	0.000	1.596
% R.S.D.	20.020	318.846	15.583	77.529	29.005	75.618	47.695	0.385

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.001	-0.018	-0.006	0.000	-0.004
S.D.	0.000	0.019	0.000	0.000	0.022
% R.S.D.	18.275	105.094	7.138	98.723	514.620

01/14/97 12:12 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200# 006

Identity 1: s96t005889 Identity 2: .250ml-9.75ml 10:57 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.035	0.363	-0.098	4.251	112.001	-0.186	-0.037	-0.017
S.D.	0.025	0.002	0.254	0.100	0.473	0.002	0.009	0.011
% R.S.D.	69.805	0.561	259.665	2.351	0.422	0.876	25.820	65.865

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.183	2.287	0.088	8.106	2.187	8.808	-0.299	1.018
S.D.	0.013	0.101	0.030	0.085	0.014	0.056	0.272	1.530
% R.S.D.	6.991	4.427	34.223	1.048	0.636	0.639	90.956	150.330

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-3.703	1.621	0.001	56.867	2.150	0.465	0.194	633.746
S.D.	0.515	0.280	0.007	0.439	0.211	0.006	0.209	7.545
% R.S.D.	13.910	17.299	1375.540	0.771	9.837	1.187	107.907	1.190

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.039	0.967	-0.064	-0.475	-0.009	0.193	-0.080	16939.282
S.D.	0.086	0.191	0.018	0.668	0.015	0.036	0.011	138.130
% R.S.D.	220.911	19.703	28.259	140.593	170.957	18.640	13.486	0.815

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.285	2.227	-0.118	0.022	-1.351
S.D.	0.000	0.528	0.042	0.000	0.226
% R.S.D.	0.060	23.733	35.626	1.303	16.745

01/14/97 12:14 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W 図007

Identity 1: s96t005889_D Identity 2: .250ml-9.75ml 11:01 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.005	0.410	-0.010	4.344	136.492	0.064	0.043	0.026
S.D.	0.056	0.004	0.373	0.082	0.685	0.099	0.002	0.015
% R.S.D.	1073.891	0.860	3871.589	1.895	0.502	154.916	5.133	57.314

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.327	3.940	0.177	11.255	2.195	9.334	-0.252	2.457
S.D.	0.019	0.066	0.060	0.198	0.007	0.167	0.110	0.607
% R.S.D.	5.926	1.684	34.222	1.758	0.310	1.784	43.519	24.694

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-1.357	0.464	0.018	34.157	3.513	0.427	-0.595	718.334
S.D.	0.626	0.241	0.007	0.670	0.148	0.006	0.289	6.795
% R.S.D.	46.117	51.859	38.651	1.962	4.199	1.293	48.612	0.946

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	0.046	0.270	0.012	0.257	-0.005	0.155	-0.098	20274.776
S.D.	0.024	0.194	0.019	0.186	0.007	0.047	0.044	140.834
% R.S.D.	52.577	72.034	156.980	72.223	128.148	30.431	44.461	0.695

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.258	-0.349	-0.013	0.019	-4.065
S.D.	0.013	0.897	0.039	0.006	0.365
% R.S.D.	5.075	257.048	293.569	28.927	8.989

Identity 1: CCV Identity 2: Quality Control 11:07 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	5.058	5.002	5.190	4.964	4.962	5.149	5.196	4.867
S.D.	0.019	0.031	0.041	0.028	0.029	0.037	0.017	0.008
% R.S.D.	0.380	0.628	0.799	0.564	0.586	0.712	0.336	0.158

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	5.199	4.869	4.921	4.929	4.791	4.871	4.978	10.694
S.D.	0.035	0.029	0.034	0.014	0.020	0.040	0.030	0.048
% R.S.D.	0.681	0.592	0.689	0.291	0.417	0.828	0.596	0.449

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	5.095	4.898	5.011	5.099	5.082	4.899	5.177	5.188
S.D.	0.049	0.013	0.030	0.027	0.032	0.036	0.050	0.025
% R.S.D.	0.957	0.271	0.594	0.531	0.620	0.732	0.962	0.486

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	5.171	5.530	4.869	4.968	4.994	4.941	5.105	5.124
S.D.	0.037	0.021	0.023	0.040	0.037	0.031	0.009	0.002
% R.S.D.	0.708	0.381	0.470	0.804	0.734	0.621	0.171	0.031

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	4.919	5.115	5.125	5.018	5.076
S.D.	0.027	0.052	0.027	0.015	0.014
% R.S.D.	0.556	1.021	0.528	0.301	0.282

Identity 1: CCB Identity 2: Quality Control 11:14 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-0.001	-0.000	-0.019	-0.010	-0.001	-0.010	-0.001	-0.000
S.D.	0.002	0.000	0.013	0.003	0.001	0.002	0.000	0.000
% R.S.D.	248.610	76.369	68.165	31.125	115.646	24.622	37.636	87.175

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	-0.000	-0.001	0.004	0.000	0.005	-0.000	-0.005	-0.114
S.D.	0.000	0.001	0.003	0.001	0.000	0.001	0.003	0.056
% R.S.D.	72.951	38.598	69.554	861.159	7.184	162.561	55.508	48.893

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.006	0.014	-0.000	0.004	-0.004	0.000	-0.004	-0.002
S.D.	0.004	0.007	0.000	0.003	0.007	0.000	0.003	0.004
% R.S.D.	80.338	50.156	59.954	78.495	179.158	86.477	70.570	172.782

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.002	-0.020	-0.000	-0.026	-0.001	0.000	-0.001	-0.076
S.D.	0.001	0.011	0.001	0.016	0.000	0.000	0.001	0.033
% R.S.D.	48.161	52.828	242.501	59.848	28.179	115.604	49.389	43.136

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.001	0.052	0.001	0.001	0.006
S.D.	0.000	0.039	0.001	0.000	0.028
% R.S.D.	22.603	74.637	159.933	1.966	497.381

01/14/97 12:17 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W 010

Identity 1: s96t005890_1 Identity 2: .25ml-9.75ml-2ml-8ml 11:18 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 200.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-0.244	0.241	-0.247	0.038	4.629	1.653	0.126	0.013
S.D.	0.370	0.037	5.673	0.713	0.542	0.499	0.092	0.080
% R.S.D.	151.747	15.232	2293.208	1882.077	11.716	30.181	73.013	606.745

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	1.070	1.925	0.862	0.439	2.068	19.748	0.847	-16.142
S.D.	0.095	0.615	0.540	0.343	0.034	0.299	0.845	15.204
% R.S.D.	8.909	31.925	62.679	78.311	1.642	1.514	99.807	94.190

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	3.526	4.617	0.066	4.739	14.354	0.143	-0.968	933.673
S.D.	6.124	2.032	0.088	2.669	1.157	0.028	0.711	6.240
% R.S.D.	173.693	44.011	133.736	56.321	8.063	19.245	73.491	0.668

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.075	0.132	0.354	-6.753	-0.251	0.228	-0.082	13302.355
S.D.	0.410	1.260	0.204	3.120	0.070	0.144	0.145	51.143
% R.S.D.	547.620	953.272	57.790	46.196	28.049	63.343	177.472	0.384

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.087	12.730	0.577	0.141	8.365
S.D.	0.101	2.393	0.172	0.027	4.214
% R.S.D.	116.407	18.795	29.889	19.484	50.382

01/14/97 12:18 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W 011

Identity 1: s96t005890 Identity 2: .25ml-9.75ml 11:22 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.108	0.201	0.685	2.642	3.705	0.108	-0.040	-0.042
S.D.	0.074	0.007	0.337	0.132	0.202	0.101	0.034	0.010
% R.S.D.	68.770	3.652	49.287	4.982	5.457	93.628	84.118	23.588

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.063	1.861	0.245	0.947	1.576	19.416	-0.705	3.422
S.D.	0.008	0.068	0.121	0.097	0.006	0.207	0.255	2.336
% R.S.D.	12.496	3.659	49.364	10.206	0.389	1.065	36.196	68.261

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-2.284	2.116	-0.027	3.264	16.386	0.086	0.084	923.772
S.D.	1.054	0.310	0.016	0.607	0.356	0.006	0.114	7.100
% R.S.D.	46.138	14.649	57.017	18.589	2.173	6.416	135.196	0.769

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.072	2.575	-0.092	0.168	0.009	0.087	0.025	12969.818
S.D.	0.056	1.007	0.025	0.709	0.022	0.025	0.032	33.118
% R.S.D.	78.833	39.105	27.387	422.917	262.218	28.715	126.171	0.255

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.163	-1.746	-0.093	0.016	-2.340
S.D.	0.008	1.397	0.023	0.005	1.122
% R.S.D.	4.779	80.008	24.077	33.238	47.948

01/14/97 12:19 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W 012

Identity 1: s96t005890_D Identity 2: .25ml-9.75ml 11:32 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-0.032	0.219	-0.235	2.543	3.282	0.115	-0.049	-0.044
S.D.	0.020	0.002	0.374	0.099	0.013	0.099	0.014	0.000
% R.S.D.	63.532	0.931	158.743	3.887	0.402	85.699	28.035	0.000

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.153	1.992	0.120	1.071	0.837	18.243	-0.599	-4.141
S.D.	0.011	0.042	0.080	0.094	0.027	0.312	0.205	0.767
% R.S.D.	7.079	2.103	66.467	8.802	3.188	1.709	34.280	18.527

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-2.466	0.954	-0.029	1.585	15.061	0.067	-0.009	963.513
S.D.	0.195	0.054	0.001	0.195	0.436	0.006	0.164	8.600
% R.S.D.	7.901	5.625	3.039	12.304	2.897	8.255	1800.698	0.893

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	0.031	1.311	-0.093	-0.241	-0.074	0.079	-0.005	18504.211
S.D.	0.041	0.897	0.011	0.555	0.013	0.038	0.008	80.230
% R.S.D.	132.390	68.402	11.637	230.588	16.850	48.519	147.145	0.434

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.174	-1.394	-0.014	0.018	0.206
S.D.	0.008	1.881	0.023	0.005	0.294
% R.S.D.	4.356	134.913	157.879	30.346	142.955

01/14/97 12:20 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W 013

Identity 1: s96t005890_a Identity 2: .25ml-2ml-7.75ml 11:36 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	39.037	38.345	40.526	40.752	41.607	39.175	39.903	35.291
S.D.	0.040	0.115	0.439	0.055	0.146	0.199	0.061	0.131
% R.S.D.	0.102	0.299	1.083	0.136	0.350	0.507	0.154	0.371

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	39.195	38.590	38.194	38.675	37.299	56.307	38.016	83.213
S.D.	0.099	0.304	0.052	0.114	0.078	0.245	0.250	2.053
% R.S.D.	0.253	0.788	0.137	0.294	0.209	0.436	0.656	2.467

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	37.574	38.180	37.984	41.146	55.470	36.390	39.283	961.566
S.D.	0.366	0.120	0.104	0.416	0.600	0.112	0.210	3.131
% R.S.D.	0.974	0.313	0.273	1.012	1.082	0.307	0.534	0.326

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	38.713	42.848	12.317	37.843	37.628	37.200	38.086	13007.388
S.D.	0.094	0.401	0.019	0.761	0.146	0.232	0.170	28.812
% R.S.D.	0.244	0.937	0.151	2.010	0.388	0.623	0.446	0.222

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	37.632	39.428	39.159	37.558	38.770
S.D.	0.046	0.879	0.136	0.082	0.285
% R.S.D.	0.121	2.229	0.348	0.218	0.736

Identity 1: s96t005890_10ppm Identity 2: .25ml-1ml-1ml-7.75ml 11:39 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	404.046	389.746	405.869	402.487	414.220	-1.038	0.056	373.798
S.D.	0.721	1.185	1.210	0.811	1.090	0.170	0.028	3.118
% R.S.D.	0.178	0.304	0.298	0.201	0.263	16.336	50.586	0.834

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	2.427	374.728	391.619	384.353	388.646	397.512	405.381	18.522
S.D.	0.002	0.528	1.099	0.932	1.281	2.343	2.932	3.199
% R.S.D.	0.098	0.141	0.281	0.242	0.329	0.589	0.723	17.270

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	414.979	373.466	395.519	402.327	413.026	383.041	396.815	1309.763
S.D.	0.895	1.604	1.520	2.076	3.778	1.359	2.137	8.818
% R.S.D.	0.216	0.429	0.384	0.516	0.915	0.355	0.538	0.673

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	383.650	435.031	141.907	394.517	358.459	377.963	386.792	13379.574
S.D.	1.455	2.190	0.365	1.527	0.886	0.837	0.551	89.135
% R.S.D.	0.379	0.503	0.257	0.387	0.247	0.221	0.142	0.666

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	379.407	384.090	2.530	387.773	395.431
S.D.	0.851	3.344	0.041	0.684	0.848
% R.S.D.	0.224	0.871	1.628	0.176	0.214

01/14/97 12:22 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W 図015

Identity 1: s96t005891 Identity 2: .25ml-9.75ml 11:42 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.131	0.196	-0.648	4.790	3.822	-0.007	-0.058	-0.073
S.D.	0.040	0.002	0.141	0.144	0.139	0.099	0.008	0.017
% R.S.D.	30.457	1.037	21.716	2.998	3.643	1324.524	14.107	22.706

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.649	2.540	0.053	1.042	0.792	26.737	-0.594	2.256
S.D.	0.003	0.094	0.052	0.054	0.006	0.247	0.126	0.207
% R.S.D.	0.432	3.695	97.831	5.158	0.773	0.923	21.181	9.190

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-4.270	1.339	-0.046	0.755	11.984	0.070	-0.196	923.505
S.D.	0.078	0.115	0.004	0.166	0.453	0.000	0.179	4.670
% R.S.D.	1.821	8.593	8.389	21.981	3.782	0.005	91.370	0.506

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.035	2.703	0.162	-0.662	0.030	-0.013	0.129	18130.154
S.D.	0.047	0.928	0.033	0.271	0.016	0.022	0.006	64.400
% R.S.D.	133.592	34.341	20.213	40.874	55.186	170.471	4.566	0.355

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.186	-0.175	-0.209	0.016	-5.250
S.D.	0.015	1.013	0.028	0.006	0.353
% R.S.D.	8.116	579.764	13.482	36.035	6.717

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01/14/97 12:23 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W 016

Identity 1: s96t005891_D Identity 2: .25ml-9.75ml 11:47 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-0.052	0.189	-0.358	3.150	3.372	0.361	-0.054	-0.034
S.D.	0.040	0.002	0.290	0.173	0.085	0.000	0.008	0.005
% R.S.D.	77.207	1.076	80.845	5.476	2.529	0.111	15.020	13.320

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.144	2.421	-0.054	1.686	0.801	27.388	-0.309	-4.717
S.D.	0.013	0.098	0.052	0.111	0.006	0.205	0.321	0.474
% R.S.D.	8.958	4.057	96.508	6.561	0.764	0.750	103.913	10.058

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-2.467	-0.119	-0.015	11.986	12.845	0.060	-0.427	797.856
S.D.	0.366	0.189	0.003	0.546	0.121	0.000	0.197	1.227
% R.S.D.	14.833	158.071	17.917	4.551	0.939	0.005	46.047	0.154

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	0.034	2.164	-0.029	-0.394	-0.072	0.166	0.014	13723.392
S.D.	0.014	0.352	0.011	0.149	0.012	0.007	0.028	23.600
% R.S.D.	40.402	16.269	37.470	37.726	17.302	4.333	196.751	0.172

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.200	0.979	-0.072	0.005	0.588
S.D.	0.015	0.863	0.010	0.006	0.979
% R.S.D.	7.537	88.097	13.593	121.752	166.450

01/14/97 12:24 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W ☑017

Identity 1: ICSA Identity 2: Quality Control 11:51 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.006	0.002	-0.027	-0.025	206.356	-0.003	-0.002	-0.001
S.D.	0.002	0.000	0.004	0.008	1.168	0.000	0.000	0.000
% R.S.D.	25.579	7.274	14.007	30.822	0.566	10.633	17.189	33.586

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.005	0.006	0.014	94.139	104.412	-0.000	-0.065	0.171
S.D.	0.000	0.001	0.002	0.145	0.320	0.002	0.008	0.070
% R.S.D.	1.499	22.690	10.933	0.154	0.307	2233.371	11.738	41.041

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.068	0.043	0.000	0.032	0.028	105.323	0.011	197.828
S.D.	0.017	0.012	0.000	0.010	0.007	0.540	0.001	0.936
% R.S.D.	25.292	28.473	103.925	31.031	23.594	0.513	11.363	0.473

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.008	-0.006	0.000	-0.053	0.001	0.003	0.014	0.272
S.D.	0.002	0.022	0.001	0.007	0.001	0.002	0.000	0.008
% R.S.D.	28.134	371.576	6901.865	12.484	64.995	45.730	3.495	3.099

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.002	0.021	-0.003	0.003	-0.016
S.D.	0.001	0.032	0.000	0.000	0.034
% R.S.D.	33.557	149.678	6.150	0.409	214.643

01/14/97 12:25 ☎509 372 2929 WESTINGHOUSE 999 MO-924 ZOOM 018

Identity 1: ICSAB Identity 2: Quality Control 11:55 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.004	0.002	-0.010	-0.035	203.739	0.518	0.515	0.979
S.D.	0.001	0.000	0.008	0.007	0.559	0.002	0.001	0.003
% R.S.D.	22.735	11.547	76.653	19.438	0.274	0.470	0.123	0.357

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	1.023	0.978	0.020	94.682	102.676	0.490	-0.074	0.150
S.D.	0.007	0.007	0.003	0.223	0.367	0.004	0.003	0.051
% R.S.D.	0.684	0.689	13.569	0.235	0.358	0.733	3.712	34.239

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.097	0.026	0.527	0.019	0.015	106.186	-0.003	201.341
S.D.	0.015	0.009	0.002	0.005	0.008	0.770	0.014	0.759
% R.S.D.	15.827	34.323	0.297	27.759	52.499	0.725	403.316	0.377

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.009	0.081	1.021	0.984	0.001	0.992	0.013	0.119
S.D.	0.002	0.014	0.005	0.011	0.000	0.007	0.001	0.023
% R.S.D.	18.065	16.953	0.461	1.101	81.917	0.656	10.117	19.118

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.488	0.047	0.509	0.498	-0.054
S.D.	0.002	0.034	0.002	0.002	0.031
% R.S.D.	0.415	72.219	0.361	0.477	57.297

Identity 1: CCV Identity 2: Quality Control 11:58 AM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	5.029	5.027	5.140	4.828	4.920	4.907	5.255	4.992
S.D.	0.009	0.018	0.030	0.034	0.034	0.026	0.010	0.028
% R.S.D.	0.186	0.353	0.580	0.708	0.690	0.528	0.182	0.555

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	4.948	4.678	4.879	4.784	4.780	4.636	5.112	10.795
S.D.	0.032	0.034	0.009	0.025	0.007	0.024	0.031	0.062
% R.S.D.	0.638	0.726	0.183	0.517	0.144	0.508	0.598	0.571

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	5.158	4.951	5.064	5.032	4.954	4.693	5.026	5.307
S.D.	0.046	0.010	0.016	0.077	0.031	0.026	0.030	0.048
% R.S.D.	0.891	0.195	0.308	1.539	0.632	0.554	0.601	0.906

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	4.962	5.422	4.719	4.789	4.877	4.745	5.029	5.007
S.D.	0.026	0.066	0.018	0.047	0.025	0.016	0.011	0.038
% R.S.D.	0.522	1.216	0.376	0.988	0.505	0.337	0.228	0.756

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	4.736	5.002	4.992	4.968	5.042
S.D.	0.004	0.029	0.017	0.009	0.011
% R.S.D.	0.082	0.573	0.332	0.177	0.226

Identity 1: CCB Identity 2: Quality Control 12:01 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.001	-0.000	0.015	-0.007	-0.007	0.004	-0.001	-0.001
S.D.	0.001	0.000	0.004	0.006	0.009	0.004	0.001	0.000
% R.S.D.	120.015	89.207	29.427	82.219	123.762	100.020	55.441	62.267

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	-0.000	-0.000	-0.002	0.003	0.006	0.001	0.002	-0.031
S.D.	0.000	0.001	0.002	0.002	0.001	0.002	0.005	0.058
% R.S.D.	31.019	615.875	86.474	86.466	8.751	127.992	232.991	188.020

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.047	0.020	-0.000	0.007	-0.004	0.001	0.008	0.013
S.D.	0.026	0.007	0.000	0.004	0.001	0.000	0.005	0.005
% R.S.D.	55.618	36.112	56.929	57.113	15.697	34.694	65.007	38.201

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.000	-0.012	-0.001	-0.005	-0.001	0.001	0.001	0.108
S.D.	0.001	0.010	0.001	0.013	0.001	0.001	0.001	0.023
% R.S.D.	241.417	84.089	114.123	279.195	63.372	78.338	83.937	20.853

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.000	0.013	-0.001	-0.000	0.056
S.D.	0.000	0.034	0.001	0.000	0.035
% R.S.D.	84.542	263.765	58.907	6357.972	62.356

FILE No: 970114B.DAT

FILE No: 970114C.DAT

12/11/96 08:27
A-0004-1

HNF-SD-WM-DP-229, REV. 0

LABCORE Data Entry Template for Worklist# 15516

Analyst: J. WORRELL **Instrument:** ICP01 **Book#** 65B48A

Method: LA-505-151/~~161~~ Rev/Mod 1)-3 JW 1-14-97

Worklist Comment: ICP BY-112 (FUSION)

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	ICV				@ICP-QC	QC		
2	ICB				@ICP-QC	QC		
3	LLS				@ICP-QC	QC		
4	ICSA				@ICP-QC	QC		
5	ICSAB				@ICP-QC	QC		
6	PREPBLK~~TJA~~ ARL JW 1-14-97				@ICP-F01	SOLID		
7	SERDIL	S96T005892	0	F	@ICP-F01	SOLID		
8	SAMPLE	S96T005892	0	F	@ICP-F01	SOLID	96001393	BY-112
	Analytes Requested:	AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01						
9	DUP	S96T005892	0	F	@ICP-F01	SOLID		
10	SPK	S96T005892	0	F	@ICP-F01	SOLID		
11	10PPM P.SPK CCV				@ICP-QC	QC		
12	CCB				@ICP-QC	QC		
13	SAMPLE	S96T005893	0	F	@ICP-F01	SOLID	96001393	BY-112
	Analytes Requested:	AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 ,						

Data Entry Comments: Sample result calculation:

$$S96T005892 \quad Al = 36.30\ \frac{ug}{ml} \times \frac{1}{2.0384\ \frac{g}{L} \times \frac{L}{100\ ml}} = 1.78e+4\ \frac{ug}{g}$$

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

01/14/97 15:01 ☎509 372 2929 WESTINGHOUSE 333 MO-924 200# 022

12/11/96 08:27
A-0004-1

LABCORE Data Entry Template for Worklist# 15516

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
					SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01			
14	DUP	S96T005893	0	F	@ICP-F01	SOLID		
15	SAMPLE	S96T005894	0	F	@ICP-F01	SOLID	96001393	BY-112
	Analytes Requested:				AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01			
16	DUP	S96T005894	0	F	@ICP-F01	SOLID		
17	ICSA				@ICP-QC	QC		
18	ICSAB				@ICP-QC	QC		
19	CCV				@ICP-QC	QC		
20	CCB				@ICP-QC	QC		

Final page for worklist # 15516

John Worrell 1-14-97
Analyst Signature Date

Reviewed by:
Sandra Parry 1/17/97
Analyst Signature Date

		DF
PREPBLKARL	.250 - 9.75	1
S96T005892		
DIL 5X	.250-9.75-2-8	200
SAM	.250-9.75	40
DUP	.250-9.75	40
P.SPIK	.250-2-7.75	40
10PPM P.SPIK	.250-1-1-7.75	40
S96T005893		
SAM	.250 - 9.75	40
DUP	.250 - 9.75	40
S96T005894		
SAM	.250-9.75	40
DUP	.250 - 9.75	40

Data Entry Comments:

spike recovery calculation:

S96T005892 Al: $\left(\frac{74.958}{40}\right) - \left(\frac{26.30}{40}\right) \times 100 = 96.6\ \%$

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

Identity 1: ICV Identity 2: Quality Control 1:32 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	4.961	4.904	4.962	4.652	4.783	4.699	5.152	4.881
S.D.	0.012	0.018	0.025	0.025	0.021	0.031	0.015	0.024
% R.S.D.	0.241	0.363	0.504	0.529	0.439	0.659	0.283	0.493

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	4.778	4.516	4.771	4.754	4.679	4.462	5.069	10.743
S.D.	0.024	0.028	0.016	0.007	0.010	0.016	0.022	0.026
% R.S.D.	0.506	0.630	0.329	0.148	0.204	0.361	0.427	0.243

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	5.034	4.907	4.932	4.862	4.776	4.531	4.873	5.120
S.D.	0.032	0.013	0.017	0.050	0.042	0.021	0.027	0.026
% R.S.D.	0.637	0.264	0.337	1.034	0.869	0.465	0.558	0.503

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	4.766	5.311	4.609	4.670	4.663	4.598	4.947	4.864
S.D.	0.024	0.055	0.015	0.012	0.017	0.020	0.014	0.009
% R.S.D.	0.508	1.029	0.331	0.257	0.368	0.444	0.275	0.186

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	4.619	4.941	4.862	4.909	4.940
S.D.	0.009	0.039	0.016	0.009	0.010
% R.S.D.	0.200	0.790	0.324	0.187	0.210

John Worrell
1-14-97
WL#155516
FILE No: 970114C.DAT
S96T005892, 5893, 5894
BY-112 FUSION

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 482 TO 502

Identity 1: ICB Identity 2: Quality Control 1:35 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-0.001	-0.000	0.004	-0.009	-0.023	0.006	-0.001	-0.001
S.D.	0.001	0.000	0.007	0.003	0.009	0.002	0.000	0.000
% R.S.D.	92.975	76.369	152.789	37.391	38.089	43.456	34.405	7.142

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.012	0.004	0.005	0.002	0.013	0.002	-0.014	-0.079
S.D.	0.000	0.001	0.003	0.001	0.001	0.002	0.006	0.020
% R.S.D.	3.772	20.126	57.120	81.496	8.763	85.559	40.139	25.999

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.047	0.033	-0.001	-0.009	-0.008	0.000	0.005	-0.000
S.D.	0.007	0.003	0.000	0.009	0.002	0.000	0.006	0.005
% R.S.D.	14.316	8.285	26.357	97.321	22.995	69.258	110.073	83852.458

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.000	-0.029	-0.001	-0.004	-0.001	-0.000	0.002	0.030
S.D.	0.000	0.026	0.000	0.015	0.000	0.001	0.001	0.015
% R.S.D.	339.084	90.602	25.905	365.976	41.094	675.796	52.535	49.006

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.001	0.006	-0.001	0.000	0.010
S.D.	0.000	0.036	0.000	0.000	0.024
% R.S.D.	0.341	650.642	32.408	370.986	234.046

01/14/97 14:39 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W 002

Identity 1: LLS Identity 2: Quality Control 1:38 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.023	0.020	0.192	0.198	0.074	0.033	0.018	0.018
S.D.	0.000	0.000	0.013	0.006	0.007	0.002	0.000	0.001
% R.S.D.	0.999	1.773	6.775	2.977	10.133	7.574	2.030	3.583

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.021	0.045	0.109	0.098	0.186	0.019	0.186	0.492
S.D.	0.000	0.001	0.001	0.003	0.000	0.002	0.005	0.083
% R.S.D.	0.881	2.780	1.237	3.533	0.232	11.527	2.456	16.915

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.104	0.242	0.101	0.433	0.199	0.204	0.203	0.182
S.D.	0.030	0.012	0.000	0.019	0.005	0.001	0.007	0.010
% R.S.D.	28.569	5.094	0.381	4.379	2.669	0.469	3.308	5.249

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	0.095	0.204	0.016	0.215	0.020	0.009	0.104	0.630
S.D.	0.002	0.009	0.001	0.001	0.001	0.001	0.001	0.019
% R.S.D.	2.399	4.393	6.394	0.650	3.305	8.822	1.044	2.971

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.019	0.086	0.097	0.011	0.417
S.D.	0.000	0.013	0.001	0.000	0.033
% R.S.D.	1.955	15.506	1.493	4.074	8.023

01/14/97 14:40 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W 図003

Identity 1: ICSA Identity 2: Quality Control 1:41 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.003	0.002	-0.029	-0.018	201.541	0.000	-0.001	-0.001
S.D.	0.001	0.000	0.007	0.004	0.672	0.003	0.001	0.001
% R.S.D.	43.319	10.189	22.608	23.296	0.333	4539.125	64.377	71.074

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.005	0.006	0.018	91.825	101.340	0.001	-0.075	0.118
S.D.	0.000	0.005	0.002	0.187	0.159	0.004	0.005	0.073
% R.S.D.	6.847	78.288	8.429	0.204	0.157	422.170	7.054	61.736

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.067	0.036	0.001	0.022	0.051	99.140	0.040	194.822
S.D.	0.032	0.011	0.000	0.009	0.018	0.474	0.007	1.096
% R.S.D.	46.754	29.784	66.555	38.190	34.273	0.478	18.400	0.563

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.007	-0.044	-0.001	-0.049	0.000	0.004	0.012	-0.031
S.D.	0.001	0.014	0.001	0.010	0.000	0.000	0.001	0.018
% R.S.D.	11.629	31.251	202.760	20.906	125.669	12.243	11.794	59.872

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.002	0.011	-0.003	0.003	-0.053
S.D.	0.000	0.067	0.002	0.000	0.032
% R.S.D.	14.433	634.925	60.567	10.231	59.787

01/14/97 14:41 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 2004 ☑004

Identity 1: ICSAB Identity 2: Quality Control 1:44 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.003	0.002	-0.025	-0.025	198.657	0.484	0.509	0.966
S.D.	0.001	0.000	0.006	0.002	1.364	0.005	0.003	0.008
% R.S.D.	35.072	5.172	24.382	8.848	0.687	1.051	0.549	0.797

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.981	0.935	0.017	93.479	99.786	0.468	-0.070	0.063
S.D.	0.001	0.006	0.003	0.069	0.351	0.003	0.010	0.060
% R.S.D.	0.142	0.614	15.531	0.074	0.352	0.695	13.713	95.259

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.104	0.032	0.516	0.027	0.048	100.947	0.035	196.435
S.D.	0.016	0.008	0.002	0.009	0.015	0.442	0.016	1.612
% R.S.D.	15.114	23.900	0.443	32.944	30.756	0.437	46.392	0.820

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.007	0.022	0.994	0.927	-0.000	0.953	0.011	-0.046
S.D.	0.002	0.019	0.002	0.011	0.000	0.004	0.001	0.014
% R.S.D.	23.316	83.581	0.175	1.154	517.433	0.419	5.500	30.703

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.473	-0.000	0.494	0.492	-0.013
S.D.	0.002	0.022	0.001	0.002	0.024
% R.S.D.	0.384	6192.915	0.292	0.399	178.169

01/14/97 14:42 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W 005

Identity 1: prepblkarl Identity 2: .250ml-9.75ml 1:50 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.002	0.001	-0.022	-0.001	0.002	0.002	-0.001	-0.000
S.D.	0.002	0.000	0.007	0.005	0.005	0.002	0.000	0.001
% R.S.D.	98.546	17.647	30.249	819.678	265.521	132.567	67.621	130.923

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.012	0.045	0.000	0.001	0.011	0.002	-0.012	0.031
S.D.	0.001	0.001	0.003	0.001	0.000	0.002	0.010	0.055
% R.S.D.	5.447	1.624	19911.582	175.119	1.432	107.811	81.833	176.266

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.012	0.016	-0.000	0.015	0.007	0.002	-0.000	1.818
S.D.	0.015	0.010	0.000	0.008	0.003	0.000	0.002	0.003
% R.S.D.	128.181	58.728	135.020	50.567	49.960	0.005	846.873	0.182

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	0.001	0.001	-0.000	0.010	-0.001	0.001	-0.002	279.044
S.D.	0.002	0.005	0.001	0.012	0.000	0.000	0.002	1.141
% R.S.D.	200.185	1005.621	521.915	117.878	44.277	12.323	79.113	0.409

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.001	0.014	0.000	0.001	0.010
S.D.	0.000	0.037	0.000	0.000	0.029
% R.S.D.	33.383	260.836	818.043	20.470	298.976

01/14/97 14:43 ☎509 372 2929 RESTINGHOUSE 999 MO-924 2004 ☑006

Identity 1: s96t005892_L Identity 2: .25ml-9.75ml-2ml-8ml 1:55 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 200.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.885	0.123	1.561	9.733	33.274	-0.405	-0.302	-0.344
S.D.	0.212	0.010	1.464	0.929	0.186	1.313	0.098	0.070
% R.S.D.	23.997	8.248	93.846	9.541	0.559	324.396	32.386	20.257

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	1.019	4.586	0.793	12.881	4.593	99.871	-2.054	19.147
S.D.	0.047	0.083	0.255	0.918	0.085	0.651	1.389	14.382
% R.S.D.	4.592	1.801	32.099	7.127	1.849	0.652	67.640	75.112

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-16.704	8.135	-0.229	9.097	31.626	0.286	-0.226	711.397
S.D.	4.077	1.652	0.051	0.266	1.287	0.028	1.092	4.621
% R.S.D.	24.409	20.303	22.194	2.923	4.070	9.635	482.883	0.650

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.675	9.604	-0.675	-2.236	0.093	0.205	-0.306	17128.384
S.D.	0.207	9.313	0.076	0.474	0.040	0.129	0.103	88.615
% R.S.D.	30.716	96.978	11.205	21.200	43.055	63.047	33.690	0.517

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	1.320	-5.886	-0.908	0.016	-15.657
S.D.	0.039	7.137	0.398	0.050	4.523
% R.S.D.	2.946	121.262	43.786	311.696	28.885

Identity 1: s96t005892 Identity 2: .25ml-9.75ml 1:59 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.056	0.226	-0.805	8.127	36.300	0.331	-0.009	-0.066
S.D.	0.011	0.005	0.369	0.106	0.024	0.000	0.018	0.008
% R.S.D.	19.973	2.387	45.889	1.303	0.066	0.030	197.533	12.478

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.075	3.952	0.174	13.068	2.614	96.988	-0.906	-3.935
S.D.	0.016	0.142	0.061	0.159	0.010	0.226	0.168	1.415
% R.S.D.	22.018	3.598	35.038	1.214	0.395	0.233	18.499	35.969

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-4.038	2.131	-0.023	9.991	31.659	0.159	0.236	697.491
S.D.	0.387	0.143	0.004	0.823	0.661	0.006	0.221	1.336
% R.S.D.	9.581	6.699	19.245	8.240	2.089	3.468	93.465	0.191

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.050	13.733	0.134	-0.396	-0.010	0.258	-0.109	16461.681
S.D.	0.024	0.993	0.015	0.288	0.001	0.043	0.023	18.416
% R.S.D.	47.384	7.233	11.138	72.911	6.899	16.729	21.191	0.112

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	1.399	-0.786	-0.138	0.005	-3.980
S.D.	0.020	0.995	0.011	0.006	0.834
% R.S.D.	1.414	126.624	7.752	107.362	20.946

01/14/97 14:46 ☎509 372 2929

Identity 1: s96t005892_D Identity 2: .25ml-9.75ml 2:02 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.049	0.330	0.268	10.088	37.207	0.528	0.054	-0.017
S.D.	0.026	0.002	0.536	0.162	0.125	0.001	0.012	0.002
% R.S.D.	52.829	0.616	199.755	1.602	0.336	0.100	21.945	13.274

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.951	12.359	0.139	17.847	2.473	106.248	-0.346	-5.140
S.D.	0.010	0.153	0.060	0.490	0.009	0.435	0.306	1.223
% R.S.D.	1.084	1.237	42.915	2.747	0.364	0.410	88.444	23.799

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-1.795	0.306	0.016	2.496	33.550	0.162	0.458	817.769
S.D.	0.387	0.238	0.003	0.421	0.372	0.006	0.306	0.651
% R.S.D.	21.532	77.749	19.355	16.874	1.109	3.402	66.749	0.080

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	0.022	13.401	0.241	0.114	-0.012	0.357	-0.096	18294.962
S.D.	0.071	0.712	0.030	0.288	0.040	0.033	0.006	16.538
% R.S.D.	317.651	5.314	12.345	252.403	331.352	9.201	6.545	0.090

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	1.721	-0.532	0.006	0.002	-0.359
S.D.	0.013	1.369	0.016	0.005	0.585
% R.S.D.	0.752	257.021	262.626	322.228	163.038

01/14/97 14:47 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W 図009

Identity 1: s96t005892_a Identity 2: .25ml-2ml-7.75ml 2:05 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	39.503	38.969	39.067	46.015	74.958	38.824	40.286	35.675
S.D.	0.174	0.224	0.166	0.140	0.271	0.198	0.193	0.197
% R.S.D.	0.442	0.575	0.425	0.303	0.362	0.510	0.478	0.553

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	39.400	40.162	37.670	51.252	38.747	135.636	38.992	75.074
S.D.	0.119	0.361	0.188	0.277	0.212	0.223	0.153	1.222
% R.S.D.	0.301	0.898	0.500	0.540	0.547	0.164	0.392	1.627

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	37.167	38.421	38.489	47.736	70.284	36.210	39.317	731.632
S.D.	0.232	0.206	0.240	1.357	0.838	0.132	0.918	3.760
% R.S.D.	0.623	0.537	0.625	2.843	1.192	0.365	2.334	0.514

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	38.460	55.530	31.430	38.774	37.215	36.877	37.834	16425.339
S.D.	0.242	0.941	0.092	0.374	0.206	0.261	0.055	66.061
% R.S.D.	0.629	1.694	0.294	0.964	0.555	0.709	0.146	0.402

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	38.445	41.903	39.081	37.640	36.961
S.D.	0.223	1.045	0.235	0.131	1.040
% R.S.D.	0.579	2.493	0.601	0.347	2.814

01/14/97 14:48 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W ☑010

Identity 1: s96t005892_AX Identity 2: .25ml-1ml-1ml-7.75ml 2:08 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	371.087	386.516	400.571	373.341	439.413	-0.999	-0.314	362.546
S.D.	1.062	1.507	2.504	2.149	1.454	0.196	0.018	1.589
% R.S.D.	0.286	0.390	0.625	0.576	0.331	19.635	5.726	0.438

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	2.255	366.729	382.093	387.837	379.650	465.215	397.007	-3.417
S.D.	0.023	1.492	1.174	1.186	0.736	2.053	1.150	1.168
% R.S.D.	1.003	0.407	0.307	0.306	0.194	0.441	0.290	34.174

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	410.177	367.182	390.091	372.775	396.354	375.598	390.405	1075.123
S.D.	2.565	0.601	1.432	5.148	3.794	2.030	4.128	4.907
% R.S.D.	0.625	0.164	0.367	1.381	0.957	0.540	1.057	0.456

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	347.612	435.852	279.380	388.471	323.033	367.816	348.991	16863.028
S.D.	1.515	2.148	2.089	3.597	1.576	1.563	0.567	59.344
% R.S.D.	0.436	0.493	0.748	0.926	0.488	0.425	0.162	0.352

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	370.460	353.575	2.298	378.982	385.644
S.D.	1.491	1.754	0.020	0.635	2.342
% R.S.D.	0.403	0.496	0.873	0.168	0.607

Identity 1: CCV Identity 2: Quality Control 2:11 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	5.009	4.946	5.024	4.748	4.806	4.810	5.160	4.825
S.D.	0.009	0.018	0.038	0.013	0.020	0.004	0.017	0.033
% R.S.D.	0.174	0.366	0.749	0.279	0.410	0.088	0.331	0.692

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	4.867	4.598	4.811	4.798	4.710	4.538	5.058	10.860
S.D.	0.008	0.007	0.007	0.009	0.009	0.011	0.007	0.004
% R.S.D.	0.168	0.156	0.141	0.183	0.194	0.235	0.131	0.036

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	4.984	4.924	4.963	4.872	4.859	4.623	4.893	5.088
S.D.	0.024	0.009	0.020	0.042	0.021	0.011	0.028	0.043
% R.S.D.	0.487	0.182	0.402	0.863	0.440	0.228	0.582	0.847

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	4.849	5.364	4.775	4.747	4.732	4.672	4.977	5.009
S.D.	0.021	0.042	0.009	0.023	0.017	0.013	0.008	0.032
% R.S.D.	0.434	0.778	0.191	0.487	0.362	0.285	0.156	0.639

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	4.695	4.971	4.931	4.942	4.874
S.D.	0.002	0.055	0.009	0.008	0.010
% R.S.D.	0.042	1.107	0.185	0.154	0.196

01/14/97 14:50 ☎509 372 2929 HESTINGHOUSE 999 MO-924 ZOOM 図012

Identity 1: CCB Identity 2: Quality Control 2:15 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.002	0.000	-0.002	-0.008	-0.014	-0.000	0.003	0.000
S.D.	0.002	0.000	0.010	0.003	0.010	0.000	0.001	0.000
% R.S.D.	134.734	321.515	457.336	32.963	75.689	165.474	24.764	1135.496

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.019	0.001	0.002	0.004	0.019	0.003	-0.007	-0.016
S.D.	0.000	0.002	0.001	0.002	0.000	0.001	0.006	0.089
% R.S.D.	0.692	227.976	44.464	44.112	0.827	44.509	88.173	565.849

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.013	0.019	0.000	-0.013	0.001	0.001	0.003	0.011
S.D.	0.030	0.012	0.001	0.014	0.004	0.000	0.006	0.005
% R.S.D.	237.406	64.068	721.755	109.987	468.131	42.842	225.455	45.854

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.003	0.005	0.069	0.008	-0.000	-0.001	0.003	0.194
S.D.	0.001	0.019	0.005	0.010	0.001	0.001	0.001	0.030
% R.S.D.	41.583	373.594	6.844	133.743	344.499	173.166	28.221	15.602

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.001	-0.064	0.001	0.000	-0.045
S.D.	0.000	0.015	0.001	0.000	0.022
% R.S.D.	87.323	23.986	131.623	136.461	49.814

01/14/97 14:51 ☎509 372 2929 MESTINGHOUSE →→→ MO-924 2004 ☑013

Identity 1: s96t005893 Identity 2: .25ml-9.75ml 2:19 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.125	0.113	0.140	3.152	62.725	0.452	-0.014	-0.024
S.D.	0.073	0.011	0.342	0.176	0.329	0.099	0.019	0.021
% R.S.D.	58.873	10.046	244.631	5.575	0.524	21.844	131.801	86.199

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.210	3.034	0.158	2.612	0.648	38.976	0.007	1.601
S.D.	0.018	0.036	0.052	0.194	0.007	0.199	0.140	3.646
% R.S.D.	8.684	1.193	33.287	7.432	1.048	0.512	2030.974	227.799

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-1.046	1.557	0.008	5.964	14.450	0.073	0.034	666.481
S.D.	1.234	0.448	0.018	0.606	0.421	0.006	0.237	3.688
% R.S.D.	117.972	28.776	238.616	10.158	2.911	7.545	706.946	0.553

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	0.056	4.188	0.031	0.041	0.045	0.074	0.082	15388.299
S.D.	0.063	0.496	0.054	0.505	0.039	0.033	0.023	88.860
% R.S.D.	113.558	11.849	174.417	1221.675	86.756	44.620	28.292	0.577

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.434	-1.844	0.007	0.028	0.454
S.D.	0.020	1.176	0.050	0.006	1.373
% R.S.D.	4.562	63.818	726.392	22.442	302.172

01/14/97 14:52 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W ☑014

Identity 1: s96t005893_D Identity 2: .25ml-9.75ml 2:22 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.086	0.072	0.122	3.057	66.322	0.052	-0.083	-0.073
S.D.	0.037	0.004	0.323	0.125	0.180	0.099	0.010	0.012
% R.S.D.	43.505	4.918	265.923	4.080	0.271	189.395	12.129	16.637

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.082	2.375	0.192	1.461	0.495	31.328	-0.671	0.101
S.D.	0.017	0.101	0.080	0.138	0.004	0.342	0.328	1.463
% R.S.D.	21.325	4.269	41.982	9.422	0.908	1.091	48.891	1442.454

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-4.218	1.108	-0.044	3.730	9.732	0.051	-0.078	668.948
S.D.	0.621	0.202	0.007	0.693	0.258	0.000	0.355	3.077
% R.S.D.	14.716	18.238	15.927	18.574	2.656	0.000	453.523	0.460

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	0.058	3.585	-0.105	-0.633	0.002	0.041	-0.003	15380.717
S.D.	0.051	0.489	0.027	0.236	0.012	0.044	0.017	53.809
% R.S.D.	87.970	13.641	25.902	37.224	631.182	106.330	622.325	0.350

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.274	-1.670	-0.207	0.018	-1.409
S.D.	0.000	0.997	0.048	0.005	0.438
% R.S.D.	0.065	59.682	23.188	29.521	31.109

01/14/97 14:53 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W 015

Identity 1: s96t005894 Identity 2: .25ml-9.75ml 2:26 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.144	0.176	0.293	3.452	60.267	0.113	-0.027	-0.037
S.D.	0.088	0.005	0.462	0.154	0.489	0.099	0.025	0.010
% R.S.D.	61.384	3.055	157.691	4.448	0.811	87.773	92.290	26.884

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.218	5.426	0.403	6.374	1.047	50.250	-0.132	3.754
S.D.	0.003	0.043	0.081	0.059	0.003	0.188	0.189	2.475
% R.S.D.	1.596	0.799	20.080	0.931	0.281	0.375	143.731	65.925

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-3.393	2.053	-0.020	3.195	12.729	0.105	-0.017	702.170
S.D.	1.010	0.370	0.013	0.419	0.434	0.006	0.145	1.924
% R.S.D.	29.784	18.002	67.206	13.103	3.410	5.253	877.609	0.274

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	0.023	4.375	0.026	-0.685	0.128	0.214	-0.062	22746.713
S.D.	0.021	1.215	0.029	0.068	0.027	0.026	0.025	55.183
% R.S.D.	90.665	27.763	109.296	9.959	21.232	12.128	40.264	0.243

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.873	-1.502	-0.125	0.025	-1.783
S.D.	0.026	0.892	0.032	0.006	1.287
% R.S.D.	3.003	59.421	25.815	24.127	72.156

01/14/97 14:54 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W 図016

Identity 1: s96t005894_D Identity 2: .25ml-9.75ml 2:29 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 40.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	-0.035	0.176	-0.655	4.832	72.941	0.590	0.059	0.017
S.D.	0.069	0.007	0.265	0.238	0.841	0.198	0.028	0.028
% R.S.D.	194.832	4.163	40.425	4.915	1.153	33.513	47.140	164.956

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.896	3.811	0.155	8.111	1.547	59.244	0.322	-6.054
S.D.	0.010	0.104	0.092	0.133	0.011	0.372	0.451	4.707
% R.S.D.	1.165	2.724	59.630	1.642	0.686	0.628	139.925	77.749

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	0.654	0.645	0.033	11.471	15.477	0.118	0.111	787.064
S.D.	1.503	0.712	0.020	0.393	0.177	0.000	0.258	7.923
% R.S.D.	229.995	110.436	60.237	3.424	1.141	0.001	232.518	1.007

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	0.135	7.421	0.127	0.762	-0.042	0.288	-0.019	15814.882
S.D.	0.051	0.808	0.061	0.272	0.029	0.019	0.054	112.483
% R.S.D.	38.118	10.888	48.088	35.691	67.875	6.602	286.447	0.711

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	1.021	-1.346	0.116	0.016	0.237
S.D.	0.007	0.438	0.052	0.005	1.769
% R.S.D.	0.693	32.513	44.572	29.992	746.690

Identity 1: ICSA Identity 2: Quality Control 2:32 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.006	0.002	-0.030	-0.029	202.544	0.006	-0.001	-0.000
S.D.	0.001	0.000	0.010	0.005	2.002	0.002	0.000	0.000
% R.S.D.	24.518	4.619	34.962	16.011	0.989	39.239	48.488	56.179

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.006	0.011	0.015	93.280	101.713	-0.001	-0.076	0.126
S.D.	0.000	0.001	0.002	0.178	0.350	0.002	0.007	0.061
% R.S.D.	6.247	13.288	13.325	0.191	0.344	195.817	9.421	48.322

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.013	0.022	0.001	0.049	0.049	104.208	0.027	190.807
S.D.	0.016	0.007	0.000	0.008	0.005	0.720	0.018	1.606
% R.S.D.	122.606	33.569	17.770	15.536	10.322	0.691	66.572	0.841

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.008	0.007	0.002	-0.027	0.001	0.003	0.015	0.577
S.D.	0.002	0.005	0.001	0.003	0.001	0.001	0.001	0.026
% R.S.D.	24.529	63.867	59.043	11.273	77.633	33.428	9.056	4.530

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.002	0.001	0.000	0.003	0.026
S.D.	0.000	0.014	0.001	0.000	0.023
% R.S.D.	8.268	2779.933	506.070	4.305	86.987

Identity 1: ICSAB Identity 2: Quality Control 2:35 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.004	0.002	-0.028	-0.044	202.174	0.509	0.504	0.947
S.D.	0.001	0.000	0.006	0.004	1.047	0.003	0.001	0.004
% R.S.D.	23.082	5.455	20.061	8.775	0.518	0.564	0.260	0.416

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	1.031	0.976	0.016	95.735	101.503	0.485	-0.093	0.087
S.D.	0.005	0.004	0.004	0.173	0.265	0.003	0.002	0.028
% R.S.D.	0.449	0.414	25.031	0.181	0.261	0.601	2.468	32.370

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.105	0.034	0.519	0.018	0.072	107.732	0.029	196.129
S.D.	0.014	0.007	0.001	0.011	0.006	0.574	0.004	0.978
% R.S.D.	12.893	20.539	0.273	62.530	8.956	0.533	14.548	0.499

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.010	0.069	1.024	0.964	0.001	0.994	0.015	0.367
S.D.	0.001	0.020	0.002	0.024	0.001	0.002	0.001	0.004
% R.S.D.	9.963	29.195	0.201	2.491	74.762	0.159	8.423	1.169

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	0.489	0.096	0.510	0.498	-0.091
S.D.	0.001	0.012	0.001	0.001	0.018
% R.S.D.	0.301	12.097	0.238	0.295	19.945

Identity 1: CCV Identity 2: Quality Control 2:39 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	5.083	5.060	5.165	4.867	4.919	4.940	5.180	4.829
S.D.	0.015	0.031	0.052	0.027	0.022	0.014	0.024	0.037
% R.S.D.	0.288	0.606	1.016	0.554	0.453	0.279	0.462	0.773

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	5.001	4.702	4.849	4.837	4.725	4.651	5.025	10.905
S.D.	0.027	0.023	0.016	0.013	0.021	0.012	0.028	0.015
% R.S.D.	0.532	0.496	0.337	0.269	0.435	0.268	0.558	0.141

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	5.210	4.941	5.046	5.057	5.057	4.774	5.034	5.185
S.D.	0.031	0.013	0.031	0.052	0.035	0.024	0.043	0.041
% R.S.D.	0.596	0.257	0.624	1.023	0.689	0.493	0.857	0.796

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	5.021	5.525	4.746	4.841	4.847	4.775	5.008	5.011
S.D.	0.034	0.033	0.014	0.032	0.030	0.023	0.016	0.018
% R.S.D.	0.682	0.604	0.299	0.668	0.622	0.477	0.319	0.365

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	4.759	5.093	5.034	4.966	4.993
S.D.	0.017	0.045	0.017	0.015	0.022
% R.S.D.	0.365	0.879	0.345	0.307	0.435

01/14/97 14:58 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W ⓟ020

Identity 1: CCB Identity 2: Quality Control 2:42 PM January 14, 1997
Task name : OPTIMA
Sample Weight : 1.0000 Solution Volume : 1.00
On-Peak Integrations : 3 Off-Peak Integrations : 1

	Zr (ppm)	Sr (ppm)	Bi (ppm)	Si (ppm)	Al (ppm)	Co (ppm)	Cu (ppm)	Li (ppm)
Mean	0.001	-0.000	-0.003	-0.009	-0.004	-0.003	0.006	-0.001
S.D.	0.002	0.000	0.006	0.003	0.012	0.003	0.001	0.000
% R.S.D.	176.564	62.912	217.013	40.379	317.045	86.515	11.339	51.623

	Zn (ppm)	Ni (ppm)	La (ppm)	Fe (ppm)	Ca (ppm)	Cr (ppm)	Nd (ppm)	U (ppm)
Mean	0.020	0.000	0.006	0.001	0.019	-0.001	-0.011	-0.061
S.D.	0.000	0.001	0.001	0.003	0.000	0.002	0.012	0.102
% R.S.D.	1.177	258.687	24.225	231.972	0.591	352.065	107.760	167.020

	Ce (ppm)	Sm (ppm)	Ba (ppm)	P (ppm)	S (ppm)	Mg (ppm)	As (ppm)	Na (ppm)
Mean	-0.036	-0.011	-0.001	0.012	0.007	0.001	-0.015	0.011
S.D.	0.032	0.016	0.000	0.008	0.005	0.000	0.003	0.008
% R.S.D.	88.130	148.673	75.923	72.408	69.923	18.745	21.385	69.317

	Mo (ppm)	Se (ppm)	Ag (ppm)	Pb (ppm)	Ti (ppm)	Cd (ppm)	B (ppm)	K (ppm)
Mean	-0.003	-0.028	-0.001	-0.002	-0.001	-0.000	0.000	0.088
S.D.	0.002	0.003	0.001	0.005	0.001	0.000	0.001	0.021
% R.S.D.	51.367	10.949	232.451	223.921	105.025	14535.957	491.613	23.428

	Mn (ppm)	Sb (ppm)	V (ppm)	Be (ppm)	Tl (ppm)
Mean	-0.002	0.012	-0.003	0.000	0.008
S.D.	0.000	0.043	0.001	0.000	0.042
% R.S.D.	0.734	372.377	43.916	84.011	534.522

01/14/97 15:00 ☎509 372 2929 WESTINGHOUSE →→→ MO-924 200W ☑021

File #: 970114B.TXT

12/11/96 08:27
A-0004-1

HNF-SD-WM-DP-229, REV. 0

LABCORE Data Entry Template for Worklist# 15517

Analyst: JK 5/6/0 **Instrument:** ICP01-2 JK 1-14-97 **Book#** 65848B

Method: LA-505-~~151~~/161 Rev/Mod B-1

JK 1-14-97

Worklist Comment: ICP BY-112 (FUSION)

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	ICV				@ICP-QC	QC		
2	ICB				@ICP-QC	QC		
3	LLS				@ICP-QC	QC		
4	ICSA				@ICP-QC	QC		
5	ICSAB				@ICP-QC	QC		
6	PREPBLKTJA				@ICP-F01	SOLID		
7	SERDIL	S96T005895	0	F	@ICP-F01	SOLID		
8	SAMPLE	S96T005895	0	F	@ICP-F01	SOLID	96001393	BY-112
	Analytes Requested:	AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01						
9	DUP	S96T005895	0	F	@ICP-F01	SOLID		
10	SPK 1ppm SPK 10ppm	S96T005895	0	F	@ICP-F01	SOLID		
11	CCV				@ICP-QC	QC		
12	CCB				@ICP-QC	QC		
13	SAMPLE	S96T005896	0	F	@ICP-F01	SOLID	96001393	BY-112
	Analytes Requested:	AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 ,						

Data Entry Comments: Sample result calculation,

S96T005895 $Al = 63.40\ \frac{ug}{ml} \times \frac{1}{1.9956\ \frac{g}{L} \times \frac{1L}{1000ml}} = 3.18e+4\ \frac{ug}{g}$

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

LABCORE Data Entry Template for Worklist# 15517

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
					SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01			
14	DUP	S96T005896	0	F	@ICP-F01	SOLID		
15	ICSA				@ICP-QC	QC		
16	ICSAB				@ICP-QC	QC		
17	CCV				@ICP-QC	QC		
18	CCB				@ICP-QC	QC		

Final page for worklist # 15517

JK 01-14-97
Analyst Signature **Date**

Reviewed by:
Sam M. Parong 1/15/97
Analyst Signature **Date**

Prep blk TIQ, 25-10 ml
S96T005885_L, 25-10-2-8, JF 205
S96T005885 , 25-10 41
S96T005885_D , 25-10 41
S96T005885_Q , 25-10 41, 25 ml sample + 1.025 ml SITS + 7.85 ml HNO_3
S96T005885_QX , 25-10 41, 25 ml sample + 1,025 ml each WHC142 + 7.85 ml HNO_3
S96T005896 , 25-10 JF 41
S96T005896_D , 25-10 41

Post Spike:

$$Na = \frac{\left(\frac{950.0}{41}\right) - \left(\frac{601.0}{41}\right)}{10} \times 100 = 85.1\%$$

Data Entry Comments: Spike recovery calculation:

S96T005895 $Al = \frac{\left(\frac{104.9}{41}\right) - \left(\frac{63.4}{41}\right)}{1} \times 100 = 101.2\%$

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

Analysis Report Summary Tue 01-14-97 01:37:49 PM page 1

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	970114B	ICP2	01/14/97	12:18	DKS	Q	CONC
2	ICB	970114B	ICP2	01/14/97	12:23	DKS	Q	CONC
3	LLS	970114B	ICP2	01/14/97	12:26	DKS	Q	CONC
4	ICSA	970114B	ICP2	01/14/97	12:28	DKS	Q	CONC
5	ICSAB	970114B	ICP2	01/14/97	12:32	DKS	Q	CONC
6	PREPBLKTJA	970114B	ICP2	01/14/97	12:46	DKS	S	CONC
7	S96T005895_L	970114B	ICP2	01/14/97	12:49	DKS	S	CONC
8	S96T005895	970114B	ICP2	01/14/97	12:52	DKS	S	CONC
9	S96T005895_D	970114B	ICP2	01/14/97	12:55	DKS	S	CONC
10	S96T005895_A	970114B	ICP2	01/14/97	12:59	DKS	S	CONC
11	S96T005895_AX	970114B	ICP2	01/14/97	13:03	DKS	S	CONC
12	CCV	970114B	ICP2	01/14/97	13:07	DKS	Q	CONC
13	CCB	970114B	ICP2	01/14/97	13:13	DKS	Q	CONC
14	S96T005896	970114B	ICP2	01/14/97	13:16	DKS	S	CONC
15	S96T005896_D	970114B	ICP2	01/14/97	13:19	DKS	S	CONC
16	ICSA	970114B	ICP2	01/14/97	13:23	DKS	Q	CONC
17	ICSAB	970114B	ICP2	01/14/97	13:26	DKS	Q	CONC
18	CCV_1	970114B	ICP2	01/14/97	13:30	DKS	Q	CONC
19	CCB_1	970114B	ICP2	01/14/97	13:34	DKS	Q	CONC

DK
01-14-97
BY-112
Worklist # 15517

S96T005895
S96T005896

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 505 TO 508

Analysis Report *Averages* *Tue 01-14-97 01:37:49 PM* *page 2*

#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.876	4.874	5.172	5.108	4.893	5.084
2	ICB	.0012	.0040	-.0109	.0035	.0001	.0000
3	LLS	.0214	.1001	.2146	.1026	.0971	.0102
4	ICSA	.0041	245.1	-.0188	-.0007	.0020	.0002
5	ICSAB	.9489	241.4	-.0130	-.0041	.4675	.4785
6	PREPBLKTJA	.0018	.0083	.0075	-.0061	.0003	.0002
7	S96T005895_L	.1416	65.00	.1922	-.3068	.0290	.0365
8	S96T005895	.0375	63.40	-.0459	-.0772	.0244	.0108
9	S96T005895_D	.1083	60.00	-.1300	.1282	.0737	.0108
10	S96T005895_A	37.44	104.9	42.83	41.82	39.77	41.59
11	S96T005895_AX	365.7	451.2	415.7	398.8	401.0	415.2
12	CCV	4.843	4.841	5.130	5.117	4.860	5.034
13	CCB	.0059	.0011	.0096	-.0020	.0001	.0000
14	S96T005896	.0284	53.83	.0833	.0820	.0122	.0111
15	S96T005896_D	.1115	52.92	.0292	.0204	.0175	.0074
16	ICSA	.0045	242.4	-.0455	-.0040	.0020	.0002
17	ICSAB	.9544	242.9	.0006	-.0039	.4718	.4817
18	CCV_1	4.886	4.919	5.193	5.200	4.980	5.163
19	CCB_1	.0013	-.0001	.0050	.0045	.0000	.0000

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	5.088	4.961	5.017	5.019	5.149	4.985
2	ICB	.0131	.0018	.0002	.0087	-.0005	.0007
3	LLS	.1934	.1975	.0106	.2077	.0424	.0199
4	ICSA	-.0019	247.4	.0006	.0211	-.0005	.0093
5	ICSAB	-.0118	244.3	.9240	.0171	.4695	.4735
6	PREPBLKTJA	.0154	.0014	.0003	.0060	-.0012	.0002
7	S96T005895_L	.9941	-.1257	.0209	-.6505	.1675	7.827
8	S96T005895	-.1377	1.460	.0078	-.0464	.1590	7.650
9	S96T005895_D	.2499	.4404	.0397	.2515	.0751	6.690
10	S96T005895_A	40.94	40.75	41.14	41.49	42.04	48.72
11	S96T005895_AX	404.8	403.8	399.7	408.2	.8027	410.9
12	CCV	4.962	4.908	4.936	4.977	5.076	4.927
13	CCB	.0011	.0031	.0007	.0026	.0002	-.0001
14	S96T005896	-.0329	-.1492	.0240	-.3461	.1308	18.32
15	S96T005896_D	-.3693	.1068	.0633	.2020	.0185	18.22
16	ICSA	-.0133	246.9	.0010	.0184	-.0017	.0092
17	ICSAB	-.0274	246.3	.9314	.0180	.4727	.4779
18	CCV_1	5.092	4.936	5.009	5.077	5.135	4.989
19	CCB_1	-.0031	.0016	-.0006	.0007	.0008	.0003

#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	5.350	-.0011	5.023	5.101	4.951	4.830
2	ICB	.0005	-.0007	-.0000	-.0862	.0023	-.0004
3	LLS	.0217	.0001	.1027	.3852	.1006	.0213
4	ICSA	-.0096	-.0190	94.13	.2214	-.0028	.0025
5	ICSAB	.4880	-.0151	92.79	.0115	-.0037	1.014
6	PREPBLKTJA	.0012	-.0009	-.0002	316.0	.0017	-.0005
7	S96T005895_L	.2417	-.3078	14.42	10920.	.1258	-.1960

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#	Sample Name	Cu	Eu	Fe	K	La	Li
8	S96T005895	.0441	-.0103	14.42	10730.	.0081	.0245
9	S96T005895_D	.0833	.0053	12.66	14740.	.0500	.0492
10	S96T005895_A	44.28	-.0468	55.96	11020.	40.89	40.00
11	S96T005895_AX	-.1634	.1441	414.0	11300.	402.4	404.2
12	CCV	5.315	-.0015	4.959	5.074	4.894	4.844
13	CCB	-.0002	-.0006	.0002	-.2299	.0020	-.0002
14	S96T005896	.1018	.0010	.8914	15290.	-.0412	.0297
15	S96T005896_D	.0342	-.0095	1.033	12070.	.0774	.0247
16	ICSA	-.0103	-.0203	93.36	.2005	-.0026	.0022
17	ICSAB	.4915	-.0174	93.36	.1415	-.0033	1.023
18	CCV_1	5.467	-.0022	5.021	5.334	5.023	4.987
19	CCB_1	.0003	-.0006	.0007	-.1162	.0006	-.0001

#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	5.041	4.905	5.154	5.175	4.974	4.986
2	ICB	.0048	-.0002	.0010	-.0109	.0014	.0117
3	LLS	.2115	.0193	.0977	.2071	.1995	.0376
4	ICSA	260.2	-.0072	-.0091	203.3	.0056	-.0009
5	ICSAB	255.5	.4371	-.0090	197.4	.0045	.9202
6	PREPBLKTJA	.0091	.0010	.0006	1.901	.0026	.0620
7	S96T005895_L	1.367	-.0600	-.1163	554.6	.1035	8.871
8	S96T005895	.1467	.0481	.1230	541.2	.0578	9.143
9	S96T005895_D	.4360	.0807	.0647	514.2	.0922	15.15
10	S96T005895_A	41.54	39.20	42.50	601.6	41.08	49.44
11	S96T005895_AX	407.3	397.6	395.8	950.0	406.3	402.7
12	CCV	5.005	4.853	5.102	5.155	4.927	4.908
13	CCB	.0128	-.0001	-.0000	-.0087	.0007	.0044
14	S96T005896	-.1447	.1851	.1561	537.2	.2491	1.504
15	S96T005896_D	.5276	.1643	.1783	542.0	.0576	3.070
16	ICSA	256.9	-.0072	-.0086	195.5	.0069	.0045
17	ICSAB	257.2	.4393	-.0141	198.5	.0060	.9128
18	CCV_1	5.075	4.895	5.169	5.266	5.060	4.977
19	CCB_1	.0021	-.0002	-.0006	-.0131	.0022	.0021

#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.222	4.896	5.124	4.927	4.771	4.934
2	ICB	-.0156	.0048	-.0131	.0057	-.0092	-.0032
3	LLS	.4039	.2048	.1878	.1048	.1910	.1741
4	ICSA	.0150	.0272	.0036	-.0052	-.0530	.0073
5	ICSAB	.0052	.9748	-.0344	.0092	-.0476	-.0075
6	PREPBLKTJA	-.0139	-.0043	-.0141	.0083	-.0237	.0000
7	S96T005895_L	-1.185	1.894	84.68	1.625	-2.671	8.880
8	S96T005895	.6603	-.0915	86.70	.2439	-.1393	10.80
9	S96T005895_D	.5864	.3887	79.37	.0081	-.0133	9.589
10	S96T005895_A	44.44	40.33	130.8	40.31	39.70	51.87
11	S96T005895_AX	419.4	408.0	495.5	401.3	393.2	415.4
12	CCV	5.172	4.836	5.050	4.852	4.676	4.887
13	CCB	-.0100	.0039	-.0086	.0118	-.0057	-.0060
14	S96T005896	2.219	1.191	21.10	.3172	.1200	1.648
15	S96T005896_D	2.696	-.0943	18.34	.1645	.1370	1.598

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#	Sample Name	P	Pb	S	Sb	Se	Si
16	ICSA	.0093	.0347	-.0352	.0000	-.0249	-.0066
17	ICSAB	.0129	.9806	-.0356	.0098	-.0528	-.0082
18	CCV_1	5.233	4.850	5.115	4.920	4.781	4.934
19	CCB_1	-.0125	.0069	-.0084	.0081	-.0014	-.0058

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	4.884	4.911	.0382	4.969	4.871	9.735
2	ICB	-.0114	-.0001	.0044	.0010	.0103	-.0417
3	LLS	.1982	.0198	.0006	.0204	.4072	.4909
4	ICSA	-.0074	.0016	.0026	.0012	-.0132	.0779
5	ICSAB	-.0109	.0016	.0111	.0012	.0142	.0739
6	PREPBLKTJA	-.0120	.0011	.0107	.0008	.0148	-.1433
7	S96T005895_L	-4.109	-.0093	1.414	.1073	2.172	-14.73
8	S96T005895	-.0846	.0679	.2194	.0303	-.1926	1.113
9	S96T005895_D	.0435	.0851	.2627	.0312	.3997	.0270
10	S96T005895_A	39.83	40.50	.6856	41.04	39.82	80.08
11	S96T005895_AX	392.5	395.9	1.802	362.7	385.1	32.63
12	CCV	4.837	4.865	.0244	4.912	4.844	9.699
13	CCB	-.0087	-.0002	.0065	.0010	.0020	-.0359
14	S96T005896	-.0448	.0747	-.0271	.0617	.3275	-3.174
15	S96T005896_D	-.0139	.0577	.3480	.0329	.4396	-2.804
16	ICSA	-.0098	.0016	.0116	.0010	.0095	.0629
17	ICSAB	-.0128	.0016	.0066	.0012	-.0285	.0554
18	CCV_1	4.965	5.000	.0337	5.027	4.901	9.903
19	CCB_1	-.0091	-.0002	.0037	.0008	.0096	-.0408

#	Sample Name	V	Y	Zn	Zr
1	ICV	5.105	.0057	5.227	5.039
2	ICB	-.0020	-.0007	-.0013	-.0021
3	LLS	.1024	.0003	.0217	.0204
4	ICSA	-.0028	.0062	.0041	-.0046
5	ICSAB	.4665	.0061	.9626	-.0060
6	PREPBLKTJA	-.0024	-.0008	-.0004	-.0028
7	S96T005895_L	-.8180	-.2509	-.1471	-.5988
8	S96T005895	-.0210	-.0165	-.0151	-.0033
9	S96T005895_D	-.0035	-.0097	.0737	.0089
10	S96T005895_A	41.78	.0142	42.83	41.15
11	S96T005895_AX	.3610	.5744	-1.222	405.0
12	CCV	5.057	.0056	5.175	4.975
13	CCB	-.0014	-.0006	.0002	-.0019
14	S96T005896	.0206	-.0083	.0082	.0189
15	S96T005896_D	-.0040	-.0117	-.0020	-.0237
16	ICSA	-.0010	.0063	.0035	-.0049
17	ICSAB	.4710	.0062	.9673	-.0057
18	CCV_1	5.141	.0050	5.209	5.082
19	CCB_1	-.0020	-.0007	-.0010	-.0020

JK SdB
01-14-97

12/11/96 08:28
A-0004-1

File #: 970115Q.TXT

HNF-SD-WM-DP-229, REV. 0

LABCORE Data Entry Template for Worklist# 15518

Analyst: JK 5670 **Instrument:** ICP01-2 JK 1-14-97 **Book#** 65848

Method: LA-505-~~151~~/161 Rev/Mod B-1

Worklist Comment: JK 1-14-97 ICP BY-112 (FUSION)

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	ICV				@ICP-QC	QC		
2	ICB				@ICP-QC	QC		
3	LLS				@ICP-QC	QC		
4	ICSA				@ICP-QC	QC		
5	ICSAB				@ICP-QC	QC		
6	PREPBLKTJA				@ICP-F01	SOLID		
7	SERDIL	S96T005929	0	F	@ICP-F01	SOLID		
8	SAMPLE	S96T005929	0	F	@ICP-F01	SOLID	96001466	BY-112
	Analytes Requested:	AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01						
9	DUP	S96T005929	0	F	@ICP-F01	SOLID		
10	SPK 1ppm Spike QX 10ppm	S96T005929	0	F	@ICP-F01	SOLID		
		JK 1-14-97						
11	CCV				@ICP-QC	QC		
12	CCB				@ICP-QC	QC		
13	SAMPLE	S96T005930	0	F	@ICP-F01	SOLID	96001466	BY-112
	Analytes Requested:	AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 ,						

Data Entry Comments: Sample result calculation:

S96T005929 $Al = 22.82 \frac{ug}{ml} \times \frac{1}{2.0612 \frac{g}{L} \times \frac{1L}{1000ml}} = 1.11e+4 \frac{ug}{g}$

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

LABCORE Data Entry Template for Worklist# 15518

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
					SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01			
14	DUP	S96T005930	0	F	@ICP-F01	SOLID		
15	SAMPLE	S96T005931	0	F	@ICP-F01	SOLID	96001466	BY-112
		Analytes Requested:			AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01			
16	DUP	S96T005931	0	F	@ICP-F01	SOLID		
17	ICSA				@ICP-QC	QC		
18	ICSAB				@ICP-QC	QC		
19	CCV				@ICP-QC	QC		
20	CCB				@ICP-QC	QC		

Final page for worklist # 15518

JK Lato 01-15-97
Analyst Signature **Date**

Reviewed by:
S. M. Barney 1/15/97
Analyst Signature **Date**

PrepBlkICP, 25-10
S96T005929_L, 25-10-28, JF 205
S96T005929, 25-10, 41
S96T005929D, 25-10, 41
S96T005929_Q, 25-10, 41, .25ml sample + 1.025ml SSTS + 7.85ml HNO3
S96T005929_QX, 25-10, 41, .25ml sample + 1.025ml each DUK 142 + 7.85ml HNO3
S96T005930, 25-10, 41
S96T005930D, 25-10, 41
S96T005931, 25-10, 41
S96T005931D, 25-10, 41

Data Entry Comments: Spike recovery calculation.

S96T005929 $Al = \frac{\left(\frac{60.94}{41}\right) - \left(\frac{22.82}{41}\right)}{1} \times 100 = 93.0\%$

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

Analysis Report Summary Wed 01-15-97 09:52:55 AM page 1

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	970115A	ICP2	01/15/97	08:41	DKS	Q	CONC
2	ICB	970115A	ICP2	01/15/97	08:44	DKS	Q	CONC
3	LLS	970115A	ICP2	01/15/97	08:47	DKS	Q	CONC
4	ICSA	970115A	ICP2	01/15/97	08:50	DKS	Q	CONC
5	ICSAB	970115A	ICP2	01/15/97	08:53	DKS	Q	CONC
6	PREPBLKTJA	970115A	ICP2	01/15/97	08:58	DKS	S	CONC
7	S96T005929_L	970115A	ICP2	01/15/97	09:01	DKS	S	CONC
8	S96T005929	970115A	ICP2	01/15/97	09:04	DKS	S	CONC
9	S96T005929_D	970115A	ICP2	01/15/97	09:06	DKS	S	CONC
10	S96T005929_A	970115A	ICP2	01/15/97	09:10	DKS	S	CONC
11	S96T005929_AX	970115A	ICP2	01/15/97	09:13	DKS	S	CONC
12	CCV	970115A	ICP2	01/15/97	09:17	DKS	Q	CONC
13	CCB	970115A	ICP2	01/15/97	09:23	DKS	Q	CONC
14	S96T005930	970115A	ICP2	01/15/97	09:25	DKS	S	CONC
15	S96T005930_D	970115A	ICP2	01/15/97	09:29	DKS	S	CONC
16	S96T005931	970115A	ICP2	01/15/97	09:32	DKS	S	CONC
17	S96T005931_D	970115A	ICP2	01/15/97	09:35	DKS	S	CONC
18	ICSA	970115A	ICP2	01/15/97	09:40	DKS	Q	CONC
19	ICSAB	970115A	ICP2	01/15/97	09:42	DKS	Q	CONC
20	CCV_1	970115A	ICP2	01/15/97	09:46	DKS	Q	CONC
21	CCB_1	970115A	ICP2	01/15/97	09:50	DKS	Q	CONC

DK
01-15-97
BY-112
Worklist # 15518

S96T005929
S96T005930
S96T005931

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 511 TO 515.

Analysis Report Averages Wed 01-15-97 09:52:55 AM page 2

#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.886	4.889	5.170	5.159	4.952	5.095
2	ICB	-.0011	-.0081	-.0145	.0015	.0001	-.0001
3	LLS	.0211	.1027	.2110	.1075	.1002	.0101
4	ICSA	-.0004	244.4	-.0390	-.0034	.0018	.0000
5	ICSAB	.9605	243.9	-.0303	-.0043	.4814	.4841
6	PREPBLKTJA	-.0003	-.0014	-.0042	-.0052	.0003	-.0002
7	S96T005929_L	-.1808	22.08	.3492	.5287	.0395	-.0277
8	S96T005929	-.0433	22.82	-.4682	.0438	.0428	.0022
9	S96T005929_D	-.0137	29.63	-.3835	-.1029	.0511	-.0053
10	S96T005929_A	17.81	60.94	41.70	40.02	38.86	39.98
11	S96T005929_AX	330.2	382.4	395.7	372.2	374.8	385.3
12	CCV	4.810	4.700	5.072	4.923	4.804	4.915
13	CCB	-.0002	-.0162	-.0077	.0031	.0000	-.0001
14	S96T005930	.0538	2.696	-.9462	.1069	.0228	-.0038
15	S96T005930_D	.0112	2.416	-.9099	.1487	.0157	.0037
16	S96T005931	-.0103	3.938	-.7272	.0434	.0192	-.0018
17	S96T005931_D	.0419	2.974	-.6054	-.1044	.0202	-.0018
18	ICSA	.0004	237.1	-.0343	.0065	.0017	.0001
19	ICSAB	.9441	236.9	-.0447	-.0058	.4662	.4735
20	CCV_1	4.831	4.793	5.145	5.066	4.886	5.043
21	CCB_1	-.0026	-.0116	-.0206	-.0010	.0000	-.0000

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	5.049	4.960	5.018	5.048	5.155	4.998
2	ICB	.0249	-.0001	.0002	-.0040	-.0010	.0004
3	LLS	.2085	.1988	.0119	.2069	.0430	.0220
4	ICSA	-.0096	248.0	.0006	.0131	-.0002	.0089
5	ICSAB	.0256	251.2	.9459	.0113	.4814	.4866
6	PREPBLKTJA	.0289	-.0018	.0027	.0016	-.0012	.0005
7	S96T005929_L	6.435	-.7925	.4201	-.3942	.4671	9.905
8	S96T005929	1.552	.4607	.1878	-.3444	.0538	9.678
9	S96T005929_D	.8587	.4051	.1939	-.1763	.0964	9.680
10	S96T005929_A	42.54	41.71	41.11	39.43	41.61	50.35
11	S96T005929_AX	385.1	399.0	387.3	380.8	.7328	399.4
12	CCV	5.022	4.995	4.978	4.885	5.106	4.950
13	CCB	.0073	-.0002	.0013	-.0093	-.0004	-.0007
14	S96T005930	.7945	.6842	.0475	.2387	-.0253	13.33
15	S96T005930_D	1.274	.6427	.0426	-.0375	.1332	13.47
16	S96T005931	1.081	.8320	.1524	-.0051	.1491	21.48
17	S96T005931_D	1.752	.4917	.1135	.0379	-.0212	17.02
18	ICSA	.0189	251.1	.0021	.0130	-.0006	.0098
19	ICSAB	.0445	250.6	.9352	.0201	.4778	.4837
20	CCV_1	4.997	4.997	4.986	4.959	5.125	4.988
21	CCB_1	.0240	-.0030	-.0003	-.0182	.0008	.0001

Analysis Report Averages Wed 01-15-97 09:52:55 AM page 3

#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	5.381	-.0024	5.030	5.150	4.978	4.882
2	ICB	.0002	.0005	-.0009	.1272	-.0002	.0005
3	LLS	.0214	.0006	.1033	.4543	.1007	.0208
4	ICSA	-.0111	-.0290	94.44	.1797	-.0055	.0021
5	ICSAB	.4925	-.0318	94.56	.0369	-.0065	1.020
6	PREPBLKTJA	.0005	.0009	-.0005	349.2	-.0002	.0007
7	S96T005929_L	.2941	.1945	6.364	17870.	-.1224	.1507
8	S96T005929	.0686	.0384	6.417	17660.	-.0856	.0303
9	S96T005929_D	.0674	.0782	7.314	16510.	-.0634	.0804
10	S96T005929_A	41.80	.0804	46.67	17590.	39.53	37.11
11	S96T005929_AX	-.2070	.2395	386.3	17310.	375.5	357.6
12	CCV	5.134	-.0002	4.923	4.799	4.828	4.520
13	CCB	-.0001	.0032	-.0019	.0104	-.0019	.0029
14	S96T005930	.0230	.1375	1.271	12340.	.0210	.1405
15	S96T005930_D	.0729	.1405	1.210	14220.	-.0181	.1505
16	S96T005931	.0798	.1364	1.703	14090.	-.0042	.1455
17	S96T005931_D	-.0156	.0913	1.376	15010.	.0235	.0954
18	ICSA	-.0107	-.0404	93.21	.1928	-.0055	.0045
19	ICSAB	.4744	-.0373	93.00	.3455	-.0040	.9676
20	CCV_1	5.270	-.0009	4.963	5.002	4.909	4.709
21	CCB_1	-.0007	.0016	-.0023	-.2635	-.0026	.0021

#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	5.046	4.910	5.174	5.199	5.013	4.984
2	ICB	-.0054	.0001	-.0013	.0040	.0003	.0029
3	LLS	.2105	.0199	.0990	.2210	.2025	.0384
4	ICSA	258.7	-.0070	-.0109	196.9	.0028	-.0016
5	ICSAB	257.2	.4482	-.0089	197.7	.0047	.9257
6	PREPBLKTJA	-.0010	.0017	-.0006	2.158	.0016	.1611
7	S96T005929_L	-.3830	.1566	-.4454	546.4	1.257	5.880
8	S96T005929	-.4864	.1324	-.0763	536.1	.1182	7.278
9	S96T005929_D	-.0949	.1429	.0065	546.7	.2145	7.335
10	S96T005929_A	38.67	38.99	42.19	571.3	39.56	50.17
11	S96T005929_AX	376.8	381.5	387.9	871.1	374.4	388.0
12	CCV	4.823	4.853	5.089	4.907	4.804	4.937
13	CCB	-.0135	.0012	-.0028	.0293	.0023	.0073
14	S96T005930	.1079	.1950	-.0196	706.7	.1684	4.596
15	S96T005930_D	-.4957	.1886	.1202	732.3	.3976	11.10
16	S96T005931	-.2569	.2700	.0611	750.2	.4125	9.859
17	S96T005931_D	.1342	.2225	-.1170	706.2	-.0323	4.915
18	ICSA	251.0	-.0058	-.0107	186.8	.0049	-.0002
19	ICSAB	250.4	.4418	-.0129	189.2	.0083	.9253
20	CCV_1	4.902	4.873	5.141	5.039	4.912	4.945
21	CCB_1	-.0184	.0006	-.0018	.0142	.0001	-.0031

Analysis Report *Averages* *Wed 01-15-97 09:52:55 AM* *page 4*

#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.233	4.905	5.079	4.904	4.805	4.935
2	ICB	-.0078	.0123	.0014	-.0129	.0238	.0057
3	LLS	.4018	.2220	.2018	.0970	.2302	.1830
4	ICSA	.0154	.0371	-.0116	-.0046	-.0010	-.0014
5	ICSAB	-.0123	1.022	-.0361	.0039	.0009	.0010
6	PREPBLKTJA	-.0211	-.0066	-.0170	.0041	.0274	.0333
7	S96T005929_L	77.80	-.8706	2.792	-2.462	5.812	6.977
8	S96T005929	77.95	.0407	3.217	-.2978	1.356	4.310
9	S96T005929_D	81.70	.7620	3.008	.1356	1.744	3.911
10	S96T005929_A	122.6	40.05	45.14	39.36	40.93	44.59
11	S96T005929_AX	480.2	402.7	399.8	392.0	374.5	398.6
12	CCV	5.054	4.888	4.925	4.840	4.712	4.843
13	CCB	-.0157	-.0033	-.0019	-.0100	.0666	.0177
14	S96T005930	16.95	-.0325	5.651	-.3875	2.362	4.688
15	S96T005930_D	8.821	.3663	5.394	.0970	2.867	4.989
16	S96T005931	1.525	.6888	4.889	-.1347	2.580	6.109
17	S96T005931_D	1.265	.0813	4.067	-.2965	2.321	4.272
18	ICSA	-.0074	.0430	-.0348	-.0051	.0222	.0099
19	ICSAB	-.0057	1.006	-.0271	-.0171	.0352	.0078
20	CCV_1	5.104	4.903	5.012	4.870	4.728	4.878
21	CCB_1	-.0038	-.0073	-.0085	-.0179	.0375	.0081

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	4.923	4.940	-.0073	4.979	4.815	9.842
2	ICB	-.0014	.0000	-.0017	-.0000	-.0114	.0170
3	LLS	.2080	.0204	-.0039	.0205	.4087	.5290
4	ICSA	-.0067	.0016	-.0123	.0011	-.0162	.1781
5	ICSAB	-.0005	.0017	-.0002	.0014	-.0218	.1943
6	PREPBLKTJA	.0067	.0016	.0069	-.0002	-.0215	-.0697
7	S96T005929_L	1.778	.1876	-.9160	.1020	-1.692	1.937
8	S96T005929	.2858	.1681	.0238	.0438	-.8499	-3.318
9	S96T005929_D	.8617	.1679	-.2610	.0525	-.7059	-.4914
10	S96T005929_A	39.86	39.18	-.3320	39.88	37.39	78.07
11	S96T005929_AX	363.6	366.3	1.169	347.5	372.3	33.55
12	CCV	4.767	4.757	-.0046	4.837	4.777	9.519
13	CCB	.0379	.0006	-.0127	-.0001	-.0294	.1597
14	S96T005930	1.687	.1740	-.2153	.0301	-.1265	5.390
15	S96T005930_D	1.879	.1850	-.4225	.0505	-.3759	5.053
16	S96T005931	1.793	.2248	-.1962	.0821	-.4103	5.164
17	S96T005931_D	1.222	.2029	-.1923	-.0002	-.2909	2.464
18	ICSA	.0272	.0017	-.0006	.0017	-.0328	.2291
19	ICSAB	.0236	.0017	-.0034	.0022	-.0385	.2134
20	CCV_1	4.828	4.860	-.0073	4.930	4.780	9.688
21	CCB_1	.0189	.0003	-.0137	-.0003	-.0191	.0776

Analysis Report *Averages* *Wed 01-15-97 09:52:55 AM* *page 5*

#	Sample Name	V	Y	Zn	Zr
1	ICV	5.123	.0056	5.230	5.062
2	ICB	.0004	.0001	-.0007	.0008
3	LLS	.1057	.0006	.0230	.0221
4	ICSA	-.0030	.0065	.0041	-.0031
5	ICSAB	.4797	.0067	.9789	-.0034
6	PREPBLKTJA	.0014	.0003	.0002	.0003
7	S96T005929_L	.4292	.0635	.1225	.3643
8	S96T005929	.1536	.0143	.1261	.0606
9	S96T005929_D	.2743	.0388	.1234	.1840
10	S96T005929_A	41.48	.1050	42.74	40.65
11	S96T005929_AX	.9310	.6415	-1.047	391.2
12	CCV	5.020	.0070	5.181	4.938
13	CCB	.0085	.0019	.0003	.0067
14	S96T005930	.3668	.0781	-.0109	.2656
15	S96T005930_D	.3913	.0814	-.0325	.3109
16	S96T005931	.3827	.0846	.0740	.2941
17	S96T005931_D	.2389	.0568	.0728	.1918
18	ICSA	.0047	.0079	.0055	.0004
19	ICSAB	.4764	.0077	.9713	-.0002
20	CCV_1	5.083	.0063	5.205	5.001
21	CCB_1	.0033	.0010	.0000	.0039

JK 1-15-97

01-15-97

12/11/96 08:29
A-0004-1

File #: 970115C.TXT

HNF-SD-WM-DP-229, REV. 0

LABCORE Data Entry Template for Worklist# 15519

Analyst: JK Scito **Instrument:** ICP01 JK 1-15-97 **Book#** 65B48C

Method: LA-505-~~151~~/161 Rev/Mod B-1

Worklist Comment: JK 1-15-97 ICP BY-112 (FUSION)

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	ICV				@ICP-QC	QC		
2	ICB				@ICP-QC	QC		
3	LLS				@ICP-QC	QC		
4	ICSA				@ICP-QC	QC		
5	ICSAB				@ICP-QC	QC		
6	PREPBLKTJA				@ICP-F01	SOLID		
7	SERDIL	S96T005932	0	F	@ICP-F01	SOLID		
8	SAMPLE	S96T005932	0	F	@ICP-F01	SOLID	96001466	BY-112
	Analytes Requested:	AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01						
9	DUP	S96T005932	0	F	@ICP-F01	SOLID		
10	SPK 1 ppm Spike 10 ppm JK 1-15-97	S96T005932	0	F	@ICP-F01	SOLID		
11	CCV				@ICP-QC	QC		
12	CCB				@ICP-QC	QC		
13	SAMPLE	S96T005933	0	F	@ICP-F01	SOLID	96001466	BY-112
	Analytes Requested:	AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 ,						

Data Entry Comments: Sample result calculation:

$$Al = 23.72\ \frac{ug}{L} \times \frac{1}{2.0040\ g \times \frac{1L}{100\ mL}} = 1.182 + 4\ \frac{ug}{g}$$

S96T005932

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

LABCORE Data Entry Template for Worklist# 15519

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
					SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01			
14	DUP	S96T005933	0	F	@ICP-F01	SOLID		
15	SAMPLE	S96T005956	0	F	@ICP-F01	SOLID	96001466	BY-112
		Analytes Requested:			AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01			
16	DUP	S96T005956	0	F	@ICP-F01	SOLID		
17	ICSA				@ICP-QC	QC		
18	ICSAB				@ICP-QC	QC		
19	CCV				@ICP-QC	QC		
20	CCB				@ICP-QC	QC		

Final page for worklist # 15519

JK Sato 01-15-97
Analyst Signature **Date**

Reviewed by: Saul M. Parry 1/16/96
Analyst Signature **Date**

Prepblk TSG, .25-10 ml

S96T005932_L	.25-10-2-8	DF 205	
S96T005932	.25-10	41	
S96T005932_D	.25-10	41	
S96T005932_U	.25-10	41	.25 ml sample + 2.05 ml SSTS + 7.95 ml HNO_3
S96T005932_UX	.25-10	41	.25 ml sample + 1 ml each WHC1+2 + 7.95 ml HNO_3
S96T005933	.25-10	41	
S96T005933_D	.25-10	41	
S96T005956	.25-10	41	
S96T005956_D	.25-10	41	

Data Entry Comments: Spike result calculation:

$$Al = \frac{\left(\frac{60.70}{41}\right) - \left(\frac{23.72}{41}\right)}{1} \times 100 = 90.2\%$$

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

Analysis Report Summary Wed 01-15-97 02:56:13 PM page 1

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	970115C	ICP2	01/15/97	13:23	DKS	Q	CONC
2	ICB	970115C	ICP2	01/15/97	13:26	DKS	Q	CONC
3	LLS	970115C	ICP2	01/15/97	13:29	DKS	Q	CONC
4	ICSA	970115C	ICP2	01/15/97	13:32	DKS	Q	CONC
5	ICSAB	970115C	ICP2	01/15/97	13:34	DKS	Q	CONC
6	PREPBLKTJA	970115C	ICP2	01/15/97	13:38	DKS	S	CONC
7	S96T005932_L	970115C	ICP2	01/15/97	13:42	DKS	S	CONC
8	S96T005932	970115C	ICP2	01/15/97	13:44	DKS	S	CONC
9	S96T005932_D	970115C	ICP2	01/15/97	13:47	DKS	S	CONC
10	S96T005932_A	970115C	ICP2	01/15/97	13:51	DKS	S	CONC
11	S96T005932_AX	970115C	ICP2	01/15/97	13:54	DKS	S	CONC
12	CCV	970115C	ICP2	01/15/97	14:11	DKS	Q	CONC
13	CCB	970115C	ICP2	01/15/97	14:14	DKS	Q	CONC
14	S96T005933	970115C	ICP2	01/15/97	14:17	DKS	S	CONC
15	S96T005933_D	970115C	ICP2	01/15/97	14:20	DKS	S	CONC
16	S96T005956	970115C	ICP2	01/15/97	14:23	DKS	S	CONC
17	S96T005956_D	970115C	ICP2	01/15/97	14:26	DKS	S	CONC
18	ICSA	970115C	ICP2	01/15/97	14:31	DKS	Q	CONC
19	ICSAB	970115C	ICP2	01/15/97	14:33	DKS	Q	CONC
20	CCV_1	970115C	ICP2	01/15/97	14:49	DKS	Q	CONC
21	CCB_1	970115C	ICP2	01/15/97	14:52	DKS	Q	CONC

DK 1.18
01-15-97
BY-112
Worklist # 15519

S96T005932
S96T005933
S96T005956

Post Spike:

$$Na = \frac{\left(\frac{977.6}{41}\right) - \left(\frac{647.7}{41}\right)}{10} \times 100 = 80.5\%$$

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 518 TO 522

Analysis Report Averages Wed 01-15-97 02:56:13 PM page 2

#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.895	4.903	5.160	5.180	4.948	5.102
2	ICB	.0000	.0007	-.0112	.0037	-.0000	-.0001
3	LLS	.0212	.0935	.1938	.0999	.0982	.0102
4	ICSA	.0013	241.5	-.0349	-.0046	.0019	-.0001
5	ICSAB	.9578	243.3	-.0344	.0036	.4770	.4821
6	PREPBLKTJA	-.0015	-.0076	.0098	-.0011	-.0001	-.0001
7	S96T005932_L	.1619	23.28	1.565	.0001	.0197	.0097
8	S96T005932	.1625	23.72	.4429	.0864	.0228	-.0017
9	S96T005932_D	.2011	30.64	.5702	-.0645	.0250	.0020
10	S96T005932_A	36.34	60.70	40.46	39.16	37.67	39.23
11	S96T005932_AX	351.0	388.5	397.4	382.7	375.9	390.3
12	CCV	4.885	4.890	5.139	5.147	4.950	5.079
13	CCB	-.0017	-.0028	-.0140	.0062	.0001	-.0002
14	S96T005933	.1020	31.63	-.2539	.0262	.0264	-.0161
15	S96T005933_D	.0737	30.58	-.2152	.2581	.0201	-.0080
16	S96T005956	-.0005	40.08	.5409	.2111	.0153	.0001
17	S96T005956_D	.0428	42.21	.1758	.0493	.0200	.0001
18	ICSA	.0007	242.2	-.0563	.0014	.0018	.0000
19	ICSAB	.9826	253.1	-.0752	-.0005	.4937	.4982
20	CCV_1	4.846	4.838	5.102	4.964	4.861	5.047
21	CCB_1	.0017	.0055	.0002	.0067	-.0001	-.0001

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	5.068	4.986	5.047	5.065	5.180	5.009
2	ICB	-.0228	.0023	.0002	-.0008	.0022	-.0019
3	LLS	.1804	.1994	.0097	.2011	.0427	.0196
4	ICSA	-.0189	248.2	-.0009	.0138	.0022	.0080
5	ICSAB	-.0028	250.3	.9424	.0034	.4797	.4830
6	PREPBLKTJA	-.0445	-.0022	-.0013	-.0188	.0000	-.0015
7	S96T005932_L	-.0591	.4004	.3547	-.6666	.3618	51.23
8	S96T005932	-1.002	1.240	.2787	.4133	.2612	51.13
9	S96T005932_D	.0594	1.108	.2825	.7649	.1549	51.66
10	S96T005932_A	40.67	41.47	40.41	39.68	41.14	90.18
11	S96T005932_AX	385.6	398.6	390.2	383.6	.8659	439.7
12	CCV	5.024	4.992	5.022	5.062	5.165	5.008
13	CCB	-.0490	.0029	.0001	.0098	.0013	.0004
14	S96T005933	-.0728	1.690	.2544	.3260	.4433	91.46
15	S96T005933_D	-2.966	1.781	.2299	.1259	.3532	86.69
16	S96T005956	-1.217	1.194	.2066	-.0206	.3688	70.23
17	S96T005956_D	-.4681	1.281	.2269	-.0737	.3165	67.39
18	ICSA	-.0369	249.0	.0006	.0376	.0017	.0096
19	ICSAB	-.0496	250.9	.9467	.0191	.4883	.4930
20	CCV_1	5.002	4.968	4.968	4.952	5.021	4.957
21	CCB_1	-.0163	-.0008	.0019	.0034	.0009	.0003

Analysis Report Averages Wed 01-15-97 02:56:13 PM page 3

#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	5.380	-.0036	5.040	5.170	4.992	4.868
2	ICB	-.0015	.0003	-.0003	-.1993	-.0001	-.0005
3	LLS	.0188	.0004	.1035	Q.1576	.1009	.0209
4	ICSA	-.0117	-.0400	93.97	-.1711	-.0042	.0020
5	ICSAB	.4866	-.0399	94.41	-.2432	-.0059	1.010
6	PREPBLKTJA	-.0029	.0002	.0011	301.6	-.0024	-.0004
7	S96T005932_L	-.0658	.1259	2.136	18740.	.0535	.0262
8	S96T005932	-.0130	.0090	2.451	18710.	.0876	-.0050
9	S96T005932_D	-.0458	.0348	2.649	16150.	.1208	.0001
10	S96T005932_A	40.89	.0859	41.94	17930.	38.70	36.48
11	S96T005932_AX	-.2968	.1459	385.4	18030.	377.2	369.9
12	CCV	5.376	-.0066	5.033	5.163	4.993	4.871
13	CCB	.0013	.0003	-.0004	.1794	.0014	.0011
14	S96T005933	.0708	-.0073	10.25	15770.	.0464	.0176
15	S96T005933_D	.0401	-.0177	9.838	14930.	.0415	.0000
16	S96T005956	.0240	-.0439	9.191	15610.	-.0489	-.0350
17	S96T005956_D	.0460	-.0175	9.748	17740.	.0060	-.0175
18	ICSA	-.0115	-.0630	94.61	.2891	-.0027	.0033
19	ICSAB	.5093	-.0572	96.72	.3582	-.0045	1.081
20	CCV_1	5.224	-.0036	4.980	4.840	4.909	4.812
21	CCB_1	.0004	.0007	-.0001	-.2908	.0009	.0006

#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	5.054	4.938	5.189	5.195	5.016	4.980
2	ICB	-.0079	.0001	.0024	.0046	-.0032	-.0001
3	LLS	.2045	.0195	.0989	.2142	.1931	.0398
4	ICSA	256.5	-.0070	-.0083	193.4	.0042	.0002
5	ICSAB	257.8	.4479	-.0078	197.2	.0033	.9212
6	PREPBLKTJA	-.0091	.0010	.0009	1.825	-.0081	.1642
7	S96T005932_L	.6666	.2925	-.1862	649.9	-.3288	16.36
8	S96T005932	.3984	.2793	.0875	647.7	-.0267	15.16
9	S96T005932_D	.4263	.2966	.0666	631.4	-.0299	7.180
10	S96T005932_A	39.03	38.47	41.28	656.4	38.53	54.33
11	S96T005932_AX	384.7	384.2	392.0	977.6	378.3	395.9
12	CCV	5.039	4.938	5.165	5.212	5.041	4.978
13	CCB	.0077	.0000	-.0049	.0096	.0063	-.0025
14	S96T005933	.1975	1.061	-.0779	512.1	.2659	18.51
15	S96T005933_D	.1999	1.017	-.1166	537.1	.0475	12.38
16	S96T005956	-.2366	.9076	-.0479	510.7	.0308	11.82
17	S96T005956_D	.1797	.8666	-.1167	524.1	-.0233	22.04
18	ICSA	257.8	-.0075	-.0089	194.8	.0074	-.0011
19	ICSAB	268.6	.4543	-.0124	208.5	.0065	.9475
20	CCV_1	5.007	4.870	5.045	5.134	4.947	4.909
21	CCB_1	.0087	.0004	.0022	.0065	.0019	.0025

Analysis Report Averages Wed 01-15-97 02:56:13 PM page 4

#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.267	4.905	5.109	4.921	4.763	4.964
2	ICB	-.0037	-.0095	.0017	.0059	-.0020	.0053
3	LLS	.4250	.1880	.2213	.1147	.1964	.1814
4	ICSA	.0145	.0222	-.0168	.0097	-.0265	-.0014
5	ICSAB	.0301	.9936	.0292	.0172	-.0107	-.0043
6	PREPBLKTJA	-.0100	-.0203	.0098	.0010	-.0082	.0073
7	S96T005932_L	-.3318	-1.404	12.59	4.253	-.7062	5.042
8	S96T005932	1.862	.3547	13.39	.4470	.1405	4.210
9	S96T005932_D	2.244	-.3698	13.08	.6752	.7713	2.602
10	S96T005932_A	42.61	40.00	54.54	39.72	39.20	44.58
11	S96T005932_AX	418.6	401.4	418.5	395.2	376.7	407.5
12	CCV	5.162	4.936	5.066	4.901	4.740	4.973
13	CCB	-.0003	-.0154	-.0023	.0085	.0037	.0054
14	S96T005933	4.213	.5342	18.98	.2464	.0436	7.099
15	S96T005933_D	5.866	.7588	21.07	-.5879	.1251	6.460
16	S96T005956	2.621	.8128	11.60	-.1084	-.4980	4.465
17	S96T005956_D	2.604	.5990	11.02	.5643	-.0062	5.839
18	ICSA	-.0037	.0536	-.0158	.0076	-.0188	-.0035
19	ICSAB	.0136	1.000	-.0105	.0052	-.0461	-.0180
20	CCV_1	5.069	4.855	5.014	4.750	4.710	4.936
21	CCB_1	-.0108	.0016	-.0033	-.0097	.0090	.0072

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	4.939	4.949	-.0112	4.993	4.879	9.823
2	ICB	-.0009	.0001	.0010	-.0005	-.0066	.0060
3	LLS	.2054	.0201	-.0083	.0196	.4084	.5195
4	ICSA	.0024	.0016	.0049	.0010	-.0305	.1752
5	ICSAB	-.0016	.0016	-.0067	.0007	-.0140	.1772
6	PREPBLKTJA	-.0023	.0011	-.0052	-.0010	.0092	-.0875
7	S96T005932_L	.6284	.1805	.4377	-.0501	2.764	-.1333
8	S96T005932	.1825	.1627	.5684	.0359	-.3584	-3.683
9	S96T005932_D	.4026	.1602	.7767	.0041	-.0269	-1.010
10	S96T005932_A	39.00	38.18	.2195	38.97	38.70	77.24
11	S96T005932_AX	366.5	369.7	1.018	350.6	369.9	33.40
12	CCV	4.926	4.961	-.0556	4.993	4.896	9.812
13	CCB	.0122	.0001	-.0008	.0006	.0085	.0329
14	S96T005933	.0191	.2385	.6714	.0363	.7734	.4042
15	S96T005933_D	-.1195	.2164	.3151	.0124	.9526	-.1533
16	S96T005956	-.6668	.1674	.4327	.0584	-.5295	-2.308
17	S96T005956_D	-.2003	.1845	.3123	-.0101	.3399	-.6479
18	ICSA	.0088	.0018	-.0022	.0015	-.0012	.3235
19	ICSAB	-.0297	.0016	-.0134	.0020	-.0154	.2303
20	CCV_1	4.846	4.888	-.0047	4.846	4.738	9.546
21	CCB_1	.0146	.0001	.0052	.0003	-.0054	.0554

Analysis Report Averages Wed 01-15-97 02:56:13 PM page 5

#	Sample Name	V	Y	Zn	Zr
1	ICV	5.134	.0056	5.247	5.070
2	ICB	.0004	.0001	-.0012	-.0005
3	LLS	.1040	.0006	.0211	.0217
4	IGSA	-.0005	.0067	.0032	-.0038
5	IGSAB	.4794	.0067	.9753	-.0028
6	PREPBLKTJA	-.0004	-.0001	-.0018	-.0003
7	S96T005932_L	.1179	.0483	-.1834	.0437
8	S96T005932	.0203	.0016	.0516	.0064
9	S96T005932_D	.1023	.0197	.0218	.0037
10	S96T005932_A	40.62	.1183	42.19	39.67
11	S96T005932_AX	.7903	.6159	-1.126	394.7
12	CCV	5.130	.0049	5.227	5.070
13	CCB	.0008	.0005	-.0014	.0012
14	S96T005933	.0290	.0127	.1009	.0308
15	S96T005933_D	.0142	.0001	.1086	.0091
16	S96T005956	-.0742	-.0119	.0747	-.0299
17	S96T005956_D	.0068	.0035	.0828	.0426
18	IGSA	-.0010	.0066	.0048	-.0018
19	IGSAB	.4828	.0054	.9929	-.0067
20	CCV_1	4.993	.0055	5.116	4.926
21	CCB_1	.0020	.0004	.0012	.0014

JK Lee
01-15-97

12/11/96 08:30
A-0004-1

File #: 970117a.TXT

LABCORE Data Entry Template for Worklist# 15521

Analyst: JK Seto **Instrument:** ICP01-2 JK 1-17-97 **Book#** 65848a

Method: LA-505-~~151~~/161 Rev/Mod B-1
JK 1-17-97

Worklist Comment: ICP BY-112 (FUSION)

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	ICV				@ICP-QC	QC		
2	ICB				@ICP-QC	QC		
3	LLS				@ICP-QC	QC		
4	ICSA				@ICP-QC	QC		
5	ICSAB				@ICP-QC	QC		
6	PREPBLKTJA				@ICP-F01	SOLID		
7	SERDIL	S96T005934	0	F	@ICP-F01	SOLID		
8	SAMPLE	S96T005934	0	F	@ICP-F01	SOLID	96001466	BY-112
	Analytes Requested:	AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 , MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01						
9	DUP	S96T005934	0	F	@ICP-F01	SOLID		
10	SPK 1ppm Spike 10ppm	S96T005934 JK 1-17-97	0	F	@ICP-F01	SOLID		
11	CCV				@ICP-QC	QC		
12	CCB				@ICP-QC	QC		
13	SERDIL	S96T005957	0	F	@ICP-F01	SOLID		
14	SAMPLE	S96T005957	0	F	@ICP-F01	SOLID	96001466	BY-112
	Analytes Requested:	AG-F-01 , AL-F-01 , AS-F-01 , B-F-01 , BA-F-01 , BE-F-01 , BI-F-01 , CA-F-01 , CD-F-01 , CE-F-01 , CO-F-01 , CR-F-01 , CU-F-01 , FE-F-01 , K-F-01 , LA-F-01 , LI-F-01 ,						

Data Entry Comments: Sample result calculation:

S96T005934 $Al = 39.42 \frac{ug}{ml} \times \frac{1}{1.902 \frac{g}{L} \times \frac{L}{1000 ml}} = 2.07e+4 \frac{ug}{g}$

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

LABCORE Data Entry Template for Worklist# 15521

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
					MG-F-01 , MN-F-01 , MO-F-01 , NA-F-01 , ND-F-01 , NI-F-01 , P-F-01 , PB-F-01 , S-F-01 , SB-F-01 , SE-F-01 , SI-F-01 , SM-F-01 , SR-F-01 , TI-F-01 , TL-F-01 , U-F-01 , V-F-01 , ZN-F-01 , ZR-F-01			
15	DUP	S96T005957	0	F	@ICP-F01	SOLID		
16	SPK 1ppm Spike 10ppm	S96T005957 DH 1-17-97	0	F	@ICP-F01	SOLID		
17	ICSA				@ICP-QC	QC		
18	ICSAB				@ICP-QC	QC		
19	CCV				@ICP-QC	QC		
20	CCB				@ICP-QC	QC		

Final page for worklist # 15521

DK [signature] 01-17-97
Analyst Signature **Date**

Reviewed by: Saul M. Parry 1/20/97
Analyst Signature **Date**

PrepblkTJG, .25-10
S96T005934_L, .25-10-2-8, DF 205
S96T005934 .25-10 41
S96T005934_D .25-10 41
S96T005934_G .25-10 41, .25 ml sample + 2.05 ml SSTS + 7.95 ml HNO3
S96T005934_GX .25-10 41, .25 ml sample + 1 ml each WHC 1+2 + 7.95 ml HNO3

S96T005957_L, .25-10-2-8, DF 205
S96T005957 .25-10 41
S96T005957_D .25-10 41
S96T005957_G .25-10 41, .25 ml sample + 2.05 ml SSTS + 7.95 ml HNO3
S96T005957_GX .25-10 41, .25 ml sample + 1 ml each WHC 1+2 + 7.95 ml HNO3

Data Entry Comments:

Spike recovery calculation:

S96T005934 $Al = \frac{\left(\frac{78.68}{41}\right) - \left(\frac{39.42}{41}\right)}{1} \times 100 = 95.8\%$

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

Analysis Report Summary Fri 01-17-97 11:44:25 AM page 1

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	970117A	ICP2	01/17/97	10:11	DKS	Q	CONC
2	ICB	970117A	ICP2	01/17/97	10:15	DKS	Q	CONC
3	LLS	970117A	ICP2	01/17/97	10:18	DKS	Q	CONC
4	ICSA	970117A	ICP2	01/17/97	10:21	DKS	Q	CONC
5	ICSAB	970117A	ICP2	01/17/97	10:24	DKS	Q	CONC
6	PREPBLKTJA	970117A	ICP2	01/17/97	10:29	DKS	Q	CONC
7	S96T005934_L	970117A	ICP2	01/17/97	10:32	DKS	S	CONC
8	S96T005934	970117A	ICP2	01/17/97	10:35	DKS	S	CONC
9	S96T005934_D	970117A	ICP2	01/17/97	10:38	DKS	S	CONC
10	S96T005934_A	970117A	ICP2	01/17/97	10:41	DKS	S	CONC
11	S96T005934_AX	970117A	ICP2	01/17/97	10:45	DKS	S	CONC
12	CCV	970117A	ICP2	01/17/97	11:00	DKS	Q	CONC
13	CCB	970117A	ICP2	01/17/97	11:04	DKS	Q	CONC
14	S96T005957_L	970117A	ICP2	01/17/97	11:07	DKS	S	CONC
15	S96T005957	970117A	ICP2	01/17/97	11:10	DKS	S	CONC
16	S96T005957_D	970117A	ICP2	01/17/97	11:13	DKS	S	CONC
17	S96T005957_A	970117A	ICP2	01/17/97	11:16	DKS	S	CONC
18	S96T005957_AX	970117A	ICP2	01/17/97	11:19	DKS	S	CONC
19	ICSA	970117A	ICP2	01/17/97	11:29	DKS	Q	CONC
20	ICSAB	970117A	ICP2	01/17/97	11:32	DKS	Q	CONC
21	CCV_1	970117A	ICP2	01/17/97	11:38	DKS	Q	CONC
22	CCB_1	970117A	ICP2	01/17/97	11:41	DKS	Q	CONC

DK
01-17-97
BY-112
Work list # 15321

S96T005934
S96T005957

SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 525 TO 529.

Analysis Report Averages Fri 01-17-97 11:44:25 AM page 2

#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.895	4.908	5.120	5.008	5.031	5.074
2	ICB	.0007	.0148	.0076	.0087	.0000	.0000
3	LLS	.0236	.1146	.2114	.1050	.1022	.0102
4	ICSA	.0021	242.3	-.0671	-.0010	.0020	.0001
5	ICSAB	.9628	242.8	-.0620	-.0039	.4864	.4794
6	PREPBLKTJA	.0010	.0223	.0005	.0035	.0003	.0001
7	S96T005934_L	.5913	42.98	1.589	1.152	.0499	.0188
8	S96T005934	.0427	39.42	.2558	.0646	.0030	.0002
9	S96T005934_D	.0795	34.37	.0048	.0443	.0228	.0056
10	S96T005934_A	36.38	78.68	41.05	38.58	39.32	39.35
11	S96T005934_AX	336.9	398.2	389.2	356.9	383.4	383.8
12	CCV	4.876	4.886	5.092	4.990	4.940	5.066
13	CCB	-.0015	-.0018	-.0044	.0023	.0001	-.0001
14	S96T005957_L	-.3576	44.22	1.149	.8117	.0081	-.0098
15	S96T005957	-.0122	44.83	.0438	.1620	.0134	.0024
16	S96T005957_D	-.0959	42.44	-.0252	-.1396	.0031	.0023
17	S96T005957_A	36.00	84.21	41.74	39.54	39.31	40.47
18	S96T005957_AX	357.7	434.7	412.0	392.5	402.5	414.8
19	ICSA	-.0010	238.6	-.0544	-.0013	.0016	.0001
20	ICSAB	.9497	241.2	-.0375	.0025	.4708	.4772
21	CCV_1	4.800	4.774	4.999	4.873	4.770	4.966
22	CCB_1	-.0037	-.0138	.0028	.0017	-.0000	.0001

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	5.081	5.033	5.027	5.116	5.079	5.023
2	ICB	-.0079	-.0014	.0011	.0045	-.0023	.0001
3	LLS	.1879	.2106	.0107	.2257	.0430	.0221
4	ICSA	.0058	252.7	.0005	.0149	-.0023	.0075
5	ICSAB	.0156	253.5	.9378	.0191	.4700	.4863
6	PREPBLKTJA	-.0075	.0081	.0009	.0052	.0005	.0009
7	S96T005934_L	-.1370	1.356	.3827	2.881	.1552	26.85
8	S96T005934	-.5364	.6050	-.0091	-.6728	.0494	26.32
9	S96T005934_D	-.3788	.8907	.1128	.1749	.0304	26.21
10	S96T005934_A	40.68	42.08	40.52	40.84	40.84	67.10
11	S96T005934_AX	392.3	409.9	389.5	388.9	.6560	420.8
12	CCV	5.052	5.002	4.991	5.043	5.052	4.988
13	CCB	-.0248	-.0000	-.0008	-.0057	-.0004	.0017
14	S96T005957_L	-2.930	.7998	.0307	-1.100	.0188	38.29
15	S96T005957	.6231	.7935	.0447	-.2771	.1525	38.32
16	S96T005957_D	-.4509	.4640	.0451	-.6038	.0893	37.19
17	S96T005957_A	41.05	40.94	40.16	40.37	40.69	78.98
18	S96T005957_AX	410.2	406.8	398.5	410.6	.6902	442.0
19	ICSA	-.0612	247.4	-.0013	.0093	-.0002	.0082
20	ICSAB	-.0150	248.2	.9242	.0199	.4660	.4822
21	CCV_1	5.007	4.961	4.914	4.889	4.985	4.910
22	CCB_1	.0014	-.0016	-.0013	-.0145	-.0009	.0003

Analysis Report Averages Fri 01-17-97 11:44:25 AM page 3

#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	5.316	-.0048	5.047	5.338	5.042	4.877
2	ICB	-.0002	-.0005	.0000	.0026	.0013	-.0008
3	LLS	.0216	.0007	.1047	Q.7304	.1054	.0208
4	ICSA	-.0104	-.0515	94.58	.3307	-.0033	.0023
5	ICSAB	.4825	-.0504	94.54	.0273	-.0041	1.011
6	PREPBLKTJA	.0003	-.0002	.0033	Q322.7	.0013	-.0006
7	S96T005934_L	.1317	.1800	5.684	18790.	.4195	.1798
8	S96T005934	.0320	.0682	5.227	18340.	-.1219	.0669
9	S96T005934_D	-.0007	.0786	4.713	12860.	-.0045	.0821
10	S96T005934_A	40.89	.0372	45.48	18510.	40.01	36.82
11	S96T005934_AX	-.2615	.1103	389.2	18080.	382.5	358.2
12	CCV	5.280	-.0064	5.017	5.181	4.990	4.843
13	CCB	.0013	.0005	-.0006	.2424	-.0001	-.0001
14	S96T005957_L	.1555	-.0264	2.716	15240.	-.1576	-.2657
15	S96T005957	.0780	-.0103	1.990	15170.	.0193	-.0707
16	S96T005957_D	.0785	-.0369	1.748	11240.	-.0936	-.0471
17	S96T005957_A	42.21	-.0422	42.14	15340.	40.11	38.93
18	S96T005957_AX	-.1818	-.1841	403.1	15630.	404.0	406.3
19	ICSA	-.0110	-.0709	93.36	.5342	-.0067	.0034
20	ICSAB	.4723	-.0673	93.82	-.0294	-.0053	1.007
21	CCV_1	5.129	-.0042	4.912	5.215	4.821	4.693
22	CCB_1	.0002	.0016	-.0006	.0779	-.0030	.0011

#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	5.067	4.932	5.127	5.226	5.072	5.013
2	ICB	.0110	.0001	.0016	-.0073	.0016	.0076
3	LLS	.2253	.0205	.0998	.2154	.2096	.0409
4	ICSA	256.1	-.0066	-.0099	195.1	.0093	.0091
5	ICSAB	255.9	.4482	-.0103	197.5	.0083	.9494
6	PREPBLKTJA	.0226	.0012	-.0001	Q1.983	.0019	Q.1809
7	S96T005934_L	4.451	.2173	.0025	584.4	.4293	10.19
8	S96T005934	-.3685	.1575	.0818	568.9	.1371	9.049
9	S96T005934_D	.3101	.1478	.1218	524.3	-.0124	7.207
10	S96T005934_A	39.43	38.79	41.30	612.7	39.96	52.30
11	S96T005934_AX	376.9	385.8	383.2	909.0	381.7	396.3
12	CCV	5.017	4.907	5.063	5.200	5.017	4.941
13	CCB	.0065	.0002	-.0013	.0082	.0045	-.0040
14	S96T005957_L	.9169	.2195	-.4697	498.2	-.2077	13.49
15	S96T005957	.3054	.2353	.1288	498.2	.1347	8.292
16	S96T005957_D	-.1578	.2239	-.0181	522.4	.0235	3.888
17	S96T005957_A	40.41	38.83	40.99	545.1	40.24	49.55
18	S96T005957_AX	409.1	398.3	392.3	903.7	407.2	402.3
19	ICSA	253.7	-.0067	-.0125	191.0	.0046	-.0071
20	ICSAB	255.8	.4422	-.0106	196.0	.0022	.9106
21	CCV_1	4.922	4.807	4.987	5.072	4.825	4.871
22	CCB_1	-.0114	.0003	.0000	.0184	.0014	.0022

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#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.066	4.920	4.949	4.848	4.714	4.961
2	ICB	.0168	-.0026	.0022	.0046	.0092	.0028
3	LLS	.4143	.2190	.2102	.1121	.2170	.1858
4	ICSA	.0320	.0415	-.0156	.0054	-.0119	.0007
5	ICSAB	.0261	1.007	.0071	.0011	-.0301	-.0040
6	PREPBLKTJA	.0110	.0121	.0066	-.0051	.0241	.0115
7	S96T005934_L	3.169	-3.756	47.60	1.774	6.273	7.763
8	S96T005934	2.382	-.0619	45.82	-.1133	1.701	6.543
9	S96T005934_D	14.38	-.0273	52.99	.3135	1.410	6.466
10	S96T005934_A	41.77	39.78	84.99	38.59	39.46	46.77
11	S96T005934_AX	386.6	407.3	424.7	383.7	370.4	403.0
12	CCV	5.115	4.892	4.996	4.804	4.719	4.970
13	CCB	.0090	.0161	-.0132	.0088	.0012	.0038
14	S96T005957_L	7.656	-.3649	6.889	.4343	-2.216	1.611
15	S96T005957	3.482	.0833	7.977	-.0681	-.1613	1.629
16	S96T005957_D	3.280	.1931	8.040	-.0650	-.0792	2.100
17	S96T005957_A	44.78	39.19	48.97	39.41	38.32	42.66
18	S96T005957_AX	424.7	407.8	419.7	397.9	392.2	414.8
19	ICSA	.0213	.0365	-.0333	.0121	.0017	.0022
20	ICSAB	.0405	.9969	-.0203	.0027	-.0255	-.0032
21	CCV_1	5.154	4.842	4.978	4.764	4.682	4.916
22	CCB_1	.0241	-.0059	-.0043	-.0038	.0085	.0041

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	4.956	4.994	.0036	4.947	4.916	9.747
2	ICB	-.0080	-.0001	.0105	.0013	-.0054	-.0396
3	LLS	.2088	.0207	.0053	.0208	.4239	.5362
4	ICSA	-.0019	.0017	.0068	.0002	-.0014	.1496
5	ICSAB	-.0046	.0017	.0030	.0005	-.0001	.1247
6	PREPBLKTJA	-.0116	.0012	.0170	-.0012	.0092	-.1151
7	S96T005934_L	1.290	.1594	2.158	.0593	-2.849	6.385
8	S96T005934	.7582	.1394	-.1541	.0214	.0377	.1581
9	S96T005934_D	1.149	.1253	.0993	-.0106	.9708	4.275
10	S96T005934_A	40.03	39.39	.1687	39.21	38.94	77.53
11	S96T005934_AX	369.4	372.3	.7485	343.8	378.7	35.75
12	CCV	4.921	4.954	-.0568	4.903	4.823	9.676
13	CCB	.0057	.0001	-.0053	.0008	.0035	.0210
14	S96T005957_L	-1.395	.0750	.0886	.0585	-.5256	-7.568
15	S96T005957	-.6017	.0946	.3890	.0482	-.8146	-5.027
16	S96T005957_D	-.6411	.0698	.0101	.0239	.1787	-4.407
17	S96T005957_A	39.32	39.88	-.3304	39.66	39.37	74.42
18	S96T005957_AX	394.6	397.8	.7521	361.9	385.4	30.28
19	ICSA	.0209	.0017	-.0195	.0017	-.0188	.2833
20	ICSAB	.0071	.0017	-.0070	.0007	-.0336	.2622
21	CCV_1	4.772	4.798	-.0534	4.782	4.762	9.422
22	CCB_1	.0155	.0003	-.0150	-.0003	-.0086	.0765

Analysis Report *Averages* *Fri 01-17-97 11:44:25 AM*

#	Sample Name	V	Y	Zn	Zr
1	ICV	5.072	.0053	5.135	5.020
2	ICB	-.0013	-.0004	.0009	-.0011
3	LLS	.1059	.0008	.0227	.0222
4	ICSA	-.0006	.0067	.0046	-.0040
5	ICSAB	.4721	.0065	.9593	-.0035
6	PREPBLKTJA	-.0008	-.0003	.0007	-.0015
7	S96T005934_L	.5373	.0937	.2406	.2909
8	S96T005934	.1895	.0353	.0673	.1785
9	S96T005934_D	.2371	.0528	.0940	.1712
10	S96T005934_A	40.61	.0892	41.37	40.06
11	S96T005934_AX	.8796	.6471	-1.082	387.4
12	CCV	5.037	.0049	5.129	4.984
13	CCB	.0010	.0002	-.0002	.0016
14	S96T005957_L	-.1126	-.0450	.0989	-.0799
15	S96T005957	-.0430	-.0139	.0276	-.0570
16	S96T005957_D	-.1016	-.0206	.0635	-.0290
17	S96T005957_A	40.64	.0359	41.52	39.91
18	S96T005957_AX	.4698	.5402	-1.258	403.7
19	ICSA	.0020	.0067	.0049	-.0000
20	ICSAB	.4673	.0063	.9565	-.0019
21	CCV_1	4.939	.0057	5.097	4.849
22	CCB_1	.0038	.0006	.0000	.0034

JK
01-17-97

~~HNF-SD-WM-DP-229, REV. 0~~ 2/7/97

LABCORE Completed Worklist Report for Worklist# 15196

Analyst: krm **Instrument:** CARB2 **Book#** TIC 25N12A
TOC 24N12F

Method: LA-342-100 Rev/Mod E-0

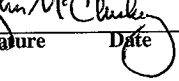
Worklist Comment: BY-112 TICTOC. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK		0		@TICTOC1 TIC-02	LIQUID	1	3.30E+0	3.300	ug/mL
1	BLNK		0		@TICTOC1 TOC-02	LIQUID	1	4.90E+0	4.900	ug/mL
2	STD		0		@TICTOC1 TIC-02	LIQUID	6.02E+02	6.07E+2	100.831	% Recovery
2	STD		0		@TICTOC1 TOC-02	LIQUID	3.00E+03	2.90E+3	96.667	% Recovery
3	SAMPLE	S96T005907	0		@TICTOC1 TIC-02	LIQUID	N/A	1.59E+03	5.000	ug/mL
3	SAMPLE	S96T005907	0		@TICTOC1 TOC-02	LIQUID	N/A	1.89E+03	40.000	ug/mL
4	DUP	S96T005907	0		@TICTOC1 TIC-02	LIQUID	1.59E+3	1.65E+3	3.704	RPD
4	DUP	S96T005907	0		@TICTOC1 TOC-02	LIQUID	1.89E+3	1.94E+3	2.611	RPD
5	SPK	S96T005907	0		@TICTOC1 TIC-02	LIQUID	1.00E+02	1.04E+02	104.000	% Recovery
5	SPK	S96T005907	0		@TICTOC1 TOC-02	LIQUID	1.00E+02	1.01E+02	101.000	% Recovery
6	SAMPLE	S96T005960	0		@TICTOC1 TIC-02	LIQUID	N/A	1.47E+03	5.000	ug/mL
6	SAMPLE	S96T005960	0		@TICTOC1 TOC-02	LIQUID	N/A	1.51E+03	40.000	ug/mL
7	DUP	S96T005960	0		@TICTOC1 TIC-02	LIQUID	1.47E+3	1.46E+3	0.683	RPD
7	DUP	S96T005960	0		@TICTOC1 TOC-02	LIQUID	1.51E+3	1.53E+3	1.316	RPD
8	SPK	S96T005960	0		@TICTOC1 TIC-02	LIQUID	1.00E+02	1.11E+02	111.000	% Recovery
8	SPK	S96T005960	0		@TICTOC1 TOC-02	LIQUID	1.00E+02	1.12E+02	112.000	% Recovery

Final page for worklist# 15196

See attached
Analyst Signature **Date**

2-13-97
Analyst Signature **Date**

validated into Labcore by  02/19/97
Reviewer Signature **Date**

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

LABCORE Data Entry Template for Worklist# 15196

Analyst: KRM **Instrument:** CARB2 **Book#** 25N12A 24N12E

Method: LA-342-100 **Rev/Mod** E-D

Worklist Comment: BY-112 TICTOC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	LIQUID		
2	STD				@TICTOC1	LIQUID		
3	SAMPLE	S96T005907	0		@TICTOC1	LIQUID	96001393	BY-112
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T005907	0		@TICTOC1	LIQUID		
5	SPK	S96T005907	0		@TICTOC1	LIQUID		
6	SAMPLE	S96T005960	0		@TICTOC1	LIQUID	96001466	BY-112
		Analytes Requested: TIC-02 , TOC-02						
7	DUP	S96T005960	0		@TICTOC1	LIQUID		
8	SPK	S96T005960	0		@TICTOC1	LIQUID		

Final page for worklist # 15196

2-13-97

Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

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

TIC/TOC: LA-342-100 (E-0)

WORKLIST #	ANALYST INITIALS	ANALYSIS DATE	ANALYSIS TIME	INSTRUMENT CODE
15196	KRM	2-13-97		

HNF-SD-WM-DP-229, REV. 0

WHC 2225 LAB ROOM 2F BACKSIDE

Feb. 13. 1997 6:51AM WHC 2225 LAB ROOM 2F BACKSIDE 532

BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE ☐

SAMPLE # = STD# =

SAMPLE WEIGHT (g) ____ TIC: ____ TOC: ____

SPIKE/STANDARD VOLUME (mL) ____

FINAL COULOMETER READING (u TIC: 7.7 TOC: 37.6

BASELINE BLANK ☐ SAMPLE DUPLICATE ☒ SPIKE TRIPLICATE ☐

SAMPLE # = STD STD# = 25N12A 24N12F

SAMPLE WEIGHT (g) ____ TIC: .1mL TOC: .2mL

SPIKE/STANDARD VOLUME (mL)

FINAL COULOMETER READING (u TIC: 611.2 TOC: 617.1

BASELINE BLANK ☒ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE ☐

SAMPLE # = STD# =

SAMPLE WEIGHT (g) ____ TIC: ____ TOC: ____

SPIKE/STANDARD VOLUME (mL)

FINAL COULOMETER READING (u TIC: 8.0 TOC: 42.5

BASELINE BLANK ☐ SAMPLE DUPLICATE ☒ SPIKE TRIPLICATE ☐

SAMPLE # = 5967 5907 STD# =

SAMPLE WEIGHT (g) .1mL TIC: ____ TOC: ____

SPIKE/STANDARD VOLUME (mL)

FINAL COULOMETER READING (u TIC: 163.5 TOC: 226.6

BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE ☒

SAMPLE # = 5967 5907 STD# = 25N12A 24N12F

SAMPLE WEIGHT (g) .1mL TIC: .5 TOC: .7

SPIKE/STANDARD VOLUME (mL)

FINAL COULOMETER READING (u TIC: 476.6 TOC: 531.0

BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE ☐

SAMPLE # = STD# =

SAMPLE WEIGHT (g) ____ TIC: ____ TOC: ____

SPIKE/STANDARD VOLUME (mL)

FINAL COULOMETER READING (u TIC: 169.8 TOC: 232.1

BASELINE BLANK ☐ SAMPLE DUPLICATE ☒ SPIKE TRIPLICATE ☐

SAMPLE # = 5967 5960 STD# =

SAMPLE WEIGHT (g) .1mL TIC: ____ TOC: ____

SPIKE/STANDARD VOLUME (mL)

FINAL COULOMETER READING (u TIC: 151.6 TOC: 189.0

BASELINE BLANK ☐ SAMPLE DUPLICATE ☒ SPIKE TRIPLICATE ☐

SAMPLE # = STD# =

SAMPLE WEIGHT (g) .1mL TIC: ____ TOC: ____

SPIKE/STANDARD VOLUME (mL)

FINAL COULOMETER READING (u TIC: 150.6 TOC: 190.6

SPIKE 5967 5960

SAMPLE SIZE .1mL

SPIKE VOL .5mL TIC .1mL TOC

525.8

484.7

Sep. 27. 1996 11:33PM WHC 2225 LAB ROOM 2F BACKSIDE P. 004

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC.REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE2 Date: 02/12/97 Time: 23:22:01

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE2
Blank Value = N/A

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.10	0.00
2	1.01	0.30	66.67
3	1.51	0.50	40.00
4	2.00	0.80	37.50
5	2.50	1.10	27.27
6	3.00	1.50	26.67
7	3.50	1.70	11.76
8	4.00	1.90	10.53
9	4.50	2.30	17.39
10	5.00	2.30	0.00
11	5.50	2.50	8.00
12	6.00	2.70	7.41
13	6.50	2.90	6.90
14	7.00	3.10	6.45
15	7.50	3.40	8.82
16	8.00	3.50	2.86
17	8.50	3.80	7.89
18	9.00	4.00	5.00
19	9.50	4.10	2.44
20	10.00	4.30	4.65
21	10.50	4.50	4.44
22	11.00	4.70	4.26

BLANK VALUE = 4.7 micrograms carbon
BLANK FACTOR = 4.7 / 10.99622 = +4.3E-01 ug/min Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 533 TO 558 MKE 4-23-97

Sample Run By: 2-13-97
KR MONTEITH 00000

~~HNF-SD-WM-DP-229, REV 0~~ 2-0 2/27/97

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>> HNF-SD-WM-DP-229, REV. 0

Sample: BASE2 Date: 02/12/97 Time: 23:34:32

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE2
Blank Value = N/A

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.90	100.00
3	1.50	9.90	90.91
4	2.00	20.50	51.71
5	2.50	26.90	23.79
6	3.00	29.60	9.12
7	3.50	31.80	6.92
8	4.00	32.30	1.55
9	4.50	33.10	2.42
10	5.00	33.70	1.78
11	5.50	34.20	1.46
12	6.00	34.60	1.16
13	6.50	35.10	1.42
14	7.00	35.40	0.85
15	7.50	35.80	1.12
16	8.00	36.10	0.83
17	8.50	36.40	0.82
18	9.00	36.70	0.82
19	9.50	36.90	0.54
20	10.00	37.20	0.81
21	10.50	37.40	0.53
22	11.00	37.60	0.53

BLANK VALUE = 37.6 micrograms carbon
BLANK FACTOR = 37.6 / 10.9978 = +3.42E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
KR MONTEITH 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD 2 Date: 02/12/97 Time: 23:48:40

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .43 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	11.50	100.00
4	2.01	100.00	88.50
5	2.51	248.00	59.68
6	3.00	387.60	36.02
7	3.50	487.60	20.51
8	4.00	549.10	11.20
9	4.50	581.20	5.52
10	5.00	597.00	2.65
11	5.50	604.00	1.16
12	6.00	606.50	0.41
13	6.50	608.00	0.25
14	7.00	608.80	0.13
15	7.50	609.30	0.08
16	8.00	609.50	0.03
17	8.50	609.80	0.05
18	9.00	610.10	0.05
19	9.50	610.40	0.05
20	10.00	610.70	0.05
21	10.50	610.90	0.03
22	11.00	611.20	0.05

USER INPUT BLANK VALUE
BLANK VALUE = 4.729055 micrograms carbon
BLANK FACTOR = 4.729055 / 10.9978 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:
(611.2 - 4.730368)(1)/(1000) = +6.065E-01 g/L Carbon
(611.2 - 4.730368)(1)/(1000)(12) = +5.054E-02 Molar Carbon

Sample Run By: _____
KR MONTEITH 00000

TOC, TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: STD 2 Date: 02/13/97 Time: 01:06:11

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.42 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.50	8.50	100.00
4	2.00	85.70	90.08
5	2.50	264.10	67.55
6	3.00	440.50	40.05
7	3.50	538.60	18.21
8	4.00	584.70	7.88
9	4.50	602.50	2.95
10	5.00	608.60	1.00
11	5.50	610.50	0.31
12	6.00	611.70	0.20
13	6.50	612.70	0.16
14	7.00	613.40	0.11
15	7.50	614.00	0.10
16	8.00	614.50	0.08
17	8.50	615.10	0.10
18	9.00	615.50	0.06
19	9.50	615.90	0.06
20	%-1430.00	616.40	0.08
21	%-1429.50	616.80	0.06
22	%-1429.00	617.10	0.05

USER INPUT BLANK VALUE
BLANK VALUE = 37.61249 micrograms carbon
BLANK FACTOR = 37.61249 / 10.9978 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(617.1 --4887.193)(1)/(200) = +2.752E+01 g/L Carbon
(617.1 -4887.193)(1)/(200)(12) = +2.293E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: KR MONTEITH 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: BLK2 Date: 02/13/97 Time: 02:10:16

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .43 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.10	0.00
2	1.01	1.40	21.43
3	1.50	1.70	17.65
4	2.00	2.00	15.00
5	2.50	2.40	16.67
6	3.00	2.80	14.29
7	3.50	3.10	9.68
8	4.00	3.40	8.82
9	4.50	3.70	8.11
10	5.00	4.20	11.90
11	5.50	4.50	6.67
12	6.00	4.90	8.16
13	6.50	5.30	7.55
14	7.00	5.80	8.62
15	7.50	6.10	4.92
16	8.00	6.40	4.69
17	8.50	6.80	5.88
18	9.00	7.00	2.86
19	9.50	7.30	4.11
20	10.00	7.50	2.67
21	10.50	7.80	3.85
22	11.00	8.00	2.50

USER INPUT BLANK VALUE
BLANK VALUE = 4.729055 micrograms carbon
BLANK FACTOR = 4.729055 / 10.9978 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:
(8 - 4.729068)(1)/(1) = +3.3E+00 g/L Carbon
(8 - 4.729068)(1)/(1)(12) = +2.7E-01 Molar Carbon

Sample Run By: _____
KR MONTEITH 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: BLK2 Date: 02/13/97 Time: 02:32:27

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.42 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.00	0.60	100.00
3	1.50	3.40	82.35
4	2.00	10.50	67.62
5	2.50	17.90	41.34
6	3.01	24.00	25.42
7	3.51	28.00	14.29
8	4.00	32.20	13.04
9	4.50	34.50	6.67
10	5.00	36.10	4.43
11	5.50	36.90	2.17
12	6.00	37.70	2.12
13	6.50	38.20	1.31
14	7.00	39.00	2.05
15	7.50	39.50	1.27
16	8.00	39.90	1.00
17	8.50	40.30	0.99
18	9.00	41.00	1.71
19	9.50	41.30	0.73
20	10.00	41.70	0.96
21	10.50	42.20	1.18
22	11.00	42.50	0.71

USER INPUT BLANK VALUE
BLANK VALUE = 37.61249 micrograms carbon
BLANK FACTOR = 37.61249 / 10.9978 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(42.5 - 37.61598)(1)/(1) = +4.88E+00 g/L Carbon
(42.5 - 37.61598)(1)/(1)(12) = +4.07E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: KR MONTEITH 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T5907-2 Date: 02/13/97 Time: 02:48:19

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .4 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.30	100.00
3	1.50	1.10	72.73
4	2.00	3.60	69.44
5	2.50	11.50	68.70
6	3.00	27.00	57.41
7	3.50	44.10	38.78
8	4.00	57.90	23.83
9	4.50	65.50	11.60
10	5.00	73.40	10.76
11	5.50	91.30	19.61
12	6.00	119.60	23.66
13	6.50	142.00	15.77
14	7.00	154.10	7.85
15	7.50	157.80	2.34
16	8.00	159.90	1.31
17	8.50	161.30	0.87
18	9.00	161.80	0.31
19	9.50	162.20	0.25
20	10.00	162.80	0.37
21	10.50	163.20	0.25
22	11.00	163.50	0.18

USER INPUT BLANK VALUE
BLANK VALUE = 4.399121 micrograms carbon
BLANK FACTOR = 4.399121 / 10.9978 = +4.0E-01 ug/min Carbon

SAMPLE RESULTS:
(163.5 - 4.39953)(1)/(1) = +1.591E+02 g/L Carbon
(163.5 - 4.39953)(1)/(1)(12) = +1.326E+01 Molar Carbon

Sample Run By: _____
KR MONTEITH 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T5907-2 Date: 02/13/97 Time: 03:00:02

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.42 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.20	100.00
3	1.51	3.00	93.33
4	2.00	24.70	87.85
5	2.50	72.50	65.93
6	3.00	134.10	45.94
7	3.50	177.20	24.32
8	4.00	196.90	10.01
9	4.50	205.60	4.23
10	5.00	211.00	2.56
11	5.50	213.50	1.17
12	6.00	215.60	0.97
13	6.50	217.70	0.96
14	7.00	219.20	0.68
15	7.50	220.40	0.54
16	8.00	221.60	0.54
17	8.50	222.80	0.54
18	9.00	223.90	0.49
19	9.50	224.70	0.36
20	10.00	225.30	0.27
21	10.50	225.80	0.22
22	11.00	226.60	0.35

USER INPUT BLANK VALUE
BLANK VALUE = 37.61249 micrograms carbon
BLANK FACTOR = 37.61249 / 10.9978 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(226.6 - 37.61254)(1)/(1) = +1.890E+02 g/L Carbon
(226.6 - 37.61254)(1)/(1)(12) = +1.575E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: KR MONTEITH 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T5907DUP-2 Date: 02/13/97 Time: 03:25:01

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .43 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.60	50.00
3	1.50	1.60	62.50
4	2.00	5.10	68.63
5	2.50	17.90	71.51
6	3.00	42.80	58.18
7	3.50	67.80	36.87
8	4.00	84.70	19.95
9	4.50	95.20	11.03
10	5.00	113.50	16.12
11	5.50	137.30	17.33
12	6.00	153.10	10.32
13	6.50	161.00	4.91
14	7.00	164.50	2.13
15	7.50	165.90	0.84
16	8.00	166.70	0.48
17	8.50	167.70	0.60
18	9.00	168.10	0.24
19	9.50	168.60	0.30
20	10.00	169.00	0.24
21	10.50	169.50	0.29
22	11.00	169.80	0.18

USER INPUT BLANK VALUE
BLANK VALUE = 4.729055 micrograms carbon
BLANK FACTOR = 4.729055 / 10.9978 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:
(169.8 - 4.728714)(1)/(1) = +1.651E+02 g/L Carbon
(169.8 - 4.728714)(1)/(1)(12) = +1.376E+01 Molar Carbon

Sample Run By: KR MONTEITH 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T5907DUP-2 Date: 02/13/97 Time: 04:26:40

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.42 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.30	100.00
3	1.50	4.70	93.62
4	2.00	41.00	88.54
5	2.50	127.20	67.77
6	3.00	177.60	28.38
7	3.50	201.50	11.86
8	4.00	211.90	4.91
9	4.50	216.10	1.94
10	5.00	219.20	1.41
11	5.50	221.50	1.04
12	6.00	223.50	0.89
13	6.50	225.10	0.71
14	7.00	226.10	0.44
15	7.50	227.30	0.53
16	8.00	228.20	0.39
17	8.50	229.00	0.35
18	9.00	229.70	0.30
19	9.50	230.10	0.17
20	10.00	231.00	0.39
21	10.50	231.70	0.30
22	11.00	232.10	0.17

USER INPUT BLANK VALUE
BLANK VALUE = 37.61249 micrograms carbon
BLANK FACTOR = 37.61249 / 10.9978 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(232.1 - 37.60685)(1)/(1) = +1.945E+02 g/L Carbon
(232.1 - 37.60685)(1)/(1)(12) = +1.621E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: KR MONTEITH 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T5907SPK-2 Date: 02/13/97 Time: 04:42:31

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .43 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.50	3.00	100.00
4	2.00	54.40	94.49
5	2.50	182.40	70.18
6	3.00	306.90	40.57
7	3.50	385.30	20.35
8	4.00	430.70	10.54
9	4.50	453.30	4.99
10	5.00	464.20	2.35
11	5.50	468.90	1.00
12	6.00	470.30	0.30
13	6.50	471.50	0.25
14	7.00	472.40	0.19
15	7.50	473.00	0.13
16	8.00	473.70	0.15
17	8.50	474.10	0.08
18	9.00	474.70	0.13
19	9.50	475.30	0.13
20	10.00	475.70	0.08
21	10.50	476.10	0.08
22	11.00	476.60	0.10

USER INPUT BLANK VALUE
BLANK VALUE = 4.729055 micrograms carbon
BLANK FACTOR = 4.729055 / 10.9978 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:
(476.6 - 4.728347)(1)/(1) = +4.719E+02 g/L Carbon
(476.6 - 4.728347)(1)/(1)(12) = +3.932E+01 Molar Carbon

Sample Run By: _____
KR MONTEITH 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0 HNF-SD-WM-DP-229, REV. 0

Sample: S96T5907SPK-2 Date: 02/13/97 Time: 04:55:00

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.42 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.01	0.60	50.00
3	1.51	3.90	84.62
4	2.00	38.40	89.84
5	2.50	139.00	72.37
6	3.00	308.80	54.99
7	3.50	425.50	27.43
8	4.00	478.70	11.11
9	4.50	501.20	4.49
10	5.00	510.30	1.78
11	5.50	514.90	0.89
12	6.00	518.10	0.62
13	6.50	520.70	0.50
14	7.00	522.00	0.25
15	7.50	523.60	0.31
16	8.00	525.30	0.32
17	8.50	526.70	0.27
18	9.00	527.60	0.17
19	9.50	528.50	0.17
20	10.00	529.40	0.17
21	10.50	530.30	0.17
22	11.00	531.00	0.13

USER INPUT BLANK VALUE
BLANK VALUE = 37.61249 micrograms carbon
BLANK FACTOR = 37.61249 / 10.9978 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(531 - 37.61604)(1)/(1) = +4.934E+02 g/L Carbon
(531 - 37.61604)(1)/(1)(12) = +4.112E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: KR MONTEITH 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T5960-2 Date: 02/13/97 Time: 05:08:01

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .43 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.01	0.90	55.56
3	1.51	2.20	59.09
4	2.00	5.00	56.00
5	2.50	14.70	65.99
6	3.00	33.40	55.99
7	3.50	51.90	35.65
8	4.00	64.70	19.78
9	4.50	73.50	11.97
10	5.00	90.30	18.60
11	5.50	114.90	21.41
12	6.00	133.80	14.13
13	6.50	142.20	5.91
14	7.00	146.50	2.94
15	7.50	147.50	0.68
16	8.00	148.50	0.67
17	8.50	149.30	0.54
18	9.00	149.70	0.27
19	9.50	150.20	0.33
20	10.00	150.60	0.27
21	10.50	151.30	0.46
22	11.00	151.60	0.20

USER INPUT BLANK VALUE
BLANK VALUE = 4.729055 micrograms carbon
BLANK FACTOR = 4.729055 / 10.9978 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:
(151.6 - 4.729082)(1)/(1) = +1.469E+02 g/L Carbon
(151.6 - 4.729082)(1)/(1)(12) = +1.224E+01 Molar Carbon

Sample Run By: _____
KR MONTEITH 00000

P^

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S969T5960-2 Date: 02/13/97 Time: 05:22:29

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.42 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	===== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.50	40.00
3	1.51	7.00	92.86
4	2.00	32.90	78.72
5	2.50	84.50	61.07
6	3.00	130.40	35.20
7	3.50	156.30	16.57
8	4.00	168.20	7.07
9	4.50	173.40	3.00
10	5.00	176.60	1.81
11	5.50	178.40	1.01
12	6.00	180.40	1.11
13	6.50	181.60	0.66
14	7.00	182.80	0.66
15	7.50	184.20	0.76
16	8.00	185.00	0.43
17	8.50	185.80	0.43
18	9.00	186.60	0.43
19	9.50	187.20	0.32
20	10.00	187.80	0.32
21	10.50	188.50	0.37
22	11.00	189.00	0.26

USER INPUT BLANK VALUE
BLANK VALUE = 37.61249 micrograms carbon
BLANK FACTOR = 37.61249 / 10.9978 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(189 - 37.61311)(1)/(1) = +1.514E+02 g/L Carbon
(189 - 37.61311)(1)/(1)(12) = +1.262E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: KR MONTEITH 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T5960DUP-2 Date: 02/13/97 Time: 05:50:01

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .43 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.01	0.80	50.00
3	1.51	1.60	50.00
4	2.00	5.20	69.23
5	2.50	14.10	63.12
6	3.00	31.60	55.38
7	3.50	48.40	34.71
8	4.00	60.70	20.26
9	4.50	70.30	13.66
10	5.00	88.60	20.65
11	5.50	114.00	22.28
12	6.00	132.20	13.77
13	6.50	141.90	6.84
14	7.00	144.60	1.87
15	7.50	146.40	1.23
16	8.00	147.20	0.54
17	8.50	148.10	0.61
18	9.00	148.70	0.40
19	9.50	149.20	0.34
20	10.00	149.60	0.27
21	10.50	150.10	0.33
22	11.00	150.60	0.33

USER INPUT BLANK VALUE
BLANK VALUE = 4.729055 micrograms carbon
BLANK FACTOR = 4.729055 / 10.9978 = +4.3E-01 ug/min Carbon

SAMPLE RESULTS:
(150.6 - 4.729068)(1)/(1) = +1.459E+02 g/L Carbon
(150.6 - 4.729068)(1)/(1)(12) = +1.216E+01 Molar Carbon

Sample Run By: _____
KR MONTEITH 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T5960DUP-2 Date: 02/13/97 Time: 06:02:07

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.42 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.00	0.40	100.00
3	1.50	4.60	91.30
4	2.00	27.30	83.15
5	2.50	74.30	63.26
6	3.00	125.30	40.70
7	3.50	155.00	19.16
8	4.00	168.80	8.18
9	4.50	174.60	3.32
10	5.00	177.50	1.63
11	5.50	179.90	1.33
12	6.00	181.70	0.99
13	6.50	183.10	0.76
14	7.00	184.20	0.60
15	7.50	185.60	0.75
16	8.00	186.60	0.54
17	8.50	187.20	0.32
18	9.00	188.10	0.48
19	9.50	188.60	0.27
20	10.00	189.50	0.47
21	10.50	190.00	0.26
22	11.00	190.60	0.31

USER INPUT BLANK VALUE
BLANK VALUE = 37.61249 micrograms carbon
BLANK FACTOR = 37.61249 / 10.9978 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(190.6 - 37.61249)(1)/(1) = +1.530E+02 g/L Carbon
(190.6 - 37.61249)(1)/(1)(12) = +1.275E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: KR MONTEITH 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T5960SPK2 Date: 02/13/97 Time: 06:17:15

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.42 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.50	100.00
3	1.51	7.50	93.33
4	2.00	65.90	88.62
5	2.50	195.00	66.21
6	3.00	317.80	38.64
7	3.50	391.90	18.91
8	4.00	435.10	9.93
9	4.50	458.20	5.04
10	5.00	469.70	2.45
11	5.50	474.30	0.97
12	6.00	477.40	0.65
13	6.50	478.70	0.27
14	7.00	479.50	0.17
15	7.50	480.20	0.15
16	8.00	481.10	0.19
17	8.50	481.70	0.12
18	9.00	482.40	0.15
19	9.50	483.00	0.12
20	10.00	483.60	0.12
21	10.50	484.20	0.12
22	11.00	484.70	0.10

USER INPUT BLANK VALUE
BLANK VALUE = 37.61249 micrograms carbon
BLANK FACTOR = 37.61249 / 10.9978 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(484.7 - 37.60967)(1)/(1) = +4.471E+02 g/L Carbon
(484.7 - 37.60967)(1)/(1)(12) = +3.726E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
KR MONTEITH 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0 HNF-SD-WM-DP-229, REV. 0

Sample: S96T5960SPK-2 Date: 02/13/97 Time: 06:29:50

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.40 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.50	100.00
3	1.50	11.60	95.69
4	2.00	61.40	81.11
5	2.50	191.00	67.85
6	3.00	354.90	46.18
7	3.50	443.10	19.91
8	4.00	482.70	8.20
9	4.50	499.50	3.36
10	5.00	506.50	1.38
11	5.50	510.60	0.80
12	6.00	513.60	0.58
13	6.50	515.30	0.33
14	7.00	517.40	0.41
15	7.50	519.10	0.33
16	8.00	520.30	0.23
17	8.50	521.60	0.25
18	9.00	522.40	0.15
19	9.50	523.70	0.25
20	10.00	524.40	0.13
21	10.50	524.90	0.10
22	11.00	525.80	0.17

USER INPUT BLANK VALUE
BLANK VALUE = 37.61249 micrograms carbon
BLANK FACTOR = 37.61249 / 10.9978 = +3.4E+00 ug/min Carbon

SAMPLE RESULTS:
(525.8 - 37.61311)(1)/(1) = +4.882E+02 g/L Carbon
(525.8 - 37.61311)(1)/(1)(12) = +4.068E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: KR MONTEITH 00000

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type			TIC	TOC
BLNK	Sample Size in mL	(SS)	0.0000	0.0000
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	8	42.5
15196	µg of Carbon from Baseline	(C2)	4.7	37.6

Test Code	
@TICTOC1	
Matrix	
LIQUID	
Batch Number	
96011804	
Rerun	µg of Carbon = |C1-C2|
0	
Sample Prep	
N/A	
Sample #'s	
BLNK	
Instrument Code	
CARB2	
Prepared By	
RTS	
Chemist	
JMM	
Analyst	
KRM	
Date Complete	
02/13/97	
Analysis Date	
02/13/97	
Analysis Time	
Sample Point	
BY-112	

	TIC	TOC
Method Detection Limit in µg/mL	5	40
µg of Carbon	3.30E+00	4.90E+00

Data Entered By:	RTS	Date:	02/13/97
Signature of Chemist:	John McCandless	Date:	02/14/97

BLANK.WB1 REV 1.0 342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type			TIC	TOC
STD	Sample Size in mL	(SS)	1.0000	0.2000
	Dilution Factor	(DF)	1	1
Work List	Final Coulometer Reading in µg	(C1)	611.2	617.1
15196	µg of Carbon from Baseline	(C2)	4.7	37.6
Test Code	Standard Book Number		25N12A	24N12F
@TICTOC1	Standard Value (µg/ml)		602	3000

Matrix
LIQUID
Batch Number
96011804
Rerun #
0
Sample Prep
N/A
Sample #
STD
Instrument Code
CARB2
Prepared By
RTS
Chemist
JMM
Analyst
KRM
Date Complete
02/13/97
Analysis Date
02/13/97
Analysis Time
Sample Point
BY-112

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	6.07E+02	2.90E+03
Percent Standard Recovery	100.7	96.6

Data Entered By:	RTS	Date:	02/13/97
Signature of Chemist:	John McCandless	Date:	02/19/97

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type	Sample Size in mL	(SS)	TIC: 0.1000	TOC: 0.1000
SAMPLE	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	163.5	226.6
15196	µg of Carbon from Baseline	(C2)	4.7	37.6
Test Code				
@TICTOC1				

Matrix	
LIQUID	
Batch Number	
96011804	
Rerun	µg of Carbon/mL = (C1-C2) * DF / SS
0	µg of Carbon/mL for TIC = 5 if C1 < C2
Sample Prep	µg of Carbon/mL for TOC = 40 if C1 < C2
N/A	
Sample #	
S96T005907	
Instrument Code	
CARB2	
Prepared By	
RTS	
Chemist	
JMM	
Analyst	
KRM	
Date Complete	
02/13/97	
Analysis Date	
02/13/97	
Analysis Time	
Sample Point	
BY-112	

	TIC	TOC
Method Detection Limit in µg/mL	5	40
µg of Carbon/mL	1.59E+03	1.89E+03

Data Entered By:	RTS	Date:	02/13/97
Signature of Chemist:	John McCluskey	Date:	02/19/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type			TIC	TOC
DUP	Sample Size in mL	(SS)	0.1000	0.1000
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	169.8	232.1
15196	µg of Carbon from Baseline	(C2)	4.7	37.6
Test Code	Known µg of C from Original Sample		1.59E+3	1.89E+3
@TICTOC1				
Matrix				
LIQUID				
Batch Number				
96011804				
Rerun				
0				
Sample Prep				
N/A				
Sample #				
S96T005907				
Instrument Code				
CARB2				
Prepared By				
RTS				
Chemist				
JMM				
Analyst				
KRM				
Date Complete				
02/13/97				
Analysis Date				
02/13/97			TIC	TOC
Analysis Time	Method Detection Limit in µg/mL		5	40
Sample Point	µg of Carbon/mL		1.65E+03	1.94E+03
BY-112				

µg of Carbon/mL = (C1-C2) * DF / SS
µg of Carbon/mL for TIC = 5 if C1 < C2
µg of Carbon/mL for TOC = 40 if C1 < C2

Data Entered By:	RTS	Date:	02/13/97
Signature of Chemist:	John McCluskey	Date:	02/19/97

SAMPLE.WB1 REV 1.0 342100ML

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WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type	Sample Vial Data		TIC	TOC
SPK	Sample Volume in mL	(SS)	0.1000	0.1000
Work List	Final Coulometer Reading in µg	(C1)	163.5	226.6
15196	**Spiked Vial Data**			
Test Code	Sample Volume in mL	(SPK SS)	0.1000	0.1000
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C2)	476.6	531
LIQUID	Spike Book Number		25N12A	24N12F
Batch Number	Spike Standard Value in µg/ml	(SPK CONC)	602	3000
96011804				
Rerun				
0				
Sample Prep				
N/A				
Sample #	**Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 1**			
S96T005907				
Instrument Code	**QC Actual in µg/mL = Spike Value (µg/mL)**			
CARB2	**QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100**			
Prepared By				
RTS				
Chemist				
JMM				
Analyst				
KRM				
Date Complete				
02/13/97				
Analysis Date				
02/13/97				
Analysis Time			TIC	TOC
	QC Actual in µg/mL		6.02E+02	3.00E+03
Sample Point	**QC Found in µg/mL**		6.26E+02	3.04E+03
BY-112	**Percent Spike Recovery**		104.0	101.5

Data Entered By:	RTS	Date:	02/13/97
Signature of Chemist:	Glen McCluskey	Date:	02/19/97

SPIKE.WB1 REV 1.1 342100ML

I:\342100\OUT\15196.WB1 02/13/97 07:49:50

WORKBOOK PAGE: SAM6

TIC/TOC : LA-342-100 (E-0) LIQUIDS

			TIC	TOC
Type	Sample Size in mL	(SS)	0.1000	0.1000
SAMPLE	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	151.6	189
15196	µg of Carbon from Baseline	(C2)	4.7	37.6
Test Code				
@TICTOC1				

Matrix: LIQUID
Batch Number: 96011804
Rerun: 0
Sample Prep: N/A
Sample#: S96T005960
Instrument Code: CARB2
Prepared By: RTS
Chemist: JMM
Analyst: KRM
Date Complete: 02/13/97
Analysis Date: 02/13/97
Analysis Time:
Sample Point: BY-112

µg of Carbon/mL = (C1-C2) * DF / SS
µg of Carbon/mL for TIC = 5 if C1 < C2
µg of Carbon/mL for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in µg/mL	5	40
µg of Carbon/mL	1.47E+03	1.51E+03

Data Entered By:	RTS	Date:	02/13/97
Signature of Chemist:	John McClusky	Date:	02/19/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP7

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type	Sample Size in mL	(SS)	TIC	TOC
DUP	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	150.6	190.6
15196	µg of Carbon from Baseline	(C2)	4.7	37.6
Test Code	Known µg of C from Original Sample		1.47E+3	1.51E+3
@TICTOC1				

Matrix
LIQUID
Batch Number
96011804
Rerun
0
Sample Prep
N/A
Sample #
S96T005960
Instrument Code
CARB2
Prepared By
RTS
Chemist
JMM
Analyst
KRM
Date Complete
02/13/97
Analysis Date
02/13/97
Analysis Time
Sample Point
BY-112

µg of Carbon/mL = (C1-C2) * DF / SS
µg of Carbon/mL for TIC = 5 if C1 < C2
µg of Carbon/mL for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in µg/mL	5	40
µg of Carbon/mL	1.46E+03	1.53E+03

Data Entered By:	RTS	Date:	02/13/97
Signature of Chemist:	John McClusky	Date:	02/19/97

WORKBOOK PAGE: SPIKE8

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type	Sample Vial Data		TIC	TOC
SPK	Sample Volume in mL	(SS)	0.1000	0.1000
WorkList	Final Coulometer Reading in µg	(C1)	151.6	189
15196	**Spiked Vial Data**			
Test Code	Sample Volume in mL	(SPK SS)	0.1000	0.1000
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C2)	484.7	525.8
LIQUID	Spike Book Number		25N12A	24N12F
Batch Number	Spike Standard Value in µg/ml	(SPK CONC)	602	3000
96011804				
Rerun				
0				
Sample Prep				
N/A				
Sample#	**Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 1**			
S96T005960				
Instrument Code	**QC Actual in µg/mL = Spike Value (µg/mL)**			
CARB2	**QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100**			
Prepared By				
RTS				
Chemist				
JMM				
Analyst				
KRM				
Date Complete				
02/13/97				
Analysis Date				
02/13/97				
Analysis Time			TIC	TOC
	QC Actual in µg/mL		6.02E+02	3.00E+03
Sample Point	**QC Found in µg/mL**		6.66E+02	3.37E+03
BY-112	**Percent Spike Recovery**		110.7	112.3

Data Entered By:	RTS	Date:	02/13/97
Signature of Chemist:	John McCracken	Date:	02/19/97

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LABCORE Completed Worklist Report for Worklist# 15202

Analyst: pjm **Instrument:** CARB1 **Book#** TIC 25N12A TOC 24N12F

Method: LA 342-100 Rev/Mod E-0

Worklist Comment: BY-112 TICTOC. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK		0		@TICTOC1 TIC-02	SOLID	1	6.00E-1	0.600	ug/g
1	BLNK		0		@TICTOC1 TOC-02	SOLID	1	9.40E+0	9.400	ug/g
2	STD		0		@TICTOC1 TIC-02	SOLID	6.02E+02	6.02E+2	100.000	% Recovery
2	STD		0		@TICTOC1 TOC-02	SOLID	3.00E+03	2.87E+3	95.667	% Recovery
3	SAMPLE	S96T005873	0		@TICTOC1 TIC-02	SOLID	N/A	4.74E+04	5.000	ug/g
3	SAMPLE	S96T005873	0		@TICTOC1 TOC-02	SOLID	N/A	1.14E+03	40.000	ug/g
4	DUP	S96T005873	0		@TICTOC1 TIC-02	SOLID	4.74E+4	4.44E+4	6.536	RPD
4	DUP	S96T005873	0		@TICTOC1 TOC-02	SOLID	1.14E+3	1.23E+3	7.595	RPD
5	SPK	S96T005873	0		@TICTOC1 TIC-02	SOLID	1.00E+02	~~5.44E+01~~ N/A	~~54.400~~	~~% Recovery~~
5	SPK	S96T005873	0		@TICTOC1 TOC-02	SOLID	1.00E+02	9.03E+01	90.300	% Recovery
6	SAMPLE	S96T005874	0		@TICTOC1 TIC-02	SOLID	N/A	8.52E+04	5.000	ug/g
6	SAMPLE	S96T005874	0		@TICTOC1 TOC-02	SOLID	N/A	3.78E+02	40.000	ug/g
7	DUP	S96T005874	0		@TICTOC1 TIC-02	SOLID	8.52E+4	8.26E+4	3.099	RPD
7	DUP	S96T005874	0		@TICTOC1 TOC-02	SOLID	3.78E+2	6.98E+2	59.480	RPD

RNS 4/15/97 RNS 4/15/97

Final page for worklist# 15202

Analyst Signature Date

4-14-97
Analyst Signature Date

RW Schroeder 4/15/97
Reviewer Signature Date

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

01/29/97 10:41
A-0004-1

LABCORE Data Entry Template for Worklist# 15202

Analyst: RJM **Instrument:** CARB2 _____ **Book#** TIC 25N12A
TOC 24N12F

Method: LA-342-100 Rev/Mod E-0 CARB1

Worklist Comment: BY-112 TICTOC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	SOLID		
2	STD				@TICTOC1	SOLID		
3	SAMPLE	S96T005873	0		@TICTOC1	SOLID	96001393	BY-112
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T005873	0		@TICTOC1	SOLID		
5	SPK	S96T005873	0		@TICTOC1	SOLID		
6	SAMPLE	S96T005874	0		@TICTOC1	SOLID	96001393	BY-112
		Analytes Requested: TIC-02 , TOC-02						
7	DUP	S96T005874	0		@TICTOC1	SOLID		

Final page for worklist # 15202

RJ McCown 4/12/97
Analyst Signature **Date**

_____
Analyst Signature **Date**

Faxed
4/12/97

Data Entry Comments:

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

TIC/TOC: LA-342-100 (E-0)

WORKLIST #	ANALYST INITIALS	ANALYSIS DATE	ANALYSIS TIME	INSTRUMENT CODE
15202	RSM	4/12/97	0500	

☒ BASELINE ☐ BLANK ☐ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: 5 TOC:

FINAL COULOMETER READING (u TIC: 5.80 TOC: 38.0

☐ BASELINE ☐ BLANK ☐ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE ☒ STD

SAMPLE # = STD # = TIC 25N12A TOC 24N12F

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: 1.0 ML TOC: .200 ML

FINAL COULOMETER READING (u TIC: 607.50 TOC: 612.50

☒ BASELINE ☐ BLANK ☐ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 5.20 TOC: 28.60

☐ BASELINE ☐ BLANK ☒ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005873 STD # =

SAMPLE WEIGHT (g) .1330 / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 6312.60 TOC: 189.40

563

☐ BASELINE ☐ BLANK ☐ SAMPLE ☒ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005873 STD # =

SAMPLE WEIGHT (g) .1599 / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 7105.10 TOC: 234.80

☐ BASELINE ☐ BLANK ☐ SAMPLE ☐ DUPLICATE ☒ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005873 STD # = TIC 25N12A TOC 24N12F

SAMPLE WEIGHT (g) .1454 / SPIKE/STANDARD VOLUME (mL) TIC: .500 ML TOC: .100 ML

FINAL COULOMETER READING (u TIC: 7064.80 TOC: 478.10

☐ BASELINE ☐ BLANK ☒ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005874 STD # =

SAMPLE WEIGHT (g) .1121 / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 9551.40 TOC: 80.40

☐ BASELINE ☐ BLANK ☐ SAMPLE ☒ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005874 STD # =

SAMPLE WEIGHT (g) .1060 / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 8456.20 TOC: 112.00

Sep. 27. 1996 11:33PM WHC 2225 LAB ROOM 2F BACKSIDE

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Size in g	(SS)	TIC	TOC
BLNK	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	5.2	28.6
15202	µg of Carbon from Baseline	(C2)	5.8	38

Test Code	@TICTOC1
Matrix	SOLID
Batch Number	96011807
Rerun	0
Sample Prep	N/A
Sample #	BLANK
Instrument Code	CARB1
Prepared By	RCJ
Chemist	RWS
Analyst	PJM
Date Complete	04/14/97
Analysis Date	04/12/97
Analysis Time	10:16 PM
Sample Point	BY-112

µg of Carbon = |C1-C2|

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon	6.00E-01	9.40E+00

Data Entered By: RCJ Date: 04/14/97

Signature of Chemist: RW Schroeder Date: 4/15/97

BLANK.WB1 REV 1.0 342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type			TIC	TOC
STD	Sample Size in mL	(SS)	1.0000	0.2000
	Dilution Factor	(DF)	1	1
Worklist	Final Coulometer Reading in µg	(C1)	607.5	612.5
15202	µg of Carbon from Baseline	(C2)	5.8	38
Test Code	Standard Book Number		25N12A	24N12A
@TICTOC1	Standard Value (µg/ml)		602	3000

Matrix
LIQUID
Batch Number
96011807
Rerun
0
Sample Prep
N/A
Sample #
STANDARD
Instrument Code
CARB1
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/14/97
Analysis Date
04/12/97
Analysis Time
10:16 PM
Sample Point
BY-112

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	6.02E+02	2.87E+03
Percent Standard Recovery	100.0	95.8

Data Entered By: RCJ Date: 04/14/97

Signature of Chemist: Date: 4/15/97

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Size in g	(SS)	TIC	TOC
SAMPLE	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	6312.6	189.4
15202	µg of Carbon from Baseline	(C2)	5.8	38
Test Code				
@TICTOC1				

Matrix
SOLID
Batch Number
96011807
Rerun
0
Sample Prep
N/A
Sample #
S96T005873
Instrument Code
CARB1
Prepared By
RCJ
Chemist
RWS
Analyst
LMJ
Date Completed
04/14/97
Analysis Date
04/12/97
Analysis Time
10:16 PM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	4.74E+04	1.14E+03

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
DUP	Sample Size in g	(SS)	0.1599	0.1599
	Dilution Factor	(DF)	1	1
WorkList	µg of Carbon in Sample	(C1)	7105.1	234.8
15202	µg of Carbon from Baseline	(C2)	5.8	38
Test Code	Known µg of C from Original Sample		4.74E+4	1.14E+3
@TICTOC1				

Matrix
SOLID
Batch Number
96011807
Rerun
0
Sample Prep
N/A
Sample #
S96T005873
Instrument Code
CARB1
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/14/97
Analysis Date
04/12/97
Analysis Time
10:16 PM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	4.44E+04	1.23E+03

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Vial Data		TIC	TOC
SPK	Sample Size in g	(SS)	0.1330	0.1330
Work List	Final Coulometer Reading in µg	(C1)	6312.6	189.4
15202	Spiked Vial Data			
Test Code	Sample Size in g	(SPK SS)	0.1454	0.1454
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C2)	7064.8	478.1
SOLID	Spike Book Number		25N12A	24N12F
Batch Number	Spike Standard Value in µg/ml	(SPK CONC)	602	3000
96011807				
Rerun#				
0				
Sample Prep				
N/A				
Sample #	Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 1			
S96T005873				
Instrument Code	QC Actual in µg/mL = Spike Value (µg/mL)			
C.CB1	QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100			
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
PJM				
Date Complete				
04/14/97				
Analysis Date				
04/12/97				
Analysis Time			TIC	TOC
10:16 PM	QC Actual in µg/mL		6.02E+02	3.00E+03
Sample Point	QC Found in µg/mL		3.27E+02	2.71E+03
E1-112	Percent Spike Recovery		54.4	90.3

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SPIKE.WB1 REV 1.1 342100ML

WORKBOOK PAGE: SAM6

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
SAMPLE	Sample Size in g	(SS)	0.1121	0.1121
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	9551.4	80.4
15202	µg of Carbon from Baseline	(C2)	5.8	38
Test Code				
@TICTOC1				

Matrix
SOLID
Batch Number
96011807
Rerun
0
Sample Prep
N/A
Sample #
S96T005874
Instrument Code
CARB1
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/14/97
Analysis Date
04/12/97
Analysis Time
10:16 PM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	8.52E+04	3.78E+02

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

I:\342100\OUT\TT15202.WB1 04/14/97 10:34:40

WORKBOOK PAGE: DUP7

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
DUP	Sample Size in g	(SS)	0.1060	0.1060
	Dilution Factor	(DF)	1	1
WorkList	µg of Carbon in Sample	(C1)	8756.2	112
15202	µg of Carbon from Baseline	(C2)	5.8	38
Test Code	Known µg of C from Original Sample		8.52E+4	3.78E+2
@TICTOC1				
Matrix				
SOLID				
Batch Number				
96011807				
Rerun	µg of Carbon/g = (C1-C2) * DF / SS			
0	µg of Carbon/g for TIC = 5 if C1 < C2			
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2			
N/A				
Sample #				
S96T005874				
Instrument Code				
CARB1				
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
PJM				
Date Complete				
04/14/97				
Analysis Date				
04/12/97			TIC	TOC
Analysis Time	Method Detection Limit in ug/g		5	40
10:16 PM				
Sample Point	µg of Carbon/g		8.26E+04	6.98E+02
BY-112				

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD-1 Date: 04/11/97 Time: 22:46:24

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .53 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ====	Analysis Time ====	Coulometer ====	% Difference ==
1	0.51	0.70	0.00
2	1.00	0.90	22.22
3	1.50	1.90	52.63
4	2.00	35.30	94.62
5	2.50	160.20	77.97
6	3.00	321.60	50.19
7	3.50	451.70	28.80
8	4.00	531.60	15.03
9	4.50	572.10	7.08
10	5.00	590.70	3.15
11	5.50	598.80	1.35
12	6.00	602.00	0.53
13	6.50	603.40	0.23
14	7.00	604.20	0.13
15	7.50	604.90	0.12
16	8.00	605.30	0.07
17	8.50	605.80	0.08
18	9.00	606.20	0.07
19	9.50	606.50	0.05
20	10.00	607.00	0.08
21	10.50	607.20	0.03
22	11.00	607.50	0.05

USER INPUT BLANK VALUE
BLANK VALUE = 5.829353 micrograms carbon
BLANK FACTOR = 5.829353 / 10.99878 = +5.3E-01 ug/min Carbon

SAMPLE RESULTS:
(607.5 - 5.829353)(1)/(1000) = +6.017E-01 g/L Carbon
(607.5 - 5.829353)(1)/(1000)(12) = +5.014E-02 Molar Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 571 TO 586.

Sample Run By: PJ McCown 4/11/97
PJ MCCOWN 00000

1.0mL 25N12A

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD-1 Date: 04/11/97 Time: 23:02:52

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.45 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	0.40	50.00
3	1.51	2.00	80.00
4	2.00	31.60	93.67
5	2.50	185.70	82.98
6	3.00	419.90	55.78
7	3.50	541.90	22.51
8	4.00	581.00	6.73
9	4.50	596.00	2.52
10	5.00	601.60	0.93
11	5.50	604.50	0.48
12	6.00	605.80	0.21
13	6.50	607.20	0.23
14	7.00	608.00	0.13
15	7.50	608.60	0.10
16	8.00	609.30	0.11
17	8.50	610.00	0.11
18	9.00	610.60	0.10
19	9.50	611.10	0.08
20	10.00	611.70	0.10
21	10.50	612.10	0.07
22	11.00	612.50	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 37.94579 micrograms carbon
BLANK FACTOR = 37.94579 / 10.99878 = +3.5E+00 ug/min Carbon

SAMPLE RESULTS:
(612.5 - 37.94579)(1)/(200) = +2.873E+00 g/L Carbon
(612.5 - 37.94579)(1)/(200)(12) = +2.394E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown
PJ MCCOWN 00000

.200ML 24N12F

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-1 Date: 04/11/97 Time: 22:16:42

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-1
Blank Value = N/A

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.01	0.60	50.00
3	1.51	0.80	25.00
4	2.00	1.10	27.27
5	2.50	1.30	15.38
6	3.00	1.60	18.75
7	3.50	1.90	15.79
8	4.00	2.30	17.39
9	4.50	2.50	8.00
10	5.00	2.80	10.71
11	5.50	3.00	6.67
12	6.00	3.20	6.25
13	6.50	3.50	8.57
14	7.00	3.70	5.41
15	7.50	4.00	7.50
16	8.00	4.20	4.76
17	8.50	4.50	6.67
18	9.00	4.80	6.25
19	9.50	5.00	4.00
20	10.00	5.20	3.85
21	10.50	5.50	5.45
22	11.00	5.80	5.17

BLANK VALUE = 5.8 micrograms carbon
BLANK FACTOR = 5.8 / 10.9978 = +5.3E-01 ug/min Carbon

Sample Run By: PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-1 Date: 04/11/97 Time: 22:28:58

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-1
Blank Value = N/A

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.50	40.00
3	1.51	3.10	83.87
4	2.01	10.90	71.56
5	2.50	18.20	40.11
6	3.00	24.10	24.48
7	3.50	26.80	10.07
8	4.00	29.10	7.90
9	4.50	30.70	5.21
10	5.00	31.70	3.15
11	5.50	32.70	3.06
12	6.00	33.70	2.97
13	6.50	34.40	2.03
14	7.00	35.00	1.71
15	7.50	35.60	1.69
16	8.00	35.90	0.84
17	8.50	36.40	1.37
18	9.00	36.80	1.09
19	9.50	37.30	1.34
20	10.00	37.50	0.53
21	10.50	37.70	0.53
22	11.00	38.00	0.79

BLANK VALUE = 38 micrograms carbon
BLANK FACTOR = 38 / 10.99878 = +3.45E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-1 Date: 04/11/97 Time: 23:22:58

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .53 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	0.50	60.00
3	1.50	0.60	16.67
4	2.00	0.90	33.33
5	2.50	1.20	25.00
6	3.00	1.40	14.29
7	3.50	1.60	12.50
8	4.00	1.80	11.11
9	4.50	2.10	14.29
10	5.00	2.30	8.70
11	5.50	2.50	8.00
12	6.00	2.80	10.71
13	6.50	3.00	6.67
14	7.00	3.30	9.09
15	7.50	3.50	5.71
16	8.00	3.70	5.41
17	8.50	3.90	5.13
18	9.00	4.20	7.14
19	9.50	4.40	4.55
20	10.00	4.70	6.38
21	10.50	4.90	4.08
22	11.03	5.20	5.77

USER INPUT BLANK VALUE
BLANK VALUE = 5.829353 micrograms carbon
BLANK FACTOR = 5.829353 / 10.99878 = +5.3E-01 ug/min Carbon

SAMPLE RESULTS:
(5.2 - 5.846756) (1)/(1) = < 5.00 E-3 g/L Carbon
(5.2 - 5.846756) (1)/(1) (12) = < 4.17 E-4 Molar Carbon

Sample Run By: PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-1 Date: 04/11/97 Time: 23:37:00

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.45 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.20	100.00
3	1.50	0.70	71.43
4	2.00	5.90	88.14
5	2.50	12.70	53.54
6	3.00	18.30	30.60
7	3.50	21.30	14.08
8	4.00	22.90	6.99
9	4.50	23.90	4.18
10	5.00	24.50	2.45
11	5.50	25.10	2.39
12	6.00	25.50	1.57
13	6.50	25.90	1.54
14	7.00	26.20	1.15
15	7.50	26.60	1.50
16	8.00	26.90	1.12
17	8.50	27.20	1.10
18	9.00	27.40	0.73
19	9.50	27.80	1.44
20	10.00	28.10	1.07
21	10.50	28.30	0.71
22	11.00	28.60	1.05

USER INPUT BLANK VALUE
BLANK VALUE = 37.94579 micrograms carbon
BLANK FACTOR = 37.94579 / 10.99878 = +3.5E+00 ug/min Carbon

SAMPLE RESULTS:
(28.6 - 37.94326)(1)/(1) = < 5.00 E-3 g/L Carbon
(28.6 - 37.94326)(1)/(1)(12) = < 4.17 E-4 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Rpm 4/11/97

Sample: S96T005873 -1 Date: 04/12/97 Time: 00:00:49

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .53 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	0.50	60.00
3	1.51	61.10	99.18
4	2.00	736.40	91.70
5	2.50	1483.80	50.37
6	3.00	2230.80	33.49
7	3.50	2977.70	25.08
8	4.00	3724.20	20.04
9	4.50	4471.90	16.72
10	5.00	5218.60	14.31
11	5.50	5965.70	12.52
12	6.00	6271.50	4.88
13	6.50	6285.40	0.22
14	7.00	6294.20	0.14
15	7.50	6299.70	0.09
16	8.00	6303.70	0.06
17	8.50	6306.10	0.04
18	9.00	6307.90	0.03
19	9.50	6309.50	0.03
20	10.00	6310.60	0.02
21	%-1429.50	6311.60	0.02
22	%-1429.00	6312.60	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 5.829353 micrograms carbon
BLANK FACTOR = 5.829353 / 10.99878 = +5.3E-01 ug/min Carbon

SAMPLE RESULTS:
(6312.6 --757.3705)(1)/(1) = +7.0700E+03 g/L Carbon
(6312.6 --757.3705)(1)/(1)(12) = +5.8916E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.1330g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

RSM 4/12/97

Sample: S96T005873 -/ Date: 04/12/97 Time: 00:17:47

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.45 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.50	0.00
2	1.01	1.10	54.55
3	1.51	3.00	63.33
4	2.00	30.90	90.29
5	2.50	84.80	63.56
6	3.00	130.80	35.17
7	3.50	156.00	16.15
8	4.00	167.00	6.59
9	4.50	172.00	2.91
10	5.00	175.60	2.05
11	5.50	177.80	1.24
12	6.00	179.80	1.11
13	6.50	181.40	0.88
14	7.00	182.80	0.77
15	7.50	184.20	0.76
16	8.00	185.00	0.43
17	8.50	186.00	0.54
18	9.00	186.80	0.43
19	9.50	187.60	0.43
20	10.00	188.10	0.27
21	10.50	188.70	0.32
22	11.00	189.40	0.37

USER INPUT BLANK VALUE
BLANK VALUE = 37.94579 micrograms carbon
BLANK FACTOR = 37.94579 / 10.99878 = +3.5E+00 ug/min Carbon

SAMPLE RESULTS:
(189.4 - 37.94597)(1)/(1) = +1.515E+02 g/L Carbon
(189.4 - 37.94597)(1)/(1)(12) = +1.262E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.1330g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5873 DUP-1 Date: 04/12/97 Time: 00:35:54

Sample Size = 1 uL	Analyst : PJ MCCOWN
Dil Factor = 1	Min Readings = 22
Blank ID # =	Max Readings = 22
Blank Value = .53 ug/minute C	% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.00	0.10	100.00
3	1.50	48.10	99.79
4	2.00	711.60	93.24
5	2.50	1458.30	51.20
6	3.00	2205.70	33.88
7	3.50	2952.10	25.28
8	4.00	3699.70	20.21
9	4.50	4446.30	16.79
10	5.00	5193.30	14.38
11	5.50	5940.10	12.57
12	6.00	6687.50	11.18
13	6.50	7080.50	5.55
14	7.00	7089.50	0.13
15	7.50	7093.50	0.06
16	8.00	7096.10	0.04
17	8.50	7098.40	0.03
18	9.00	7100.10	0.02
19	9.50	7101.60	0.02
20	10.00	7103.00	0.02
21	10.50	7104.00	0.01
22	11.00	7105.10	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 5.829353 micrograms carbon
BLANK FACTOR = 5.829353 / 10.99878 = +5.3E-01 ug/min Carbon

SAMPLE RESULTS:
(7105.1 - 5.829382)(1)/(1) = +7.0993E+03 g/L Carbon
(7105.1 - 5.829382)(1)/(1)(12) = +5.9161E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.1599g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5873 DUP-1 Date: 04/12/97 Time: 00:50:22

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.45 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	1.00	80.00
3	1.51	2.40	58.33
4	2.00	26.80	91.04
5	2.50	93.40	71.31
6	3.00	158.60	41.11
7	3.50	193.10	17.87
8	4.00	208.50	7.39
9	4.50	215.50	3.25
10	5.00	219.20	1.69
11	5.50	222.00	1.26
12	6.00	224.40	1.07
13	6.50	226.40	0.88
14	7.00	228.00	0.70
15	7.50	229.30	0.57
16	8.00	230.30	0.43
17	8.50	231.30	0.43
18	9.00	232.20	0.39
19	9.50	233.00	0.34
20	10.00	233.70	0.30
21	10.50	234.30	0.26
22	11.00	234.80	0.21

USER INPUT BLANK VALUE
BLANK VALUE = 37.94579 micrograms carbon
BLANK FACTOR = 37.94579 / 10.99878 = +3.5E+00 ug/min Carbon

SAMPLE RESULTS:
(234.8 - 37.9431)(1)/(1) = +1.969E+02 g/L Carbon
(234.8 - 37.9431)(1)/(1)(12) = +1.640E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.1599

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5873 SPK-1 Date: 04/12/97 Time: 01:16:24

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .53 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.80	0.00
2	1.01	2.90	72.41
3	1.51	39.80	92.71
4	2.00	668.50	94.05
5	2.50	1415.40	52.77
6	3.00	2162.80	34.56
7	3.50	2909.80	25.67
8	4.00	3656.30	20.42
9	4.50	4403.30	16.96
10	5.00	5150.20	14.50
11	5.50	5897.50	12.67
12	6.00	6643.90	11.23
13	6.50	7038.60	5.61
14	7.00	7049.30	0.15
15	7.50	7053.00	0.05
16	8.00	7055.70	0.04
17	8.50	7058.10	0.03
18	9.00	7059.70	0.02
19	9.50	7061.40	0.02
20	10.00	7062.80	0.02
21	10.50	7063.80	0.01
22	11.00	7064.80	0.01

USER INPUT BLANK VALUE
BLANK VALUE = 5.829353 micrograms carbon
BLANK FACTOR = 5.829353 / 10.99878 = +5.3E-01 ug/min Carbon

SAMPLE RESULTS:
(7064.8 - 5.828847)(1)/(1) = +7.0590E+03 g/L Carbon
(7064.8 - 5.828847)(1)/(1)(12) = +5.8825E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.1454g
+ .500mL 25N12A

p

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 4873 SPK-1 Date: 04/12/97 Time: 01:29:27

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.45 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.50	100.00
3	1.50	1.50	66.67
4	2.00	13.50	88.89
5	2.50	73.90	81.73
6	3.00	214.90	65.61
7	3.50	342.50	37.26
8	4.00	408.10	16.07
9	4.50	439.10	7.06
10	5.00	453.10	3.09
11	5.50	458.60	1.20
12	6.00	462.60	0.86
13	6.50	465.30	0.58
14	7.00	467.80	0.53
15	7.50	469.70	0.40
16	8.03	471.90	0.47
17	8.53	472.90	0.21
18	9.03	474.30	0.30
19	9.53	475.40	0.23
20	10.03	476.40	0.21
21	10.53	477.20	0.17
22	11.03	478.10	0.19

USER INPUT BLANK VALUE
BLANK VALUE = 37.94579 micrograms carbon
BLANK FACTOR = 37.94579 / 10.99878 = +3.5E+00 ug/min Carbon

SAMPLE RESULTS:
(478.1 - 38.05637)(1)/(1) = +4.400E+02 g/L Carbon
(478.1 - 38.05637)(1)/(1)(12) = +3.667E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.1454g
+.100mL 24N12F

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005874-1 Date: 04/12/97 Time: 03:02:46

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .53 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.20	100.00
3	1.51	51.90	99.61
4	2.00	732.40	92.91
5	2.50	1479.20	50.49
6	3.00	2226.40	33.56
7	3.50	2973.20	25.12
8	4.00	3720.50	20.09
9	4.50	4467.50	16.72
10	5.00	5214.40	14.32
11	5.50	5961.40	12.53
12	6.00	6708.00	11.13
13	6.50	7455.50	10.03
14	7.00	8202.30	9.10
15	7.50	8949.50	8.35
16	8.00	9522.10	6.01
17	8.50	9542.00	0.21
18	9.00	9544.70	0.03
19	9.50	9546.70	0.02
20	10.00	9548.40	0.02
21	10.50	9550.00	0.02
22	11.00	9551.40	0.01

USER INPUT BLANK VALUE
BLANK VALUE = 5.829353 micrograms carbon
BLANK FACTOR = 5.829353 / 10.99878 = +5.3E-01 ug/min Carbon

SAMPLE RESULTS:
(9551.4 - 5.829377)(1)/(1) = +9.5456E+03 g/L Carbon
(9551.4 - 5.829377)(1)/(1)(12) = +7.9546E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.1121 g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005874-1 Date: 04/12/97 Time: 03:15:42

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.45 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.01	1.30	69.23
3	1.51	2.90	55.17
4	2.00	15.90	81.76
5	2.50	40.00	60.25
6	3.00	57.30	30.19
7	3.50	64.40	11.02
8	4.00	67.80	5.01
9	4.50	70.20	3.42
10	5.00	72.00	2.50
11	5.50	73.70	2.31
12	6.00	74.80	1.47
13	6.50	75.90	1.45
14	7.00	76.80	1.17
15	7.50	77.40	0.78
16	8.00	78.10	0.90
17	8.50	78.60	0.64
18	9.00	79.00	0.51
19	9.50	79.50	0.63
20	10.00	79.70	0.25
21	10.50	80.10	0.50
22	11.00	80.40	0.37

USER INPUT BLANK VALUE
BLANK VALUE = 37.94579 micrograms carbon
BLANK FACTOR = 37.94579 / 10.99878 = +3.5E+00 ug/min Carbon

SAMPLE RESULTS:
(80.4 - 37.94595)(1)/(1) = +4.25E+01 g/L Carbon
(80.4 - 37.94595)(1)/(1)(12) = +3.54E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.1121 g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5874 DUP-1 Date: 04/12/97 Time: 03:49:13

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .53 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.70	0.00
2	1.01	1.60	56.25
3	1.50	68.60	97.67
4	2.00	761.00	90.99
5	2.50	1508.40	49.55
6	3.00	2254.80	33.10
7	3.50	3001.80	24.89
8	4.00	3749.10	19.93
9	4.50	4496.00	16.61
10	5.00	5242.60	14.24
11	5.50	5990.10	12.48
12	6.00	6736.50	11.08
13	6.50	7484.00	9.99
14	7.00	8230.50	9.07
15	7.50	8694.70	5.34
16	8.00	8729.90	0.40
17	8.50	8737.20	0.08
18	9.00	8741.80	0.05
19	9.50	8745.90	0.05
20	10.00	8749.60	0.04
21	10.50	8752.80	0.04
22	11.00	8756.20	0.04

USER INPUT BLANK VALUE
BLANK VALUE = 5.829353 micrograms carbon
BLANK FACTOR = 5.829353 / 10.99878 = +5,3E-01 ug/min Carbon

SAMPLE RESULTS:
(8756.2 - 5.828851)(1)/(1) = +8.7504E+03 g/L Carbon
(8756.2 - 5.828851)(1)/(1)(12) = +7.2920E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.1060 g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5874 DUP-1 Date: 04/12/97 Time: 04:01:42

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.45 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	2.30	0.00
2	1.01	4.70	51.06
3	1.51	11.80	60.17
4	2.00	37.00	68.11
5	2.50	66.40	44.28
6	3.00	84.20	21.14
7	3.50	88.70	5.07
8	4.00	91.60	3.17
9	4.50	94.10	2.66
10	5.00	96.30	2.28
11	5.50	98.10	1.83
12	6.00	99.80	1.70
13	6.50	101.40	1.58
14	7.00	102.80	1.36
15	7.50	104.20	1.34
16	8.00	105.50	1.23
17	8.50	106.60	1.03
18	9.00	107.80	1.11
19	9.50	109.00	1.10
20	10.00	110.20	1.09
21	10.50	111.10	0.81
22	11.00	112.00	0.80

USER INPUT BLANK VALUE
BLANK VALUE = 37.94579 micrograms carbon
BLANK FACTOR = 37.94579 / 10.99878 = +3.5E+00 ug/min Carbon

SAMPLE RESULTS:
(112 - 37.9431)(1)/(1) = +7.406E+01 g/L Carbon
(112 - 37.9431)(1)/(1)(12) = +6.171E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.1060 g

LABCORE Completed Worklist Report for Worklist# 15203

Analyst: slh **Instrument:** CARB2 **Book#** TIC 25N12A TOC 26N12A

Method: LA-34-100 Rev/Mod E-0

Worklist Comment: BY-112 TICTOC. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK		0		@TICTOC1 TIC-02	SOLID	1	2.30E+0	2.300	ug/g
1	BLNK		0		@TICTOC1 TOC-02	SOLID	1	7.90E+0	7.900	ug/g
2	STD		0		@TICTOC1 TIC-02	SOLID	6.02E+02	5.88E+2	97.674	% Recovery
2	STD		0		@TICTOC1 TOC-02	SOLID	3.00E+03	2.75E+3	91.667	% Recovery
3	SAMPLE	S96T005876	0		@TICTOC1 TIC-02	SOLID	N/A	1.72E+04	5.000	ug/g
3	SAMPLE	S96T005876	0		@TICTOC1 TOC-02	SOLID	N/A	3.07E+04	40.000	ug/g
4	DUP	S96T005876	0		@TICTOC1 TIC-02	SOLID	1.72E+4	1.28E+4	29.333	RPD
4	DUP	S96T005876	0		@TICTOC1 TOC-02	SOLID	3.07E+4	3.43E+4	11.077	RPD
5	TRIPL	S96T005876	0		@TICTOC1 TIC-02	SOLID	1.72E+4	1.33E+4	25.574	RPD
5	TRIPL	S96T005876	0		@TICTOC1 TOC-02	SOLID	~~3.07E+4~~ ~~4.00E+1~~	N/A RWS 4/15/97		RPD
6	SPK	S96T005876	0		@TICTOC1 TIC-02	SOLID	1.00E+02	0.00E+00	0.000	% Recovery
6	SPK	S96T005876	0		@TICTOC1 TOC-02	SOLID	1.00E+02	0.00E+00	0.000	% Recovery
7	SAMPLE	S96T005877	0		@TICTOC1 TIC-02	SOLID	N/A	2.68E+04	5.000	ug/g
7	SAMPLE	S96T005877	0		@TICTOC1 TOC-02	SOLID	N/A	6.16E+03	40.000	ug/g
8	DUP	S96T005877	0		@TICTOC1 TIC-02	SOLID	2.68E+4	1.79E+4	39.621	RPD
8	DUP	S96T005877	0		@TICTOC1 TOC-02	SOLID	6.16E+3	7.71E+3	22.350	RPD
9	TRIPL	S96T005877	0		@TICTOC1 TIC-02	SOLID	2.68E+4	2.71E+4	1.113	RPD
9	TRIPL	S96T005877	0		@TICTOC1 TOC-02	SOLID	6.16E+3	5.36E+3 RWS 4/15/97	13.889	RPD
10	SPK	S96T005877	0		@TICTOC1 TIC-02	SOLID	1.00E+02	~~0.00E+00~~ N/A	~~0.000~~ % Recovery	RWS 4/15/97
10	SPK	S96T005877	0		@TICTOC1 TOC-02	SOLID	1.00E+02	7.05E+01	70.500	% Recovery

Final page for worklist# 15203

Analyst Signature Date

4-14-97
Analyst Signature Date

RW Schroeder 4/15/97
Reviewer Signature Date

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

LABCORE Data Entry Template for Worklist# 15203

Analyst: SLH **Instrument:** CARB2 **Book#** 25N12-A TIC
26N12-A TOC

Method: LA-342-100 Rev/Mod

Worklist Comment: BY-112 TICTOC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	SOLID		
2	STD				@TICTOC1	SOLID		
3	SAMPLE	S96T005876	0		@TICTOC1	SOLID	96001393	BY-112
	Analytes Requested: TIC-02 , TOC-02							
4	DUP	S96T005876	0		@TICTOC1	SOLID		
5	TRIPL	S96T005876	0		@TICTOC1	SOLID		
6	SPK	S96T005876	0		@TICTOC1	SOLID		
7	SAMPLE	S96T005877	0		@TICTOC1	SOLID	96001393	BY-112
	Analytes Requested: TIC-02 , TOC-02							
8	DUP	S96T005877	0		@TICTOC1	SOLID		
9	TRIPL	S96T005877	0		@TICTOC1	SOLID		
10	SPK	S96T005877	0		@TICTOC1	SOLID		

Final page for worklist # 15203

Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

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

LABCORE Data Entry Template for Worklist# 15203

Analyst: SLH **Instrument:** CARB2 **Book#** 25N12-A TIC
26N12-A TOC

Method: LA-342-100 **Rev/Mod** _____

Worklist Comment: BY-112 TICTOC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	SOLID		
2	STD				@TICTOC1	SOLID		
3	SAMPLE	S96T005876	0		@TICTOC1	SOLID	96001393	BY-112
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T005876	0		@TICTOC1	SOLID		
5	SPK	S96T005876	0		@TICTOC1	SOLID		
6	SAMPLE	S96T005877	0		@TICTOC1	SOLID	96001393	BY-112
		Analytes Requested: TIC-02 , TOC-02						
7	DUP	S96T005877	0		@TICTOC1	SOLID		

Final page for worklist # 15203

S. Hood Boatright
Analyst Signature **Date** 4-12-97

Analyst Signature **Date**

Data Entry Comments: Both Samples run triplicate

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

HNF-SD-WM-DP-229, REV. 0

TIC/TOC: LA-342-100 (E-0)

WORKLIST #	ANALYST INITIALS	ANALYSIS DATE	ANALYSIS TIME	INSTRUMENT CODE
15203	SLH	4-12-97		

[X] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = BASE2 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 8.3 TOC: 21.3

[ ] BASELINE [ ] BLANK [ ] SAMPLE [X] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = S96T05876 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .0711g TIC: TOC:

FINAL COULOMETER READING (u TIC: 915.2 TOC: 2461.2

STD [ ] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = STD 2 STD # = 25N12-A TIC 26N12-A TOC

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: 1ml TOC: .200ml

FINAL COULOMETER READING (u TIC: 596.0 TOC: 571.9

[ ] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [X] SPIKE [ ] TRIPLICATE

SAMPLE # = S96T05876 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .0725g TIC: TOC:

FINAL COULOMETER READING (u TIC: 971.9 TOC:

SLH [X] BASELINE [X] BLANK [ ] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = BK2 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 6.0 TOC: 29.2

[ ] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [X] SPIKE [ ] TRIPLICATE

SAMPLE # = S96T05876 STD # = 25N12-A TIC 26N12-A TOC

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .0609g TIC: .500 TOC: .100

FINAL COULOMETER READING (u TIC: 926.6 TOC: 1817.8

[ ] BASELINE [ ] BLANK [X] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = S96T05876 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .0749g TIC: TOC:

FINAL COULOMETER READING (u TIC: 1293.0 TOC: 2317.5

[ ] BASELINE [ ] BLANK [X] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = S96T05877 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .1444g TIC: TOC:

FINAL COULOMETER READING (u TIC: 3875.0 TOC: 911.3

TIC/TOC: LA-342-100 (E-0)

WORKLIST #	ANALYST INITIALS	ANALYSIS DATE	ANALYSIS TIME	INSTRUMENT CODE
15203	SH	4-12-97		

☐ BASELINE BLANK ☒ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE

SAMPLE # = S96T05877 STD # =

SAMPLE WEIGHT (g) .1208 TIC: TOC:

SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 2169.9 TOC: 952.9

☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) TIC: TOC:

SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: TOC:

☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☒ SPIKE TRIPLICATE

SAMPLE # = S96T05877 STD # =

SAMPLE WEIGHT (g) .1406 TIC: TOC:

SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 3811.6 TOC: 775.3

☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) TIC: TOC:

SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: TOC:

☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☒ SPIKE TRIPLICATE

SAMPLE # = S96T05877 STD # = 25N12-A TIC 26N12-A TOC

SAMPLE WEIGHT (g) .08689 TIC: .500 TOC: .100

SPIKE/STANDARD VOLUME (mL)

FINAL COULOMETER READING (u TIC: 2325.2 TOC: 759.2

☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) TIC: TOC:

SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: TOC:

☐ BASELINE BLANK ☐ SAMPLE DUPLICATE ☐ SPIKE TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) TIC: TOC:

SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: TOC:

Sep. 27. 1996 11:33PM WHC 222S LAB ROOM 2F BACKSIDE
Apr. 13. 1997 3:17PM WHC 222S LAB ROOM 2F BACKSIDE No. 1965 P. 3/10
HNF-SD-WM-DP-229, REV. 0

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE 2 Date: 04/12/97 Time: 08:58:09

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE 2
Blank Value = N/A

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	0.50	80.00
3	1.51	0.80	37.50
4	2.01	1.20	33.33
5	2.50	1.50	20.00
6	3.00	2.00	25.00
7	3.50	2.60	23.08
8	4.00	3.00	13.33
9	4.50	3.40	11.76
10	5.00	3.80	10.53
11	5.50	4.30	11.63
12	6.00	4.70	8.51
13	6.50	5.00	6.00
14	7.00	5.40	7.41
15	7.50	5.80	6.90
16	8.00	6.10	4.92
17	8.50	6.50	6.15
18	9.00	6.80	4.41
19	9.50	7.20	5.56
20	10.00	7.60	5.26
21	10.50	7.90	3.80
22	11.00	8.30	4.82

BLANK VALUE = 8.3 micrograms carbon
BLANK FACTOR = 8.3 / 10.99799 = +7.5E-01 ug/min Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 592 TO 622.

Sample Run By: [signature] for SLH 4.23.97
SL HOOD 00002

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE 2 Date: 04/12/97 Time: 09:14:20

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE 2
Blank Value = N/A

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ====	Analysis Time ====	Coulometer ====	% Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	0.00	0.00
4	2.00	0.00	0.00
5	2.50	0.50	100.00
6	3.01	3.70	86.49
7	3.51	7.10	47.89
8	4.01	9.60	26.04
9	4.50	11.30	15.04
10	5.00	12.80	11.72
11	5.50	13.90	7.91
12	6.00	15.00	7.33
13	6.50	15.90	5.66
14	7.00	16.80	5.36
15	7.50	17.60	4.55
16	8.00	18.30	3.83
17	8.50	19.00	3.68
18	9.00	19.60	3.06
19	9.50	20.00	2.00
20	10.00	20.40	1.96
21	10.50	20.90	2.39
22	11.00	21.30	1.88

BLANK VALUE = 21.3 micrograms carbon
BLANK FACTOR = 21.3 / 10.99884 = +1.94E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00002

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK 2 Date: 04/12/97 Time: 10:13:57

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .75 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	0.00	0.00
4	2.00	0.00	0.00
5	2.50	0.10	100.00
6	3.00	0.60	83.33
7	3.50	1.00	40.00
8	4.00	1.40	28.57
9	4.50	2.00	30.00
10	5.00	2.30	13.04
11	5.50	2.50	8.00
12	6.00	2.80	10.71
13	6.50	3.10	9.68
14	7.00	3.40	8.82
15	7.50	3.80	10.53
16	8.00	4.00	5.00
17	8.50	4.30	6.98
18	9.00	4.80	10.42
19	9.50	5.10	5.88
20	10.00	5.40	5.56
21	10.50	5.70	5.26
22	11.00	6.00	5.00

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +7.5E-01 ug/min Carbon

SAMPLE RESULTS:
(6 - 8.249863)(1)/(1) = < 5.00 E-3 g/L Carbon
(6 - 8.249863)(1)/(1)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: _____
SL HOOD 00002

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK 2 Date: 04/12/97 Time: 11:51:27

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.94 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	0.10	100.00
4	2.00	6.10	98.36
5	2.50	12.00	49.17
6	3.00	17.10	29.82
7	3.50	19.10	10.47
8	4.00	20.90	8.61
9	4.50	22.20	5.86
10	5.00	23.10	3.90
11	5.50	23.80	2.94
12	6.00	24.20	1.65
13	6.50	25.00	3.20
14	7.00	25.40	1.57
15	7.50	25.90	1.93
16	8.00	26.50	2.26
17	8.50	27.00	1.85
18	9.00	27.60	2.17
19	9.50	27.90	1.08
20	10.00	28.40	1.76
21	10.50	29.00	2.07
22	11.00	29.20	0.68

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +1.9E+00 ug/min Carbon

SAMPLE RESULTS:
(29.2 - 21.33763)(1)/(1) = +7.86E+00 g/L Carbon
(29.2 - 21.33763)(1)/(1)(12) = +6.55E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00002

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD 2 Date: 04/12/97 Time: 09:32:29

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .75 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.50	0.00	0.00
4	2.00	33.80	100.00
5	2.50	146.00	76.85
6	3.00	281.40	48.12
7	3.50	395.60	28.87
8	4.00	477.10	17.08
9	4.50	530.00	9.98
10	5.00	559.90	5.34
11	5.50	575.20	2.66
12	6.00	583.20	1.37
13	6.50	586.90	0.63
14	7.00	589.10	0.37
15	7.50	590.70	0.27
16	8.00	591.90	0.20
17	8.50	592.90	0.17
18	9.00	593.70	0.13
19	9.50	594.40	0.12
20	10.00	594.90	0.08
21	10.50	595.50	0.10
22	11.00	596.00	0.08

USER INPUT BLANK VALUE
BLANK VALUE = 8.24913 micrograms carbon
BLANK FACTOR = 8.24913 / 10.99884 = +7.5E-01 ug/min Carbon

SAMPLE RESULTS:
(596 - 8.248352)(1)/(1000) = +5.878E-01 g/L Carbon
(596 - 8.248352)(1)/(1000)(12) = +4.898E-02 Molar Carbon

Sample Run By: SL Hood Boatright
SL HOOD 00002

Inl 25N12A

P

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD 2 Date: 04/12/97 Time: 09:46:32

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.94 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.50	2.70	100.00
4	2.00	120.60	97.76
5	2.50	290.40	58.47
6	3.00	423.00	31.35
7	3.50	497.60	14.99
8	4.00	534.00	6.82
9	4.50	551.20	3.12
10	5.00	557.90	1.20
11	5.50	561.00	0.55
12	6.00	562.80	0.32
13	6.50	564.50	0.30
14	7.00	565.70	0.21
15	7.50	566.90	0.21
16	8.00	567.70	0.14
17	8.50	568.60	0.16
18	9.00	569.40	0.14
19	9.50	570.10	0.12
20	10.00	570.60	0.09
21	10.50	571.20	0.11
22	11.00	571.90	0.12

USER INPUT BLANK VALUE
BLANK VALUE = 21.33775 micrograms carbon
BLANK FACTOR = 21.33775 / 10.99884 = +1.9E+00 ug/min Carbon

SAMPLE RESULTS:
(571.9 - 21.33763)(1)/(200) = +2.753E+00 g/L Carbon
(571.9 - 21.33763)(1)/(200)(12) = +2.294E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: SL Hood Boatright
SL HOOD 00002

.200 ml 26N12-A

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005876 Date: 04/12/97 Time: 12:19:37

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .75 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.50	0.00	0.00
4	2.00	55.20	100.00
5	2.50	276.50	80.04
6	3.00	600.10	53.92
7	3.50	879.80	31.79
8	4.00	1059.30	16.95
9	4.50	1174.20	9.79
10	5.00	1235.60	4.97
11	5.50	1265.00	2.32
12	6.00	1278.60	1.06
13	6.50	1283.90	0.41
14	7.00	1286.40	0.19
15	7.50	1288.10	0.13
16	8.00	1289.30	0.09
17	8.50	1290.10	0.06
18	9.00	1290.90	0.06
19	9.50	1291.40	0.04
20	10.00	1291.90	0.04
21	10.50	1292.40	0.04
22	11.00	1293.00	0.05

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +7.5E-01 ug/min Carbon

SAMPLE RESULTS:
(1293 - 8.247711)(1)/(1) = +1.2848E+03 g/L Carbon
(1293 - 8.247711)(1)/(1)(12) = +1.0706E+02 Molar Carbon

Sample Run By: SL HOOD 00002

SS .0749g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T05876 Date: 04/12/97 Time: 12:33:54

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.94 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.00	0.00	0.00
3	1.50	61.20	100.00
4	2.00	574.00	89.34
5	2.50	1295.20	55.68
6	3.00	1844.60	29.78
7	3.50	2096.00	11.99
8	4.00	2211.30	5.21
9	4.50	2264.30	2.34
10	5.00	2288.20	1.04
11	5.50	2297.30	0.40
12	6.00	2303.00	0.25
13	6.50	2305.50	0.11
14	7.00	2307.70	0.10
15	7.50	2309.90	0.10
16	8.00	2311.50	0.07
17	8.50	2312.50	0.04
18	9.00	2313.40	0.04
19	9.50	2314.70	0.06
20	10.00	2316.10	0.06
21	10.50	2317.00	0.04
22	11.00	2317.50	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +1.9E+00 ug/min Carbon

SAMPLE RESULTS:
(2317.5 - 21.33562)(1)/(1) = +2.2962E+03 g/L Carbon
(2317.5 - 21.33562)(1)/(1)(12) = +1.9135E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: SL HOOD 00002

SS .0749

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T05876 DUP Date: 04/12/97 Time: 12:54:36

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .75 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	0.00	0.00
4	2.00	11.10	100.00
5	2.50	98.30	88.71
6	3.00	276.70	64.47
7	3.50	493.60	43.94
8	4.00	671.20	26.46
9	4.50	787.40	14.76
10	5.00	852.50	7.64
11	5.50	884.90	3.66
12	6.00	900.40	1.72
13	6.50	906.60	0.68
14	7.00	909.00	0.26
15	7.50	910.60	0.18
16	8.00	911.70	0.12
17	8.50	912.60	0.10
18	9.00	913.40	0.09
19	9.50	914.10	0.08
20	10.00	914.60	0.05
21	10.50	914.90	0.03
22	11.00	915.20	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +7.5E-01 ug/min Carbon

SAMPLE RESULTS:
(915.2 - 8.247711)(1)/(1) = +9.070E+02 g/L Carbon
(915.2 - 8.247711)(1)/(1)(12) = +7.558E+01 Molar Carbon

Sample Run By: SL HOOD 00002

SS .0711g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T05876 DUP Date: 04/12/97 Time: 13:09:47

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.94 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.50	63.20	100.00
4	2.00	603.90	89.53
5	2.50	1339.80	54.93
6	3.00	2003.10	33.11
7	3.50	2258.80	11.32
8	4.00	2365.00	4.49
9	4.50	2410.30	1.88
10	5.00	2431.30	0.86
11	5.50	2439.70	0.34
12	6.00	2445.50	0.24
13	6.50	2448.90	0.14
14	7.00	2451.20	0.09
15	7.50	2453.20	0.08
16	8.00	2455.10	0.08
17	8.50	2456.50	0.06
18	9.00	2457.70	0.05
19	9.50	2458.90	0.05
20	10.00	2459.60	0.03
21	10.49	2460.40	0.03
22	11.00	2461.20	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +1.9E+00 ug/min Carbon

SAMPLE RESULTS:
(2461.2 - 21.33065)(1)/(1) = +2.4399E+03 g/L Carbon
(2461.2 - 21.33065)(1)/(1)(12) = +2.0332E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00002

35 .0711g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T05876 TRP Date: 04/12/97 Time: 13:26:22

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .75 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	0.00	0.00
4	2.00	31.10	100.00
5	2.50	165.00	81.15
6	3.00	365.40	54.84
7	3.50	573.20	36.25
8	4.00	733.00	21.80
9	4.50	840.00	12.74
10	5.00	905.80	7.26
11	5.50	940.00	3.64
12	6.00	955.30	1.60
13	6.50	962.50	0.75
14	7.00	965.00	0.26
15	7.50	967.00	0.21
16	8.00	967.90	0.09
17	8.50	969.30	0.14
18	9.00	969.90	0.06
19	9.50	970.20	0.03
20	10.00	970.70	0.05
21	10.50	971.00	0.03
22	11.00	971.90	0.09

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +7.5E-01 ug/min Carbon

SAMPLE RESULTS:
(971.9 - 8.24913)(1)/(1) = +9.637E+02 g/L Carbon
(971.9 - 8.24913)(1)/(1)(12) = +8.030E+01 Molar Carbon

Sample Run By: _____
SL HOOD 00002

ss .0725g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T05876 SPK Date: 04/12/97 Time: 13:53:53

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .75 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.50	0.00	0.00
4	2.00	48.70	100.00
5	2.50	213.80	77.22
6	3.00	445.40	52.00
7	3.50	644.50	30.89
8	4.00	775.40	16.88
9	4.50	849.60	8.73
10	5.00	890.00	4.54
11	5.50	909.50	2.14
12	6.00	915.70	0.68
13	6.50	918.70	0.33
14	7.00	920.50	0.20
15	7.50	921.90	0.15
16	8.00	923.00	0.12
17	8.50	923.90	0.10
18	9.00	924.40	0.05
19	9.50	924.90	0.05
20	10.00	925.60	0.08
21	10.50	926.20	0.06
22	11.00	926.60	0.04

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +7.5E-01 ug/min Carbon

SAMPLE RESULTS:
(926.6 - 8.24913)(1)/(1) = +9.184E+02 g/L Carbon
(926.6 - 8.24913)(1)/(1)(12) = +7.653E+01 Molar Carbon

Sample Run By: _____
SL HOOD 00002

SS .0609g
spk .500 ml 25N12-A

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T05876 SPK Date: 04/12/97 Time: 14:08:01

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.94 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ====	Analysis Time ====	Coulometer ====	% Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	31.80	100.00
4	2.01	356.70	91.08
5	2.50	845.50	57.81
6	3.00	1241.40	31.89
7	3.50	1506.30	17.59
8	4.00	1653.80	8.92
9	4.50	1736.50	4.76
10	5.00	1774.80	2.16
11	5.50	1791.00	0.90
12	6.00	1799.60	0.48
13	6.50	1803.50	0.22
14	7.00	1806.20	0.15
15	7.50	1808.30	0.12
16	8.00	1810.70	0.13
17	8.50	1812.40	0.09
18	9.00	1813.60	0.07
19	9.50	1815.00	0.08
20	10.00	1816.40	0.08
21	10.50	1817.40	0.06
22	11.00	1817.80	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +1.9E+00 ug/min Carbon

SAMPLE RESULTS:
(1817.8 - 21.33941)(1)/(1) = +1.7965E+03 g/L Carbon
(1817.8 - 21.33941)(1)/(1)(12) = +1.4971E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00002

SS .0609g
~~200~~ SLHB
spk .100 ml 26N12-A

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T05877 Date: 04/12/97 Time: 14:22:01

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .75 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	Analysis Time	Coulometer	% Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.50	5.40	100.00
4	2.00	344.20	98.43
5	2.50	1078.90	68.10
6	3.00	1826.40	40.93
7	3.50	2573.80	29.04
8	4.00	3318.80	22.45
9	4.50	3731.20	11.05
10	5.00	3806.80	1.99
11	5.50	3840.50	0.88
12	6.00	3855.10	0.38
13	6.50	3861.50	0.17
14	7.00	3864.60	0.08
15	7.50	3867.50	0.07
16	8.00	3869.20	0.04
17	8.50	3870.90	0.04
18	9.00	3872.10	0.03
19	9.50	3872.70	0.02
20	10.00	3873.60	0.02
21	10.50	3874.40	0.02
22	11.00	3875.00	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +7.5E-01 ug/min Carbon

SAMPLE RESULTS:
(3875 - 8.248398)(1)/(1) = +3.8668E+03 g/L Carbon
(3875 - 8.248398)(1)/(1)(12) = +3.2223E+02 Molar Carbon

Sample Run By: _____
SL HOOD 00002

SS .1444g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T05877 Date: 04/12/97 Time: 14:38:59

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.94 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ====	Analysis Time ====	Coulometer ====	% Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.50	6.50	100.00
4	2.00	164.90	96.06
5	2.50	418.20	60.57
6	3.00	620.60	32.61
7	3.50	746.80	16.90
8	4.00	826.80	9.68
9	4.50	864.40	4.35
10	5.00	882.40	2.04
11	5.50	889.70	0.82
12	6.00	895.30	0.63
13	6.50	899.00	0.41
14	7.00	901.20	0.24
15	7.50	903.50	0.25
16	8.00	904.90	0.15
17	8.50	906.30	0.15
18	9.00	907.90	0.18
19	9.50	908.80	0.10
20	10.00	910.00	0.13
21	10.50	910.50	0.05
22	11.00	911.30	0.09

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +1.9E+00 ug/min Carbon

SAMPLE RESULTS:
(911.3 - 21.33775)(1)/(1) = +8.900E+02 g/L Carbon
(911.3 - 21.33775)(1)/(1)(12) = +7.416E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00002

SS .1444g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T05877 DUP Date: 04/12/97 Time: 14:53:04

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .75 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ====	Analysis Time ====	Coulometer ====	% Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	0.00	0.00
4	2.00	16.50	100.00
5	2.50	258.10	93.61
6	3.00	847.30	69.54
7	3.50	1467.90	42.28
8	4.00	1848.80	20.60
9	4.50	1998.60	7.50
10	5.00	2082.40	4.02
11	5.50	2128.30	2.16
12	6.00	2148.50	0.94
13	6.50	2156.90	0.39
14	7.00	2161.30	0.20
15	7.50	2163.50	0.10
16	8.00	2164.70	0.06
17	8.50	2165.90	0.06
18	9.00	2166.80	0.04
19	9.50	2167.80	0.05
20	10.00	2168.50	0.03
21	10.50	2169.30	0.04
22	11.00	2169.90	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +7.5E-01 ug/min Carbon

SAMPLE RESULTS:
(2169.9 - 8.24913)(1)/(1) = +2.1617E+03 g/L Carbon
(2169.9 - 8.24913)(1)/(1)(12) = +1.8014E+02 Molar Carbon

Sample Run By: _____
SL HOOD 00002

55 .1208g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T05877 DUP Date: 04/12/97 Time: 15:09:13

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.94 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	0.50	100.00
4	2.01	122.90	99.59
5	2.51	361.00	65.96
6	3.01	605.70	40.40
7	3.51	761.00	20.41
8	4.01	849.10	10.38
9	4.51	894.40	5.06
10	5.01	917.00	2.46
11	5.51	929.40	1.33
12	6.01	935.10	0.61
13	6.51	939.20	0.44
14	7.00	942.20	0.32
15	7.50	945.00	0.30
16	8.00	946.60	0.17
17	8.50	948.10	0.16
18	9.00	949.00	0.09
19	9.50	950.00	0.11
20	10.00	951.30	0.14
21	10.50	952.30	0.11
22	11.00	952.90	0.06

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +1.9E+00 ug/min Carbon

SAMPLE RESULTS:
(952.9 - 21.34332)(1)/(1) = +9.316E+02 g/L Carbon
(952.9 - 21.34332)(1)/(1)(12) = +7.763E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00002

SS.1208g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T05877 TRP Date: 04/12/97 Time: 15:23:44

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .75 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ====	Analysis Time ====	Coulometer ====	% Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	3.40	100.00
4	2.00	315.20	98.92
5	2.50	1048.30	69.93
6	3.00	1795.30	41.61
7	3.50	2543.00	29.40
8	4.00	3274.50	22.34
9	4.50	3637.20	9.97
10	5.00	3725.70	2.38
11	5.50	3766.40	1.08
12	6.00	3786.70	0.54
13	6.50	3795.40	0.23
14	7.00	3800.50	0.13
15	7.50	3803.30	0.07
16	8.00	3805.10	0.05
17	8.50	3806.40	0.03
18	9.00	3807.60	0.03
19	9.50	3808.70	0.03
20	10.00	3809.50	0.02
21	10.50	3810.50	0.03
22	11.00	3811.60	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +7.5E-01 ug/min Carbon

SAMPLE RESULTS:
(3811.6 - 8.248398)(1)/(1) = +3.8034E+03 g/L Carbon
(3811.6 - 8.248398)(1)/(1)(12) = +3.1695E+02 Molar Carbon

Sample Run By: _____
SL HOOD 00002

SS .14069

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T05877 TRP Date: 04/12/97 Time: 15:37:19

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.94 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ====	Analysis Time ====	Coulometer ====	% Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	0.00	0.00
4	2.00	84.20	100.00
5	2.50	251.20	66.48
6	3.00	427.80	41.28
7	3.50	567.30	24.59
8	4.00	658.70	13.88
9	4.50	710.80	7.33
10	5.00	736.10	3.44
11	5.50	750.70	1.94
12	6.00	756.60	0.78
13	6.50	759.80	0.42
14	7.00	763.10	0.43
15	7.50	765.00	0.25
16	8.00	767.60	0.34
17	8.50	769.60	0.26
18	9.00	770.70	0.14
19	9.50	771.90	0.16
20	10.00	773.40	0.19
21	10.50	774.50	0.14
22	11.00	775.30	0.10

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +1.9E+00 ug/min Carbon

SAMPLE RESULTS:
(775.3 - 21.3342)(1)/(1) = +7.540E+02 g/L Carbon
(775.3 - 21.3342)(1)/(1)(12) = +6.283E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00002

SS .14065

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T05877 SPK Date: 04/12/97 Time: 15:51:21

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .75 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	0.80	100.00
4	2.00	245.70	99.67
5	2.50	830.00	70.40
6	3.00	1426.60	41.82
7	3.50	1821.50	21.68
8	4.00	2028.60	10.21
9	4.50	2153.30	5.79
10	5.00	2232.00	3.53
11	5.50	2274.00	1.85
12	6.00	2297.40	1.02
13	6.50	2307.30	0.43
14	7.00	2313.10	0.25
15	7.50	2316.20	0.13
16	8.00	2318.80	0.11
17	8.50	2320.80	0.09
18	9.00	2321.60	0.03
19	9.50	2322.40	0.03
20	10.00	2323.40	0.04
21	10.50	2324.30	0.04
22	11.00	2325.20	0.04

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +7.5E-01 ug/min Carbon

SAMPLE RESULTS:
(2325.2 - 8.248489)(1)/(1) = +2.3170E+03 g/L Carbon
(2325.2 - 8.248489)(1)/(1)(12) = +1.9308E+02 Molar Carbon

Sample Run By: _____
SL HOOD 00002

SS .0868g
SPK .500 ml
25N12-A

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T05877 SPK Date: 04/12/97 Time: 16:10:00

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 1.94 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.50	2.80	100.00
4	2.00	104.60	97.32
5	2.50	234.60	55.41
6	3.00	353.90	33.71
7	3.50	465.20	23.93
8	4.00	567.20	17.98
9	4.50	641.20	11.54
10	5.00	694.90	7.73
11	5.50	719.40	3.41
12	6.00	736.70	2.35
13	6.50	743.60	0.93
14	7.00	747.40	0.51
15	7.50	750.20	0.37
16	8.00	752.40	0.29
17	8.50	753.60	0.16
18	9.00	754.80	0.16
19	9.50	755.60	0.11
20	10.00	757.00	0.18
21	10.50	758.20	0.16
22	11.00	759.20	0.13

USER INPUT BLANK VALUE
BLANK VALUE = 0 micrograms carbon
BLANK FACTOR = 0 / 0 = +1.9E+00 ug/min Carbon

SAMPLE RESULTS:
(759.2 - 21.33775)(1)/(1) = +7.379E+02 g/L Carbon
(759.2 - 21.33775)(1)/(1)(12) = +6.149E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00002

SS
TOC .800 ml
SPK 26NR-A

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Size in g (SS)	TIC	TOC
BLNK	Dilution Factor (DF)	1	1
Work List	µg of Carbon in Sample (C1)	6	29.2
15203	µg of Carbon from Baseline (C2)	8.3	21.3
Test Code			
@TICTOC1			
Matrix			
SOLID			
Batch Number			
96011808			
Rerun	µg of Carbon = |C1-C2|		
0			
Sample Prep			
N/A			
Sample #			
BLANK			
Instrument Code			
CARB2			
Prepared By			
RCJ			
Chemist			
RWS			
Analyst			
SLH			
Date Completed			
04/14/97			
Analysis Date		TIC	TOC
04/12/97			
Analysis Time	Method Detection Limit in ug/g	5	40
09:00 AM			
Sample Point	µg of Carbon	2.30E+00	7.90E+00
BY-112			

Data Entered By: RCJ Date: 04/14/97

Signature of Chemist: RW Schroeder Date: 4/15/97

BLANK.WB1 REV 1.0 342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type			TIC	TOC
STD	Sample Size in mL	(SS)	1.0000	0.2000
	Dilution Factor	(DF)	1	1
WorkList	Final Coulometer Reading in µg	(C1)	596	571.9
15203	µg of Carbon from Baseline	(C2)	8.3	21.3
Test Code	Standard Book Number		25N12A	26N12A
@TICTOC1	Standard Value (µg/ml)		602	3000

Matrix	LIQUID
Batch Number	96011808
Rerun	0
Sample Prep	N/A
Sample #	STANDARD
Instrument Code	CARB2
Prepared By	RCJ
Chemist	RWS
Analyst	SLH
Date Complete	04/14/97
Analysis Date	04/12/97
Analysis Time	09:00 AM
Sample Point	BY-112

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	5.88E+02	2.75E+03
Percent Standard Recovery	97.6	91.8

Data Entered By: RCJ Date: 04/14/97

Signature of Chemist: RWS Schroeder Date: 4/15/97

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
SAMPLE	Sample Size in g	(SS)	0.0749	0.0749
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	1293	2317.5
15203	µg of Carbon from Baseline	(C2)	8.3	21.3
Test Code				
@TICTOC1				

Matrix
SOLID
Batch Number
96011808
Rerun
0
Sample Prep
N/A
Sample #
S96T005876
Instrument Code
CARB2
Prepared By
RCJ
Chemist
RWS
Analyst
SLH
Date Complete
04/14/97
Analysis Date
04/12/97
Analysis Time
09:00 AM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	1.72E+04	3.07E+04

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
DUP	Sample Size in g	(SS)	0.0711	0.0711
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	915.2	2461.2
15203	µg of Carbon from Baseline	(C2)	8.3	21.3
Test Code	Known µg of C from Original Sample		1.72E+4	3.07E+4
@TICTOC1				

Matrix
SOLID
Batch Number
96011808
Rerun
0
Sample Prep
N/A
Sample #
S96T005876
Instrument Code
CARB2
Prepared By
RCJ
Chemist
RWS
Analyst
SLH
Date Complete
04/14/97
Analysis Date
04/12/97
Analysis Time
09:00 AM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	1.28E+04	3.43E+04

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: TRIPL5

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Size in g	(SS)	TIC	TOC
TRIPL	Dilution Factor	(DF)	1	1
WorkList	µg of Carbon in Sample	(C1)	971.9	0
15203	µg of Carbon from Baseline	(C2)	8.3	21.3
Test Code	Known µg of C from Original Sample		1.72E+4	3.07E+4
@T!CTOC1	Duplicate Result		1.28E+4	3.43E+4

Matrix
SOLID
Batch Number
96311808
Rerun
0
Sample Prep
N/A
Sample #
S96T005876
Instrument Code
CARB2
Prepared By
RCJ
Chemist
RWS
Analyst
SLH
Date Complete
04/14/97
Analysis Date
04/12/97
Analysis Time
09:00 AM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

NOTE: FOR TOC: The Reported Result is < 40.

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g Note: <	1.33E+04	~~4.00E+01~~

N/A RWS 4/15/97

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

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WORKBOOK PAGE: SPIKE6

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Vial Data		TIC	TOC
SPK	Sample Size in g	(SS)	0.0749	0.0749
WorkList	Final Coulometer Reading in µg	(C1)	1293	2317.5
15203	**Spiked Vial Data**			
Test Code	Sample Size in g	(SPK SS)	0.0609	0.0609
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C2)	926.6	1817.8
SOLID	Spike Book Number		25N12A	26N12A
Batch Number	Spike Standard Value in µg/ml	(SPK CONC)	602	3000
96011808				
Rerun				
0				
Sample Prep				
N/A				
Sample #	Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 1			
S96T005876				
Instrument Code	QC Actual in µg/mL = Spike Value (µg/mL)			
CARB2	QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100			
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
SLH				
Date Complete				
04/14/97				
Analysis Date				
04/12/97				
Analysis Time			TIC	TOC
09:00 AM	QC Actual in µg/mL		6.02E+02	3.00E+03
Sample Point	QC Found in µg/mL		-2.49E+02	-6.65E+02
BY-112	Percent Spike Recovery		-41.4	-22.2

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SPIKE.WB1 REV 1.1 342100ML

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WORKBOOK PAGE: SAM7

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
SAMPLE	Sample Size in g	(SS)	0.1444	0.1444
	Dilution Factor	(DF)	1	1
WL List	µg of Carbon in Sample	(C1)	3875	911.3
15203	µg of Carbon from Baseline	(C2)	8.3	21.3
Test Code				
@TICTOC1				

Matrix	
SOLID	
Batch Number	
96011808	
Rerun	µg of Carbon/g = (C1-C2) * DF / SS
0	µg of Carbon/g for TIC = 5 if C1 < C2
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2
N/A	
Sample #	
S96T005877	
Instrument Code	
CARB2	
Prepared By	
RCJ	
Chemist	
RWS	
Analyst	
SLH	
Date Complete	
04/14/97	
Analysis Date	
04/12/97	
Analysis Time	
09:00 AM	
Sample Point	
BY-112	

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	2.68E+04	6.16E+03

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RWSchroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP8

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
DUP	Sample Size in g	(SS)	0.1208	0.1208
	Dilution Factor	(DF)	1	1
Worklist	µg of Carbon in Sample	(C1)	2169.9	952.9
15203	µg of Carbon from Baseline	(C2)	8.3	21.3
Test Code	Known µg of C from Original Sample		2.68E+4	6.16E+3
@TICTOC1				

Matrix	
SOLID	
Batch Number	
96011808	
Rerun	µg of Carbon/g = (C1-C2) * DF / SS
0	µg of Carbon/g for TIC = 5 if C1 < C2
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2
N/A	
Sample #	
S96T005877	
Instrument Code	
CARB2	
Prepared By	
RCJ	
Chemist	
RWS	
Analyst	
SLH	
Date Complete	
04/14/97	
Analysis Date	
04/12/97	
Analysis Time	
09:00 AM	
Sample Point	
BY-112	

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	1.79E+04	7.71E+03

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: TRIPL9

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
TRIPL	Sample Size in g	(SS)	0.1406	0.1406
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	3811.6	775.3
15203	µg of Carbon from Baseline	(C2)	8.3	21.3
Test Code	Known µg of C from Original Sample		2.68E+4	6.16E+3
@TICTOC1	Duplicate Result		1.79E+4	7.71E+3

Matrix
SOLID
Batch Number
96911808
Rerun
0
Sample Prep
N/A
Sample #
S96T005877
Instrument Code
CARB2
Prepared By
RCJ
Chemist
RJS
Analyst
SLH
Date Complete
04/14/97
Analysis Date
04/12/97
Analysis Time
09:00 AM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	2.71E+04	5.36E+03

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

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WORKBOOK PAGE: SPIKE10

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Vial Data		TIC	TOC
SPK	Sample Size in g	(SS)	0.1444	0.1444
Work List	Final Coulometer Reading in µg	(C1)	3875	911.3
15203	Spiked Vial Data			
Test Code	Sample Size in g	(SPK SS)	0.0868	0.0868
@T.CTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C2)	2325.2	759.2
SOLID	Spike Book Number		25N12A	26N12A
Batch Number	Spike Standard Value in µg/ml	(SPK CONC)	602	3000
96011808				
Rerun				
0				
Sample Prep				
N/A				
Sample #	Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 1			
S96T005877				
Instrument Code	QC Actual in µg/mL = Spike Value (µg/mL)			
CARB2	QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100			
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
SLH				
Date Complete				
04/14/97				
Analysis Date				
04/12/97				
Analysis Time			TIC	TOC
09:00 AM	QC Actual in µg/mL		6.02E+02	3.00E+03
Sam... Point	QC Found in µg/mL		-8.19E+00	2.11E+03
BY-112	Percent Spike Recovery		-1.4	70.5

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SPIKE.WB1 REV 1.1 342100ML

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LABCORE Completed Worklist Report for Worklist# 15204

Analyst: slh **Instrument:** CARB2 **Book#** 25N12A 26N12A

Method: LA-34-100 Rev/Mod E-0

Worklist Comment: BY-112 TICTOC. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK		0		@TICTOC1 TIC-02	SOLID	1	5.10e0	5.100	ug/g
1	BLNK		0		@TICTOC1 TOC-02	SOLID	1	9.00e-1	0.900	ug/g
2	STD		0		@TICTOC1 TIC-02	SOLID	6.02e2	5.97e2	99.169	% Recovery
2	STD		0		@TICTOC1 TOC-02	SOLID	3.00e3	2.80e3	93.333	% Recovery
3	SAMPLE	S96T005879	0		@TICTOC1 TIC-02	SOLID	N/A	7.27e2	5.000	ug/g
3	SAMPLE	S96T005879	0		@TICTOC1 TOC-02	SOLID	N/A	1.55e3	80.000	ug/g
4	DUP	S96T005879	0		@TICTOC1 TIC-02	SOLID	7.27e2	7.20e2	0.968	RPD
4	DUP	S96T005879	0		@TICTOC1 TOC-02	SOLID	1.55e3	1.56e3	0.643	RPD
5	SPK	S96T005879	0		@TICTOC1 TIC-02	SOLID	100	1.05e2	105.000	% Recovery
5	SPK	S96T005879	0		@TICTOC1 TOC-02	SOLID	100	1.15e2	115.000	% Recovery
6	SAMPLE	S96T005880	0		@TICTOC1 TIC-02	SOLID	N/A	2.02e4	5.000	ug/g
6	SAMPLE	S96T005880	0		@TICTOC1 TOC-02	SOLID	N/A	6.64e3	80.000	ug/g
7	DUP	S96T005880	0		@TICTOC1 TIC-02	SOLID	2.02e4	1.18e4	52.500	RPD
7	DUP	S96T005880	0		@TICTOC1 TOC-02	SOLID	6.64e3	7.99e3	18.455	RPD
8	TRIPL	S96T005880	0		@TICTOC1 TIC-02	SOLID	2.02e4	1.06e4	62.338	RPD
8	TRIPL	S96T005880	0		@TICTOC1 TOC-02	SOLID	6.64e3	7.70e3	14.784	RPD

Final page for worklist# 15204

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

Robert W Johnson 4/14/97
Reviewer Signature **Date**

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

LABCORE Data Entry Template for Worklist# 15204

Analyst: SLH **Instrument:** CARB2 _____ **Book#** 25N12-A
26N12-A

Method: LA-342-100 **Rev/Mod** _____

Worklist Comment: BY-112 TICTOC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	SOLID		
2	STD				@TICTOC1	SOLID		
3	SAMPLE	S96T005879	0		@TICTOC1	SOLID	96001393	BY-112
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T005879	0		@TICTOC1	SOLID		
5	SPK	S96T005879	0		@TICTOC1	SOLID		
6	SAMPLE	S96T005880	0		@TICTOC1	SOLID	96001393	BY-112
		Analytes Requested: TIC-02 , TOC-02						
7	DUP	S96T005880	0		@TICTOC1	SOLID		

Final page for worklist # 15204

Sandra Lloyd Boatright
Analyst Signature **Date** 4-12-97

_____
Analyst Signature **Date**

Data Entry Comments: Trip done on S96T05880

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

HNF-SD-WM-DP-229, REV. 0

TIC/TOC: LA-342-100 (E-0)

WORKLIST #	ANALYST INITIALS	ANALYSIS DATE	ANALYSIS TIME	INSTRUMENT CODE
15204	SLH	4-12-97		

[X] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = BASE1 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 8.5 TOC: ~~32.9~~ 32.4 sbw

[ ] BASELINE [ ] BLANK [ ] SAMPLE [X] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = S96T05879 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .2331g TIC: TOC:

FINAL COULOMETER READING (u TIC: 176.4 TOC: 396.7

STD [ ] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = STD 1 STD # = 25N12-A TIC 26N12-A TOC

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: 1ml TOC: .200ml

FINAL COULOMETER READING (u TIC: 605.1 TOC: 591.6

[ ] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [X] SPIKE [ ] TRIPLICATE

SAMPLE # = S96T05879 STD # = 25N12-A TIC 26N12-A TOC

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .1919g TIC: .500ml TOC: .100ml

FINAL COULOMETER READING (u TIC: 463.0 TOC: 674.5

[ ] BASELINE [X] BLANK [ ] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = BLK1 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 3.4 TOC: 33.3

[ ] BASELINE [ ] BLANK [X] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = S96T05880 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .1200g TIC: TOC:

FINAL COULOMETER READING (u TIC: 2435.2 TOC: 829.7

[ ] BASELINE [ ] BLANK [X] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = S96T05879 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .1903g TIC: TOC:

FINAL COULOMETER READING (u TIC: 146.9 TOC: 327.4

[ ] BASELINE [ ] BLANK [ ] SAMPLE [X] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = S96T05880 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .1221g TIC: TOC:

FINAL COULOMETER READING (u TIC: 1443.9 TOC: 1007.7

TRP S96T05880 ss = .1196g // TIC 1278.9 TOC 952.9

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: STD 1 Date: 04/12/97 Time: 11:06:57

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .77 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.50	0.00
2	1.01	0.80	37.50
3	1.50	1.30	38.46
4	2.00	18.10	92.82
5	2.50	87.10	79.22
6	3.00	204.30	57.37
7	3.50	335.30	39.07
8	4.00	444.30	24.53
9	4.50	515.40	13.80
10	5.00	559.20	7.83
11	5.50	582.10	3.93
12	6.00	593.00	1.84
13	6.50	597.80	0.80
14	7.00	599.90	0.35
15	7.50	601.10	0.20
16	8.00	602.00	0.15
17	8.50	602.70	0.12
18	9.00	603.30	0.10
19	9.50	603.70	0.07
20	10.00	604.20	0.08
21	10.50	604.50	0.05
22	11.00	605.10	0.10

USER INPUT BLANK VALUE
BLANK VALUE = 8.469107 micrograms carbon
BLANK FACTOR = 8.469107 / 10.99884 = +7.7E-01 ug/min Carbon

SAMPLE RESULTS:
(605.1 - 8.469107)(1)/(1000) = +5.966E-01 g/L Carbon
(605.1 - 8.469107)(1)/(1000)(12) = +4.972E-02 Molar Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 626 TO 651.

Sample Run By: SL HOOD 00001

Ind 25M12-A

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: STD 1 Date: 04/12/97 Time: 12:42:01

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.95 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	7.50	96.00
3	1.51	74.80	89.97
4	2.00	250.60	70.15
5	2.50	411.30	39.07
6	3.00	502.10	18.08
7	3.50	545.40	7.94
8	4.00	566.80	3.78
9	4.50	576.40	1.67
10	5.00	581.10	0.81
11	5.50	583.50	0.41
12	6.00	584.90	0.24
13	6.50	586.10	0.20
14	7.00	587.10	0.17
15	7.50	588.00	0.15
16	8.00	588.70	0.12
17	8.50	589.40	0.12
18	9.00	589.90	0.08
19	9.50	590.30	0.07
20	10.00	590.90	0.10
21	10.50	591.20	0.05
22	11.00	591.60	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 32.44658 micrograms carbon
BLANK FACTOR = 32.44658 / 10.99884 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(591.6 - 32.44658)(1)/(200) = +2.796E+00 g/L Carbon
(591.6 - 32.44658)(1)/(200)(12) = +2.330E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: SL Hood Boatright
SL HOOD 00001

.200ml 26N12-A

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>HNF-SD-WM-DP-229, REV. 0

Sample: BASE 1 Date: 04/12/97 Time: 10:23:06

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE 1
Blank Value = N/A

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ====	Analysis Time ====	Coulometer ====	% Difference ==
1	0.51	0.20	0.00
2	1.01	0.70	71.43
3	1.51	1.70	58.82
4	2.00	2.40	29.17
5	2.50	3.00	20.00
6	3.00	3.50	14.29
7	3.50	3.90	10.26
8	4.00	4.30	9.30
9	4.50	4.70	8.51
10	5.00	5.00	6.00
11	5.50	5.40	7.41
12	6.00	5.70	5.26
13	6.50	6.00	5.00
14	7.00	6.20	3.23
15	7.50	6.50	4.62
16	8.00	6.80	4.41
17	8.50	7.10	4.23
18	9.00	7.30	2.74
19	9.50	7.60	3.95
20	10.00	7.90	3.80
21	10.50	8.20	3.66
22	11.00	8.50	3.53

BLANK VALUE = 8.5 micrograms carbon
BLANK FACTOR = 8.5 / 10.9978 = +7.7E-01 ug/min Carbon

Sample Run By: _____
SL HOOD 00001

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>HNF-SD-WM-DP-229, REV. 0

Sample: BASE 1 Date: 04/12/97 Time: 10:40:59

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE 1
Blank Value = N/A

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ====	Analysis Time ====	Coulometer ====	% Difference ==
1	0.51	0.40	0.00
2	1.01	0.70	42.86
3	1.51	2.30	69.57
4	2.00	9.10	74.73
5	2.50	16.40	44.51
6	3.00	20.80	21.15
7	3.50	23.60	11.86
8	4.00	25.20	6.35
9	4.50	26.60	5.26
10	5.00	27.40	2.92
11	5.50	28.30	3.18
12	6.00	28.70	1.39
13	6.50	29.20	1.71
14	7.00	29.80	2.01
15	7.50	30.10	1.00
16	8.00	30.50	1.31
17	8.50	30.90	1.29
18	9.00	31.30	1.28
19	9.50	31.50	0.63
20	10.00	31.90	1.25
21	10.50	32.10	0.62
22	11.00	32.40	0.93

BLANK VALUE = 32.4 micrograms carbon
BLANK FACTOR = 32.4 / 10.99884 = +2.95E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00001

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: BLK 1 Date: 04/12/97 Time: 13:10:11

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .77 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.00	0.60	33.33
3	1.50	0.70	14.29
4	2.00	0.80	12.50
5	2.50	0.90	11.11
6	3.00	1.20	25.00
7	3.50	1.50	20.00
8	4.00	1.80	16.67
9	4.50	2.00	10.00
10	5.00	2.20	9.09
11	5.50	2.40	8.33
12	6.00	2.40	0.00
13	6.50	2.60	7.69
14	7.00	2.60	0.00
15	7.50	2.80	7.14
16	8.00	2.80	0.00
17	8.50	2.90	3.45
18	9.00	3.00	3.33
19	9.50	3.10	3.23
20	10.00	3.20	3.13
21	10.50	3.30	3.03
22	11.00	3.40	2.94

USER INPUT BLANK VALUE
BLANK VALUE = 8.469107 micrograms carbon
BLANK FACTOR = 8.469107 / 10.99884 = +7.7E-01 ug/min Carbon

SAMPLE RESULTS:
(3.4 - 8.467697)(1)/(1) = < 5.00 E-3 g/L Carbon
(3.4 - 8.467697)(1)/(1)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: _____
SL HOOD 00001

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: BLK 1 Date: 04/12/97 Time: 13:24:00

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.95 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.10	100.00
3	1.51	0.40	75.00
4	2.00	4.40	90.91
5	2.50	12.30	64.23
6	3.01	19.00	35.26
7	3.50	23.10	17.75
8	4.00	25.70	10.12
9	4.50	27.00	4.81
10	5.00	28.20	4.26
11	5.50	29.10	3.09
12	6.00	29.80	2.35
13	6.50	30.60	2.61
14	7.00	31.10	1.61
15	7.50	31.50	1.27
16	8.00	32.10	1.87
17	8.50	32.20	0.31
18	9.00	32.50	0.92
19	9.50	32.80	0.91
20	10.00	32.90	0.30
21	10.50	33.10	0.60
22	11.00	33.30	0.60

USER INPUT BLANK VALUE
BLANK VALUE = 32.44658 micrograms carbon
BLANK FACTOR = 32.44658 / 10.99884 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(33.3 - 32.4464)(1)/(1) = +8.54E-01 g/L Carbon
(33.3 - 32.4464)(1)/(1)(12) = +7.11E-02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00001

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T05879 Date: 04/12/97 Time: 13:44:42

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .77 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.10	0.00
2	1.01	0.20	50.00
3	1.50	0.40	50.00
4	2.00	0.70	42.86
5	2.50	1.80	61.11
6	3.00	8.80	79.55
7	3.50	29.20	69.86
8	4.00	64.70	54.87
9	4.50	99.50	34.97
10	5.00	122.20	18.58
11	5.50	134.10	8.87
12	6.00	140.20	4.35
13	6.50	142.60	1.68
14	7.00	143.90	0.90
15	7.50	144.60	0.48
16	8.00	145.10	0.34
17	8.50	145.50	0.27
18	9.00	145.80	0.21
19	9.50	146.10	0.21
20	10.00	146.40	0.20
21	10.50	146.60	0.14
22	11.00	146.90	0.20

USER INPUT BLANK VALUE
BLANK VALUE = 8.469107 micrograms carbon
BLANK FACTOR = 8.469107 / 10.99884 = +7.7E-01 ug/min Carbon

SAMPLE RESULTS:
(146.9 - 8.46906)(1)/(1) = +1.384E+02 g/L Carbon
(146.9 - 8.46906)(1)/(1)(12) = +1.154E+01 Molar Carbon

Sample Run By: _____
SL HOOD 00001

SS .19039

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T05879 Date: 04/12/97 Time: 14:00:21

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.95 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.10	0.00
2	1.01	0.40	75.00
3	1.50	1.00	60.00
4	2.00	18.20	94.51
5	2.50	88.80	79.50
6	3.00	176.10	49.57
7	3.50	239.30	26.41
8	4.00	276.40	13.42
9	4.50	298.50	7.40
10	5.00	309.00	3.40
11	5.50	314.50	1.75
12	6.00	318.40	1.22
13	6.50	320.70	0.72
14	7.00	322.30	0.50
15	7.50	323.70	0.43
16	8.00	324.50	0.25
17	8.50	325.40	0.28
18	9.00	325.90	0.15
19	9.50	326.40	0.15
20	10.00	326.80	0.12
21	10.50	327.10	0.09
22	11.00	327.40	0.09

USER INPUT BLANK VALUE
BLANK VALUE = 32.44658 micrograms carbon
BLANK FACTOR = 32.44658 / 10.99884 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(327.4 - 32.44892)(1)/(1) = +2.950E+02 g/L Carbon
(327.4 - 32.44892)(1)/(1)(12) = +2.458E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00001

55 .1935

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0 HNF-SD-WM-DP-229, REV. 0

Sample: S96T05879 Dup Date: 04/12/97 Time: 14:16:57

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .77 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	0.40	50.00
3	1.51	0.60	33.33
4	2.00	1.00	40.00
5	2.50	2.50	60.00
6	3.00	8.70	71.26
7	3.50	34.40	74.71
8	4.00	82.40	58.25
9	4.50	123.90	33.49
10	5.00	150.20	17.51
11	5.50	163.40	8.08
12	6.00	169.20	3.43
13	6.50	171.70	1.46
14	7.00	172.90	0.69
15	7.50	173.80	0.52
16	8.00	174.30	0.29
17	8.50	174.70	0.23
18	9.00	175.10	0.23
19	9.50	175.40	0.17
20	10.00	175.80	0.23
21	10.50	176.10	0.17
22	11.00	176.40	0.17

USER INPUT BLANK VALUE
BLANK VALUE = 8.469107 micrograms carbon
BLANK FACTOR = 8.469107 / 10.99884 = +7.7E-01 ug/min Carbon

SAMPLE RESULTS:
(176.4 - 8.467697)(1)/(1) = +1.679E+02 g/L Carbon
(176.4 - 8.467697)(1)/(1)(12) = +1.399E+01 Molar Carbon

Sample Run By: _____
SL HOOD 00001

SS .2331g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T05979 DUP Date: 04/12/97 Time: 14:30:13

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.95 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	0.50	60.00
3	1.51	6.10	91.80
4	2.00	69.20	91.18
5	2.50	177.90	61.10
6	3.00	265.30	32.94
7	3.50	318.70	16.76
8	4.00	349.90	8.92
9	4.50	368.00	4.92
10	5.00	377.10	2.41
11	5.50	382.80	1.49
12	6.00	386.60	0.98
13	6.50	389.30	0.69
14	7.00	391.30	0.51
15	7.50	392.50	0.31
16	8.00	393.70	0.30
17	8.50	394.60	0.23
18	9.00	395.10	0.13
19	9.50	395.60	0.13
20	10.00	396.10	0.13
21	10.50	396.30	0.05
22	11.00	396.70	0.10

USER INPUT BLANK VALUE
BLANK VALUE = 32.44658 micrograms carbon
BLANK FACTOR = 32.44658 / 10.99884 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(396.7 - 32.43578)(1)/(1) = +3.643E+02 g/L Carbon
(396.7 - 32.43578)(1)/(1)(12) = +3.036E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00001

55 .233/g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T05879 SPK Date: 04/12/97 Time: 14:43:58

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .77 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.01	0.50	40.00
3	1.51	0.70	28.57
4	2.00	1.70	58.82
5	2.50	13.70	87.59
6	3.00	65.10	78.96
7	3.50	158.00	58.80
8	4.00	262.70	39.86
9	4.50	345.40	23.94
10	5.00	398.20	13.26
11	5.50	426.90	6.72
12	6.00	441.40	3.29
13	6.50	448.70	1.63
14	7.00	453.10	0.97
15	7.50	456.10	0.66
16	8.00	458.20	0.46
17	8.50	459.50	0.28
18	9.00	460.50	0.22
19	9.50	461.50	0.22
20	10.00	461.90	0.09
21	10.50	462.50	0.13
22	11.00	463.00	0.11

USER INPUT BLANK VALUE
BLANK VALUE = 8.469107 micrograms carbon
BLANK FACTOR = 8.469107 / 10.99884 = +7.7E-01 ug/min Carbon

SAMPLE RESULTS:
(463 - 8.468496)(1)/(1) = +4.545E+02 g/L Carbon
(463 - 8.468496)(1)/(1)(12) = +3.788E+01 Molar Carbon

Sample Run By: _____
SL HOOD 00001

SS .1919g
spk .500 ml 25N12-A

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T05879 SPK Date: 04/12/97 Time: 14:58:06

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.95 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.50	0.00
2	1.01	0.80	37.50
3	1.50	2.70	70.37
4	2.00	58.90	95.42
5	2.50	227.40	74.10
6	3.00	408.80	44.37
7	3.50	521.80	21.66
8	4.00	585.80	10.93
9	4.50	619.60	5.46
10	5.00	639.80	3.16
11	5.50	650.40	1.63
12	6.00	657.20	1.03
13	6.50	661.60	0.67
14	7.00	664.90	0.50
15	7.50	667.40	0.37
16	8.00	669.40	0.30
17	8.50	670.70	0.19
18	9.00	671.90	0.18
19	9.50	672.60	0.10
20	10.00	673.40	0.12
21	10.50	674.10	0.10
22	11.00	674.50	0.06

USER INPUT BLANK VALUE
BLANK VALUE = 32.44658 micrograms carbon
BLANK FACTOR = 32.44658 / 10.99884 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(674.5 - 32.44352)(1)/(1) = +6.421E+02 g/L Carbon
(674.5 - 32.44352)(1)/(1)(12) = +5.350E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00001

SS .1919g
spk .100 ml 26N12-A

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T05880 Date: 04/12/97 Time: 15:12:07

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .77 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.01	0.60	50.00
3	1.51	0.90	33.33
4	2.00	6.20	85.48
5	2.51	140.70	95.59
6	3.00	675.30	79.16
7	3.50	1362.50	50.44
8	4.00	1868.90	27.10
9	4.50	2156.80	13.35
10	5.00	2298.70	6.17
11	5.50	2366.10	2.85
12	6.00	2400.30	1.42
13	6.50	2416.20	0.66
14	7.00	2423.30	0.29
15	7.50	2427.10	0.16
16	8.00	2429.30	0.09
17	8.50	2430.80	0.06
18	9.00	2432.00	0.05
19	9.50	2433.00	0.04
20	10.00	2433.80	0.03
21	10.50	2434.50	0.03
22	11.00	2435.20	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 8.469107 micrograms carbon
BLANK FACTOR = 8.469107 / 10.99884 = +7.7E-01 ug/min Carbon

SAMPLE RESULTS:
(2435.2 - 8.468496)(1)/(1) = +2.4267E+03 g/L Carbon
(2435.2 - 8.468496)(1)/(1)(12) = +2.0223E+02 Molar Carbon

Sample Run By: _____
SL HOOD 00001

55 .1208

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T05880 Date: 04/12/97 Time: 15:29:04

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.95 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.01	0.80	50.00
3	1.51	3.90	79.49
4	2.00	125.80	96.90
5	2.50	423.00	70.26
6	3.00	628.90	32.74
7	3.50	726.80	13.47
8	4.00	774.90	6.21
9	4.50	800.80	3.23
10	5.00	812.60	1.45
11	5.50	817.70	0.62
12	6.00	820.80	0.38
13	6.50	822.70	0.23
14	7.00	824.20	0.18
15	7.50	825.30	0.13
16	8.00	826.30	0.12
17	8.50	827.20	0.11
18	9.00	827.90	0.08
19	9.50	828.50	0.07
20	10.00	829.00	0.06
21	10.50	829.40	0.05
22	11.00	829.70	0.04

USER INPUT BLANK VALUE
BLANK VALUE = 32.44658 micrograms carbon
BLANK FACTOR = 32.44658 / 10.99884 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(829.7 - 32.4437)(1)/(1) = +7.973E+02 g/L Carbon
(829.7 - 32.4437)(1)/(1)(12) = +6.644E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00001

SS .1200g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T05880 DUP Date: 04/12/97 Time: 15:43:09

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .77 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.01	0.70	42.86
3	1.50	0.90	22.22
4	2.00	3.50	74.29
5	2.50	48.70	92.81
6	3.00	248.60	80.41
7	3.50	605.20	58.92
8	4.00	943.30	35.84
9	4.50	1172.00	19.51
10	5.00	1296.30	9.59
11	5.50	1360.70	4.73
12	6.00	1394.50	2.42
13	6.50	1413.70	1.36
14	7.00	1422.90	0.65
15	7.50	1427.80	0.34
16	8.00	1430.50	0.19
17	8.50	1432.90	0.17
18	9.00	1435.80	0.20
19	9.50	1438.70	0.20
20	10.00	1441.20	0.17
21	10.50	1443.00	0.12
22	11.00	1443.90	0.06

USER INPUT BLANK VALUE
BLANK VALUE = 8.469107 micrograms carbon
BLANK FACTOR = 8.469107 / 10.99884 = +7.7E-01 ug/min Carbon

SAMPLE RESULTS:
(1443.9 - 8.467697)(1)/(1) = +1.4354E+03 g/L Carbon
(1443.9 - 8.467697)(1)/(1)(12) = +1.1962E+02 Molar Carbon

Sample Run By: _____
SL HOOD 00001

55 .122lg

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T05880 DUP Date: 04/12/97 Time: 15:59:15

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.95 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ====	Analysis Time ====	Coulometer ====	% Difference ==
1	0.51	0.40	0.00
2	1.01	0.70	42.86
3	1.51	1.60	56.25
4	2.01	65.30	97.55
5	2.51	378.80	82.76
6	3.01	677.60	44.10
7	3.51	842.10	19.53
8	4.00	920.80	8.55
9	4.50	961.90	4.27
10	5.00	983.30	2.18
11	5.50	992.90	0.97
12	6.00	997.40	0.45
13	6.50	999.80	0.24
14	7.00	1001.80	0.20
15	7.50	1002.80	0.10
16	8.00	1003.90	0.11
17	8.50	1004.80	0.09
18	9.00	1005.60	0.08
19	9.50	1006.20	0.06
20	10.00	1006.80	0.06
21	10.50	1007.30	0.05
22	11.00	1007.70	0.04

USER INPUT BLANK VALUE
BLANK VALUE = 32.44658 micrograms carbon
BLANK FACTOR = 32.44658 / 10.99884 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(1007.7 - 32.4518)(1)/(1) = +9.7525E+02 g/L Carbon
(1007.7 - 32.4518)(1)/(1)(12) = +8.1271E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00001

ss .1221g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T05880 TRO Date: 04/12/97 Time: 16:14:18

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .77 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.01	0.70	42.86
3	1.50	1.00	30.00
4	2.00	4.90	79.59
5	2.50	62.60	92.17
6	3.00	301.80	79.26
7	3.50	647.90	53.42
8	4.00	920.70	29.63
9	4.50	1084.40	15.10
10	5.00	1172.30	7.50
11	5.50	1221.80	4.05
12	6.00	1248.60	2.15
13	6.50	1262.20	1.08
14	7.00	1267.50	0.42
15	7.50	1270.50	0.24
16	8.00	1272.20	0.13
17	8.50	1274.00	0.14
18	9.00	1275.50	0.12
19	9.50	1276.60	0.09
20	10.00	1277.50	0.07
21	10.50	1278.30	0.06
22	11.00	1278.90	0.05

USER INPUT BLANK VALUE
BLANK VALUE = 8.469107 micrograms carbon
BLANK FACTOR = 8.469107 / 10.99884 = +7.7E-01 ug/min Carbon

SAMPLE RESULTS:
(1278.9 - 8.470517)(1)/(1) = +1.2704E+03 g/L Carbon
(1278.9 - 8.470517)(1)/(1)(12) = +1.0587E+02 Molar Carbon

Sample Run By: SL HOOD 00001

SS .1196g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

HNF-SD-WM-DP-229, REV. 0

Sample: S96T05880 TRP Date: 04/12/97 Time: 16:27:25

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.95 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.40	0.00
2	1.01	0.80	50.00
3	1.51	6.40	87.50
4	2.00	188.40	96.60
5	2.50	535.30	64.80
6	3.00	745.60	28.21
7	3.50	845.20	11.78
8	4.00	895.70	5.64
9	4.50	922.90	2.95
10	5.00	936.20	1.42
11	5.50	941.50	0.56
12	6.00	944.40	0.31
13	6.50	946.50	0.22
14	7.00	947.80	0.14
15	7.50	949.10	0.14
16	8.00	950.00	0.09
17	8.50	950.80	0.08
18	9.00	951.40	0.06
19	9.50	951.90	0.05
20	10.00	952.30	0.04
21	10.50	952.60	0.03
22	11.00	952.90	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 32.44658 micrograms carbon
BLANK FACTOR = 32.44658 / 10.99884 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(952.9 - 32.44406)(1)/(1) = +9.205E+02 g/L Carbon
(952.9 - 32.44406)(1)/(1)(12) = +7.670E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
SL HOOD 00001

SS .1196

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Work List	Test Code	Matrix	Batch Number	Rerun	Sample Prep	Sample #	Instrument Code	Prepared By	Chemist	Analyst	Date Complete	Analysis Date	Analysis Time	Sample Point
BLNK	15204	@TICTOC1	SOLID	96011809	0	N/A	BLANK	CARB2	SKB	RWS	SLH	04/12/97	04/12/97	03:44 AM	BY-112

		TIC	TOC
Sample Size in g	(SS)	0.1903	0.1903
Dilution Factor	(DF)	1	1
µg of Carbon in Sample	(C1)	3.4	33.3
µg of Carbon from Baseline	(C2)	8.5	32.4

µg of Carbon = |C1-C2|

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon	5.10E+00	9.00E-01

Data Entered By: SKB Date: 04/12/97

Signature of Chemist: [signature] Date: 4/14/97

BLANK.WB1 REV 1.0 342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type	Sample Size in mL	(SS)	TIC	TOC
STD	Dilution Factor	(DF)	1	1
Work List	Final Coulometer Reading in µg	(C1)	605.1	591.6
15204	µg of Carbon from Baseline	(C2)	8.5	32.4
Test Code	Standard Book Number		25N12A	26N12A
@TICTOC1	Standard Value (µg/ml)		602	3000
Matrix				
LIQUID				
Batch Number				
96011809				
Rerun				
0				
Sample Prep				
N/A				
Sample #				
STD				
Instrument Code				
CARB2				
Prepared By				
SKB				
Chemist				
RWS				
Analyst				
SLH				
Date Complete				
04/12/97				
Analysis Date				
04/12/97				
Analysis Time				
03:44 AM				
Sample Point				
BY-112				

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	5.97E+02	2.80E+03
Percent Standard Recovery	99.1	93.2

Data Entered By: SKB Date: 04/12/97

Signature of Chemist: RWS Schroeder Date: 4/14/97

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Size in g	(SS)	TIC	TOC
SAMPLE	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	146.9	327.4
15204	µg of Carbon from Baseline	(C2)	8.5	32.4
Test Code				
@TICTOC1				
Matrix				
SOLID				
Batch Number				
96011809				
Rerun	µg of Carbon/g = (C1-C2) * DF / SS			
0	µg of Carbon/g for TIC = 5 if C1 < C2			
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2			
N/A				
Sample #				
S96T005879				
Instrument Code				
CARB2				
Prepared By				
SKB				
Chemist				
RWS				
Analyst				
SLH				
Date Complete				
04/12/97				
Analysis Date			TIC	TOC
04/12/97				
Analysis Time	Method Detection Limit in ug/g		5	40
03:44 AM				
Sample Point	µg of Carbon/g		7.27E+02	1.55E+03
BY-112				

Data Entered By:	SKB	Date:	04/12/97
Signature of Chemist:	RW Schroeder	Date:	4/14/97

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (E-0)

SOLIDS

Type	Work List	Test Code	Matrix	Batch Number	Rerun	Sample Prep	Sample #	Instrument Code	Prepared By	Chemist	Analyst	Date Complete	Analysis Date	Analysis Time	Sample Point
DUP	15204	@TICTOC1	SOLID	96011809	0	N/A	S96T005879	CARB2	SKB	RWS	SLH	04/12/97	04/12/97	03:44 AM	BY-112

		TIC	TOC
Sample Size in g	(SS)	0.2331	0.2331
Dilution Factor	(DF)	1	1
µg of Carbon in Sample	(C1)	176.4	396.7
µg of Carbon from Baseline	(C2)	8.5	32.4
Known µg of C from Original Sample		7.27E+2	1.55E+3

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	7.20E+02	1.56E+03

Data Entered By:	SKB	Date:	04/12/97
Signature of Chemist:	RW Schroeder	Date:	4/14/97

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Vial Data		TIC	TOC
SPK	Sample Size in g	(SS)	0.1903	0.1903
Work List	Final Coulometer Reading in µg	(C1)	146.9	327.4
15204	**Spiked Vial Data**			
Test Code	Sample Size in g	(SPK SS)	0.1919	0.1919
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C2)	463	674.5
SOLID	Spike Book Number		25N12A	26N12A
Batch Number	Spike Standard Value in µg/ml	(SPK CONC)	602	3000
96011809				

Rerun
0
Sample Prep
N/A
Sample #
S96T005879
Instrument Code
CARB2
Prepared By
SKB
Chemist
RWS
Analyst
SLH
Date Complete
04/12/97
Analysis Date
04/12/97
Analysis Time
03:44 AM
Sample Point
BY-112

Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 1

QC Actual in µg/mL = Spike Value (µg/mL)
QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100

	TIC	TOC
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	6.30E+02	3.44E+03
Percent Spike Recovery	104.6	114.8

Data Entered By:	SKB	Date:	04/12/97
Signature of Chemist:	RW Schroeder	Date:	4/14/97

WORKBOOK PAGE: SAM6

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
SAMPLE	Sample Size in g	(SS)	0.1200	0.1200
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	2435.2	829.7
15204	µg of Carbon from Baseline	(C2)	8.5	32.4
Test Code				
@TICTOC1				

Matrix: SOLID
Batch Number: 96011809
Rerun #: 0
Sample Prep: N/A
Sample #: S96T005880
Instrument Code: CARB2
Prepared By: SKB
Chemist: RWS
Analyst: SLH
Date Complete: 04/12/97
Analysis Date: 04/12/97
Analysis Time: 03:44 AM
Sample Point: BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	2.02E+04	6.64E+03

Data Entered By:	SKB	Date:	04/12/97
Signature of Chemist:	R W Edmonds	Date:	4/14/97

WORKBOOK PAGE: DUP7

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
DUP	Sample Size in g	(SS)	0.1221	0.1221
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	1443.9	1007.7
15204	µg of Carbon from Baseline	(C2)	8.5	32.4
Test Code	Known µg of C from Original Sample		2.02E+4	6.64E+3
@TICTOC1				

Matrix
SOLID
Batch Number
96011809
Rerun
0
Sample Prep
N/A
Sample #
S96T005880
Instrument Code
CARB2
Prepared By
SKB
Chemist
RWS
Analyst
SLH
Date Complete
04/12/97
Analysis Date
04/12/97
Analysis Time
03:44 AM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	1.18E+04	7.99E+03

Data Entered By:	SKB	Date:	04/12/97
Signature of Chemist:	R W Schroeder	Date:	4/14/97

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type	Work List	Test Code	Matrix	Batch Number	Rerun	Sample Prep	Sample #	Instrument Code	Prepared By	Chemist	Analyst	Date Complete	Analysis Date	Analysis Time	Sample Point
TRIPL	15204	@TICTOC1	LIQUID		0	N/A	S96T05880	Carb 1	RWS	RWS	SLH	04/12/97	04/14/97		BY-112

		TIC	TOC
Sample Size in mL	(SS)	0.1196	0.1196
Dilution Factor	(DF)	1	1
µg of Carbon in Sample	(C1)	1278.9	952.9
µg of Carbon from Baseline	(C2)	8.5	32.4
Known µg of C from Original Sample		2.02e4	6.64e3
Duplicate Result		1.18e4	7.99e3

µg of Carbon/mL = (C1-C2) * DF / SS
µg of Carbon/mL for TIC = 5 if C1 < C2
µg of Carbon/mL for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in µg/mL	5	40
µg of Carbon/mL	1.06E+04	7.70E+03

Data Entered By:	RWS	Date:	04/12/97
Signature of Chemist:	RW Schroeder	Date:	4/14/97

TRIPL.WB1 REV 1.0 342100ML

LABCORE Completed Worklist Report for Worklist# 15205

Analyst: pjm **Instrument:** CARB1 **Book#** TIC 25N12A TOC 24N12F

Method: LA 342-100 Rev/Mod E-0

Worklist Comment: BY-112 TICTOC. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK		0		@TICTOC1 TIC-02	SOLID	1	4.00E-1	0.400	ug/g
1	BLNK		0		@TICTOC1 TOC-02	SOLID	1	9.80E+0	9.800	ug/g
2	STD		0		@TICTOC1 TIC-02	SOLID	6.02E+02	6.06E+2	100.664	% Recovery
2	STD		0		@TICTOC1 TOC-02	SOLID	3.00E+03	2.85E+3	95.000	% Recovery
3	SAMPLE	S96T005918	0		@TICTOC1 TIC-02	SOLID	N/A	7.84E+04	5.000	ug/g
3	SAMPLE	S96T005918	0		@TICTOC1 TOC-02	SOLID	N/A	9.04E+02	40.000	ug/g
4	DUP	S96T005918	0		@TICTOC1 TIC-02	SOLID	7.84E+4	8.19E+4	4.367	RPD
4	DUP	S96T005918	0		@TICTOC1 TOC-02	SOLID	9.04E+2	7.50E+2 RWS 4/15/97	18.622	RPD
5	SPK	S96T005918	0		@TICTOC1 TIC-02	SOLID	1.00E+02	~~1.67E+02~~ N/A	~~167.000~~	% Recovery RWS 4/15/97
5	SPK	S96T005918	0		@TICTOC1 TOC-02	SOLID	1.00E+02	9.12E+01	91.200	% Recovery
6	SAMPLE	S96T005919	0		@TICTOC1 TIC-02	SOLID	N/A	6.85E+04	5.000	ug/g
6	SAMPLE	S96T005919	0		@TICTOC1 TOC-02	SOLID	N/A	5.16E+02	40.000	ug/g
7	DUP	S96T005919	0		@TICTOC1 TIC-02	SOLID	6.85E+4	7.92E+4	14.489	RPD
7	DUP	S96T005919	0		@TICTOC1 TOC-02	SOLID	5.16E+2	5.55E+2	7.283	RPD

Final page for worklist# 15205

Analyst Signature Date

4-14-97
Analyst Signature Date

RW Schoeller 4/15/97
Reviewer Signature Date

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

04/29/97 10:34
A-0004-1

LABCORE Data Entry Template for Worklist# 15205

Analyst: Alm **Instrument:** CARB2 _____ **Book#** TIC 25N12A
TOC 24N12F

Method: LA-342-100 **Rev/Mod** E-0 CARB-1

Worklist Comment: BY-112 TICTOC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	SOLID		
2	STD				@TICTOC1	SOLID		
3	SAMPLE	S96T005918	0		@TICTOC1	SOLID	96001466	BY-112
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T005918	0		@TICTOC1	SOLID		
5	SPK	S96T005918	0		@TICTOC1	SOLID		
6	SAMPLE	S96T005919	0		@TICTOC1	SOLID	96001466	BY-112
		Analytes Requested: TIC-02 , TOC-02						
7	DUP	S96T005919	0		@TICTOC1	SOLID		

Final page for worklist # 15205

RJ McCown 4/13/97
Analyst Signature **Date**

_____
Analyst Signature **Date**

Faxed
4/13/97

Data Entry Comments: S96T005918 & 5919 are very ~~wet~~ non homogenous sand or dirt type samples.

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

Apr. 13. 1997 9:53PM WHC 222S LAB ROOM 2F BACKSIDE No. 1972 P. 1/18

HNF-SD-WM-DP-229, REV. 0

TIC/TOC: LA-342-100 (E-0)

WORKLIST #	ANALYST INITIALS	ANALYSIS DATE	ANALYSIS TIME	INSTRUMENT CODE
15205	[illegible]	4/13/97	0500	

[X] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 7.00 TOC: 32.50

[ ] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE [X] STD

SAMPLE # = STD # = TIC 25N12A TOC 24N12F

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: 1.0mL TOC: .200mL

FINAL COULOMETER READING (u TIC: 612.70 TOC: 602.40

[X] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 6.60 TOC: 22.70

[ ] BASELINE [ ] BLANK [X] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = 596T005918 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .1097 TIC: TOC:

FINAL COULOMETER READING (u TIC: 8604.00 TOC: 131.70

[ ] BASELINE [ ] BLANK [X] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = 596T005918 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .1080 TIC: TOC:

FINAL COULOMETER READING (u TIC: 8851.50 TOC: 113.50

[ ] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [X] SPIKE [ ] TRIPLICATE

SAMPLE # = 596T005918 STD # = TIC 25N12A TOC 24N12F

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .0784 TIC: .500mL TOC: .100mL

FINAL COULOMETER READING (u TIC: 6653.20 TOC: 367.80

[ ] BASELINE [ ] BLANK [X] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = 596T005919 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .0741 TIC: TOC:

FINAL COULOMETER READING (u TIC: 5083.90 TOC: 70.70

[ ] BASELINE [ ] BLANK [ ] SAMPLE [X] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = 596T005919 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .1195 TIC: TOC:

FINAL COULOMETER READING (u TIC: 9473.60 TOC: 98.80

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD-1 Date: 04/12/97 Time: 20:31:09

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .64 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.50	0.00
2	1.01	1.10	54.55
3	1.51	1.40	21.43
4	2.00	1.70	17.65
5	2.50	2.10	19.05
6	3.00	4.50	53.33
7	3.50	52.80	91.48
8	4.00	214.30	75.36
9	4.50	406.00	47.22
10	5.00	520.50	22.00
11	5.50	572.00	9.00
12	6.00	594.70	3.82
13	6.50	603.30	1.43
14	7.00	606.50	0.53
15	7.50	608.00	0.25
16	8.00	609.20	0.20
17	8.50	609.90	0.11
18	9.00	610.50	0.10
19	9.50	611.10	0.10
20	10.00	611.60	0.08
21	10.50	612.30	0.11
22	11.00	612.70	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 7.039218 micrograms carbon
BLANK FACTOR = 7.039218 / 10.99878 = +6.4E-01 ug/min Carbon

SAMPLE RESULTS:
(612.7 - 7.039297)(1)/(1000) = +6.057E-01 g/L Carbon
(612.7 - 7.039297)(1)/(1000)(12) = +5.047E-02 Molar Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 655 TO 677.

Sample Run By: PJ McCown 4/13/97
PJ MCCOWN 00000

1.0mL 25N12A

Apr. 13. 1997 9:55PM WHC 222S LAB ROOM 2F BACKSIDE No. 1972 P. 3/10

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD-1 Date: 04/12/97 Time: 20:43:38

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.05 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.00	0.80	62.50
3	1.50	2.80	71.43
4	2.00	55.60	94.96
5	2.50	256.90	78.36
6	3.00	464.60	44.71
7	3.50	545.90	14.89
8	4.00	575.40	5.13
9	4.50	587.10	1.99
10	5.00	591.60	0.76
11	5.50	593.90	0.39
12	6.00	595.40	0.25
13	6.50	596.60	0.20
14	7.00	597.60	0.17
15	7.50	598.50	0.15
16	8.00	599.20	0.12
17	8.50	599.80	0.10
18	9.00	600.30	0.08
19	9.50	600.90	0.10
20	10.00	601.50	0.10
21	10.50	602.00	0.08
22	11.00	602.40	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 33.54628 micrograms carbon
BLANK FACTOR = 33.54628 / 10.99878 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(602.4 - 33.54107)(1)/(200) = +2.844E+00 g/L Carbon
(602.4 - 33.54107)(1)/(200)(12) = +2.370E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown 4/13/97
PJ MCCOWN 00000

.200mL 24N12F

Apr. 13. 1997 9:56PM WHC 222S LAB ROOM 2F BACKSIDE No. 1972 P. 0/18

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-1 Date: 04/12/97 Time: 19:55:01

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-1
Blank Value = N/A

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.60	50.00
3	1.50	1.10	45.45
4	2.00	1.30	15.38
5	2.50	1.60	18.75
6	3.00	1.90	15.79
7	3.50	2.20	13.64
8	4.00	2.60	15.38
9	4.50	2.90	10.34
10	5.00	3.20	9.37
11	5.50	3.60	11.11
12	6.00	3.90	7.69
13	6.50	4.20	7.14
14	7.00	4.70	10.64
15	7.50	4.90	4.08
16	8.00	5.10	3.92
17	8.50	5.50	7.27
18	9.00	5.80	5.17
19	9.50	6.00	3.33
20	10.00	6.40	6.25
21	10.50	6.60	3.03
22	11.00	7.00	5.71

BLANK VALUE = 7 micrograms carbon
BLANK FACTOR = 7 / 10.99707 = +6.4E-01 ug/min Carbon

Sample Run By: PJ MCCOWN 00000

Apr. 13. 1997 9:54PM WHC 222S LAB ROOM 2F BACKSIDE No. 1972 P. 3/18

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-1 Date: 04/12/97 Time: 20:17:59

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-1
Blank Value = N/A

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.60	0.00
2	1.01	1.10	45.45
3	1.50	1.50	26.67
4	2.00	2.20	31.82
5	2.50	4.30	48.84
6	3.00	11.40	62.28
7	3.50	19.70	42.13
8	4.00	23.20	15.09
9	4.50	24.80	6.45
10	5.00	26.30	5.70
11	5.50	27.10	2.95
12	6.00	28.10	3.56
13	6.50	28.80	2.43
14	7.00	29.40	2.04
15	7.50	29.90	1.67
16	8.00	30.50	1.97
17	8.50	31.10	1.93
18	9.00	31.60	1.58
19	9.50	32.10	1.56
20	10.00	32.60	1.53
21	10.50	32.90	0.91
22	11.00	33.50	1.79

BLANK VALUE = 33.5 micrograms carbon
BLANK FACTOR = 33.5 / 10.99878 = +3.05E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJM
PJ MCCOWN 00000

Apr. 13. 1997 9:55PM WHC 222S LAB ROOM 2F BACKSIDE No. 1972 P. 4/18

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-1 Date: 04/12/97 Time: 20:59:17

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .64 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.00	1.00	60.00
3	1.50	1.20	16.67
4	2.00	1.60	25.00
5	2.50	1.90	15.79
6	3.00	2.10	9.52
7	3.50	2.40	12.50
8	4.00	2.80	14.29
9	4.50	3.10	9.68
10	5.00	3.40	8.82
11	5.50	3.70	8.11
12	6.00	3.90	5.13
13	6.50	4.20	7.14
14	7.00	4.60	8.70
15	7.50	4.80	4.17
16	8.00	5.00	4.00
17	8.50	5.20	3.85
18	9.00	5.50	5.45
19	9.50	5.70	3.51
20	10.00	5.90	3.39
21	10.50	6.30	6.35
22	11.00	6.60	4.55

USER INPUT BLANK VALUE
BLANK VALUE = 7.039218 micrograms carbon
BLANK FACTOR = 7.039218 / 10.99878 = +6.4E-01 ug/min Carbon

SAMPLE RESULTS:
(6.6 - 7.038516)(1)/(1) = < 5.00 E-3 g/L Carbon
(6.6 - 7.038516)(1)/(1)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: PJ MCCOWN 00000

Apr. 13. 1997 9:56PM WHC 222S LAB ROOM 2F BACKSIDE NO. 1972 P. 1/18

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-1 Date: 04/12/97 Time: 21:11:39

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.05 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.50	0.00
2	1.01	0.60	16.67
3	1.51	0.90	33.33
4	2.00	1.20	25.00
5	2.50	2.40	50.00
6	3.00	5.20	53.85
7	3.50	8.30	37.35
8	4.00	11.40	27.19
9	4.50	13.80	17.39
10	5.00	15.50	10.97
11	5.50	17.20	9.88
12	6.00	18.40	6.52
13	6.50	19.10	3.66
14	7.00	19.80	3.54
15	7.50	20.40	2.94
16	8.00	20.70	1.45
17	8.50	21.20	2.36
18	9.00	21.40	0.93
19	9.50	21.80	1.83
20	10.00	22.10	1.36
21	10.50	22.40	1.34
22	11.00	22.70	1.32

USER INPUT BLANK VALUE
BLANK VALUE = 33.54628 micrograms carbon
BLANK FACTOR = 33.54628 / 10.99878 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(22.7 - 33.54665)(1)/(1) = < 5.00 E-3 g/L Carbon
(22.7 - 33.54665)(1)/(1)(12) = < 4.17 E-4 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

Apr. 13. 1997 9:57PM WHC 222S LAB ROOM 2F BACKSIDE No. 1972 P. 8/18

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005918-1 Date: 04/12/97 Time: 22:56:37

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .64 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.40	0.00
2	1.04	0.60	33.33
3	1.54	96.60	99.38
4	2.04	829.00	88.35
5	2.54	1575.30	47.38
6	3.04	2322.30	32.17
7	3.54	3069.20	24.34
8	4.04	3816.30	19.58
9	4.54	4563.80	16.38
10	5.04	5310.50	14.06
11	5.54	6057.10	12.33
12	6.04	6804.10	10.98
13	6.54	7551.40	9.90
14	7.04	8298.80	9.01
15	7.54	8589.40	3.38
16	8.04	8593.20	0.04
17	8.54	8595.90	0.03
18	9.04	8597.90	0.02
19	9.54	8599.90	0.02
20	10.04	8601.40	0.02
21	10.54	8602.80	0.02
22	11.04	8604.00	0.01

USER INPUT BLANK VALUE
BLANK VALUE = 7.039218 micrograms carbon
BLANK FACTOR = 7.039218 / 10.99878 = +6.4E-01 ug/min Carbon

SAMPLE RESULTS:
(8604 - 7.062578)(1)/(1) = +8.5969E+03 g/L Carbon
(8604 - 7.062578)(1)/(1)(12) = +7.1641E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.1097g

661

Apr. 13. 1997 9:57PM WHC 222S LAB ROOM 2F BACKSIDE No. 1972 P. 9/18

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005918-1 Date: 04/12/97 Time: 23:09:12

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.05 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	1.30	0.00
2	1.01	2.50	48.00
3	1.51	6.00	58.33
4	2.01	41.00	85.37
5	2.50	82.80	50.48
6	3.00	104.30	20.61
7	3.50	112.30	7.12
8	4.00	116.40	3.52
9	4.50	118.90	2.10
10	5.00	120.90	1.65
11	5.50	122.60	1.39
12	6.00	124.00	1.13
13	6.50	125.20	0.96
14	7.00	126.40	0.95
15	7.50	127.30	0.71
16	8.00	128.30	0.78
17	8.50	129.10	0.62
18	9.00	129.80	0.54
19	9.50	130.30	0.38
20	10.00	130.80	0.38
21	10.50	131.20	0.30
22	11.00	131.70	0.38

USER INPUT BLANK VALUE
BLANK VALUE = 33.54628 micrograms carbon
BLANK FACTOR = 33.54628 / 10.99878 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(131.7 - 33.54665)(1)/(1) = +9.815E+01 g/L Carbon
(131.7 - 33.54665)(1)/(1)(12) = +8.179E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.1097g

662

Apr. 13. 1997 9:57PM WHC 222S LAB ROOM 2F BACKSIDE No. 1972 P. 10/18

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5918 DUP-1 Date: 04/12/97 Time: 23:46:09

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .64 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.10	0.00
2	1.01	0.30	66.67
3	1.51	79.20	99.62
4	2.00	795.40	90.04
5	2.50	1541.60	48.40
6	3.00	2288.60	32.64
7	3.50	3035.50	24.61
8	4.00	3783.10	19.76
9	4.50	4529.70	16.48
10	5.00	5276.40	14.15
11	5.50	6023.80	12.41
12	6.00	6770.50	11.03
13	6.50	7517.90	9.94
14	7.00	8265.20	9.04
15	7.50	8821.10	6.30
16	8.00	8836.70	0.18
17	8.50	8840.30	0.04
18	9.00	8843.40	0.04
19	9.50	8846.20	0.03
20	10.00	8848.30	0.02
21	10.50	8850.00	0.02
22	11.00	8851.50	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 7.039218 micrograms carbon
BLANK FACTOR = 7.039218 / 10.99878 = +6.4E-01 ug/min Carbon

SAMPLE RESULTS:
(8851.5 - 7.03875)(1)/(1) = +8.8445E+03 g/L Carbon
(8851.5 - 7.03875)(1)/(1)(12) = +7.3704E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.1080g

Apr. 13. 1997 9:58PM WHC 222S LAB ROOM 2F BACKSIDE No. 1972 P. 11/18

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5918 DUP-1 Date: 04/13/97 Time: 00:05:19

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.05 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.10	0.00
2	1.01	2.10	47.62
3	1.51	4.60	54.35
4	2.00	27.80	83.45
5	2.50	64.30	56.77
6	3.00	86.20	25.41
7	3.50	94.50	8.78
8	4.00	98.50	4.06
9	4.50	100.90	2.38
10	5.00	102.90	1.94
11	5.50	104.70	1.72
12	6.00	106.30	1.51
13	6.50	107.60	1.21
14	7.00	108.80	1.10
15	7.50	109.70	0.82
16	8.00	110.50	0.72
17	8.50	111.30	0.72
18	9.00	111.80	0.45
19	9.50	112.30	0.45
20	10.00	112.80	0.44
21	10.50	113.20	0.35
22	11.00	113.50	0.26

USER INPUT BLANK VALUE
BLANK VALUE = 33.54628 micrograms carbon
BLANK FACTOR = 33.54628 / 10.99878 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(113.5 - 33.54404)(1)/(1) = +7.996E+01 g/L Carbon
(113.5 - 33.54404)(1)/(1)(12) = +6.663E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

664

.1080g

Apr. 13. 1997 9:58PM WHC 222S LAB ROOM 2F BACKSIDE No. 1912 P. 12/16

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5918 SPK-1 Date: 04/13/97 Time: 00:41:08

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .64 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	2.70	0.00
2	1.01	4.30	37.21
3	1.51	22.40	80.80
4	2.00	566.00	96.04
5	2.50	1313.30	56.90
6	3.00	2060.00	36.25
7	3.50	2806.80	26.61
8	4.00	3554.40	21.03
9	4.50	4301.00	17.36
10	5.00	5048.00	14.80
11	5.50	5795.20	12.89
12	6.00	6516.00	11.06
13	6.50	6610.00	1.42
14	7.00	6627.00	0.26
15	7.50	6633.20	0.09
16	8.00	6637.80	0.07
17	8.50	6641.60	0.06
18	9.00	6644.30	0.04
19	9.50	6646.90	0.04
20	10.00	6649.10	0.03
21	10.50	6651.30	0.03
22	11.00	6653.20	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 7.039218 micrograms carbon
BLANK FACTOR = 7.039218 / 10.99878 = +6.4E-01 ug/min Carbon

SAMPLE RESULTS:
(6653.2 - 7.039253)(1)/(1) = +6.6462E+03 g/L Carbon
(6653.2 - 7.039253)(1)/(1)(12) = +5.5385E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

-0784 I
+ .500mL 25N12A 665

Apr. 13. 1997 9:59PM WHC 222S LAB ROOM 2F BACKSIDE No. 1972 P. 13/18

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5918 SPK-1 Date: 04/13/97 Time: 00:55:00

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.05 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	2.10	0.00
2	1.01	3.60	41.67
3	1.50	6.70	46.27
4	2.00	41.40	83.82
5	2.50	129.00	67.91
6	3.00	227.50	43.30
7	3.50	291.80	22.04
8	4.00	329.10	11.33
9	4.50	345.80	4.83
10	5.00	350.30	1.28
11	5.50	353.10	0.79
12	6.00	355.70	0.73
13	6.50	357.40	0.48
14	7.00	359.20	0.50
15	7.50	360.80	0.44
16	8.00	362.10	0.36
17	8.50	363.30	0.33
18	9.00	364.50	0.33
19	9.50	365.30	0.22
20	10.00	366.20	0.25
21	10.50	367.00	0.22
22	11.00	367.80	0.22

USER INPUT BLANK VALUE
BLANK VALUE = 33.54628 micrograms carbon
BLANK FACTOR = 33.54628 / 10.99878 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(367.8 - 33.54643)(1)/(1) = +3.343E+02 g/L Carbon
(367.8 - 33.54643)(1)/(1)(12) = +2.785E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.0784 g
+.100mL 24N12F

666

Apr. 13. 1997 9:59PM WHC 2225 LAB ROOM 2F BACKSIDE No. 1972 P. 14/18

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005919-1 Date: 04/13/97 Time: 01:12:10

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .64 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.20	100.00
3	1.51	21.00	99.05
4	2.01	555.40	96.22
5	2.50	1301.70	57.33
6	3.00	2049.20	36.48
7	3.50	2795.80	26.70
8	4.00	3542.70	21.08
9	4.50	4290.10	17.42
10	5.00	4969.40	13.67
11	5.50	5036.10	1.32
12	6.00	5059.60	0.46
13	6.50	5067.10	0.15
14	7.00	5071.20	0.08
15	7.50	5074.00	0.06
16	8.00	5076.40	0.05
17	8.50	5078.10	0.03
18	9.00	5079.90	0.04
19	9.50	5080.90	0.02
20	10.00	5082.10	0.02
21	10.50	5083.10	0.02
22	11.00	5083.90	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 7.039218 micrograms carbon
BLANK FACTOR = 7.039218 / 10.99878 = +6.4E-01 ug/min Carbon

SAMPLE RESULTS:
(5083.9 - 7.038723)(1)/(1) = +5.0769E+03 g/L Carbon
(5083.9 - 7.038723)(1)/(1)(12) = +4.2307E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0741 g

667

Apr. 13. 1997 10:00PM WHC 222S LAB ROOM 2F BACKSIDE NO. 1912 P. 13/16

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005919-1 Date: 04/13/97 Time: 01:26:00

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.05 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.60	100.00
3	1.50	2.40	75.00
4	2.00	15.90	84.91
5	2.50	36.40	56.32
6	3.00	50.60	28.06
7	3.50	56.00	9.64
8	4.00	58.90	4.92
9	4.50	60.80	3.12
10	5.00	62.30	2.41
11	5.50	63.70	2.20
12	6.00	64.80	1.70
13	6.50	65.80	1.52
14	7.00	66.70	1.35
15	7.50	67.40	1.04
16	8.00	68.00	0.88
17	8.50	68.60	0.87
18	9.00	69.10	0.72
19	9.50	69.50	0.58
20	10.03	69.90	0.57
21	10.53	70.20	0.43
22	11.03	70.70	0.71

USER INPUT BLANK VALUE
BLANK VALUE = 33.54628 micrograms carbon
BLANK FACTOR = 33.54628 / 10.99878 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(70.7 - 33.64962)(1)/(1) = +3.71E+01 g/L Carbon
(70.7 - 33.64962)(1)/(1)(12) = +3.09E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.0741g

Apr. 13. 1997 10:00PM WHC 222S LAB ROOM 2F BACKSIDE No. 1972 P. 10/10

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5919 DUP-1 Date: 04/13/97 Time: 01:45:12

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .64 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.51	43.40	100.00
4	2.00	726.40	94.03
5	2.50	1473.10	50.69
6	3.00	2220.30	33.65
7	3.50	2967.10	25.17
8	4.00	3713.70	20.10
9	4.50	4461.20	16.76
10	5.00	5208.10	14.34
11	5.50	5955.10	12.54
12	6.00	6701.60	11.14
13	6.50	7449.10	10.03
14	7.00	8195.90	9.11
15	7.50	8943.00	8.35
16	8.00	9430.40	5.17
17	8.50	9459.60	0.31
18	9.00	9463.50	0.04
19	9.50	9466.50	0.03
20	10.00	9469.30	0.03
21	10.50	9471.50	0.02
22	11.00	9473.60	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 7.039218 micrograms carbon
BLANK FACTOR = 7.039218 / 10.99878 = +6.4E-01 ug/min Carbon

SAMPLE RESULTS:
(9473.6 - 7.039253)(1)/(1) = +9.4666E+03 g/L Carbon
(9473.6 - 7.039253)(1)/(1)(12) = +7.8888E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.1195g

Apr. 13. 1997 10:01PM WRC 2225 LAB ROOM 2F BACKSIDE No. 1912 P. 11/16

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5919 DUP-1 Date: 04/13/97 Time: 03:04:39

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.05 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	1.30	0.00
2	1.01	2.70	51.85
3	1.50	6.10	55.74
4	2.00	25.60	76.17
5	2.50	52.90	51.61
6	3.00	69.70	24.10
7	3.50	75.90	8.17
8	4.00	79.60	4.65
9	4.50	82.60	3.63
10	5.00	84.90	2.71
11	5.50	87.20	2.64
12	6.00	89.00	2.02
13	6.50	90.80	1.98
14	7.00	92.20	1.52
15	7.50	93.30	1.18
16	8.00	94.40	1.17
17	8.50	95.30	0.94
18	9.00	96.20	0.94
19	9.50	96.90	0.72
20	10.00	97.60	0.72
21	10.50	98.30	0.71
22	11.00	98.80	0.51

USER INPUT BLANK VALUE
BLANK VALUE = 33.54628 micrograms carbon
BLANK FACTOR = 33.54628 / 10.99878 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(98.8 - 33.54642)(1)/(1) = +6.53E+01 g/L Carbon
(98.8 - 33.54642)(1)/(1)(12) = +5.44E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

11954

Apr. 13. 1997 10:01PM WHC 222S LAB ROOM 2F BACKSIDE No. 1912 P. 10/10

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
BLNK	Sample Size in g	(SS)	0.0000	0.0000
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	6.6	22.7
15205	µg of Carbon from Baseline	(C2)	7	~~32.5~~ 33.5

RW 4/15

Test Code
@TICTOC1
Matrix
SOLID
Batch Number
96011812
Rerun
0
Sample Prep
N/A
Sample #
BLANK
Instrument Code
CARB1
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/14/97
Analysis Date
04/13/97
Analysis Time
07:55 PM
Sample Point
BY-112

µg of Carbon = |C1-C2|

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon	4.00E-01	9.80E+00

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

BLANK.WB1 REV 1.0 342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type			TIC	TOC
STD	Sample Size in mL	(SS)	1.0000	0.2000
	Dilution Factor	(DF)	1	1
Work List	Final Coulometer Reading in µg	(C1)	612.7	602.4
15205	µg of Carbon from Baseline	(C2)	7	35.5 ~~32.5~~ RWS 4/15/97
Test Code	Standard Book Number		25N12A	24N12F
@TICTOC1	Standard Value (µg/ml)		602	3000

Matrix
LIQUID
Batch Number
96011812
Rerun #
0
Sample Prep
N/A
Sample #
STANDARD
Instrument Code
CARB1
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/14/97
Analysis Date
04/13/97
Analysis Time
07:55 PM
Sample Point
BY-112

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	6.06E+02	2.85E+03
Percent Standard Recovery	100.6	95.0

Data Entered By: RCJ Date: 04/14/97

Signature of Chemist: RW Schrader Date: 4/15/97

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
SAMPLE	Sample Size in g	(SS)	0.1097	0.1097
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	8604	131.7
15205	µg of Carbon from Baseline	(C2)	7	~~32.5~~ 33.5 RWS 4/15/97
Test Code				
@TICTOC1				

Matrix: SOLID

Batch Number: 96011812

Rerun: 0

Sample Prep: N/A

Sample #: S96T005918

Instrument Code: CARB1

Prepared By: RCJ

Chemist: RWS

Analyst: PJM

Date Complete: 04/14/97

Analysis Date: 04/13/97

Analysis Time: 07:55 PM

Sample Point: BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	7.84E+04	9.04E+02

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
DUP	Sample Size in g	(SS)	0.1080	0.1080
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	8851.5	113.5
15205	µg of Carbon from Baseline	(C2)	7	32.5
Test Code	Known µg of C from Original Sample		7.84E+4	9.04E+2
@TICTOC1				

Matrix
SOLID
Batch Number
96011812
Rerun
0
Sample Prep
N/A
Sample #
S96T005918
Instrument Code
CARB1
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/14/97
Analysis Date
04/13/97
Analysis Time
07:55 PM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	8.19E+04	7.50E+02

Data Entered By:.	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Vial Data		TIC	TOC
SPK	Sample Size in g	(SS)	0.1097	0.1097
WorkList	Final Coulometer Reading in µg	(C1)	8604	131.7
15205	**Spiked Vial Data**			
Test Code	Sample Size in g	(SPK SS)	0.0784	0.0784
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C2)	6653.2	367.8
SOLID	Spike Book Number		25N12A	24N12F
Batch Number	Spike Standard Value in µg/ml	(SPK CONC)	602	3000
96011812				
Rerun				
0				
Sample Prep				
N/A				
Sample #	**Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 1**			
S96T005918				
Instrument Code	**QC Actual in µg/mL = Spike Value (µg/mL)**			
CARB1	**QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100**			
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
PJM				
Date Complete				
04/14/97				
Analysis Date				
04/13/97				
Analysis Time			TIC	TOC
07:55 PM	**QC Actual in µg/mL**		6.02E+02	3.00E+03
Sample Point	**QC Found in µg/mL**		1.01E+03	2.74E+03
BY-112	**Percent Spike Recovery**		167.5	91.2

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SPIKE.WB1 REV 1.1 342100ML

WORKBOOK PAGE: SAM6

TIC/TOC : LA-342-100 (E-0) SOLIDS

			TIC	TOC
Type	Sample Size in g	(SS)	0.0741	0.0741
SAMPLE	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	5083.9	70.7
15205	µg of Carbon from Baseline	(C2)	7	32.5
Test Code				
@TICTOC1				
Matrix				
SOLID				
Batch Number				
96011812				
Rerun	µg of Carbon/g = (C1-C2) * DF / SS			
0	µg of Carbon/g for TIC = 5 if C1 < C2			
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2			
N/A				
Sample #				
S96T005919				
Instrument Code				
CARB1				
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
PJM				
Date Complete				
04/14/97				
Analysis Date				
04/13/97			TIC	TOC
Analysis Time	Method Detection Limit in ug/g		5	40
07:55 PM				
Sample Point	µg of Carbon/g		6.85E+04	5.16E+02
BY-112				

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP7

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
DUP	Sample Size in g	(SS)	0.1195	0.1195
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	9473.6	98.8
15205	µg of Carbon from Baseline	(C2)	7	32.5
Test Code	Known µg of C from Original Sample		6.85E+4	5.16E+2
@TICTOC1				

Matrix	
SOLID	
Batch Number	
96011812	
Rerun	µg of Carbon/g = (C1-C2) * DF / SS
0	µg of Carbon/g for TIC = 5 if C1 < C2
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2
N/A	
Sample #	
S96T005919	
Instrument Code	
CARB1	
Prepared By	
RCJ	
Chemist	
RWS	
Analyst	
PJM	
Date Complete	
04/14/97	
Analysis Date	
04/13/97	
Analysis Time	
07:55 PM	
Sample Point	
BY-112	

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	7.92E+04	5.55E+02

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

LABCORE Completed Worklist Report for Worklist# 15207

Analyst: pjm **Instrument:** CARB2 **Book#** TIC 25NI2A
TOC 24NI2F

Method: LA-342-100 Rev/Mod E-0

Worklist Comment: BY-112 TICTOC. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK			0	@TICTOC1 TIC-02	SOLID	1	1.40E+0	1.400	ug/g
1	BLNK			0	@TICTOC1 TOC-02	SOLID	1	5.00E-1	0.500	ug/g
2	STD			0	@TICTOC1 TIC-02	SOLID	6.02E+02	6.18E+2	102.658	% Recovery
2	STD			0	@TICTOC1 TOC-02	SOLID	3.00E+03	2.97E+3	99.000	% Recovery
3	SAMPLE	S96T005950		0	@TICTOC1 TIC-02	SOLID	N/A	1.22E+04	5.000	ug/g
3	SAMPLE	S96T005950		0	@TICTOC1 TOC-02	SOLID	N/A	2.58E+04	40.000	ug/g
4	DUP	S96T005950		0	@TICTOC1 TIC-02	SOLID	1.22E+4	9.98E+3	20.018	RPD
4	DUP	S96T005950		0	@TICTOC1 TOC-02	SOLID	2.58E+4	2.76E+4	6.742	RPD
5	SPK	S96T005950		0	@TICTOC1 TIC-02	SOLID	1.00E+02	1.72E+01	17.200	% Recovery
5	SPK	S96T005950		0	@TICTOC1 TOC-02	SOLID	1.00E+02	1.24E+02	124.000	% Recovery
6	SAMPLE	S96T005951		0	@TICTOC1 TIC-02	SOLID	N/A	1.27E+04	5.000	ug/g
6	SAMPLE	S96T005951		0	@TICTOC1 TOC-02	SOLID	N/A	8.45E+03	40.000	ug/g
7	DUP	S96T005951		0	@TICTOC1 TIC-02	SOLID	1.27E+4	1.04E+4	19.913	RPD
7	DUP	S96T005951		0	@TICTOC1 TOC-02	SOLID	8.45E+3	8.78E+3	3.831	RPD

RWS 4/15/97

Final page for worklist# 15207

4-15-97

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

RW Schroeder 4/16/97

Reviewer Signature **Date**

Sample S96T005950 has been rejected due to Poor analytical QC. Reanalysis requested.
RW Schroeder 4/15/97

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

LABCORE Data Entry Template for Worklist# 15207

Analyst: RMC **Instrument:** CARB2 **Book#** TIC 25N12A
CARB-2 TOC 24N12F

Method: LA-342-100 Rev/Mod E.0

Worklist Comment: BY-112 TICTOC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	SOLID		
2	STD				@TICTOC1	SOLID		
3	SAMPLE	S96T005950	0		@TICTOC1	SOLID	96001466	BY-112
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T005950	0		@TICTOC1	SOLID		
5	SPK	S96T005950	0		@TICTOC1	SOLID		
6	SAMPLE	S96T005951	0		@TICTOC1	SOLID	96001466	BY-112
		Analytes Requested: TIC-02 , TOC-02						
7	DUP	S96T005951	0		@TICTOC1	SOLID		

Final page for worklist # 15207

RMcCown 4/15/97
Analyst Signature **Date**

Analyst Signature **Date**

FAXED 4/15/97

Data Entry Comments:

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

CARB-2

TIC/TOC: LA-342-100 (E-0)

WORKLIST #	ANALYST INITIALS	ANALYSIS DATE	ANALYSIS TIME	INSTRUMENT CODE
15207	RLm	4/15/97	0500	

☒ BASELINE ☐ BLANK ☐ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 8.60 TOC: 32.80

☐ BASELINE ☐ BLANK ☐ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE ☒ STANDARD

SAMPLE # = STD # = TIC 25N12A TOC 24N12F

SAMPLE WEIGHT (g) SPIKE/STANDARD VOLUME (mL) TIC: 1.0 TOC: .200

FINAL COULOMETER READING (u TIC: 626.50 TOC: 626.70

☒ BASELINE ☐ BLANK ☐ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 7.20 TOC: 32.30

☐ BASELINE ☐ BLANK ☒ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005950 STD # =

SAMPLE WEIGHT (g) .0787 SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 965.40 TOC: 2065.20

☐ BASELINE ☐ BLANK ☒ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005950 STD # =

SAMPLE WEIGHT (g) .0883 SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 890.10 TOC: 2466.10

☐ BASELINE ☐ BLANK ☐ SAMPLE ☐ DUPLICATE ☒ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005950 STD # = TIC 25N12A TOC 24N12F

SAMPLE WEIGHT (g) .0697 SPIKE/STANDARD VOLUME (mL) TIC: .500 TOC: .100

FINAL COULOMETER READING (u TIC: 906.90 TOC: 2199.60

☐ BASELINE ☐ BLANK ☒ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005951 STD # =

SAMPLE WEIGHT (g) .0664 SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 852.40 TOC: 594.00

☐ BASELINE ☐ BLANK ☒ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005951 STD # =

SAMPLE WEIGHT (g) .0669 SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 702.30 TOC: 620.50

Sep. 27. 1996 11:33PM WHC ZZZS LAB ROOM ZF BACKSIDE 089

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD-2 Date: 04/14/97 Time: 20:42:47

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .82 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.70	100.00
3	1.01	1.20	41.67
4	1.51	1.90	36.84
5	2.00	10.10	81.19
6	2.50	61.10	83.47
7	3.00	167.70	63.57
8	3.50	295.70	43.29
9	4.00	411.90	28.21
10	4.50	499.20	17.49
11	5.00	557.60	10.47
12	5.50	592.10	5.83
13	6.00	609.20	2.81
14	6.50	616.50	1.18
15	7.00	620.10	0.58
16	7.50	621.80	0.27
17	8.00	622.90	0.18
18	8.50	623.80	0.14
19	9.00	624.50	0.11
20	9.50	625.30	0.13
21	10.00	625.80	0.08
22	10.50	626.50	0.11

USER INPUT BLANK VALUE
BLANK VALUE = 8.6092 micrograms carbon
BLANK FACTOR = 8.6092 / 10.49902 = +8.2E-01 ug/min Carbon

SAMPLE RESULTS:
(626.5 - 8.61)(1)/(1000) = +6.179E-01 g/L Carbon
(626.5 - 8.61)(1)/(1000)(12) = +5.149E-02 Molar Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 681 TO 703.

Sample Run By: PJ McCown 4/15/96
PJ MCCOWN 00000

1.0 mL 25N12A

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD-2 Date: 04/14/97 Time: 20:57:00

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.12 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	0.90	55.56
4	1.50	1.40	35.71
5	2.00	3.70	62.16
6	2.50	18.00	79.44
7	3.00	68.70	73.80
8	3.50	183.70	62.60
9	4.00	344.10	46.61
10	4.50	477.90	28.00
11	5.00	555.50	13.97
12	5.50	594.40	6.54
13	6.00	610.50	2.64
14	6.50	616.30	0.94
15	7.00	618.80	0.40
16	7.50	620.50	0.27
17	8.00	622.00	0.24
18	8.50	623.20	0.19
19	9.00	624.00	0.13
20	9.50	625.00	0.16
21	10.00	625.80	0.13
22	10.50	626.70	0.14

USER INPUT BLANK VALUE
BLANK VALUE = 32.75695 micrograms carbon
BLANK FACTOR = 32.75695 / 10.49902 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(626.7 - 32.76)(1)/(200) = +2.970E+00 g/L Carbon
(626.7 - 32.76)(1)/(200)(12) = +2.475E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown 4/15/96
PJ MCCOWN 00000

† .200 mL 24N12F

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-2 Date: 04/14/97 Time: 20:13:55

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-2
Blank Value = N/A

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	0.80	50.00
4	1.50	1.30	38.46
5	2.00	1.70	23.53
6	2.50	2.20	22.73
7	3.00	2.70	18.52
8	3.50	3.30	18.18
9	4.00	3.60	8.33
10	4.50	4.20	14.29
11	5.00	4.60	8.70
12	5.50	5.00	8.00
13	6.00	5.40	7.41
14	6.50	5.80	6.90
15	7.00	6.20	6.45
16	7.50	6.60	6.06
17	8.00	6.90	4.35
18	8.50	7.30	5.48
19	9.00	7.60	3.95
20	9.50	7.90	3.80
21	10.00	8.30	4.82
22	10.50	8.60	3.49

BLANK VALUE = 8.6 micrograms carbon
BLANK FACTOR = 8.6 / 10.49805 = +8.2E-01 ug/min Carbon

Sample Run By: _____
PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-2 Date: 04/14/97 Time: 20:28:35

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-2
Blank Value = N/A

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.20	100.00
3	1.01	0.70	71.43
4	1.51	0.90	22.22
5	2.00	1.30	30.77
6	2.51	1.70	23.53
7	3.00	4.20	59.52
8	3.50	9.10	53.85
9	4.00	16.00	43.12
10	4.50	21.40	25.23
11	5.00	24.20	11.57
12	5.50	26.20	7.63
13	6.00	27.00	2.96
14	6.50	27.80	2.88
15	7.00	28.60	2.80
16	7.50	29.20	2.05
17	8.00	29.70	1.68
18	8.50	30.30	1.98
19	9.00	31.00	2.26
20	9.50	31.60	1.90
21	10.00	32.30	2.17
22	10.50	32.80	1.52

BLANK VALUE = 32.8 micrograms carbon
BLANK FACTOR = 32.8 / 10.49902 = +3.12E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
PJ MCCOWN 00000

X

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-2 Date: 04/14/97 Time: 21:16:52

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .82 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	0.70	42.86
4	1.51	1.10	36.36
5	2.00	1.50	26.67
6	2.50	1.80	16.67
7	3.00	2.20	18.18
8	3.50	2.50	12.00
9	4.00	2.80	10.71
10	4.50	3.10	9.68
11	5.00	3.50	11.43
12	5.50	3.80	7.89
13	6.04	4.10	7.32
14	6.54	4.40	6.82
15	7.04	4.80	8.33
16	7.54	5.10	5.88
17	8.03	5.50	7.27
18	8.53	5.90	6.78
19	9.03	6.20	4.84
20	9.53	6.50	4.62
21	10.03	6.80	4.41
22	10.53	7.20	5.56

USER INPUT BLANK VALUE
BLANK VALUE = 8.6092 micrograms carbon
BLANK FACTOR = 8.6092 / 10.49902 = +8.2E-01 ug/min Carbon

SAMPLE RESULTS:
(7.2 - 8.637126)(1)/(1) = < 5.00 E-3 g/L Carbon
(7.2 - 8.637126)(1)/(1)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: PJM
PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-2 Date: 04/14/97 Time: 21:32:52

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.12 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.30	100.00
3	1.01	0.70	57.14
4	1.51	1.00	30.00
5	2.00	1.30	23.08
6	2.50	2.90	55.17
7	3.00	6.40	54.69
8	3.50	11.20	42.86
9	4.00	16.00	30.00
10	4.50	20.50	21.95
11	5.00	23.80	13.87
12	5.50	25.90	8.11
13	6.00	27.30	5.13
14	6.50	28.20	3.19
15	7.00	28.90	2.42
16	7.50	29.50	2.03
17	8.00	30.10	1.99
18	8.50	30.50	1.31
19	9.00	31.00	1.61
20	9.50	31.40	1.27
21	10.00	31.90	1.57
22	10.50	32.30	1.24

USER INPUT BLANK VALUE
BLANK VALUE = 32.75695 micrograms carbon
BLANK FACTOR = 32.75695 / 10.49902 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(32.3 - 32.75695)(1)/(1) = < 5.00 E-3 g/L Carbon
(32.3 - 32.75695)(1)/(1)(12) = < 4.17 E-4 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005950-2 Date: 04/14/97 Time: 21:49:44

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .82 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.30	100.00
3	1.01	0.70	57.14
4	1.51	1.20	41.67
5	2.00	1.50	20.00
6	2.50	16.30	90.80
7	3.00	106.70	84.72
8	3.50	281.80	62.14
9	4.00	476.40	40.85
10	4.50	639.80	25.54
11	5.00	760.00	15.82
12	5.50	843.20	9.87
13	6.00	896.50	5.95
14	6.50	928.80	3.48
15	7.00	946.00	1.82
16	7.50	954.10	0.85
17	8.00	958.40	0.45
18	8.50	961.00	0.27
19	9.00	962.50	0.16
20	9.50	963.60	0.11
21	10.00	964.50	0.09
22	10.50	965.40	0.09

USER INPUT BLANK VALUE
BLANK VALUE = 8.6092 micrograms carbon
BLANK FACTOR = 8.6092 / 10.49902 = +8.2E-01 ug/min Carbon

SAMPLE RESULTS:
(965.4 - 8.608298)(1)/(1) = +9.568E+02 g/L Carbon
(965.4 - 8.608298)(1)/(1)(12) = +7.973E+01 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0787g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005950-2 Date: 04/14/97 Time: 22:06:01

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.12 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	1.10	63.64
4	1.51	1.80	38.89
5	2.00	22.70	92.07
6	2.50	235.80	90.37
7	3.00	712.60	66.91
8	3.50	1232.10	42.16
9	4.00	1621.10	24.00
10	4.50	1840.40	11.92
11	5.00	1951.80	5.71
12	5.50	2009.40	2.87
13	6.00	2035.00	1.26
14	6.50	2045.40	0.51
15	7.00	2050.50	0.25
16	7.50	2054.00	0.17
17	8.00	2056.70	0.13
18	8.50	2058.90	0.11
19	9.00	2060.80	0.09
20	9.50	2062.40	0.08
21	10.00	2064.00	0.08
22	10.50	2065.20	0.06

USER INPUT BLANK VALUE
BLANK VALUE = 32.75695 micrograms carbon
BLANK FACTOR = 32.75695 / 10.49902 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(2065.2 - 32.75771)(1)/(1) = +2.0324E+03 g/L Carbon
(2065.2 - 32.75771)(1)/(1)(12) = +1.6937E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.07879

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5950 DUP-2 Date: 04/14/97 Time: 22:19:05

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .82 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.90	100.00
3	1.01	1.60	43.75
4	1.50	2.30	30.43
5	2.00	5.00	54.00
6	2.50	52.10	90.40
7	3.00	198.70	73.78
8	3.50	398.00	50.08
9	4.00	573.70	30.63
10	4.50	697.40	17.74
11	5.00	781.50	10.76
12	5.50	834.30	6.33
13	6.00	862.70	3.29
14	6.50	875.00	1.41
15	7.00	880.60	0.64
16	7.50	883.20	0.29
17	8.00	885.10	0.21
18	8.50	886.30	0.14
19	9.00	887.40	0.12
20	9.50	888.30	0.10
21	10.00	889.20	0.10
22	10.50	890.10	0.10

USER INPUT BLANK VALUE
BLANK VALUE = 8.6092 micrograms carbon
BLANK FACTOR = 8.6092 / 10.49902 = +8.2E-01 ug/min Carbon

SAMPLE RESULTS:
(890.1 - 8.608298)(1)/(1) = +8.815E+02 g/L Carbon
(890.1 - 8.608298)(1)/(1)(12) = +7.346E+01 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0883

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5950 DUP-2 Date: 04/14/97 Time: 22:36:42

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.12 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.60	100.00
3	1.01	1.20	50.00
4	1.50	1.80	33.33
5	2.00	13.90	87.05
6	2.50	226.40	93.86
7	3.00	815.10	72.22
8	3.50	1505.80	45.87
9	4.00	2029.10	25.79
10	4.50	2266.60	10.48
11	5.00	2369.50	4.34
12	5.50	2419.10	2.05
13	6.00	2438.90	0.81
14	6.50	2447.00	0.33
15	7.00	2451.60	0.19
16	7.50	2455.20	0.15
17	8.00	2457.50	0.09
18	8.50	2459.80	0.09
19	9.00	2461.90	0.09
20	9.50	2463.50	0.06
21	10.00	2465.00	0.06
22	10.50	2466.10	0.04

USER INPUT BLANK VALUE
BLANK VALUE = 32.75695 micrograms carbon
BLANK FACTOR = 32.75695 / 10.49902 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(2466.1 - 32.75429)(1)/(1) = +2.4333E+03 g/L Carbon
(2466.1 - 32.75429)(1)/(1)(12) = +2.0278E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.0883g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5950 SPK-2 Date: 04/14/97 Time: 22:51:09

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .82 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.60	100.00
3	1.01	1.10	45.45
4	1.50	1.70	35.29
5	2.00	4.30	60.47
6	2.50	36.60	88.25
7	3.00	138.60	73.59
8	3.50	298.60	53.58
9	4.00	477.70	37.49
10	4.50	631.50	24.35
11	5.00	744.30	15.16
12	5.50	818.50	9.07
13	6.00	863.30	5.19
14	6.50	886.40	2.61
15	7.00	895.90	1.06
16	7.50	899.50	0.40
17	8.00	901.90	0.27
18	8.50	903.40	0.17
19	9.00	904.50	0.12
20	9.50	905.40	0.10
21	10.00	906.40	0.11
22	10.50	906.90	0.06

USER INPUT BLANK VALUE
BLANK VALUE = 8.6092 micrograms carbon
BLANK FACTOR = 8.6092 / 10.49902 = +8.2E-01 ug/min Carbon

SAMPLE RESULTS:
(906.9 - 8.61)(1)/(1) = +8.983E+02 g/L Carbon
(906.9 - 8.61)(1)/(1)(12) = +7.486E+01 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0697g
+-500 mL 25N12A

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5950 SPK-2 Date: 04/14/97 Time: 23:06:44

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.12 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	1.30	69.23
4	1.50	2.10	38.10
5	2.00	5.90	64.41
6	2.50	108.90	94.58
7	3.00	529.70	79.44
8	3.50	1127.80	53.03
9	4.00	1663.20	32.19
10	4.50	1957.20	15.02
11	5.00	2078.80	5.85
12	5.50	2142.10	2.96
13	6.00	2170.90	1.33
14	6.50	2181.00	0.46
15	7.00	2186.10	0.23
16	7.50	2189.50	0.16
17	8.00	2191.70	0.10
18	8.50	2193.90	0.10
19	9.00	2195.40	0.07
20	9.50	2196.90	0.07
21	10.00	2198.50	0.07
22	10.50	2199.60	0.05

USER INPUT BLANK VALUE
BLANK VALUE = 32.75695 micrograms carbon
BLANK FACTOR = 32.75695 / 10.49902 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(2199.6 - 32.75695)(1)/(1) = +2.1668E+03 g/L Carbon
(2199.6 - 32.75695)(1)/(1)(12) = +1.8057E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.0697g
+.100mL 24N12F

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005951-2 Date: 04/14/97 Time: 23:25:58

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .82 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.30	100.00
3	1.01	0.70	57.14
4	1.50	1.10	36.36
5	2.00	2.50	56.00
6	2.50	30.40	91.78
7	3.00	134.50	77.40
8	3.50	299.50	55.09
9	4.00	461.00	35.03
10	4.50	589.10	21.75
11	5.00	684.30	13.91
12	5.50	751.90	8.99
13	6.00	797.20	5.68
14	6.50	824.10	3.26
15	7.00	837.50	1.60
16	7.50	843.20	0.68
17	8.00	846.60	0.40
18	8.50	848.60	0.24
19	9.00	849.90	0.15
20	9.50	851.00	0.13
21	10.00	851.80	0.09
22	10.50	852.40	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 8.6092 micrograms carbon
BLANK FACTOR = 8.6092 / 10.49902 = +8.2E-01 ug/min Carbon

SAMPLE RESULTS:
(852.4 - 8.608398)(1)/(1) = +8.438E+02 g/L Carbon
(852.4 - 8.608398)(1)/(1)(12) = +7.032E+01 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0664g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005951-2 Date: 04/14/97 Time: 23:40:45

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.12 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	1.10	63.64
4	1.51	1.80	38.89
5	2.00	3.50	48.57
6	2.50	29.30	88.05
7	3.00	116.90	74.94
8	3.50	253.60	53.90
9	4.00	389.50	34.89
10	4.50	484.80	19.66
11	5.04	539.30	10.11
12	5.54	566.90	4.87
13	6.04	578.20	1.95
14	6.54	582.50	0.74
15	7.04	585.20	0.46
16	7.54	587.20	0.34
17	8.04	588.70	0.25
18	8.53	590.10	0.24
19	9.03	591.30	0.20
20	9.53	592.30	0.17
21	10.03	593.30	0.17
22	10.53	594.10	0.13

USER INPUT BLANK VALUE
BLANK VALUE = 32.75695 micrograms carbon
BLANK FACTOR = 32.75695 / 10.49902 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(594.1 - 32.86588)(1)/(1) = +5.612E+02 g/L Carbon
(594.1 - 32.86588)(1)/(1)(12) = +4.677E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.0664g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5951 DUP-2 Date: 04/14/97 Time: 23:54:52

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .82 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	1.00	100.00
3	1.01	1.70	41.18
4	1.51	2.40	29.17
5	2.00	4.30	44.19
6	2.50	27.80	84.53
7	3.00	109.80	74.68
8	3.50	235.70	53.42
9	4.00	370.30	36.35
10	4.50	477.40	22.43
11	5.00	558.90	14.58
12	5.50	617.70	9.52
13	6.00	656.10	5.85
14	6.50	678.60	3.32
15	7.00	689.20	1.54
16	7.50	694.20	0.72
17	8.00	697.00	0.40
18	8.50	698.60	0.23
19	9.00	699.70	0.16
20	9.50	700.80	0.16
21	10.00	701.50	0.10
22	10.50	702.30	0.11

USER INPUT BLANK VALUE
BLANK VALUE = 8.6092 micrograms carbon
BLANK FACTOR = 8.6092 / 10.49902 = +8.2E-01 ug/min Carbon

SAMPLE RESULTS:
(702.3 - 8.608499)(1)/(1) = +6.937E+02 g/L Carbon
(702.3 - 8.608499)(1)/(1)(12) = +5.781E+01 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0669g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5951 DUP-2 Date: 04/15/97 Time: 00:08:37

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.12 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.50	100.00
3	1.01	1.20	58.33
4	1.50	1.80	33.33
5	2.00	3.70	51.35
6	%-1437.50	33.70	89.02
7	%-1437.00	133.60	74.78
8	%-1436.50	288.10	53.63
9	%-1436.00	431.60	33.25
10	%-1435.50	520.90	17.14
11	%-1435.00	570.40	8.68
12	%-1434.50	595.00	4.13
13	%-1434.00	604.40	1.56
14	%-1433.50	608.70	0.71
15	%-1433.00	611.50	0.46
16	%-1432.50	613.50	0.33
17	%-1432.00	615.00	0.24
18	%-1431.50	616.30	0.21
19	%-1431.00	617.60	0.21
20	%-1430.50	618.60	0.16
21	%-1430.00	619.60	0.16
22	%-1429.50	620.50	0.15

USER INPUT BLANK VALUE
BLANK VALUE = 32.75695 micrograms carbon
BLANK FACTOR = 32.75695 / 10.49902 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(620.5 --4460.043)(1)/(1) = +5.081E+03 g/L Carbon
(620.5 --4460.043)(1)/(1)(12) = +4.234E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.06693

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
BLNK	Sample Size in g	(SS)	0.0000	0.0000
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	7.2	32.3
15207	µg of Carbon from Baseline	(C2)	8.6	32.8

Test Code	
@TICTOC1	
Matrix	
SOLID	
Batch Number	
96011814	
Rerun	µg of Carbon = |C1-C2|
0	
Sample Prep	
N/A	
Sample #	
BLANK	
Instrument Code	
CARB2	
Prepared By	
RCJ	
Chemist	
RWS	
Analyst	
PJM	
Date Complete	
04/15/97	
Analysis Date	
04/14/97	
Analysis Time	
08:13 PM	
Sample Point	
BY-112	

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon	1.40E+00	5.00E-01

Data Entered By:	RCJ	Date:	04/15/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

BLANK.WB1 REV 1.0 342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type			TIC	TOC
STD	Sample Size in mL	(SS)	1.0000	0.2000
	Dilution Factor	(DF)	1	1
Work List	Final Coulometer Reading in µg	(C1)	626.5	626.7
15207	µg of Carbon from Baseline	(C2)	8.6	32.8
Test Code	Standard Book Number		25N12A	24N12F
@TICTOC1	Standard Value (µg/ml)		602	3000

Matrix
LIQUID
Batch Number
96011814
Rerun #
0
Sample Prep
N/A
Sample #
STANDARD
Instrument Code
CARB2
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/15/97
Analysis Date
04/14/97
Analysis Time
08:13 PM
Sample Point
BY-112

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	6.18E+02	2.97E+03
Percent Standard Recovery	102.6	99.0

Data Entered By:	RCJ	Date:	04/15/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
SAMPLE	Sample Size in g	(SS)	0.0787	0.0787
	Dilution Factor	(DF)	1	1
Work List#	µg of Carbon in Sample	(C1)	965.4	2065.2
15207	µg of Carbon from Baseline	(C2)	8.6	32.8
Test Code#				
@TICTOC1				

Matrix
SOLID
Batch Number
96011814
Rerun
0
Sample Prep
N/A
Sample #
S96T005950
Instrument Code
CARB2
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/15/97
Analysis Date
04/14/97
Analysis Time
08:13 PM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	1.22E+04	2.58E+04

Data Entered By:	RCJ	Date:	04/15/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

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WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Size in g	(SS)	TIC	TOC
DUP	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	890.1	2466.1
15207	µg of Carbon from Baseline	(C2)	8.6	32.8
Test Code	Known µg of C from Original Sample		1.22E+4	2.58E+4
@TICTOC1				

Matrix
SOLID
Batch Number
96011814
Rerun #
0
Sample Prep
N/A
Sample #
S96T005950
Instrument Code
CARB2
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/15/97
Analysis Date
04/14/97
Analysis Time
08:13 PM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	9.98E+03	2.76E+04

Data Entered By:	RCJ	Date:	04/15/97
Signature of Chemist:	RW Schroeder	Date:	4/16/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Vial Data		TIC	TOC
SPK	Sample Size in g	(SS)	0.0787	0.0787
Work List	Final Coulometer Reading in µg	(C1)	965.4	2065.2
15207	Spiked Vial Data			
Test Code	Sample Size in g	(SPK SS)	0.0697	0.0697
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C2)	906.9	2199.6
SOLID	Spike Book Number		25N12A	24N12F
Sample Number	Spike Standard Value in µg/ml	(SPK CONC)	602	3000
965.1814				
Rerun				
0				
Sample Prep				
N/A				
Sample#	Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 1			
S96T005950				
Instrument Code	QC Actual in µg/mL = Spike Value (µg/mL)			
CARB2	QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100			
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
PJM				
Date Completed				
04/15/97				
Analysis Date				
04/14/97				
Analysis Time			TIC	TOC
08:13 PM	QC Actual in µg/mL		6.02E+02	3.00E+03
Sample Point	QC Found in µg/mL		1.04E+02	3.71E+03
BY-112	Percent Spike Recovery		17.2	123.5

Data Entered By:	RCJ	Date:	04/15/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SPIKE.WB1 REV 1.1 342100ML

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WORKBOOK PAGE: SAM6

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
SAMPLE	Sample Size in g	(SS)	0.0664	0.0664
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	852.4	594
15207	µg of Carbon from Baseline	(C2)	8.6	32.8
Test Code				
@TICTOC1				

Matrix	
SOLID	
Batch Number	
96011814	
Rerun	µg of Carbon/g = (C1-C2) * DF / SS
0	µg of Carbon/g for TIC = 5 if C1 < C2
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2
N/A	
Sample #	
S96T005951	
Instrument Code	
CARB2	
Prepared By	
RCJ	
Chemist	
RWS	
Analyst	
PJM	
Date Complete	
04/15/97	
Analysis Date	
04/14/97	
Analysis Time	
08:13 PM	
Sample Point	
B7-112	

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	1.27E+04	8.45E+03

Data Entered By:	RCJ	Date:	04/15/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP7

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
DUP	Sample Size in g	(SS)	0.0669	0.0669
	Dilution Factor	(DF)	1	1
WB List	µg of Carbon in Sample	(C1)	702.3	620.5
15207	µg of Carbon from Baseline	(C2)	8.6	32.8
Test Code	Known µg of C from Original Sample		1.27E+4	8.45E+3
@TICTOC1				

Matrix
SOLID
Batch Number
96011814
Rerun #
0
Sample Prep
N/A
Sample #
SSC105951
Instrument Code
CARB2
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/15/97
Analysis Date
04/14/97
Analysis Time
08:13 PM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	1.04E+04	8.78E+03

Data Entered By:	RCJ	Date:	04/15/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

LABCORE Completed Worklist Report for Worklist# 16404

Analyst: pjm **Instrument:** CARB1 **Book#** TIC 25N12A
TOC 24N12F

Method: LA342-100 Rev/Mod E-0

Worklist Comment: BY-112 TICTOC. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK		0		@TICTOC1 TIC-02	SOLID	1	1.20E+0	1.200	ug/g
1	BLNK		0		@TICTOC1 TOC-02	SOLID	1	3.70E+0	3.700	ug/g
2	STD		0		@TICTOC1 TIC-02	SOLID	6.02E+02	6.12E+2	101.661	% Recovery
2	STD		0		@TICTOC1 TOC-02	SOLID	3.00E+03	2.91E+3	97.000	% Recovery
3	SAMPLE	S96T005878	0		@TICTOC1 TIC-02	SOLID	N/A	2.29E+04	5.000	ug/g
3	SAMPLE	S96T005878	0		@TICTOC1 TOC-02	SOLID	N/A	1.42E+04	40.000	ug/g
4	DUP	S96T005878	0		@TICTOC1 TIC-02	SOLID	2.29E+4	2.56E+4	11.134	RPD
4	DUP	S96T005878	0		@TICTOC1 TOC-02	SOLID	1.42E+4	1.41E+4	0.707	RPD
5	SPK	S96T005878	0		@TICTOC1 TIC-02	SOLID	1.00E+02	~~0.00E+00~~	~~0.000~~	~~% Recovery~~
5	SPK	S96T005878	0		@TICTOC1 TOC-02	SOLID	1.00E+02	1.08E+02	108.000	% Recovery
6	SAMPLE	S96T005917	0		@TICTOC1 TIC-02	SOLID	N/A	3.43E+04	5.000	ug/g
6	SAMPLE	S96T005917	0		@TICTOC1 TOC-02	SOLID	N/A	1.39E+03	40.000	ug/g
7	DUP	S96T005917	0		@TICTOC1 TIC-02	SOLID	3.43E+4	3.60E+4	4.836	RPD
7	DUP	S96T005917	0		@TICTOC1 TOC-02	SOLID	1.39E+3	1.26E+3	9.811	RPD

4/16/97 RWS

N/A RJC 4/15/97

Final page for worklist# 16404

Analyst Signature Date

4-15-97
Analyst Signature Date

RW Schroeder 4/15/97
Reviewer Signature Date

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

01/29/97 10:25
A-0004-1

LABCORE Data Entry Template for Worklist# 16404

Analyst: RJM **Instrument:** CARB2 CARB-1 **Book#** TIC 25N12A TOC 24N12F

Method: LA-342-100 Rev/Mod E-0

Worklist Comment: BY-112 TICTOC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	SOLID		
2	STD				@TICTOC1	SOLID		
3	SAMPLE	S96T005878	0		@TICTOC1	SOLID	96001393	BY-112
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T005878	0		@TICTOC1	SOLID		
5	SPK	S96T005878	0		@TICTOC1	SOLID		
6	SAMPLE	S96T005917	0		@TICTOC1	SOLID	96001466	BY-112
		Analytes Requested: TIC-02 , TOC-02						
7	DUP	S96T005917	0		@TICTOC1	SOLID		

Final page for worklist # 16404

RJMcGowan 4/15/97
Analyst Signature **Date**

Analyst Signature **Date**

FAXED
4/15/97

Data Entry Comments:

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

TIC/TOC: LA-342-100 (E-0)

WORKLIST #	ANALYST INITIALS	ANALYSIS DATE	ANALYSIS TIME	INSTRUMENT CODE
16404	RFM	4/15/97	0500	CARB-1

BASELINE BLANK ☒ | SAMPLE DUPLICATE ☐ | SPIKE TRIPLICATE ☐

SAMPLE # = | STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) | TIC: | TOC:

FINAL COULOMETER READING (u TIC: 6.10 TOC: 33.60

BASELINE BLANK ☐ | SAMPLE DUPLICATE ☐ | SPIKE TRIPLICATE ☐ | STD

SAMPLE # = | STD # = TIC 25N12A, TOC 24N12F

SAMPLE WEIGHT (g) | SPIKE/STANDARD VOLUME (mL) | TIC: 1.0 | TOC: .0200

FINAL COULOMETER READING (u TIC: 617.60 TOC: 615.90

BASELINE BLANK ☒ | SAMPLE DUPLICATE ☐ | SPIKE TRIPLICATE ☐

SAMPLE # = | STD # =

SAMPLE WEIGHT (g) | SPIKE/STANDARD VOLUME (mL) | TIC: | TOC:

FINAL COULOMETER READING (u TIC: 4.90 TOC: 29.90

BASELINE BLANK ☐ | SAMPLE DUPLICATE ☒ | SPIKE TRIPLICATE ☐

SAMPLE # = 596T005878 | STD # =

SAMPLE WEIGHT (g) .0865 | SPIKE/STANDARD VOLUME (mL) | TIC: | TOC:

FINAL COULOMETER READING (u TIC: 1987.10 TOC: 1265.50

BASELINE BLANK ☐ | SAMPLE DUPLICATE ☐ | SPIKE TRIPLICATE ☒

SAMPLE # = 596T005878 | STD # = TIC 25N12A, TOC 24N12F

SAMPLE WEIGHT (g) .0822 | SPIKE/STANDARD VOLUME (mL) | TIC: | TOC:

FINAL COULOMETER READING (u TIC: 2110.50 TOC: 1191.60

SAMPLE WEIGHT (g) .0645 | SPIKE/STANDARD VOLUME (mL) | TIC: .500 | TOC: .100

FINAL COULOMETER READING (u TIC: 1450.90 TOC: 1266.20

BASELINE BLANK ☐ | SAMPLE DUPLICATE ☒ | SPIKE TRIPLICATE ☐

SAMPLE # = 596T005917 | STD # =

SAMPLE WEIGHT (g) .0530 | SPIKE/STANDARD VOLUME (mL) | TIC: | TOC:

FINAL COULOMETER READING (u TIC: 1825.50 TOC: 107.30

BASELINE BLANK ☐ | SAMPLE DUPLICATE ☒ | SPIKE TRIPLICATE ☐

SAMPLE # = 596T005917 | STD # =

SAMPLE WEIGHT (g) .0607 | SPIKE/STANDARD VOLUME (mL) | TIC: | TOC:

FINAL COULOMETER READING (u TIC: 2191.40 TOC: 110.10

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD-1 Date: 04/14/97 Time: 21:33:18

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.01	0.80	50.00
3	1.51	1.00	20.00
4	2.00	1.50	33.33
5	2.50	8.20	81.71
6	3.00	55.30	85.17
7	3.50	159.20	65.26
8	4.00	292.60	45.59
9	4.50	415.30	29.54
10	5.00	501.00	17.11
11	5.50	554.40	9.63
12	6.00	585.80	5.36
13	6.50	601.20	2.56
14	7.00	608.50	1.20
15	7.50	612.00	0.57
16	8.00	613.90	0.31
17	8.50	615.00	0.18
18	9.00	615.70	0.11
19	9.50	616.30	0.10
20	10.00	616.90	0.10
21	10.50	617.30	0.06
22	11.00	617.60	0.05

USER INPUT BLANK VALUE
BLANK VALUE = 6.049329 micrograms carbon
BLANK FACTOR = 6.049329 / 10.99878 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:
(617.6 - 6.049396)(1)/(1000) = +6.116E-01 g/L Carbon
(617.6 - 6.049396)(1)/(1000)(12) = +5.096E-02 Molar Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 701 TO 729.

Sample Run By: PJ MCCOWN 4/15/96 00000

1.0mL 25W12A

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD-1 Date: 04/14/97 Time: 21:47:31

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.05 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.01	0.60	50.00
3	1.51	1.00	40.00
4	2.00	1.90	47.37
5	2.50	20.20	90.59
6	3.00	174.30	88.41
7	3.50	402.30	56.67
8	4.00	516.10	22.05
9	4.50	565.10	8.67
10	5.00	589.60	4.16
11	5.50	601.10	1.91
12	6.00	606.60	0.91
13	6.50	609.10	0.41
14	7.00	610.60	0.25
15	7.50	611.80	0.20
16	8.00	612.80	0.16
17	8.50	613.40	0.10
18	9.00	614.10	0.11
19	9.50	614.60	0.08
20	10.00	615.10	0.08
21	10.50	615.50	0.06
22	11.00	615.90	0.06

USER INPUT BLANK VALUE
BLANK VALUE = 33.54628 micrograms carbon
BLANK FACTOR = 33.54628 / 10.99878 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(615.9 - 33.54628)(1)/(200) = +2.912E+00 g/L Carbon
(615.9 - 33.54628)(1)/(200)(12) = +2.426E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown 4/15/97
PJ MCCOWN 00000

.200 24N/2F

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-1 Date: 04/14/97 Time: 21:04:44

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-1
Blank Value = N/A

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ====	Analysis Time ====	Coulometer ====	% Difference ==
1	0.51	0.20	0.00
2	1.01	0.40	50.00
3	1.51	0.70	42.86
4	2.00	1.00	30.00
5	2.50	1.30	23.08
6	3.00	1.50	13.33
7	3.50	1.90	21.05
8	4.00	2.30	17.39
9	4.50	2.60	11.54
10	5.00	3.10	16.13
11	5.50	3.40	8.82
12	6.00	3.60	5.56
13	6.50	3.90	7.69
14	7.00	4.20	7.14
15	7.50	4.50	6.67
16	8.00	4.70	4.26
17	8.50	4.90	4.08
18	9.00	5.10	3.92
19	9.50	5.40	5.56
20	10.00	5.60	3.57
21	10.50	5.90	5.08
22	11.00	6.10	3.28

BLANK VALUE = 6.1 micrograms carbon
BLANK FACTOR = 6.1 / 10.99878 = +5.5E-01 ug/min Carbon

Sample Run By: PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-1 Date: 04/14/97 Time: 21:18:21

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-1
Blank Value = N/A

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.30	100.00
3	1.51	0.60	50.00
4	2.00	2.50	76.00
5	2.50	9.40	73.40
6	3.00	16.80	44.05
7	3.50	21.80	22.94
8	4.00	25.10	13.15
9	4.50	27.30	8.06
10	5.00	28.50	4.21
11	5.50	29.60	3.72
12	6.00	30.00	1.33
13	6.50	30.50	1.64
14	7.00	31.10	1.93
15	7.50	31.40	0.96
16	8.00	31.80	1.26
17	8.50	32.20	1.24
18	9.00	32.60	1.23
19	9.50	32.80	0.61
20	10.00	33.10	0.91
21	10.50	33.30	0.60
22	11.00	33.60	0.89

BLANK VALUE = 33.6 micrograms carbon
BLANK FACTOR = 33.6 / 10.99878 = +3.05E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-1 Date: 04/14/97 Time: 22:09:27

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	0.40	50.00
3	1.51	0.60	33.33
4	2.00	0.90	33.33
5	2.50	1.10	18.18
6	3.00	1.30	15.38
7	3.50	1.50	13.33
8	4.00	1.70	11.76
9	4.50	2.00	15.00
10	5.00	2.20	9.09
11	5.50	2.40	8.33
12	6.00	2.60	7.69
13	6.50	2.90	10.34
14	7.00	3.10	6.45
15	7.50	3.30	6.06
16	8.00	3.50	5.71
17	8.50	3.80	7.89
18	9.00	4.10	7.32
19	9.50	4.20	2.38
20	10.00	4.50	6.67
21	10.50	4.70	4.26
22	11.00	4.90	4.08

USER INPUT BLANK VALUE
BLANK VALUE = 6.049329 micrograms carbon
BLANK FACTOR = 6.049329 / 10.99878 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:
(4.9 - 6.049396)(1)/(1) = < 5.00 E-3 g/L Carbon
(4.9 - 6.049396)(1)/(1)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-1 Date: 04/14/97 Time: 22:22:49

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.05 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	0.30	33.33
3	1.50	0.60	50.00
4	2.00	2.60	76.92
5	2.50	9.20	71.74
6	3.00	16.70	44.91
7	3.50	21.40	21.96
8	4.00	23.90	10.46
9	4.50	25.20	5.16
10	5.00	26.00	3.08
11	5.50	26.70	2.62
12	6.00	27.10	1.48
13	6.50	27.50	1.45
14	7.00	27.90	1.43
15	7.50	28.10	0.71
16	8.00	28.40	1.06
17	8.50	28.70	1.05
18	9.00	28.90	0.69
19	9.50	29.20	1.03
20	10.00	29.50	1.02
21	10.50	29.70	0.67
22	11.00	29.90	0.67

USER INPUT BLANK VALUE
BLANK VALUE = 33.54628 micrograms carbon
BLANK FACTOR = 33.54628 / 10.99878 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(29.9 - 33.5433)(1)/(1) = < 5.00 E-3 g/L Carbon
(29.9 - 33.5433)(1)/(1)(12) = < 4.17 E-4 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005878-1 Date: 04/14/97 Time: 22:39:43

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.10	0.00
2	1.01	0.40	75.00
3	1.51	0.70	42.86
4	2.01	47.60	98.53
5	2.51	435.80	89.08
6	3.00	1034.30	57.87
7	3.50	1474.70	29.86
8	4.00	1736.90	15.10
9	4.50	1864.60	6.85
10	5.00	1927.50	3.26
11	5.50	1959.10	1.61
12	6.00	1971.00	0.60
13	6.50	1976.60	0.28
14	7.00	1979.30	0.14
15	7.50	1981.20	0.10
16	8.00	1982.40	0.06
17	8.50	1983.40	0.05
18	9.00	1984.30	0.05
19	9.50	1985.10	0.04
20	10.00	1985.90	0.04
21	10.50	1986.50	0.03
22	11.00	1987.10	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 6.049329 micrograms carbon
BLANK FACTOR = 6.049329 / 10.99878 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:
(1987.1 - 6.049396)(1)/(1) = +1.9811E+03 g/L Carbon
(1987.1 - 6.049396)(1)/(1)(12) = +1.6509E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0865g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005878-1 Date: 04/14/97 Time: 22:55:56

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.05 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.50	0.00
2	1.01	0.90	44.44
3	1.51	1.90	52.63
4	2.00	146.50	98.70
5	2.50	683.00	78.55
6	3.00	1056.60	35.36
7	3.50	1181.90	10.60
8	4.00	1225.30	3.54
9	4.50	1243.20	1.44
10	5.00	1250.10	0.55
11	5.50	1253.90	0.30
12	6.00	1256.30	0.19
13	6.50	1258.30	0.16
14	7.00	1259.60	0.10
15	7.50	1261.00	0.11
16	8.04	1261.90	0.07
17	8.54	1262.70	0.06
18	9.03	1263.40	0.06
19	9.53	1264.00	0.05
20	10.03	1264.70	0.06
21	10.53	1265.10	0.03
22	11.03	1265.50	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 33.54628 micrograms carbon
BLANK FACTOR = 33.54628 / 10.99878 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(1265.5 - 33.65239)(1)/(1) = +1.2318E+03 g/L Carbon
(1265.5 - 33.65239)(1)/(1)(12) = +1.0265E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

1.0865g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5878 DUP-1 Date: 04/14/97 Time: 23:09:06

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.50	0.00
2	1.01	0.80	37.50
3	1.50	2.60	69.23
4	2.00	147.80	98.24
5	2.50	769.60	80.80
6	3.00	1400.10	45.03
7	3.50	1773.20	21.04
8	4.00	1955.80	9.34
9	4.50	2038.10	4.04
10	5.00	2077.60	1.90
11	5.50	2093.20	0.75
12	6.00	2099.20	0.29
13	6.50	2101.90	0.13
14	7.00	2104.00	0.10
15	7.50	2105.20	0.06
16	8.00	2106.10	0.04
17	8.50	2107.10	0.05
18	9.00	2107.90	0.04
19	9.50	2108.60	0.03
20	10.00	2109.30	0.03
21	10.50	2109.90	0.03
22	11.00	2110.50	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 6.049329 micrograms carbon
BLANK FACTOR = 6.049329 / 10.99878 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:
(2110.5 - 6.048791)(1)/(1) = +2.1045E+03 g/L Carbon
(2110.5 - 6.048791)(1)/(1)(12) = +1.7537E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0822

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5878 DUP-1 Date: 04/14/97 Time: 23:27:21

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.05 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.01	0.70	57.14
3	1.50	2.10	66.67
4	2.00	133.00	98.42
5	2.50	638.40	79.17
6	3.00	999.70	36.14
7	3.50	1113.10	10.19
8	4.00	1155.60	3.68
9	4.50	1171.80	1.38
10	5.00	1177.70	0.50
11	5.50	1181.20	0.30
12	6.00	1183.40	0.19
13	6.50	1185.20	0.15
14	7.00	1186.40	0.10
15	7.50	1187.40	0.08
16	8.00	1188.30	0.08
17	8.50	1189.00	0.06
18	9.00	1189.70	0.06
19	9.50	1190.20	0.04
20	10.00	1190.70	0.04
21	10.50	1191.20	0.04
22	11.00	1191.60	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 33.54628 micrograms carbon
BLANK FACTOR = 33.54628 / 10.99878 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(1191.6 - 33.54107)(1)/(1) = +1.1581E+03 g/L Carbon
(1191.6 - 33.54107)(1)/(1)(12) = +9.6505E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.0822g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5878 SPK-1 Date: 04/14/97 Time: 23:41:01

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.50	0.00
2	1.01	0.90	44.44
3	1.50	2.00	55.00
4	2.00	71.10	97.19
5	2.50	422.70	83.18
6	3.00	835.90	49.43
7	3.50	1136.60	26.46
8	4.00	1300.00	12.57
9	4.50	1380.50	5.83
10	5.00	1420.20	2.80
11	5.50	1435.70	1.08
12	6.00	1441.40	0.40
13	6.50	1443.90	0.17
14	7.00	1445.40	0.10
15	7.50	1446.40	0.07
16	8.00	1447.30	0.06
17	8.50	1448.10	0.06
18	9.00	1448.80	0.05
19	9.50	1449.40	0.04
20	10.00	1449.90	0.03
21	10.50	1450.40	0.03
22	11.00	1450.90	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 6.049329 micrograms carbon
BLANK FACTOR = 6.049329 / 10.99878 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:
(1450.9 - 6.049396)(1)/(1) = +1.4449E+03 g/L Carbon
(1450.9 - 6.049396)(1)/(1)(12) = +1.2040E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0645g
+.500mL 25N12A 717

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5878 SPK-1 Date: 04/14/97 Time: 23:56:45

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.05 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.01	0.90	55.56
3	1.50	7.00	87.14
4	2.00	245.60	97.15
5	2.50	765.80	67.93
6	3.00	1086.80	29.54
7	3.50	1191.80	8.81
8	4.00	1232.50	3.30
9	4.50	1248.20	1.26
10	5.00	1253.50	0.42
11	5.50	1256.50	0.24
12	6.00	1258.30	0.14
13	6.50	1259.80	0.12
14	7.00	1260.90	0.09
15	7.50	1261.90	0.08
16	8.00	1262.80	0.07
17	8.50	1263.50	0.06
18	9.00	1264.20	0.06
19	9.50	1264.80	0.05
20	10.00	1265.40	0.05
21	10.50	1266.00	0.05
22	11.00	1266.20	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 33.54628 micrograms carbon
BLANK FACTOR = 33.54628 / 10.99878 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(1266.2 - 33.5433)(1)/(1) = +1.2327E+03 g/L Carbon
(1266.2 - 33.5433)(1)/(1)(12) = +1.0272E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.0645g
4.100 24N12F

718

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005917-1 Date: 04/15/97 Time: 00:16:29

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.20	100.00
3	1.51	3.00	93.33
4	2.01	168.30	98.22
5	2.50	706.30	76.17
6	3.00	1186.60	40.48
7	3.50	1491.80	20.46
8	4.01	1653.20	9.76
9	4.50	1738.50	4.91
10	5.00	1782.40	2.46
11	5.50	1802.10	1.09
12	6.00	1810.70	0.47
13	6.50	1815.60	0.27
14	7.00	1818.50	0.16
15	7.50	1820.30	0.10
16	8.00	1821.50	0.07
17	8.50	1822.30	0.04
18	9.00	1823.00	0.04
19	9.50	1823.80	0.04
20	10.00	1824.50	0.04
21	10.50	1825.00	0.03
22	11.00	1825.50	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 6.049329 micrograms carbon
BLANK FACTOR = 6.049329 / 10.99878 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:
(1825.5 - 6.049909)(1)/(1) = +1.8195E+03 g/L Carbon
(1825.5 - 6.049909)(1)/(1)(12) = +1.5162E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0530g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005917-1 Date: 04/15/97 Time: 00:31:22

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.05 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.01	0.70	57.14
3	1.51	1.80	61.11
4	2.00	18.00	90.00
5	2.50	52.60	65.78
6	3.00	79.20	33.59
7	3.50	91.00	12.97
8	4.00	95.60	4.81
9	4.50	97.80	2.25
10	5.00	99.40	1.61
11	5.50	100.60	1.19
12	6.00	101.70	1.08
13	6.50	102.60	0.88
14	7.00	103.30	0.68
15	7.50	104.00	0.67
16	8.00	104.60	0.57
17	8.50	105.20	0.57
18	9.00	105.70	0.47
19	9.50	106.20	0.47
20	10.00	106.60	0.38
21	10.50	106.90	0.28
22	11.00	107.30	0.37

USER INPUT BLANK VALUE
BLANK VALUE = 33.54628 micrograms carbon
BLANK FACTOR = 33.54628 / 10.99878 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(107.3 - 33.5439)(1)/(1) = +7.376E+01 g/L Carbon
(107.3 - 33.5439)(1)/(1)(12) = +6.146E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.0530g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5917 DUP-1 Date: 04/15/97 Time: 00:44:53

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	0.40	75.00
3	1.51	3.90	89.74
4	2.00	212.90	98.17
5	2.50	879.50	75.79
6	3.00	1473.10	40.30
7	3.50	1825.70	19.31
8	4.00	2011.20	9.22
9	4.50	2102.70	4.35
10	5.00	2150.80	2.24
11	5.50	2172.10	0.98
12	6.00	2180.20	0.37
13	6.50	2183.50	0.15
14	7.00	2185.40	0.09
15	7.50	2186.80	0.06
16	8.00	2187.70	0.04
17	8.50	2188.50	0.04
18	9.00	2189.20	0.03
19	9.50	2189.90	0.03
20	10.00	2190.40	0.02
21	10.50	2190.90	0.02
22	11.03	2191.40	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 6.049329 micrograms carbon
BLANK FACTOR = 6.049329 / 10.99878 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:
(2191.4 - 6.067509)(1)/(1) = +2.1853E+03 g/L Carbon
(2191.4 - 6.067509)(1)/(1)(12) = +1.8211E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.06079

PBM 4/15/97

TOC ORGANIC

~~TIC~~ TOTAL ~~INORGANIC~~ CARBON ANALYSIS REPORT

TICTOC REV 2.0

Sample: 5917 DUP-1 Date: 04/15/97 Time: 00:58:38

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.05 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	Analysis Time	Coulometer	% Difference ==
1	0.51	0.30	0.00
2	1.01	0.70	57.14
3	1.51	2.10	66.67
4	2.00	21.60	90.28
5	2.50	55.00	60.73
6	3.00	82.10	33.01
7	3.50	94.70	13.31
8	4.00	99.30	4.63
9	4.50	101.50	2.17
10	5.00	103.00	1.46
11	5.50	104.10	1.06
12	6.00	105.10	0.95
13	6.50	106.00	0.85
14	7.00	106.70	0.66
15	7.50	107.30	0.56
16	8.00	107.90	0.56
17	8.50	108.30	0.37
18	9.00	108.80	0.46
19	9.50	109.20	0.37
20	10.00	109.50	0.27
21	10.50	109.80	0.27
22	11.00	110.10	0.27

USER INPUT BLANK VALUE
BLANK VALUE = 33.54628 micrograms carbon
BLANK FACTOR = 33.54628 / 10.99878 = +3.0E+00 ug/min Carbon

SAMPLE RESULTS:
(110.1 - 33.5434)(1)/(1) = +7.656E+01 g/L Carbon
(110.1 - 33.5434)(1)/(1)(12) = +6.380E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PBM
PJ MCCOWN 00000

.0607g

722

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type			TIC	TOC
STD	Sample Size in mL	(SS)	1.0000	0.2000
	Dilution Factor	(DF)	1	1
Work List	Final Coulometer Reading in µg	(C1)	617.6	615.9
16404	µg of Carbon from Baseline	(C2)	6.1	33.6
Test Code	Standard Book Number		25N12A	24N12F
@TICTOC1	Standard Value (µg/ml)		602	3000

Matrix
LIQUID
Batch Number
97000268
Rerun
0
Sample Prep
N/A
Sample #
STANDARD
Instrument Code
CARB1
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/15/97
Analysis Date
04/15/97
Analysis Time
05:00 AM
Sample Point
BY-112

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	6.12E+02	2.91E+03
Percent Standard Recovery	101.6	97.0

Data Entered By: RCJ Date: 04/15/97

Signature of Chemist: Russ Schroeder Date: 4/15/97

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
BLNK	Sample Size in g	(SS)	0.0000	0.0000
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	4.9	29.9
16404	µg of Carbon from Baseline	(C2)	6.1	33.6

Test Code	
@TICTOC1	
Matrix	
SOLID	
Batch Number	
97000268	
Rerun	µg of Carbon = |C1-C2|
0	
Sample Prep	
N/A	
Sample #	
BLANK	
Instrument Code	
CARB1	
Prepared By	
RCJ	
Chemist	
RWS	
Analyst	
PJM	
Date Complete	
04/15/97	
Analysis Date	
04/15/97	
Analysis Time	
05:00 AM	
Sample Point	
BY-112	

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon	1.20E+00	3.70E+00

Data Entered By: RCJ Date: 04/15/97

Signature of Chemist: RW Schroeder Date: 4/15/97

BLANK.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Size in g	(SS)	TIC	TOC
SAMPLE	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	1987.1	1265.5
16404	µg of Carbon from Baseline	(C2)	6.1	33.6
Test Code				
@TICTOC1				

Matrix
SOLID
Batch Number
97000268
Rerun
0
Sample Prep
N/A
Sample #
S96T005878
Instrument Code
CARB1
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/15/97
Analysis Date
04/15/97
Analysis Time
05:00 AM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	2.29E+04	1.42E+04

Data Entered By: RCJ Date: 04/15/97

Signature of Chemist: RW Edwards Date: 4/25/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Size in g	(SS)	TIC	TOC
DUP	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	2110.5	1191.6
16404	µg of Carbon from Baseline	(C2)	6.1	33.6
Test Code	Known µg of C from Original Sample		2.29E+4	1.42E+4
@TICTOC1				

Matrix
SOLID
Batch Number
97000268
Rerun #
0
Sample Prep
N/A
Sample #
S96T005878
Instrument Code
CARB1
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/15/97
Analysis Date
04/15/97
Analysis Time
05:00 AM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	2.56E+04	1.41E+04

Data Entered By:	RCJ	Date:	04/15/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Vial Data		TIC	TOC
SPK	Sample Size in g	(SS)	0.0865	0.0865
Work List #	Final Coulometer Reading in µg	(C1)	1987.1	1265.5
16404	Spiked Vial Data			
Test Code #	Sample Size in g	(SPK SS)	0.0645	0.0645
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C2)	1450.9	1266.2
SOLID	Spike Book Number		25N12A	24N12F
Batch Number	Spike Standard Value in µg/ml	(SPK CONC)	602	3000
97000268				
Rerun #				
0				
Sample Prep				
N/A				
Sample #	Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 1			
S96T005878				
Instrument Code	QC Actual in µg/mL = Spike Value (µg/mL)			
CARB1	QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100			
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
PJM				
Date Complete				
04/15/97				
Analysis Date				
04/15/97				
Analysis Time			TIC	TOC
05:00 AM	QC Actual in µg/mL		6.02E+02	3.00E+03
Sample Point	QC Found in µg/mL		-6.16E+01	3.23E+03
BY-112	Percent Spike Recovery		-10.2	107.5

Data Entered By:	RCJ	Date:	04/15/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SPIKE.WB1 REV 1.1 342100ML

WORKBOOK PAGE: SAM6

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type #	Sample Size in g	(SS)	TIC	TOC
SAMPLE	Dilution Factor	(DF)	1	1
Work List #	µg of Carbon in Sample	(C1)	1825.5	107.3
16404	µg of Carbon from Baseline	(C2)	6.1	33.6
Test Code				
@TICTOC1				

Matrix
SOLID
Batch Number
97000268
Rerun #
0
Sample Prep
N/A
Sample #
S96\005917
Instrument Code
CARB1
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/15/97
Analysis Date
04/15/97
Analysis Time
05:00 AM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	3.43E+04	1.39E+03

Data Entered By:	RCJ	Date:	04/15/97
Signature of Chemist:	RW Schoell	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP7

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
DUP	Sample Size in g	(SS)	0.0607	0.0607
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	2191.4	110.1
16404	µg of Carbon from Baseline	(C2)	6.1	33.6
Test Code	Known µg of C from Original Sample		3.43E+4	1.39E+3
@TICTOC1				
Matrix				
SOLID				
Batch Number				
97000268				
Rerun	µg of Carbon/g = (C1-C2) * DF / SS			
0	µg of Carbon/g for TIC = 5 if C1 < C2			
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2			
N/A				
Sample #				
S96T005917				
Instrument Code				
CARB1				
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
PJM				
Date Complete				
04/15/97				
Analysis Date				
04/15/97			TIC	TOC
Analysis Time	Method Detection Limit in ug/g		5	40
05:00 AM				
Sample Point	µg of Carbon/g		3.60E+04	1.26E+03
BY-112				

Data Entered By:	RCJ	Date:	04/15/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

LABCORE Completed Worklist Report for Worklist# 16405

Analyst: pjm **Instrument:** CARB1 **Book#** TIC 25N12A TOC 24N12F

Method: LA-342-100 Rev/Mod E-0

Worklist Comment: BY-112 TICTOC1 RTS!

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLNK		0	@TICTOC1 TIC-02	SOLID	1	1.40E+0	1.400	ug/g
1 BLNK		0	@TICTOC1 TOC-02	SOLID	1	8.80E+0	8.800	ug/g
2 STD		0	@TICTOC1 TIC-02	SOLID	6.02E+02	6.11E+2	101.495	% Recovery
2 STD		0	@TICTOC1 TOC-02	SOLID	3.00E+03	2.89E+3	96.333	% Recovery
3 SAMPLE	S96T005875	0	@TICTOC1 TIC-02	SOLID	N/A	7.97E+04	5.000	ug/g
3 SAMPLE	S96T005875	0	@TICTOC1 TOC-02	SOLID	N/A	9.13E+02	40.000	ug/g
4 DUP	S96T005875	0	@TICTOC1 TIC-02	SOLID	7.97E+4	8.20E+4	2.845	RPD
4 DUP	S96T005875	0	@TICTOC1 TOC-02	SOLID	9.13E+2	1.28E+3	33.470	RPD
5 SPK	S96T005875	0	@TICTOC1 TIC-02	SOLID	1.00E+02	1.07E+02	107.000	% Recovery
5 SPK	S96T005875	0	@TICTOC1 TOC-02	SOLID	1.00E+02	1.01E+02	101.000	% Recovery

Final page for worklist# 16405

Analyst Signature **Date**

[signature] 4-14-97
Analyst Signature **Date**

RW Schroeder 4/15/97
Reviewer Signature **Date**

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

01/29/97 10:28
A-0004-1

LABCORE Data Entry Template for Worklist# 16405

Analyst: RLM **Instrument:** CARB2 CARB-1 **Book#** TIC 25N 12A TOC 24N 12F

Method: LA-342-100 **Rev/Mod** E-0

Worklist Comment: BY-112 TICTOC1 RTS!

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	SOLID		
2	STD				@TICTOC1	SOLID		
3	SAMPLE	S96T005875	0		@TICTOC1	SOLID	96001393	BY-112
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T005875	0		@TICTOC1	SOLID		
5	SPK	S96T005875	0		@TICTOC1	SOLID		

Final page for worklist # 16405

RSMcCown 4/14/97
Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments: Sample non-homogenous. RLM

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

APR. 14. 1997 2:47PM WHC 222S LAB ROOM 2F BACKSIDE NO. 1973 P. 1/14

HNF-SD-WM-DP-229, REV. 0

TIC/TOC: LA-342-100 (E-0)

WORKLIST #	ANALYST INITIALS	ANALYSIS DATE	ANALYSIS TIME	INSTRUMENT CODE
16405	[illegible]	4/14/97	0400	

[X] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 6.10 TOC: 35.40

[ ] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE [X] STD

SAMPLE # = STD # = TIC 25N12A TOC 24N12F

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: 1.0 TOC: .200

FINAL COULOMETER READING (u TIC: 617.20 TOC: 612.90

[ ] BASELINE [X] BLANK [ ] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 4.70 TOC: 26.60

[ ] BASELINE [ ] BLANK [X] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = 596T005875 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .0872 TIC: TOC:

FINAL COULOMETER READING (u TIC: 6956.10 TOC: 115.00

[ ] BASELINE [ ] BLANK [ ] SAMPLE [X] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = 596T005875 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .0585 TIC: TOC:

FINAL COULOMETER READING (u TIC: 4802.90 TOC: 110.40

[ ] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [X] SPIKE [ ] TRIPLICATE

SAMPLE # = 596T005875 STD # = TIC 25N12A TOC 24N12F

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .0382 TIC: .500 TOC: .100

FINAL COULOMETER READING (u TIC: 3370.10 TOC: 354.80

[ ] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: TOC:

[ ] BASELINE [ ] BLANK [ ] SAMPLE [ ] DUPLICATE [ ] SPIKE [ ] TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: TOC:

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD-1 Date: 04/13/97 Time: 21:52:34

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.70	0.00
2	1.01	1.50	53.33
3	1.50	1.70	11.76
4	2.00	2.10	19.05
5	2.50	4.80	56.25
6	3.00	27.50	82.55
7	3.50	95.00	71.05
8	4.00	214.80	55.77
9	4.50	337.70	36.39
10	5.00	445.40	24.18
11	5.50	517.40	13.92
12	6.00	563.60	8.20
13	6.50	588.90	4.30
14	7.00	602.90	2.32
15	7.50	608.90	0.99
16	8.00	612.20	0.54
17	8.50	614.00	0.29
18	9.00	615.10	0.18
19	9.50	615.80	0.11
20	10.00	616.30	0.08
21	10.50	616.80	0.08
22	11.00	617.20	0.06

USER INPUT BLANK VALUE
BLANK VALUE = 6.048926 micrograms carbon
BLANK FACTOR = 6.048926 / 10.99805 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:
(617.2 - 6.049396)(1)/(1000) = +6.112E-01 g/L Carbon
(617.2 - 6.049396)(1)/(1000)(12) = +5.093E-02 Molar Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 733 TO 749.

Sample Run By: PJ McCown 4/14/97
PJ MCCOWN 00000

1.0mL 25N12A

Apr. 14. 1997 2:49AM WHC 222S LAB ROOM 2F BACKSIDE NO. 1913 P. 3/14

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD-1 Date: 04/13/97 Time: 22:05:43

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.22 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.01	0.70	42.86
3	1.51	1.00	30.00
4	2.00	1.50	33.33
5	2.50	9.20	83.70
6	3.00	89.60	89.73
7	3.50	306.60	70.78
8	4.00	469.60	34.71
9	4.50	539.10	12.89
10	5.00	574.60	6.18
11	5.50	590.90	2.76
12	6.00	598.60	1.29
13	6.50	602.70	0.68
14	7.00	605.00	0.38
15	7.50	606.60	0.26
16	8.00	607.90	0.21
17	8.50	609.00	0.18
18	9.00	610.10	0.18
19	9.50	610.90	0.13
20	10.00	611.60	0.11
21	10.50	612.20	0.10
22	11.00	612.90	0.11

USER INPUT BLANK VALUE
BLANK VALUE = 24.41566 micrograms carbon
BLANK FACTOR = 24.41566 / 10.99805 = +2.2E+00 ug/min Carbon

SAMPLE RESULTS:
(612.9 - 24.41566)(1)/(200) = +2.942E+00 g/L Carbon
(612.9 - 24.41566)(1)/(200)(12) = +2.452E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown 4/14/97
PJ MCCOWN 00000

.200ml 24N12F

734

Apr. 14. 1997 2:49AM WHC 222S LAB ROOM 2F BACKSIDE No. 1913 P. 0/14

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-1 Date: 04/13/97 Time: 21:19:18

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-1
Blank Value = N/A

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	0.50	80.00
3	1.51	0.80	37.50
4	2.00	1.00	20.00
5	2.50	1.30	23.08
6	3.00	1.60	18.75
7	3.50	2.00	20.00
8	4.00	2.20	9.09
9	4.50	2.50	12.00
10	5.00	2.80	10.71
11	5.50	3.00	6.67
12	6.00	3.30	9.09
13	6.50	3.60	8.33
14	7.00	3.90	7.69
15	7.50	4.30	9.30
16	8.00	4.40	2.27
17	8.50	4.70	6.38
18	9.00	5.00	6.00
19	9.50	5.30	5.66
20	10.00	5.50	3.64
21	10.50	5.80	5.17
22	11.00	6.10	4.92

BLANK VALUE = 6.1 micrograms carbon
BLANK FACTOR = 6.1 / 10.99878 = +5.5E-01 ug/min Carbon

Sample Run By: PJ MCCOWN 00000

Apr. 14. 1997 2:48AM WHC 222S LAB ROOM 2F BACKSIDE No. 1913 P. 3/14

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-1 Date: 04/13/97 Time: 21:33:42

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-1
Blank Value = N/A

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.01	0.60	50.00
3	1.51	1.00	40.00
4	2.00	2.70	62.96
5	2.50	7.30	63.01
6	3.00	13.40	45.52
7	3.50	18.80	28.72
8	4.00	23.30	19.31
9	4.50	26.30	11.41
10	5.00	28.20	6.74
11	5.50	29.90	5.69
12	6.00	30.80	2.92
13	6.50	31.80	3.14
14	7.00	32.40	1.85
15	7.50	33.00	1.82
16	8.00	33.40	1.20
17	8.50	33.90	1.47
18	9.00	34.20	0.88
19	9.50	34.50	0.87
20	10.00	34.80	0.86
21	10.50	35.10	0.85
22	11.00	35.40	0.85

BLANK VALUE = 35.4 micrograms carbon
BLANK FACTOR = 35.4 / 10.99805 = +3.22E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJM
PJ MCCOWN 00000

Apr. 14. 1997 2:48AM WHC 222S LAB ROOM 2# BACKSIDE No. 193 P. 4/14

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-1 Date: 04/13/97 Time: 22:36:12

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	0.40	50.00
3	1.50	0.60	33.33
4	2.00	0.80	25.00
5	2.50	1.00	20.00
6	3.00	1.20	16.67
7	3.50	1.40	14.29
8	4.00	1.70	17.65
9	4.50	1.90	10.53
10	5.00	2.10	9.52
11	5.50	2.30	8.70
12	6.00	2.60	11.54
13	6.50	2.80	7.14
14	7.00	3.00	6.67
15	7.50	3.20	6.25
16	8.00	3.40	5.88
17	8.50	3.60	5.56
18	9.00	3.90	7.69
19	9.50	4.00	2.50
20	10.00	4.20	4.76
21	10.50	4.50	6.67
22	11.00	4.70	4.26

USER INPUT BLANK VALUE
BLANK VALUE = 6.048926 micrograms carbon
BLANK FACTOR = 6.048926 / 10.99805 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:
(4.7 - 6.048859)(1)/(1) = < 5.00 E-3 g/L Carbon
(4.7 - 6.048859)(1)/(1)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: PJ MCCOWN 00000

Apr. 14. 1997 2:49AM WHC 222S LAB ROOM 2F BACKSIDE No. 1975 P. 7/14

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-1 Date: 04/13/97 Time: 22:54:15

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.22 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	0.60	66.67
3	1.51	0.90	33.33
4	2.00	1.20	25.00
5	2.50	2.60	53.85
6	3.00	6.50	60.00
7	3.50	10.70	39.25
8	4.00	14.60	26.71
9	4.50	17.20	15.12
10	5.00	18.70	8.02
11	5.50	20.20	7.43
12	6.00	21.50	6.05
13	6.50	22.10	2.71
14	7.00	23.00	3.91
15	7.50	23.90	3.77
16	8.00	24.50	2.45
17	8.50	25.00	2.00
18	9.00	25.40	1.57
19	9.50	25.80	1.55
20	10.00	26.00	0.77
21	10.50	26.30	1.14
22	11.00	26.60	1.13

USER INPUT BLANK VALUE
BLANK VALUE = 35.41371 micrograms carbon
BLANK FACTOR = 35.41371 / 10.99805 = +3.2E+00 ug/min Carbon

SAMPLE RESULTS:
(26.6 - 35.41607)(1)/(1) = < 5.00 E-3 g/L Carbon
(26.6 - 35.41607)(1)/(1)(12) = < 4.17 E-4 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

Apr. 14. 1997 2:50AM WHC 222S LAB ROOM 2F BACKSIDE No. 1973 P. 8/14

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005875-1 Date: 04/13/97 Time: 23:19:27

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.00	0.50	40.00
3	1.50	188.70	99.74
4	2.00	935.70	79.83
5	2.50	1682.80	44.40
6	3.00	2429.40	30.73
7	3.50	3176.30	23.51
8	4.00	3923.40	19.04
9	4.50	4670.60	16.00
10	5.00	5417.10	13.78
11	5.50	6164.40	12.12
12	6.00	6903.70	10.71
13	6.50	6940.30	0.53
14	7.00	6943.70	0.05
15	7.50	6946.10	0.03
16	8.00	6948.20	0.03
17	8.50	6950.00	0.03
18	9.00	6951.40	0.02
19	9.50	6952.80	0.02
20	10.00	6953.90	0.02
21	10.50	6955.20	0.02
22	11.00	6956.10	0.01

USER INPUT BLANK VALUE
BLANK VALUE = 6.048926 micrograms carbon
BLANK FACTOR = 6.048926 / 10.99805 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:
(6956.1 - 6.048389)(1)/(1) = +6.9501E+03 g/L Carbon
(6956.1 - 6.048389)(1)/(1)(12) = +5.7917E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

739

.0872g

Apr. 14. 1997 2:50AM WHC 222S LAB ROOM 2F BACKSIDE No. 193 P. 9/14

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005875-1 Date: 04/13/97 Time: 23:33:08

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.22 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.90	0.00
2	1.01	1.40	35.71
3	1.51	5.40	74.07
4	2.00	26.90	79.93
5	2.50	59.70	54.94
6	3.00	86.60	31.06
7	3.50	97.40	11.09
8	4.04	101.70	4.23
9	4.54	104.20	2.40
10	5.04	106.00	1.70
11	5.54	107.80	1.67
12	6.04	108.80	0.92
13	6.54	109.90	1.00
14	7.04	110.70	0.72
15	7.54	111.40	0.63
16	8.03	112.10	0.62
17	8.53	112.80	0.62
18	9.03	113.30	0.44
19	9.53	113.80	0.44
20	10.03	114.20	0.35
21	10.53	114.60	0.35
22	11.03	115.00	0.35

USER INPUT BLANK VALUE
BLANK VALUE = 35.41371 micrograms carbon
BLANK FACTOR = 35.41371 / 10.99805 = +3.2E+00 ug/min Carbon

SAMPLE RESULTS:
(115 - 35.52298)(1)/(1) = +7.948E+01 g/L Carbon
(115 - 35.52298)(1)/(1)(12) = +6.623E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

-0872g

740

Apr. 14. 1997 2:51AM WHC 222S LAB ROOM 2F BACKSIDE NO. 197 P. 10/14

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5875 DUP-1 Date: 04/13/97 Time: 23:55:28

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.40	0.00
2	1.01	0.60	33.33
3	1.51	89.30	99.33
4	2.00	811.30	88.99
5	2.51	1558.40	47.94
6	3.01	2305.50	32.41
7	3.50	3052.40	24.47
8	4.00	3799.40	19.66
9	4.50	4546.00	16.42
10	5.00	4772.60	4.75
11	5.50	4783.00	0.22
12	6.00	4788.10	0.11
13	6.50	4791.20	0.06
14	7.00	4793.40	0.05
15	7.50	4795.30	0.04
16	8.00	4796.90	0.03
17	8.50	4798.20	0.03
18	9.00	4799.30	0.02
19	9.50	4800.30	0.02
20	10.00	4801.20	0.02
21	10.50	4802.10	0.02
22	11.00	4802.90	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 6.048926 micrograms carbon
BLANK FACTOR = 6.048926 / 10.99805 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:
(4802.9 - 6.049329)(1)/(1) = +4.7969E+03 g/L Carbon
(4802.9 - 6.049329)(1)/(1)(12) = +3.9974E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

-05853

741

Apr. 14. 1997 2:51AM WHC 222S LAB ROOM 2F BACKSIDE NO. 1515 P. 11/14

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5875 DUP-1 Date: 04/14/97 Time: 00:08:54

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.22 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.40	0.00
2	1.01	1.10	63.64
3	1.50	2.30	52.17
4	2.00	15.50	85.16
5	%-1437.50	50.60	69.37
6	%-1437.00	81.40	37.84
7	%-1436.50	93.50	12.94
8	%-1436.00	97.80	4.40
9	%-1435.50	100.70	2.88
10	%-1435.00	102.50	1.76
11	%-1434.50	103.80	1.25
12	%-1434.00	105.00	1.14
13	%-1433.50	105.90	0.85
14	%-1433.00	106.80	0.84
15	%-1432.50	107.50	0.65
16	%-1432.00	108.10	0.56
17	%-1431.50	108.50	0.37
18	%-1431.00	109.00	0.46
19	%-1430.50	109.40	0.37
20	%-1430.00	109.90	0.45
21	%-1429.50	110.10	0.18
22	%-1429.00	110.40	0.27

USER INPUT BLANK VALUE
BLANK VALUE = 35.41371 micrograms carbon
BLANK FACTOR = 35.41371 / 10.99805 = +3.2E+00 ug/min Carbon

SAMPLE RESULTS:
(110.4 --4601.384)(1)/(1) = +4.712E+03 g/L Carbon
(110.4 --4601.384)(1)/(1)(12) = +3.926E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

-05859

742

Apr. 14. 1997 2:52AM WHC 222S LAB ROOM 2F BACKSIDE No. 1973 P. 12/14

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5875 SPK-1 Date: 04/14/97 Time: 00:34:00

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .55 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.90	0.00
2	1.01	1.30	30.77
3	1.51	39.60	96.72
4	2.00	647.20	93.88
5	2.50	1394.20	53.58
6	3.00	2140.70	34.87
7	3.50	2888.30	25.88
8	4.00	3233.20	10.67
9	4.50	3306.10	2.21
10	5.00	3342.20	1.08
11	5.50	3355.00	0.38
12	6.00	3359.70	0.14
13	6.50	3362.20	0.07
14	7.00	3363.90	0.05
15	7.50	3365.30	0.04
16	8.00	3366.30	0.03
17	8.50	3367.10	0.02
18	9.00	3367.90	0.02
19	9.50	3368.60	0.02
20	10.00	3369.20	0.02
21	10.50	3369.60	0.01
22	11.00	3370.10	0.01

USER INPUT BLANK VALUE
BLANK VALUE = 6.048926 micrograms carbon
BLANK FACTOR = 6.048926 / 10.99805 = +5.5E-01 ug/min Carbon

SAMPLE RESULTS:
(3370.1 - 6.048809)(1)/(1) = +3.3641E+03 g/L Carbon
(3370.1 - 6.048809)(1)/(1)(12) = +2.8034E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0382g
+.500mL 25N12A 743

Apr. 14. 1997 2:52AM WHC 222S LAB ROOM 2F BACKSIDE No. 1975 P. 13/14

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5875 SPK-1 Date: 04/14/97 Time: 00:46:44

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.22 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.20	0.00
2	1.01	0.60	66.67
3	1.50	3.00	80.00
4	2.00	30.60	90.20
5	2.50	149.40	79.52
6	3.00	270.20	44.71
7	3.50	317.00	14.76
8	4.00	336.50	5.79
9	4.50	342.20	1.67
10	5.00	345.10	0.84
11	5.50	347.10	0.58
12	6.00	348.60	0.43
13	6.50	349.90	0.37
14	7.00	351.00	0.31
15	7.50	351.80	0.23
16	8.00	352.50	0.20
17	8.50	352.90	0.11
18	9.00	353.30	0.11
19	9.50	353.80	0.14
20	10.00	354.20	0.11
21	10.50	354.50	0.08
22	11.00	354.80	0.08

USER INPUT BLANK VALUE
BLANK VALUE = 35.41371 micrograms carbon
BLANK FACTOR = 35.41371 / 10.99805 = +3.2E+00 ug/min Carbon

SAMPLE RESULTS:
(354.8 - 35.41624)(1)/(1) = +3.194E+02 g/L Carbon
(354.8 - 35.41624)(1)/(1)(12) = +2.662E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.0382g 744
+.100mL 24N12F

Apr. 14. 1997 2:53AM WHC 222S LAB ROOM 2F BACKSIDE No. 1913 P. 14/14

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Size in g	(SS)	TIC	TOC
BLNK	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	4.7	26.6
16405	µg of Carbon from Baseline	(C2)	6.1	35.4
Test Code				
@TICTOC1				
Matrix				
SOLID				
Batch Number				
97000269				
Rerun	µg of Carbon = |C1-C2|			
0				
Sample Prep				
N/A				
Sample #				
BLANK				
Instrument Code				
CARB1				
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
PJM				
Date Complete				
04/14/97				
Analysis Date				
04/13/97			TIC	TOC
Analysis Time	Method Detection Limit in ug/g		5	40
09:19 PM				
Sample Point	µg of Carbon		1.40E+00	8.80E+00
BY-112				

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

BLANK.WB1 REV 1.0 342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type			TIC	TOC
STD	Sample Size in mL	(SS)	1.0000	0.2000
	Dilution Factor	(DF)	1	1
Work List	Final Coulometer Reading in µg	(C1)	617.2	612.9
16405	µg of Carbon from Baseline	(C2)	6.1	35.4
Test Code	Standard Book Number		25N12A	24N12F
@TICTOC1	Standard Value (µg/ml)		602	3000

Matrix
LIQUID
Batch Number
97000269
Rerun
0
Sample Prep
N/A
Sample #
STANDARD
Instrument Code
CARB1
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/14/97
Analysis Date
04/13/97
Analysis Time
09:19 PM
Sample Point
BY-112

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	6.11E+02	2.89E+03
Percent Standard Recovery	101.5	96.2

Data Entered By: RCJ Date: 04/14/97

Signature of Chemist: RW Johnson Date: 4/15/97

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
SAMPLE	Sample Size in g	(SS)	0.0872	0.0872
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	6956.1	115
16405	µg of Carbon from Baseline	(C2)	6.1	35.4
Test Code				
@TICTOC1				

Matrix
SOLID
Batch Number
97000269
Rerun
0
Sample Prep
N/A
Sample #
S96T005875
Instrument Code
CARB1
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/14/97
Analysis Date
04/13/97
Analysis Time
09:19 PM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	7.97E+04	9.13E+02

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

I:\342100\OUT\TT16405.WB1 04/14/97 07:27:37

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Size in g	(SS)	TIC	TOC
DUP	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	4802.9	110.4
16405	µg of Carbon from Baseline	(C2)	6.1	35.4
Test Code	Known µg of C from Original Sample		7.97E+4	9.13E+2
@TICTOC1				
Matrix				
SOLID				
Batch Number				
97000269				
Rerun	µg of Carbon/g = (C1-C2) * DF / SS			
0	µg of Carbon/g for TIC = 5 if C1 < C2			
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2			
N/A				
Sample #				
S96T005875				
Instrument Code				
CARB1				
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
PJM				
Date Complete				
04/14/97				
Analysis Date				
04/13/97			TIC	TOC
Analysis Time	Method Detection Limit in ug/g		5	40
09:19 PM				
Sample Point	µg of Carbon/g		8.20E+04	1.28E+03
BY-112				

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	Russ Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Vial Data		TIC	TOC
SPK	Sample Size in g	(SS)	0.0872	0.0872
Work List	Final Coulometer Reading in µg	(C1)	6956.1	115
16405	**Spiked Vial Data**			
Test Code	Sample Size in g	(SPK SS)	0.0382	0.0382
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C2)	3370.1	354.8
SOLID	Spike Book Number		25N12A	24N12F
Batch Number	Spike Standard Value in µg/ml	(SPK CONC)	602	3000
97000269				
Rerun				
0				
Sample Prep				
N/A				
Sample #	Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 1			
S96T005875				
Instrument Code	QC Actual in µg/mL = Spike Value (µg/mL)			
CARB1	QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100			
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
PJM				
Date Complete				
04/14/97				
Analysis Date				
04/13/97				
Analysis Time			TIC	TOC
09:19 PM	QC Actual in µg/mL		6.02E+02	3.00E+03
Sample Point	QC Found in µg/mL		6.46E+02	3.04E+03
BY-112	Percent Spike Recovery		107.2	101.5

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Johnson	Date:	4/15/97

SPIKE.WB1 REV 1.1 342100ML

LABCORE Completed Worklist Report for Worklist# 16406

Analyst: pjm **Instrument:** CARB2 **Book#** TIC 25N12A TOC 24N12F

Method: LA-342-100 Rev/Mod E-0

Worklist Comment: BY-112 TICTOC. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK			0	@TICTOC1 TIC-02	SOLID	1	1.40E+0	1.400	ug/g
1	BLNK			0	@TICTOC1 TOC-02	SOLID	1	6.30E+0	6.300	ug/g
2	STD			0	@TICTOC1 TIC-02	SOLID	6.02E+02	6.09E+2	101.163	% Recovery
2	STD			0	@TICTOC1 TOC-02	SOLID	3.00E+03	2.91E+3	97.000	% Recovery
3	SAMPLE	S96T005920		0	@TICTOC1 TIC-02	SOLID	N/A	4.98E+04	5.000	ug/g
3	SAMPLE	S96T005920		0	@TICTOC1 TOC-02	SOLID	N/A	7.33E+03	40.000	ug/g
4	DUP	S96T005920		0	@TICTOC1 TIC-02	SOLID	4.98E+4	5.62E+4	12.075	RPD
4	DUP	S96T005920		0	@TICTOC1 TOC-02	SOLID	7.33E+3	6.08E+3	18.643	RPD
5	SPK	S96T005920		0	@TICTOC1 TIC-02	SOLID	1.00E+02	1.37E+02	137.000	% Recovery
5	SPK	S96T005920		0	@TICTOC1 TOC-02	SOLID	1.00E+02	9.27E+01	92.700	% Recovery

Final page for worklist# 16406

Analyst Signature Date — Analyst Signature 4-14-97 Date

Reviewer Signature RW Schroeder 4/14/97 Date

Sample Tic conc. is > 4x the spike tic conc.
No smaller sample size or dilution is practicle.
No reanalysis is requested.
RW Schroeder 4/14/97

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

01/29/97 10:33
A-0004-1

LABCORE Data Entry Template for Worklist# 16406

Analyst: RJM **Instrument:** CARB2 _____ **Book#** T/C 25 N12 A
Method: LA-342-100 Rev/Mod E-0 CARB-2 TOC 24 N12 F

Worklist Comment: BY-112 TICTOC. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	SOLID		
2	STD				@TICTOC1	SOLID		
3	SAMPLE	S96T005920	0		@TICTOC1	SOLID	96001466	BY-112
		Analytes Requested: TIC-02 , TOC-02						
4	DUP	S96T005920	0		@TICTOC1	SOLID		
5	SPK	S96T005920	0		@TICTOC1	SOLID		

Final page for worklist # 16406

RJ McCown 4/14/97
Analyst Signature **Date**

_____
Analyst Signature **Date**

Data Entry Comments:

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

Apr. 14. 1997 2:53AM WHC 222S LAB ROOM 2F BACKSIDE No. 1976 P. 1/14

TIC/TOC: LA-342-100 (E-0)

WORKLIST #	ANALYST INITIALS	ANALYSIS DATE	ANALYSIS TIME	INSTRUMENT CODE
16406	RJM	4/14/97	0400	

BASELINE BLANK | SAMPLE DUPLICATE | SPIKE TRIPLICATE | STD

SAMPLE # = | STD # = TIC 25N12A, TOC 24N12F

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) | TIC: 1.0 | TOC: .200

FINAL COULOMETER READING (u TIC: 615.90 TOC: 613.20

BASELINE BLANK | SAMPLE DUPLICATE | SPIKE TRIPLICATE

SAMPLE # = 596T005920 | STD # =

SAMPLE WEIGHT (g) .0846 / SPIKE/STANDARD VOLUME (mL) | TIC: | TOC:

FINAL COULOMETER READING (u TIC: 4222.30 TOC: 652.60

BASELINE BLANK | SAMPLE DUPLICATE | SPIKE TRIPLICATE

SAMPLE # = 596T005920 | STD # =

SAMPLE WEIGHT (g) .0780 / SPIKE/STANDARD VOLUME (mL) | TIC: | TOC:

FINAL COULOMETER READING (u TIC: 4392.10 TOC: 506.60

BASELINE BLANK | SAMPLE DUPLICATE | SPIKE TRIPLICATE

SAMPLE # = 596T005920 | STD # = TIC 25N12A, TOC 24N12F

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) | TIC: .500 | TOC: .100

FINAL COULOMETER READING (u TIC: 3461.70 TOC: 749.40

BASELINE BLANK | SAMPLE DUPLICATE | SPIKE TRIPLICATE

SAMPLE # = | STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) | TIC: | TOC:

FINAL COULOMETER READING (u TIC: | TOC:

BASELINE BLANK | SAMPLE DUPLICATE | SPIKE TRIPLICATE

SAMPLE # = | STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) | TIC: | TOC:

FINAL COULOMETER READING (u TIC: | TOC:

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD-2 Date: 04/13/97 Time: 21:02:36

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.70	100.00
3	1.01	1.10	36.36
4	1.50	1.30	15.38
5	2.00	1.60	18.75
6	2.50	3.00	46.67
7	3.00	14.70	79.59
8	3.50	53.50	72.52
9	4.00	125.10	57.23
10	4.50	217.50	42.48
11	5.00	315.60	31.08
12	5.50	404.50	21.98
13	6.00	475.10	14.86
14	6.50	528.00	10.02
15	7.00	564.30	6.43
16	7.50	586.80	3.83
17	8.00	600.10	2.22
18	8.50	607.60	1.23
19	9.00	611.70	0.67
20	9.50	613.60	0.31
21	10.00	614.90	0.21
22	10.50	615.90	0.16

USER INPUT BLANK VALUE
BLANK VALUE = 7.033773 micrograms carbon
BLANK FACTOR = 7.033773 / 10.49817 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(615.9 - 7.034428)(1)/(1000) = +6.089E-01 g/L Carbon
(615.9 - 7.034428)(1)/(1000)(12) = +5.074E-02 Molar Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 752 TO 769.

Sample Run By: PJ McCown 4/14/97
PJ MCCOWN 00000

1.0mL 25N12A

Apr. 14. 1997 2:55AM WHC 222S LAB ROOM 2F BACKSIDE NO. 1970 P. 3/14

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD-2 Date: 04/13/97 Time: 21:15:46

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.06 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	0.80	50.00
4	1.50	1.20	33.33
5	2.00	1.50	20.00
6	2.50	2.20	31.82
7	3.00	6.60	66.67
8	3.50	26.70	75.28
9	4.00	83.00	67.83
10	4.50	191.40	56.64
11	5.00	329.10	41.84
12	5.50	444.10	25.90
13	6.00	521.10	14.78
14	6.50	566.10	7.95
15	7.00	589.80	4.02
16	7.50	600.90	1.85
17	8.00	605.90	0.83
18	8.50	608.60	0.44
19	9.00	610.20	0.26
20	9.50	611.60	0.23
21	10.00	612.30	0.11
22	10.50	613.20	0.15

USER INPUT BLANK VALUE
BLANK VALUE = 32.1244 micrograms carbon
BLANK FACTOR = 32.1244 / 10.49817 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(613.2 - 32.12365)(1)/(200) = +2.905E+00 g/L Carbon
(613.2 - 32.12365)(1)/(200)(12) = +2.421E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ McCown 4/14/97
PJ MCCOWN 00000

-200mL 24N12F

Apr. 14. 1997 2:55AM WHC 222S LAB ROOM 2F BACKSIDE No. 1976 P. 5/14

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-2 Date: 04/13/97 Time: 20:28:38

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-2
Blank Value = N/A

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.20	100.00
3	1.01	0.50	60.00
4	1.51	0.80	37.50
5	2.00	1.20	33.33
6	2.50	1.50	20.00
7	3.00	1.90	21.05
8	3.50	2.30	17.39
9	4.00	2.60	11.54
10	4.50	2.90	10.34
11	5.00	3.30	12.12
12	5.50	3.60	8.33
13	6.00	4.10	12.20
14	6.50	4.40	6.82
15	7.00	4.70	6.38
16	7.50	5.00	6.00
17	8.00	5.30	5.66
18	8.50	5.60	5.36
19	9.00	6.00	6.67
20	9.50	6.50	7.69
21	10.00	6.70	2.99
22	10.50	7.00	4.29

BLANK VALUE = 7 micrograms carbon
BLANK FACTOR = 7 / 10.49915 = +6.7E-01 ug/min Carbon

Sample Run By: PJ MCCOWN 00000

Apr. 14. 1997 2:54AM WHC 222S LAB ROOM 2F BACKSIDE No. 1970 P. 3/14

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-2 Date: 04/13/97 Time: 20:41:15

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-2
Blank Value = N/A

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.00	0.00
3	1.01	0.30	100.00
4	1.51	0.60	50.00
5	2.00	0.90	33.33
6	2.50	2.20	59.09
7	3.00	5.70	61.40
8	3.50	10.90	47.71
9	4.00	16.30	33.13
10	4.50	20.30	19.70
11	5.00	23.50	13.62
12	5.50	25.50	7.84
13	6.00	27.00	5.56
14	6.50	27.90	3.23
15	7.00	28.90	3.46
16	7.50	29.40	1.70
17	8.00	30.00	2.00
18	8.50	30.50	1.64
19	9.00	31.00	1.61
20	9.50	31.40	1.27
21	10.00	31.90	1.57
22	10.50	32.10	0.62

BLANK VALUE = 32.1 micrograms carbon
BLANK FACTOR = 32.1 / 10.49817 = +3.06E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: RJM
PJ MCCOWN 00000

Apr. 14. 1997 2:54AM WHC 222S LAB ROOM 2F BACKSIDE No. 1970 P. 9/14

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-2 Date: 04/13/97 Time: 21:44:50

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.20	100.00
3	1.01	0.40	50.00
4	1.51	0.80	50.00
5	2.00	0.90	11.11
6	2.50	1.20	25.00
7	3.00	1.50	20.00
8	3.50	1.70	11.76
9	4.00	1.90	10.53
10	4.50	2.30	17.39
11	5.00	2.50	8.00
12	5.50	2.80	10.71
13	6.00	3.10	9.68
14	6.50	3.40	8.82
15	7.00	3.60	5.56
16	7.50	3.90	7.69
17	8.00	4.20	7.14
18	8.50	4.50	6.67
19	9.00	4.80	6.25
20	9.50	5.10	5.88
21	10.00	5.40	5.56
22	10.50	5.60	3.57

USER INPUT BLANK VALUE
BLANK VALUE = 7.033773 micrograms carbon
BLANK FACTOR = 7.033773 / 10.49817 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(5.6 - 7.034346)(1)/(1) = < 5.00 E-3 g/L Carbon
(5.6 - 7.034346)(1)/(1)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: PJ MCCOWN 00000

Apr. 14. 1997 2:56AM WHC 222S LAB ROOM 2F BACKSIDE NO. 1910 P. 7/14

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-2 Date: 04/13/97 Time: 22:03:43

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.06 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	Analysis Time	Coulometer	% Difference ==
1	0.08	0.00	0.00
2	0.54	0.30	100.00
3	1.04	0.40	25.00
4	1.54	0.60	33.33
5	2.04	1.00	40.00
6	2.54	2.40	58.33
7	3.04	4.30	44.19
8	3.54	7.80	44.87
9	4.04	11.30	30.97
10	4.54	16.30	30.67
11	5.04	18.80	13.30
12	5.54	20.60	8.74
13	6.04	21.60	4.63
14	6.54	22.30	3.14
15	7.04	23.00	3.04
16	7.54	23.40	1.71
17	8.04	23.90	2.09
18	8.54	24.30	1.65
19	9.04	24.70	1.62
20	9.54	25.10	1.59
21	10.04	25.50	1.57
22	10.54	25.80	1.16

USER INPUT BLANK VALUE
BLANK VALUE = 32.1244 micrograms carbon
BLANK FACTOR = 32.1244 / 10.49817 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(25.8 - 32.23907)(1)/(1) = < 5.00 E-3 g/L Carbon
(25.8 - 32.23907)(1)/(1)(12) = < 4.17 E-4 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

Apr. 14. 1997 2:56AM WHC 222S LAB ROOM 2F BACKSIDE NO. 1910 P. 6/14

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005920-2 Date: 04/13/97 Time: 22:27:33

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.30	100.00
3	1.01	0.50	40.00
4	1.50	1.20	58.33
5	2.00	92.30	98.70
6	2.50	695.70	86.73
7	3.00	1442.90	51.78
8	3.50	2190.10	34.12
9	4.00	2937.80	25.45
10	4.50	3685.80	20.29
11	5.00	4012.30	8.14
12	5.50	4110.20	2.38
13	6.00	4164.80	1.31
14	6.50	4191.60	0.64
15	7.00	4204.40	0.30
16	7.50	4210.80	0.15
17	8.00	4214.60	0.09
18	8.50	4217.00	0.06
19	9.00	4218.70	0.04
20	9.50	4220.20	0.04
21	10.00	4221.40	0.03
22	10.50	4222.30	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 7.033773 micrograms carbon
BLANK FACTOR = 7.033773 / 10.49817 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(4222.3 - 7.033691)(1)/(1) = +4.2153E+03 g/L Carbon
(4222.3 - 7.033691)(1)/(1)(12) = +3.5127E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.08468

Apr. 14. 1997 2:57AM WHC 222S LAB ROOM 2F BACKSIDE NO. 1910 P. 3/14

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005920-2 Date: 04/13/97 Time: 22:41:11

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.06 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.70	100.00
3	1.01	1.30	46.15
4	1.50	1.90	31.58
5	2.00	6.00	68.33
6	2.50	42.20	85.78
7	3.00	141.10	70.09
8	3.50	284.70	50.44
9	4.00	426.70	33.28
10	4.50	529.80	19.46
11	5.00	591.10	10.37
12	5.50	622.90	5.11
13	6.00	634.90	1.89
14	6.50	640.20	0.83
15	7.00	643.40	0.50
16	7.50	645.50	0.33
17	8.00	647.00	0.23
18	8.50	648.40	0.22
19	9.00	649.70	0.20
20	9.50	650.80	0.17
21	10.00	651.60	0.12
22	10.50	652.60	0.15

USER INPUT BLANK VALUE
BLANK VALUE = 32.1244 micrograms carbon
BLANK FACTOR = 32.1244 / 10.49817 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(652.6 - 32.12701)(1)/(1) = +6.205E+02 g/L Carbon
(652.6 - 32.12701)(1)/(1)(12) = +5.171E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

-0846g

Apr. 14. 1997 2:57AM WHC 222S LAB ROOM 2F BACKSIDE No. 1970 P. 10/14

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5920 DUP-2 Date: 04/13/97 Time: 23:05:31

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.30	100.00
3	1.01	0.50	40.00
4	1.50	1.50	66.67
5	2.00	98.10	98.47
6	2.50	720.80	86.39
7	3.00	1469.00	50.93
8	3.50	2216.10	33.71
9	4.00	2964.10	25.24
10	4.50	3711.20	20.13
11	5.00	4168.20	10.96
12	5.50	4268.70	2.35
13	6.00	4327.80	1.37
14	6.50	4358.30	0.70
15	7.00	4372.70	0.33
16	7.50	4380.20	0.17
17	8.00	4384.40	0.10
18	8.50	4386.90	0.06
19	9.00	4388.80	0.04
20	9.50	4390.10	0.03
21	10.00	4391.30	0.03
22	10.50	4392.10	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 7.033773 micrograms carbon
BLANK FACTOR = 7.033773 / 10.49817 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(4392.1 - 7.033691)(1)/(1) = +4.3851E+03 g/L Carbon
(4392.1 - 7.033691)(1)/(1)(12) = +3.6542E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0780g

Apr. 14. 1997 2:57AM WHC 222S LAB ROOM 2F BACKSIDE No. 1970 P. 11/14

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5920 DUP-2 Date: 04/13/97 Time: 23:19:10

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.06 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	1.00	60.00
4	1.50	1.50	33.33
5	2.00	6.60	77.27
6	2.50	41.10	83.94
7	3.00	126.90	67.61
8	3.50	242.80	47.73
9	4.00	347.60	30.15
10	4.50	423.00	17.83
11	5.00	467.60	9.54
12	5.50	487.50	4.08
13	6.00	494.60	1.44
14	6.50	498.00	0.68
15	7.00	499.90	0.38
16	7.50	501.30	0.28
17	8.00	502.50	0.24
18	8.50	503.40	0.18
19	9.00	504.40	0.20
20	9.50	505.20	0.16
21	10.00	505.90	0.14
22	10.50	506.60	0.14

USER INPUT BLANK VALUE
BLANK VALUE = 32.1244 micrograms carbon
BLANK FACTOR = 32.1244 / 10.49817 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(506.6 - 32.12365)(1)/(1) = +4.745E+02 g/L Carbon
(506.6 - 32.12365)(1)/(1)(12) = +3.954E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

-0780g

762

APR. 14. 1997 2:38AM WHC 222S LAB ROOM 2F BACKSIDE NO. 1970 P. 12/14

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5920 SPK-2 Date: 04/13/97 Time: 23:43:56

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .67 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.00	0.70	42.86
4	1.50	1.30	46.15
5	2.00	65.00	98.00
6	2.50	554.10	88.27
7	3.00	1299.00	57.34
8	3.50	2046.30	36.52
9	4.00	2709.40	24.47
10	4.50	3054.40	11.30
11	5.00	3235.90	5.61
12	5.50	3338.50	3.07
13	6.00	3400.10	1.81
14	6.50	3433.20	0.96
15	7.00	3446.60	0.39
16	7.50	3452.30	0.17
17	8.00	3455.40	0.09
18	8.50	3457.40	0.06
19	9.00	3458.90	0.04
20	9.50	3460.00	0.03
21	10.00	3461.00	0.03
22	10.50	3461.70	0.02

USER INPUT BLANK VALUE
BLANK VALUE = 7.033773 micrograms carbon
BLANK FACTOR = 7.033773 / 10.49817 = +6.7E-01 ug/min Carbon

SAMPLE RESULTS:
(3461.7 - 7.033691)(1)/(1) = +3.4547E+03 g/L Carbon
(3461.7 - 7.033691)(1)/(1)(12) = +2.8789E+02 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0611 g
+ - 500mL 25012A

Apr. 14. 1997 2:58AM WHC 222S LAB ROOM 2F BACKSIDE No. 1970 P. 15/14

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5920 SPK-2 Date: 04/13/97 Time: 23:56:40

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.06 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	1.00	60.00
4	1.51	1.70	41.18
5	2.00	12.20	86.07
6	2.50	64.00	80.94
7	3.00	163.00	60.74
8	3.50	300.30	45.72
9	4.00	463.40	35.20
10	4.50	588.70	21.28
11	5.00	666.00	11.61
12	5.50	711.70	6.42
13	6.00	732.80	2.88
14	6.50	739.20	0.87
15	7.00	742.10	0.39
16	7.50	743.80	0.23
17	8.00	745.20	0.19
18	8.50	746.30	0.15
19	9.00	747.20	0.12
20	9.50	748.10	0.12
21	10.00	748.90	0.11
22	10.50	749.40	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 32.1244 micrograms carbon
BLANK FACTOR = 32.1244 / 10.49817 = +3.1E+00 ug/min Carbon

SAMPLE RESULTS:
(749.4 - 32.12701)(1)/(1) = +7.173E+02 g/L Carbon
(749.4 - 32.12701)(1)/(1)(12) = +5.977E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.0611 g
+.100 mL 24N12F

764

Apr. 14. 1997 2:59AM WHC 222S LAB ROOM 2F BACKSIDE No. 1970 P. 14/14

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Size in g	(SS)	TIC	TOC
BLNK	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	5.6	25.8
16406	µg of Carbon from Baseline	(C2)	7	32.1

Test Codes	@TICTOC1
Matrix	SOLID
Batch Number	97000270
Rerun	0
Sample Prep	N/A
Sample #	BLANK
Instrument Code	CARB2
Prepared By	RCJ
Chemist	RWS
Analyst	PJM
Date Complete	04/14/97
Analysis Date	04/13/97
Analysis Time	08:28 PM
Sample Point	BY-112

µg of Carbon = |C1-C2|

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon	1.40E+00	6.30E+00

Data Entered By: RCJ Date: 04/14/97

Signature of Chemist: RW Schroeder Date: 4/14/97

BLANK.WB1 REV 1.0 342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type			TIC	TOC
STD	Sample Size in mL	(SS)	1.0000	0.2000
	Dilution Factor	(DF)	1	1
Work List	Final Coulometer Reading in µg	(C1)	615.9	613.2
16406	µg of Carbon from Baseline	(C2)	7	32.1
Test Code	Standard Book Number		25N12A	24N12F
@TICTOC1	Standard Value (µg/ml)		602	3000

Matrix
LIQUID
Batch Number
97000270
Rerun
0
Sample Prep
N/A
Sample #
STANDARD
Instrument Code
CARB2
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/14/97
Analysis Date
04/13/97
Analysis Time
08:28 PM
Sample Point
BY-112

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	6.09E+02	2.91E+03
Percent Standard Recovery	101.1	96.9

Data Entered By: RCJ Date: 04/14/97

Signature of Chemist: Date: 4/14/97

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
SAMPLE	Sample Size in g	(SS)	0.0846	0.0846
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	4222.3	652.6
16406	µg of Carbon from Baseline	(C2)	7	32.1
Test Code				
@TICTOC1				

Matrix
SOLID
Batch Number
97000270
Rerun
0
Sample Prep
N/A
Sample #
S96T005920
Instrument Code
CARB2
Prepared By
RCJ
Chemist
RWS
Analyst
PJM
Date Complete
04/14/97
Analysis Date
04/13/97
Analysis Time
08:28 PM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	4.98E+04	7.33E+03

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/14/97

SAMPLE.WB1 REV 1.0 342100ML

I:\342100\OUT\TT16406.WB1 04/14/97 07:13:54

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
DUP	Sample Size in g	(SS)	0.0780	0.0780
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	4392.1	506.6
16406	µg of Carbon from Baseline	(C2)	7	32.1
Test Code	Known µg of C from Original Sample		4.98E+4	7.33E+3
@TICTOC1				
Matrix				
SOLID				
Batch Number				
97000270				
Rerun	µg of Carbon/g = (C1-C2) * DF / SS			
0	µg of Carbon/g for TIC = 5 if C1 < C2			
Sample Prep	µg of Carbon/g for TOC = 40 if C1 < C2			
N/A				
Sample #				
S96T005920				
Instrument Code				
CARB2				
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
PJM				
Date Complete				
04/14/97				
Analysis Date				
04/13/97			TIC	TOC
Analysis Time	Method Detection Limit in ug/g		5	40
08:28 PM				
Sample Point	µg of Carbon/g		5.62E+04	6.08E+03
BY-112				

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/14/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Vial Data		TIC	TOC
SPK	Sample Size in g	(SS)	0.0846	0.0846
Work List	Final Coulometer Reading in µg	(C1)	4222.3	652.6
16406	**Spiked Vial Data**			
Test Code	Sample Size in g	(SPK SS)	0.0611	0.0611
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C2)	3461.7	749.4
SOLID	Spike Book Number		25N12A	24N12F
Batch Number	Spike Standard Value in µg/ml	(SPK CONC)	602	3000
97000270				
Rerun				
0				
Sample Prep				
N/A				
Sample #	**Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 1**			
S96T005920				
Instrument Code	**QC Actual in µg/mL = Spike Value (µg/mL)**			
CARB2	**QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100**			
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
PJM				
Date Complete				
04/14/97				
Analysis Date				
04/13/97				
Analysis Time			TIC	TOC
08:28 PM	**QC Actual in µg/mL**		6.02E+02	3.00E+03
Sample Point	**QC Found in µg/mL**		8.25E+02	2.78E+03
BY-112	**Percent Spike Recovery**		137.0	92.7

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/14/97

SPIKE.WB1 REV 1.1 342100ML

LABCORE Completed Worklist Report for Worklist# 16407

Analyst: krm **Instrument:** CARB2 **Book#** Tic 25N12A / Toc 24N12F

Method: LA342-100 Rev/Mod E-0

Worklist Comment: BY-112 FOR @TICTOC1 RTS!

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	BLNK		0		@TICTOC1 TIC-02	LIQUID	1		1.00E+0	1.000	ug/mL
1	BLNK		0		@TICTOC1 TOC-02	LIQUID	1		2.20E+0	2.200	ug/mL
2	STD		0		@TICTOC1 TIC-02	LIQUID	6.02E+02		6.09E+2	101.163	% Recovery
2	STD		0		@TICTOC1 TOC-02	LIQUID	3.00E+03		2.95E+3	98.333	% Recovery
3	SAMPLE	S96T005909	0		@TICTOC1 TIC-02	LIQUID	N/A		3.15E+01	5.000	ug/mL
3	SAMPLE	S96T005909	0		@TICTOC1 TOC-02	LIQUID	N/A	<	4.00E+01	40.000	ug/mL
4	DUP	S96T005909	0		@TICTOC1 TIC-02	LIQUID	3.15E+1		3.09E+1	1.923	RPD
4	DUP	S96T005909	0		@TICTOC1 TOC-02	LIQUID	<4.00E+1		<4.00E+1		RPD
5	SPK	S96T005909	0		@TICTOC1 TIC-02	LIQUID	1.00E+02		1.02E+02	102.000	% Recovery
5	SPK	S96T005909	0		@TICTOC1 TOC-02	LIQUID	1.00E+02		9.20E+01	92.000	% Recovery

Final page for worklist# 16407

Analyst Signature Date

4-14-97
Analyst Signature Date

R W Schreiber 4/15/97
Reviewer Signature Date

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

LABCORE Data Entry Template for Worklist# 16407

Analyst: KRM **Instrument:** CARB2 _____ **Book#** 25N12A 24N12F

Method: LA-342-100 Rev/Mod _____

Worklist Comment: BY-112 FOR @TICTOC1 RTS!

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	LIQUID		
2	STD				@TICTOC1	LIQUID		
3	SAMPLE	S96T005909	0		@TICTOC1	LIQUID	96001466	BY-112
	Analytes Requested: TIC-02 , TOC-02							
4	DUP	S96T005909	0		@TICTOC1	LIQUID		
5	SPK	S96T005909	0		@TICTOC1	LIQUID		

Final page for worklist # 16407

4-14-97

Analyst Signature **Date**

Analyst Signature **Date**

Data Entry Comments:

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

TIC/TOC: LA-342-100 (E-0)

WORKLIST #	ANALYST INITIALS	ANALYSIS DATE	ANALYSIS TIME	INSTRUMENT CODE
16407	LKRM	4-14-97		

Block 1

[X] BASELINE BLANK [ ] SAMPLE DUPLICATE [ ] SPIKE TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 8.0 TOC: 22.6

Block 2

[ ] BASELINE BLANK [X] SAMPLE DUPLICATE [ ] SPIKE TRIPLICATE

SAMPLE # = 5907 STD # = 25N12A 24N12A

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: 1.0 TOC: .2

FINAL COULOMETER READING (u TIC: 616.8 TOC: 612.2

Block 3

[X] BASELINE BLANK [ ] SAMPLE DUPLICATE [ ] SPIKE TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 9.0 TOC: 24.8

Block 4

[ ] BASELINE BLANK [X] SAMPLE DUPLICATE [ ] SPIKE TRIPLICATE

SAMPLE # = 5907 5909 STD # =

SAMPLE WEIGHT (g) 1.0 g / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 39.5 TOC: 50.0

Block 5

[ ] BASELINE BLANK [ ] SAMPLE DUPLICATE [X] SPIKE TRIPLICATE

SAMPLE # = 5907 5909 STD # = 25N12A 24N12F

SAMPLE WEIGHT (g) 1.0 g / SPIKE/STANDARD VOLUME (mL) TIC: .5 TOC: .1

FINAL COULOMETER READING (u TIC: 346.3 TOC: 325.9

Block 6

[ ] BASELINE BLANK [ ] SAMPLE DUPLICATE [ ] SPIKE TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: TOC:

Block 7

[ ] BASELINE BLANK [ ] SAMPLE DUPLICATE [ ] SPIKE TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: TOC:

Sep. 27, 1996 11:33PM WHC 2773 LAB KUUM 27 DAY 3.05

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE1 Date: 04/14/97 Time: 06:20:01

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE1
Blank Value = N/A

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.30	0.00
2	1.01	0.50	40.00
3	1.51	0.90	44.44
4	2.00	1.50	40.00
5	2.50	2.00	25.00
6	3.00	2.70	25.93
7	3.50	2.90	6.90
8	4.00	3.40	14.71
9	4.50	3.60	5.56
10	5.00	4.00	10.00
11	5.50	4.30	6.98
12	6.00	4.70	8.51
13	6.50	5.00	6.00
14	7.00	5.40	7.41
15	7.50	5.70	5.26
16	8.00	6.10	6.56
17	8.50	6.40	4.69
18	9.00	6.70	4.48
19	9.50	7.10	5.63
20	10.00	7.40	4.05
21	10.50	7.70	3.90
22	11.00	8.00	3.75

BLANK VALUE = 8 micrograms carbon
BLANK FACTOR = 8 / 10.99881 = +7.3E-01 ug/min Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 783 TO 789.

4/15/97

Sample Run By: RW Schroeder for KR Monteith
KR MONTEITH 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE1 Date: 04/14/97 Time: 06:32:12

Sample Size = 1 uL	Analyst : KR MONTEITH
Dil Factor = 1	Min Readings = 22
Blank ID # = BASE1	Max Readings = 22
Blank Value = N/A	% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	0.50	80.00
3	1.51	2.10	76.19
4	2.00	6.60	68.18
5	2.50	10.60	37.74
6	3.00	13.30	20.30
7	3.50	15.10	11.92
8	4.00	16.10	6.21
9	4.50	16.90	4.73
10	5.00	17.30	2.31
11	5.50	18.10	4.42
12	6.00	18.60	2.69
13	6.50	19.10	2.62
14	7.00	19.60	2.55
15	7.50	20.00	2.00
16	8.00	20.40	1.96
17	8.50	20.90	2.39
18	9.00	21.40	2.34
19	9.50	21.50	0.47
20	10.00	22.00	2.27
21	10.50	22.20	0.90
22	11.00	22.60	1.77

BLANK VALUE = 22.6 micrograms carbon
BLANK FACTOR = 22.6 / 10.99701 = +2.06E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
KR MONTEITH 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD1 Date: 04/14/97 Time: 06:46:57

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .73 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	Analysis Time	Coulometer	% Difference ==
1	0.51	0.10	0.00
2	1.01	0.50	80.00
3	1.50	18.60	97.31
4	2.00	129.40	85.63
5	2.50	296.00	56.28
6	3.00	436.50	32.19
7	3.50	525.80	16.98
8	4.00	575.80	8.68
9	4.50	597.60	3.65
10	5.00	606.80	1.52
11	5.50	610.30	0.57
12	6.00	611.70	0.23
13	6.50	612.80	0.18
14	7.00	613.40	0.10
15	7.50	613.90	0.08
16	8.00	614.40	0.08
17	8.50	614.90	0.08
18	9.00	615.30	0.07
19	9.50	615.60	0.05
20	10.00	616.10	0.08
21	10.50	616.50	0.06
22	11.00	616.80	0.05

USER INPUT BLANK VALUE
BLANK VALUE = 8.027817 micrograms carbon
BLANK FACTOR = 8.027817 / 10.99701 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:
(616.8 - 8.029154)(1)/(1000) = +6.088E-01 g/L Carbon
(616.8 - 8.029154)(1)/(1000)(12) = +5.073E-02 Molar Carbon

Sample Run By: KR MONTEITH 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD1 Date: 04/14/97 Time: 07:16:59

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.06 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.80	0.00
2	1.01	1.10	27.27
3	1.50	10.30	89.32
4	2.00	43.50	76.32
5	2.50	178.60	75.64
6	3.00	430.30	58.49
7	3.50	551.00	21.91
8	4.00	588.60	6.39
9	4.50	599.60	1.83
10	5.00	603.00	0.56
11	5.50	604.70	0.28
12	6.00	605.80	0.18
13	6.50	606.70	0.15
14	7.00	607.60	0.15
15	7.50	608.50	0.15
16	8.00	609.00	0.08
17	8.50	609.70	0.11
18	9.00	610.20	0.08
19	9.50	610.70	0.08
20	10.00	611.10	0.07
21	10.50	611.70	0.10
22	11.00	612.20	0.08

USER INPUT BLANK VALUE
BLANK VALUE = 22.65384 micrograms carbon
BLANK FACTOR = 22.65384 / 10.99701 = +2.1E+00 ug/min Carbon

SAMPLE RESULTS:
(612.2 - 22.65761)(1)/(200) = +2.948E+00 g/L Carbon
(612.2 - 22.65761)(1)/(200)(12) = +2.456E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
KR MONTEITH 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK1 Date: 04/14/97 Time: 07:30:13

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .73 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	2.20	0.00
2	1.00	3.50	37.14
3	1.50	3.90	10.26
4	2.00	4.10	4.88
5	2.50	4.40	6.82
6	3.00	4.70	6.38
7	3.50	5.00	6.00
8	4.00	5.40	7.41
9	4.50	5.70	5.26
10	5.00	6.00	5.00
11	5.50	6.40	6.25
12	6.00	6.60	3.03
13	6.50	6.90	4.35
14	7.00	7.10	2.82
15	7.50	7.40	4.05
16	8.00	7.70	3.90
17	8.50	7.90	2.53
18	9.00	8.10	2.47
19	9.50	8.40	3.57
20	10.00	8.50	1.18
21	10.50	8.80	3.41
22	11.00	9.00	2.22

USER INPUT BLANK VALUE
BLANK VALUE = 8.027817 micrograms carbon
BLANK FACTOR = 8.027817 / 10.99701 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:
(9 - 8.027817)(1)/(1) = +9.7E-01 g/L Carbon
(9 - 8.027817)(1)/(1)(12) = +8.1E-02 Molar Carbon

Sample Run By: _____
KR MONTEITH 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK1 Date: 04/14/97 Time: 07:48:01

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.06 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.10	0.00
2	1.01	0.40	75.00
3	1.51	0.50	20.00
4	2.00	0.80	37.50
5	2.50	1.00	20.00
6	3.00	1.80	44.44
7	3.50	5.70	68.42
8	4.00	14.90	61.74
9	4.50	18.90	21.16
10	5.00	20.20	6.44
11	5.50	20.80	2.88
12	6.00	21.30	2.35
13	6.50	21.70	1.84
14	7.00	22.10	1.81
15	7.50	22.50	1.78
16	8.00	22.80	1.32
17	8.50	23.10	1.30
18	9.00	23.40	1.28
19	9.50	23.80	1.68
20	10.00	24.10	1.24
21	10.50	24.40	1.23
22	11.00	24.80	1.61

USER INPUT BLANK VALUE
BLANK VALUE = 22.65384 micrograms carbon
BLANK FACTOR = 22.65384 / 10.99701 = +2.1E+00 ug/min Carbon

SAMPLE RESULTS:
(24.8 - 22.65384)(1)/(1) = +2.15E+00 g/L Carbon
(24.8 - 22.65384)(1)/(1)(12) = +1.79E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
KR MONTEITH 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T5909-1 Date: 04/14/97 Time: 09:18:42

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .73 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.40	0.00
2	1.01	0.70	42.86
3	1.50	1.80	61.11
4	2.00	7.20	75.00
5	2.50	16.40	56.10
6	3.00	25.10	34.66
7	3.50	30.50	17.70
8	4.00	33.60	9.23
9	4.50	35.10	4.27
10	5.00	35.90	2.23
11	5.50	36.30	1.10
12	6.00	36.70	1.09
13	6.50	36.90	0.54
14	7.00	37.30	1.07
15	7.50	37.50	0.53
16	8.00	37.80	0.79
17	8.50	38.10	0.79
18	9.00	38.30	0.52
19	9.50	38.60	0.78
20	10.00	39.10	1.28
21	10.50	39.20	0.26
22	11.00	39.50	0.76

USER INPUT BLANK VALUE
BLANK VALUE = 8.027817 micrograms carbon
BLANK FACTOR = 8.027817 / 10.99701 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:
(39.5 - 8.029154)(1)/(1) = +3.15E+01 g/L Carbon
(39.5 - 8.029154)(1)/(1)(12) = +2.62E+00 Molar Carbon

Sample Run By: _____
KR MONTEITH 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T5909-1 Date: 04/14/97 Time: 09:34:35

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.06 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	1.10	100.00
3	1.51	16.20	93.21
4	2.00	31.60	48.73
5	2.50	38.40	17.71
6	3.01	41.20	6.80
7	3.50	42.60	3.29
8	4.00	43.90	2.96
9	4.50	44.40	1.13
10	5.00	45.20	1.77
11	5.50	45.70	1.09
12	6.00	46.20	1.08
13	6.50	46.80	1.28
14	7.00	47.20	0.85
15	7.50	47.60	0.84
16	8.00	48.00	0.83
17	8.50	48.50	1.03
18	9.00	48.70	0.41
19	9.50	49.00	0.61
20	10.00	49.40	0.81
21	10.50	49.60	0.40
22	11.00	50.00	0.80

USER INPUT BLANK VALUE
BLANK VALUE = 22.65384 micrograms carbon
BLANK FACTOR = 22.65384 / 10.99701 = +2.1E+00 ug/min Carbon

SAMPLE RESULTS:
(50 - 22.65937)(1)/(1) = +2.73E+01 g/L Carbon
(50 - 22.65937)(1)/(1)(12) = +2.28E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
KR MONTEITH 00000

ZX

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T5909DUP-1 Date: 04/14/97 Time: 09:46:17

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .73 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.00	0.00
2	1.01	0.00	0.00
3	1.50	0.10	100.00
4	2.00	0.20	50.00
5	2.50	1.40	85.71
6	3.00	1.70	17.65
7	3.50	6.40	73.44
8	4.00	20.60	68.93
9	4.50	30.30	32.01
10	5.00	33.90	10.62
11	5.50	35.20	3.69
12	6.00	35.90	1.95
13	6.50	36.40	1.37
14	7.00	36.60	0.55
15	7.50	36.80	0.54
16	8.00	37.20	1.08
17	8.50	37.50	0.80
18	9.00	37.80	0.79
19	9.50	38.10	0.79
20	10.00	38.30	0.52
21	10.50	38.70	1.03
22	11.00	38.90	0.51

USER INPUT BLANK VALUE
BLANK VALUE = 8.027817 micrograms carbon
BLANK FACTOR = 8.027817 / 10.99701 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:
(38.9 - 8.027193)(1)/(1) = +3.09E+01 g/L Carbon
(38.9 - 8.027193)(1)/(1)(12) = +2.57E+00 Molar Carbon

Sample Run By: _____
KR MONTEITH 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T5909DUP-1 Date: 04/14/97 Time: 10:00:07

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.06 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.10	0.00
2	1.00	0.40	75.00
3	1.50	11.50	96.52
4	2.00	24.90	53.82
5	2.50	31.40	20.70
6	3.00	34.70	9.51
7	3.50	36.40	4.67
8	4.00	37.40	2.67
9	4.50	38.10	1.84
10	5.00	39.10	2.56
11	5.50	39.80	1.76
12	6.00	40.60	1.97
13	6.50	41.10	1.22
14	7.00	41.50	0.96
15	7.50	42.30	1.89
16	8.00	42.40	0.24
17	8.50	42.80	0.93
18	9.00	43.10	0.70
19	9.50	43.60	1.15
20	10.00	43.80	0.46
21	10.50	44.20	0.90
22	11.00	44.40	0.45

USER INPUT BLANK VALUE
BLANK VALUE = 22.65384 micrograms carbon
BLANK FACTOR = 22.65384 / 10.99701 = +2.1E+00 ug/min Carbon

SAMPLE RESULTS:
(44.4 - 22.65547)(1)/(1) = +2.17E+01 g/L Carbon
(44.4 - 22.65547)(1)/(1)(12) = +1.81E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
KR MONTEITH 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T5909SPK-1 Date: 04/14/97 Time: 10:18:24

Sample Size = 1 uL		Analyst :	KR MONTEITH
Dil Factor = 1		Min Readings =	22
Blank ID # =		Max Readings =	22
Blank Value = .73 ug/minute C		% Difference =	10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.60	50.00
3	1.51	6.10	90.16
4	2.01	62.60	90.26
5	2.50	168.50	62.85
6	3.00	256.50	34.31
7	3.50	308.50	16.86
8	4.00	331.10	6.83
9	4.50	338.50	2.19
10	5.00	340.80	0.67
11	5.50	341.80	0.29
12	6.00	342.40	0.18
13	6.50	343.00	0.17
14	7.00	343.40	0.12
15	7.50	343.80	0.12
16	8.00	344.20	0.12
17	8.50	344.50	0.09
18	9.00	344.90	0.12
19	9.50	345.20	0.09
20	10.00	345.60	0.12
21	10.50	345.90	0.09
22	11.00	346.30	0.12

USER INPUT BLANK VALUE
BLANK VALUE = 8.027817 micrograms carbon
BLANK FACTOR = 8.027817 / 10.99701 = +7.3E-01 ug/min Carbon

SAMPLE RESULTS:
(346.3 - 8.030446)(1)/(1) = +3.383E+02 g/L Carbon
(346.3 - 8.030446)(1)/(1)(12) = +2.819E+01 Molar Carbon

Sample Run By: _____
KR MONTEITH 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T5909SPK-1 Date: 04/14/97 Time: 10:30:46

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 2.06 ug/minute C

Analyst : KR MONTEITH
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.51	0.10	0.00
2	1.01	3.00	96.67
3	1.51	129.70	97.69
4	2.00	262.60	50.61
5	2.50	301.50	12.90
6	3.00	312.80	3.61
7	3.50	316.70	1.23
8	4.00	318.40	0.53
9	4.50	319.80	0.44
10	5.00	320.70	0.28
11	5.50	321.30	0.19
12	6.00	321.80	0.16
13	6.50	322.50	0.22
14	7.00	322.80	0.09
15	7.50	323.20	0.12
16	8.00	323.60	0.12
17	8.50	324.10	0.15
18	9.00	324.40	0.09
19	9.50	324.70	0.09
20	10.00	325.20	0.15
21	10.50	325.60	0.12
22	11.00	325.90	0.09

USER INPUT BLANK VALUE
BLANK VALUE = 22.65384 micrograms carbon
BLANK FACTOR = 22.65384 / 10.99701 = +2.1E+00 ug/min Carbon

SAMPLE RESULTS:
(325.9 - 22.65384)(1)/(1) = +3.032E+02 g/L Carbon
(325.9 - 22.65384)(1)/(1)(12) = +2.527E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: _____
KR MONTEITH 00000

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type			TIC	TOC
BLNK	Sample Size in mL	(SS)	0.0000	0.0000
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	9	24.8
16407	µg of Carbon from Baseline	(C2)	8	22.6

Test Code
@TICTOC1
Matrix
LIQUID
Batch Number
97000271
Rerun
0
Sample Prep
N/A
Sample #
BLANK
Instrument Code
CARB2
Prepared By
RCJ
Chemist
RWS
Analyst
KRM
Date Complete
04/14/97
Analysis Date
04/14/97
Analysis Time
06:20 AM
Sample Point
BY-112

µg of Carbon = |C1-C2|

	TIC	TOC
Method Detection Limit in µg/mL	5	40
µg of Carbon	1.00E+00	2.20E+00

Data Entered By: RCJ Date: 04/14/97

Signature of Chemist: RW Schroeder Date: 4/15/97

BLANK.WB1 REV 1.0 342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type			TIC	TOC
STD	Sample Size in mL	(SS)	1.0000	0.2000
	Dilution Factor	(DF)	1	1
Work List	Final Coulometer Reading in µg	(C1)	616.8	612.2
16407	µg of Carbon from Baseline	(C2)	8	22.6
Test Code	Standard Book Number		25N12A	24N12F
@TICTOC1	Standard Value (µg/ml)		602	3000

Matrix
LIQUID
Batch Number
97000271
Rerun #
0
Sample Prep
N/A
Sample #
STANDARD
Instrument Code
CARB2
Prepared By
RCJ
Chemist
RWS
Analyst
KRM
Date Complete
04/14/97
Analysis Date
04/14/97
Analysis Time
06:20 AM
Sample Point
BY-112

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	6.09E+02	2.95E+03
Percent Standard Recovery	101.1	98.3

Data Entered By: RCJ Date: 04/14/97

Signature of Chemist: RW Schroeder Date: 4/15/97

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type	Sample Size in mL	(SS)	TIC	TOC
SAMPLE	Dilution Factor	(DF)	1	1
WorkList	µg of Carbon in Sample	(C1)	39.5	50
16407	µg of Carbon from Baseline	(C2)	8	22.6
Test Code				
@TICTOC1				

Matrix	
LIQUID	
Batch Number	
97000271	
Rerun	µg of Carbon/mL = (C1-C2) * DF / SS
0	µg of Carbon/mL for TIC = 5 if C1 < C2
Sample Prep	µg of Carbon/mL for TOC = 40 if C1 < C2
N/A	
Sample #	
S96T005909	
Instrument Code	
CARB2	
Prepared By	
RCJ	
Chemist	
RWS	
Analyst	
KRM	
Date Complete	
04/14/97	
Analysis Date	NOTE: FOR TOC: The Reported Result is < 40.
04/14/97	
Analysis Time	
06:20 AM	
Sample Point	
BY-112	

		TIC	TOC
Method Detection Limit in µg/mL		5	40
µg of Carbon/mL	Note: <	3.15E+01	2.74E+01

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

I:\342100\OUT\TT16407.WB1 04/14/97 15:05:57

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type			TIC	TOC
DUP	Sample Size in mL	(SS)	1.0000	1.0000
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	38.9	44.4
16407	µg of Carbon from Baseline	(C2)	8	22.6
Test Code	Known µg of C from Original Sample		3.15E+1	<2.74E+1
@TICTOC1				

Matrix	
LIQUID	
Batch Number	
97000271	
Rerun	µg of Carbon/mL = (C1-C2) * DF / SS
0	µg of Carbon/mL for TIC = 5 if C1 < C2
Sample Prep	µg of Carbon/mL for TOC = 40 if C1 < C2
N/A	
Sample #	
S96T005909	
Instrument Code	
CARB2	
Prepared By	
RCJ	
Chemist	
RWS	
Analyst	
KRM	
Date Complete	
04/14/97	
Analysis Date	NOTE: FOR TOC: The Reported Result is < 40.
04/14/97	
Analysis Time	
06:20 AM	
Sample Point	
BY-112	

			TIC	TOC
Method Detection Limit in µg/mL			5	40
µg of Carbon/mL	Note:	<	3.09E+01	2.18E+01

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SPIKE5

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type	Sample Vial Data		TIC	TOC
SPK	Sample Volume in mL	(SS)	1.0000	1.0000
WorkList	Final Coulometer Reading in µg	(C1)	39.5	50
16407	**Spiked Vial Data**			
Test Code	Sample Volume in mL	(SPK SS)	1.0000	1.0000
@TICTOC1	Amount of Spike Std. in mL	(SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg	(C2)	346.3	325.9
LIQUID	Spike Book Number		25N12A	24N12F
Batch Number	Spike Standard Value in µg/ml	(SPK CONC)	602	3000
97000271				
Rerun				
0				
Sample Prep				
N/A				
Sample #	Percent Spike Recovery = (C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 1			
S96T005909				
Instrument Code	QC Actual in µg/mL = Spike Value (µg/mL)			
CARB2	QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100			
Prepared By				
RCJ				
Chemist				
RWS				
Analyst				
KRM				
Date Complete				
04/14/97				
Analysis Date				
04/14/97				
Analysis Time			TIC	TOC
06:20 AM	QC Actual in µg/mL		6.02E+02	3.00E+03
Sample Point	QC Found in µg/mL		6.14E+02	2.76E+03
BY-112	Percent Spike Recovery		101.9	92.0

Data Entered By:	RCJ	Date:	04/14/97
Signature of Chemist:	RW Schroeder	Date:	4/15/97

SPIKE.WB1 REV 1.1 342100ML

LABCORE Completed Worklist Report for Worklist# 17565

Analyst: pjm **Instrument:** CARB2 **Book#** TIC 25N12A TOC 24N12F

Method: LA-342-100 Rev/Mod E-0

Worklist Comment: BY-112 TICTOC, DO NOT RUN TRIPL OR SPK, RERUN. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK		0		@TICTOC1 TIC-02	SOLID	1	2.80E+0	2.800	ug/g
1	BLNK		0		@TICTOC1 TOC-02	SOLID	1	3.90E+0	3.900	ug/g
2	STD		0		@TICTOC1 TIC-02	SOLID	6.02E+02	6.02E+2	100.000	% Recovery
2	STD		0		@TICTOC1 TOC-02	SOLID	3.00E+03	2.87E+3	95.667	% Recovery
3	SAMPLE	S96T005921	0		@TICTOC1 TIC-02	SOLID	N/A	1.13E+04	5.000	ug/g
3	SAMPLE	S96T005921	0		@TICTOC1 TOC-02	SOLID	N/A	2.98E+04	40.000	ug/g
4	DUP	S96T005921	0		@TICTOC1 TIC-02	SOLID	1.19E+4	6.74E+3	55.365	RPD
4	DUP	S96T005921	0		@TICTOC1 TOC-02	SOLID	2.98E+4	2.53E+4	16.334	RPD
5	SAMPLE	S96T005922	0		@TICTOC1 TIC-02	SOLID	N/A	1.16E+04	5.000	ug/g
5	SAMPLE	S96T005922	0		@TICTOC1 TOC-02	SOLID	N/A	4.74E+03	40.000	ug/g
6	DUP	S96T005922	0		@TICTOC1 TIC-02	SOLID	1.16E+4	1.74E+4	40.000	RPD
6	DUP	S96T005922	0		@TICTOC1 TOC-02	SOLID	4.74E+3	4.63E+3	2.348	RPD
7	SAMPLE	S96T005950	0		@TICTOC1 TIC-02	SOLID	N/A	1.31E+04	5.000	ug/g
7	SAMPLE	S96T005950	0		@TICTOC1 TOC-02	SOLID	N/A	2.34E+04	40.000	ug/g
8	DUP	S96T005950	0		@TICTOC1 TIC-02	SOLID	1.31E+4	1.10E+4	17.427	RPD
8	DUP	S96T005950	0		@TICTOC1 TOC-02	SOLID	2.34E+4	1.78E+4	27.184	RPD

Final page for worklist# 17565

Analyst Signature Date — 4-18-97 Analyst Signature Date

R J Schroeder 4/21/97
Reviewer Signature Date

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

LABCORE Data Entry Template for Worklist# 17565

Analyst: RJM **Instrument:** CARB2 CARB#2 **Book#** TIC 25N12A TOC 24N12F **RERUN**

Method: LA-342-100 Rev/Mod E-0

Worklist Comment: BY-112 TICTOC, DO NOT RUN TRIPL OR SPK, RERUN. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1	SOLID		
2	STD				@TICTOC1	SOLID		
3	SAMPLE	S96T005921	0		@TICTOC1	SOLID	96001466	BY-112
	Analytes Requested: TIC-02 , TOC-02							
4	DUP	S96T005921	0		@TICTOC1	SOLID		
5	SAMPLE	S96T005922	0		@TICTOC1	SOLID	96001466	BY-112
	Analytes Requested: TIC-02 , TOC-02							
6	DUP	S96T005922	0		@TICTOC1	SOLID		
7	SAMPLE	S96T005950	0		@TICTOC1	SOLID	96001466	BY-112
	Analytes Requested: TIC-02 , TOC-02							
8	DUP	S96T005950			@TICTOC1	SOLID		

Final page for worklist # 17565

RJ McCown 4/18/97
Analyst Signature

Gary J. Lumetta 4-18-97
Analyst Signature **Date**

Faxed 4/18/97

Data Entry Comments:

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

HNF-SD-WM-DP-229, REV. 0

TIC/TOC: LA-342-100 (E-0)

CARB-2

WORKLIST #	ANALYST INITIALS	ANALYSIS DATE	ANALYSIS TIME	INSTRUMENT CODE
17565	[illegible]	4/18/97	1630	

☒ BASELINE ☒ BLANK ☐ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 8.40 TOC: 34.30

☐ BASELINE ☐ BLANK ☐ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE (STD)

SAMPLE # = STD # = TIC 25N12A TOC 24N12F

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: 1.0 TOC: .200

FINAL COULOMETER READING (u TIC: 610.00 TOC: 608.10

☒ BASELINE ☒ BLANK ☐ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) TIC: TOC:

FINAL COULOMETER READING (u TIC: 5.60 TOC: 30.40

☐ BASELINE ☐ BLANK ☒ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005921 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .0903 TIC: TOC:

FINAL COULOMETER READING (u TIC: 1085.40 TOC: 2727.10

☐ BASELINE ☐ BLANK ☐ SAMPLE ☒ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005921 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .0795 TIC: TOC:

FINAL COULOMETER READING (u TIC: 544.10 TOC: 2046.10

☐ BASELINE ☐ BLANK ☒ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005922 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .0682 TIC: TOC:

FINAL COULOMETER READING (u TIC: 800.60 TOC: 357.50

☐ BASELINE ☐ BLANK ☐ SAMPLE ☒ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005922 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .0709 TIC: TOC:

FINAL COULOMETER READING (u TIC: 1242.00 TOC: 362.60

☐ BASELINE ☐ BLANK ☒ SAMPLE ☐ DUPLICATE ☐ SPIKE ☐ TRIPLICATE

SAMPLE # = 596T005950 STD # =

SAMPLE WEIGHT (g) / SPIKE/STANDARD VOLUME (mL) .0699 TIC: TOC:

FINAL COULOMETER READING (u TIC: 922.90 TOC: 1668.90

792

596T005950 DUP. .05438

TIC 603.80

TOC 1002.9

Sep. 27. 1996 11:33PM WHC 2225 LAB ROOM 2F BACKS.DE

WORKBOOK PAGE: BLANK1

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Work List	Test Code	Matrix	Batch Number	Rerun	Sample Prep	Sample #	Instrument Code	Prepared By	Chemist	Analyst	Date Complete	Analysis Date	Analysis Time	Sample Point
BLNK	17565	@TICTOC1	SOLID	97001526	0	N/A	BLNK	CARB2	GJH	RWS	PJM	04/18/97	04/18/97	04:30 PM	BY-112

µg of Carbon = |C1-C2|

		TIC	TOC
Sample Size in g	(SS)	1.0000	1.0000
Dilution Factor	(DF)	1	1
µg of Carbon in Sample	(C1)	5.6	30.4
µg of Carbon from Baseline	(C2)	8.4	34.3

		TIC	TOC
Method Detection Limit in ug/g		5	40
µg of Carbon		2.80E+00	3.90E+00

Data Entered By: GJH Date: 04/18/97

Signature of Chemist: RWS Schroeder Date: 4/21/97

BLANK.WB1 REV 1.0 342100ML

WORKBOOK PAGE: STD2

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type	Work List	Test Code	Matrix	Batch Number	Rerun	Sample Prep	Sample #	Instrument Code	Prepared By	Chemist	Analyst	Date Complete	Analysis Date	Analysis Time	Sample Point
STD	17565	@TICTOC1	LIQUID	97001526	0	N/A	STD	CARB2	GJH	RWS	PJM	04/18/97	04/18/97	04:30 PM	BY-112

		TIC	TOC
Sample Size in mL	(SS)	1.0000	0.2000
Dilution Factor	(DF)	1	1
Final Coulometer Reading in µg	(C1)	610	608.1
µg of Carbon from Baseline	(C2)	8.4	34.3
Standard Book Number		25N12A	24N12F
Standard Value (µg/ml)		602	3000

QC Actual in µg/mL = Standard Value (µg/mL)

QC Found in µg/mL = (C1 - C2) * DF / SS

QC Found in µg/mL for TIC = 5 if C1 < C2

QC Found in µg/mL for TOC = 40 if C1 < C2

% Recovery = QC Found / QC Actual * 100

	TIC	TOC
Method Detection Limit in µg/mL	5	40
QC Actual in µg/mL	6.02E+02	3.00E+03
QC Found in µg/mL	6.02E+02	2.87E+03
Percent Standard Recovery	99.9	95.6

Data Entered By: GJH, Date: 04/18/97

Signature of Chemist: RWS Schroeder Date: 4/21/97

STANDARD.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM3

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
SAMPLE	Sample Size in g	(SS)	0.0903	0.0903
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	1085.4	2727.1
17565	µg of Carbon from Baseline	(C2)	8.4	34.3
Test Code				
@TICTOC1				

Matrix
SOLID
Batch Number
97001526
Rerun
0
Sample Prep
N/A
Sample #
S96T005921
Instrument Code
CARB2
Prepared By
GJH
Chemist
RWS
Analyst
PJM
Date Complete
04/18/97
Analysis Date
04/18/97
Analysis Time
04:30 PM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	1.19E+04	2.98E+04

Data Entered By:	GJH	Date:	04/18/97
Signature of Chemist:	R W Schneider	Date:	4/21/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP4

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
DUP	Sample Size in g	(SS)	0.0795	0.0795
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	544.1	2046.1
17565	µg of Carbon from Baseline	(C2)	8.4	34.3
Test Code	Known µg of C from Original Sample		1.19E+4	2.98E+4
@TICTOC1				

Matrix
SOLID
Batch Number
97001526
Rerun
0
Sample Prep
N/A
Sample #
S96T005921
Instrument Code
CARB2
Prepared By
GJH
Chemist
RWS
Analyst
PJM
Date Complete
04/18/97
Analysis Date
04/18/97
Analysis Time
04:30 PM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	6.74E+03	2.53E+04

Data Entered By:	GJH	Date:	04/18/97
Signature of Chemist:	RWJ Schroeder	Date:	4/21/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM5

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
SAMPLE	Sample Size in g	(SS)	0.0682	0.0682
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	800.6	357.5
17565	µg of Carbon from Baseline	(C2)	8.4	34.3
Test Code				
@TICTOC1				

Matrix
SOLID
Batch Number
97001526
Rerun
0
Sample Prep
N/A
Sample #
S96T005922
Instrument Code
CARB2
Prepared By
GJH
Chemist
RWS
Analyst
PJM
Date Complete
04/18/97
Analysis Date
04/18/97
Analysis Time
04:30 PM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	1.16E+04	4.74E+03

Data Entered By:	GJH	Date:	04/18/97
Signature of Chemist:	RW Edmonds	Date:	4/21/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP6

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type:	Sample Size in g	(SS)	TIC: 0.0709	TOC: 0.0709
DUP	Dilution Factor	(DF)	1	1
WorkList:	µg of Carbon in Sample	(C1)	1242	362.6
17565	µg of Carbon from Baseline	(C2)	8.4	34.3
Test Code*:	Known µg of C from Original Sample		1.16E+4	4.74E+3
@TICTOC1				

Matrix: SOLID

Batch Number: 97001526

Rerun: 0

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

Sample Prep: N/A

Sample #: S96T005922

Instrument Code: CARB2

Prepared By: GJH

Chemist: RWS

Analyst: PJM

Date Complete: 04/18/97

Analysis Date: 04/18/97

Analysis Time: 04:30 PM

Sample Point: BY-112

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	1.74E+04	4.63E+03

Data Entered By:	GJH	Date:	04/18/97
Signature of Chemist:	RW Schroeder	Date:	4/21/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: SAM7

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type	Sample Size in g	(SS)	TIC	TOC
SAMPLE	Dilution Factor	(DF)	1	1
WorkList	µg of Carbon in Sample	(C1)	922.9	1668.9
17565	µg of Carbon from Baseline	(C2)	8.4	34.3
TestCode				
@TICTOC1				

Matrix
SOLID
Batch Number
97001526
Rerun
0
Sample Prep
N/A
Sample #
S96T005950
Instrument Code
CARB2
Prepared By
GJH
Chemist
RWS
Analyst
PJM
Date Complete
04/18/97
Analysis Date
04/18/97
Analysis Time
04:30 PM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	1.31E+04	2.34E+04

Data Entered By:	GJH	Date:	04/18/97
Signature of Chemist:	RW Schroeder	Date:	4/21/97

SAMPLE.WB1 REV 1.0 342100ML

WORKBOOK PAGE: DUP8

TIC/TOC : LA-342-100 (E-0) SOLIDS

Type			TIC	TOC
DUP	Sample Size in g	(SS)	0.0543	0.0543
	Dilution Factor	(DF)	1	1
Work List	µg of Carbon in Sample	(C1)	603.8	1002.9
17565	µg of Carbon from Baseline	(C2)	8.4	34.3
Test Code	Known µg of C from Original Sample		1.31E+4	2.34E+4
@TICTOC1				

Matrix
SOLID
Batch Number
97001526
Rerun
0
Sample Prep
N/A
Sample #
S96T005950
Instrument Code
CARB2
Prepared By
GJH
Chemist
RWS
Analyst
PJM
Date Complete
04/18/97
Analysis Date
04/18/97
Analysis Time
04:30 PM
Sample Point
BY-112

µg of Carbon/g = (C1-C2) * DF / SS
µg of Carbon/g for TIC = 5 if C1 < C2
µg of Carbon/g for TOC = 40 if C1 < C2

	TIC	TOC
Method Detection Limit in ug/g	5	40
µg of Carbon/g	1.10E+04	1.78E+04

Data Entered By:	GJH	Date:	04/18/97
Signature of Chemist:	RW Schroeder	Date:	4/21/97

SAMPLE.WB1 REV 1.0 342100ML

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-2 Date: 04/18/97 Time: 07:19:39

Sample Size	= 1 uL	Analyst :	PJ MCCOWN
Dil Factor	= 1	Min Readings	= 22
Blank ID #	= BASE-2	Max Readings	= 22
Blank Value	= N/A	% Difference	= 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.50	0.40	100.00
3	1.01	0.80	50.00
4	1.50	1.20	33.33
5	2.00	1.80	33.33
6	2.50	2.30	21.74
7	3.00	2.70	14.81
8	3.50	3.10	12.90
9	4.00	3.60	13.89
10	4.50	3.90	7.69
11	5.00	4.30	9.30
12	5.50	4.70	8.51
13	6.00	5.20	9.62
14	6.50	5.40	3.70
15	7.00	5.80	6.90
16	7.50	6.20	6.45
17	8.00	6.50	4.62
18	8.50	6.90	5.80
19	9.00	7.30	5.48
20	9.50	7.70	5.19
21	10.00	8.10	4.94
22	10.50	8.40	3.57

BLANK VALUE = 8.4 micrograms carbon
BLANK FACTOR = 8.4 / 10.49899 = +8.0E-01 ug/min Carbon

Sample Run By: PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0
<<< BLANK ANALYSIS >>>

Sample: BASE-2 Date: 04/18/97 Time: 07:34:36

Sample Size = 1 uL
Dil Factor = 1
Blank ID # = BASE-2
Blank Value = N/A

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.50	100.00
3	1.01	0.70	28.57
4	1.51	1.10	36.36
5	2.00	1.80	38.89
6	2.50	5.60	67.86
7	3.00	11.70	52.14
8	3.50	17.80	34.27
9	4.00	23.20	23.28
10	4.50	26.70	13.11
11	5.00	28.60	6.64
12	5.50	29.90	4.35
13	6.00	30.50	1.97
14	6.50	31.10	1.93
15	7.00	31.70	1.89
16	7.50	32.20	1.55
17	8.00	32.50	0.92
18	8.50	33.00	1.52
19	9.00	33.30	0.90
20	9.50	33.60	0.89
21	10.00	34.00	1.18
22	10.50	34.30	0.87

BLANK VALUE = 34.3 micrograms carbon
BLANK FACTOR = 34.3 / 10.49899 = +3.27E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-2 Date: 04/18/97 Time: 10:10:05

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .8 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.20	100.00
3	1.01	0.60	66.67
4	1.50	0.80	25.00
5	2.04	1.10	27.27
6	2.54	1.40	21.43
7	3.04	1.60	12.50
8	3.54	1.90	15.79
9	4.04	2.20	13.64
10	4.54	2.40	8.33
11	5.04	2.70	11.11
12	5.54	3.00	10.00
13	6.04	3.30	9.09
14	6.54	3.50	5.71
15	7.04	3.70	5.41
16	7.53	4.00	7.50
17	8.03	4.30	6.98
18	8.53	4.60	6.52
19	9.03	4.80	4.17
20	9.53	5.10	5.88
21	10.03	5.50	7.27
22	10.53	5.60	1.79

USER INPUT BLANK VALUE
BLANK VALUE = 8.399195 micrograms carbon
BLANK FACTOR = 8.399195 / 10.49899 = +8.0E-01 ug/min Carbon

SAMPLE RESULTS:
(5.6 - 8.42627)(1)/(1) = < 5.00 E-3 g/L Carbon
(5.6 - 8.42627)(1)/(1)(12) = < 4.17 E-4 Molar Carbon

Sample Run By: PJ MCCOWN 00000

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLNK-2 Date: 04/18/97 Time: 10:30:14

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.27 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.20	100.00
3	1.01	0.40	50.00
4	1.51	0.90	55.56
5	2.00	2.60	65.38
6	2.50	5.70	54.39
7	3.00	9.80	41.84
8	3.50	13.90	29.50
9	4.00	18.90	26.46
10	4.50	23.10	18.18
11	5.00	25.10	7.97
12	5.50	26.40	4.92
13	6.00	27.00	2.22
14	6.50	27.70	2.53
15	7.00	28.10	1.42
16	7.50	28.60	1.75
17	8.00	28.90	1.04
18	8.50	29.30	1.37
19	9.00	29.60	1.01
20	9.50	29.90	1.00
21	10.00	30.10	0.66
22	10.50	30.40	0.99

USER INPUT BLANK VALUE
BLANK VALUE = 34.33171 micrograms carbon
BLANK FACTOR = 34.33171 / 10.49899 = +3.3E+00 ug/min Carbon

SAMPLE RESULTS:
(30.4 - 34.33181)(1)/(1) = < 5.00 E-3 g/L Carbon
(30.4 - 34.33181)(1)/(1)(12) = < 4.17 E-4 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD-2 Date: 04/18/97 Time: 09:37:58

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .8 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	0.90	55.56
4	1.50	13.30	93.23
5	2.00	98.10	86.44
6	2.50	238.60	58.89
7	3.00	375.30	36.42
8	3.50	476.60	21.25
9	4.00	540.90	11.89
10	4.50	578.50	6.50
11	5.00	595.40	2.84
12	5.50	602.50	1.18
13	6.00	605.00	0.41
14	6.50	606.40	0.23
15	7.00	607.10	0.12
16	7.50	607.70	0.10
17	8.00	608.10	0.07
18	8.50	608.50	0.07
19	9.00	609.00	0.08
20	9.50	609.30	0.05
21	10.00	609.60	0.05
22	10.50	610.00	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 8.399195 micrograms carbon
BLANK FACTOR = 8.399195 / 10.49899 = +8.0E-01 ug/min Carbon

SAMPLE RESULTS:
(610 - 8.398389)(1)/(1000) = +6.016E-01 g/L Carbon
(610 - 8.398389)(1)/(1000)(12) = +5.013E-02 Molar Carbon

Sample Run By: PJ MCCOWN 4/18/97 00000

1.0ML 25N12A

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD-2 Date: 04/18/97 Time: 09:50:49

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.27 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.30	100.00
3	1.01	0.60	50.00
4	1.51	4.10	85.37
5	2.00	37.10	88.95
6	2.50	137.10	72.94
7	3.00	305.80	55.17
8	3.50	461.90	33.80
9	4.00	543.00	14.94
10	4.50	581.60	6.64
11	5.00	596.00	2.42
12	5.50	600.20	0.70
13	6.00	601.90	0.28
14	6.50	603.10	0.20
15	7.00	604.10	0.17
16	7.50	604.80	0.12
17	8.00	605.40	0.10
18	8.50	606.10	0.12
19	9.00	606.60	0.08
20	9.50	607.20	0.10
21	10.00	607.60	0.07
22	10.50	608.10	0.08

USER INPUT BLANK VALUE
BLANK VALUE = 34.33171 micrograms carbon
BLANK FACTOR = 34.33171 / 10.49899 = +3.3E+00 ug/min Carbon

SAMPLE RESULTS:
(608.1 - 34.33181)(1)/(200) = +2.869E+00 g/L Carbon
(608.1 - 34.33181)(1)/(200)(12) = +2.391E-01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: RJ McCown 4/18/97
PJ MCCOWN 00000

.200mL Z4W12F

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005921-2 Date: 04/18/97 Time: 10:59:27

Sample Size = 1 uL	Analyst : PJ MCCOWN
Dil Factor = 1	Min Readings = 22
Blank ID # =	Max Readings = 22
Blank Value = .8 ug/minute C	% Difference = 10

== Reading ====	Analysis Time ====	Coulometer ====	% Difference ==
1	0.08	0.00	0.00
2	0.51	0.20	100.00
3	1.01	0.50	60.00
4	1.50	1.70	70.59
5	2.00	39.70	95.72
6	2.50	177.90	77.68
7	3.00	399.20	55.44
8	3.50	633.30	36.97
9	4.00	811.90	22.00
10	4.50	924.60	12.19
11	5.00	998.00	7.35
12	5.50	1042.30	4.25
13	6.00	1064.10	2.05
14	6.50	1073.60	0.88
15	7.00	1077.60	0.37
16	7.50	1080.10	0.23
17	8.00	1081.40	0.12
18	8.50	1082.50	0.10
19	9.00	1083.30	0.07
20	9.50	1084.20	0.08
21	10.00	1084.60	0.04
22	10.50	1085.40	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 8.399195 micrograms carbon
BLANK FACTOR = 8.399195 / 10.49899 = +8.0E-01 ug/min Carbon

SAMPLE RESULTS:
(1085.4 - 8.398438)(1)/(1) = +1.0770E+03 g/L Carbon
(1085.4 - 8.398438)(1)/(1)(12) = +8.9750E+01 Molar Carbon

Sample Run By: PJ MCCOWN 00000

+09038

¥

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005921-2 Date: 04/18/97 Time: 12:06:41

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.27 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.50	100.00
3	1.01	1.00	50.00
4	1.50	4.40	77.27
5	2.00	180.20	97.56
6	2.50	842.40	78.61
7	3.00	1590.20	47.03
8	3.50	2220.00	28.37
9	4.00	2494.70	11.01
10	4.50	2608.10	4.35
11	5.00	2667.00	2.21
12	5.50	2692.90	0.96
13	6.00	2702.10	0.34
14	6.50	2707.90	0.21
15	7.00	2712.10	0.15
16	7.50	2715.40	0.12
17	8.00	2717.90	0.09
18	8.50	2720.20	0.08
19	9.00	2722.40	0.08
20	9.50	2724.00	0.06
21	10.00	2725.60	0.06
22	10.50	2727.10	0.06

USER INPUT BLANK VALUE
BLANK VALUE = 34.33171 micrograms carbon
BLANK FACTOR = 34.33171 / 10.49899 = +3.3E+00 ug/min Carbon

SAMPLE RESULTS:
(2727.1 - 34.33161)(1)/(1) = +2.6928E+03 g/L Carbon
(2727.1 - 34.33161)(1)/(1)(12) = +2.2440E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.0903g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5921 DUP-2 Date: 04/18/97 Time: 12:29:17

Sample Size = 1 uL	Analyst : PJ MCCOWN
Dil Factor = 1	Min Readings = 22
Blank ID # =	Max Readings = 22
Blank Value = .8 ug/minute C	% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.10	100.00
3	1.01	0.40	75.00
4	1.50	1.30	69.23
5	2.00	26.40	95.08
6	2.50	114.00	76.84
7	3.00	226.60	49.69
8	3.50	330.30	31.40
9	4.00	407.20	18.89
10	4.50	463.40	12.13
11	5.00	500.70	7.45
12	5.50	521.20	3.93
13	6.00	530.90	1.83
14	6.50	535.80	0.91
15	7.00	538.50	0.50
16	7.50	540.10	0.30
17	8.00	541.10	0.18
18	8.50	541.90	0.15
19	9.00	542.60	0.13
20	9.50	543.10	0.09
21	10.00	543.70	0.11
22	10.50	544.10	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 8.399195 micrograms carbon
BLANK FACTOR = 8.399195 / 10.49899 = +8.0E-01 ug/min Carbon

SAMPLE RESULTS:
(544.1 - 8.398536)(1)/(1) = +5.357E+02 g/L Carbon
(544.1 - 8.398536)(1)/(1)(12) = +4.464E+01 Molar Carbon

Sample Run By: PJM
PJ MCCOWN 00000

.0795g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5921 DUP-2 Date: 04/18/97 Time: 12:42:33

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.27 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.60	100.00
3	1.01	1.00	40.00
4	1.51	5.80	82.76
5	2.00	163.00	96.44
6	2.50	648.80	74.88
7	3.00	1225.50	47.06
8	3.50	1645.70	25.53
9	4.00	1865.90	11.80
10	4.50	1956.20	4.62
11	5.00	2004.10	2.39
12	5.50	2022.90	0.93
13	6.00	2029.20	0.31
14	6.50	2033.10	0.19
15	7.00	2036.00	0.14
16	7.50	2038.10	0.10
17	8.00	2039.90	0.09
18	8.50	2041.50	0.08
19	9.00	2042.90	0.07
20	9.50	2044.20	0.06
21	10.00	2045.20	0.05
22	10.50	2046.10	0.04

USER INPUT BLANK VALUE
BLANK VALUE = 34.33171 micrograms carbon
BLANK FACTOR = 34.33171 / 10.49899 = +3.3E+00 ug/min Carbon

SAMPLE RESULTS:
(2046.1 - 34.32901)(1)/(1) = +2.0118E+03 g/L Carbon
(2046.1 - 34.32901)(1)/(1)(12) = +1.6765E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.0795g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005922-2 Date: 04/18/97 Time: 13:11:30

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .8 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.00	0.00
3	1.01	0.40	100.00
4	1.50	0.90	55.56
5	2.00	16.00	94.38
6	2.50	136.70	88.30
7	3.00	365.90	62.64
8	3.50	539.70	32.20
9	4.00	645.90	16.44
10	4.50	714.50	9.60
11	5.04	759.10	5.88
12	5.54	782.50	2.99
13	6.04	790.40	1.00
14	6.54	793.80	0.43
15	7.03	795.60	0.23
16	7.53	796.60	0.13
17	8.03	797.30	0.09
18	8.53	798.10	0.10
19	9.03	798.70	0.08
20	9.53	799.20	0.06
21	10.03	800.10	0.11
22	10.53	800.60	0.06

USER INPUT BLANK VALUE
BLANK VALUE = 8.399195 micrograms carbon
BLANK FACTOR = 8.399195 / 10.49899 = +8.0E-01 ug/min Carbon

SAMPLE RESULTS:
(800.6 - 8.42627)(1)/(1) = +7.922E+02 g/L Carbon
(800.6 - 8.42627)(1)/(1)(12) = +6.601E+01 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0682g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005922-2 Date: 04/18/97 Time: 13:26:52

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.27 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.30	100.00
3	1.01	0.80	62.50
4	1.50	1.20	33.33
5	2.00	12.60	90.48
6	2.50	65.80	80.85
7	3.00	153.00	56.99
8	3.50	239.10	36.01
9	4.00	297.20	19.55
10	4.50	329.40	9.78
11	5.00	340.90	3.37
12	5.50	345.40	1.30
13	6.00	348.00	0.75
14	6.50	349.80	0.51
15	7.00	351.30	0.43
16	7.50	352.40	0.31
17	8.00	353.40	0.28
18	8.50	354.30	0.25
19	9.00	355.00	0.20
20	9.50	355.90	0.25
21	10.00	356.80	0.25
22	10.50	357.50	0.20

USER INPUT BLANK VALUE
BLANK VALUE = 34.33171 micrograms carbon
BLANK FACTOR = 34.33171 / 10.49899 = +3.3E+00 ug/min Carbon

SAMPLE RESULTS:
(357.5 - 34.33161)(1)/(1) = +3.232E+02 g/L Carbon
(357.5 - 34.33161)(1)/(1)(12) = +2.693E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.0682 g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5922 DUP-2 Date: 04/18/97 Time: 13:48:34

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .8 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.20	100.00
3	1.01	0.60	66.67
4	1.50	37.40	98.40
5	2.00	251.50	85.13
6	2.50	576.50	56.37
7	3.00	824.90	30.11
8	3.50	978.20	15.67
9	4.00	1072.90	8.83
10	4.50	1135.90	5.55
11	5.00	1180.30	3.76
12	5.50	1209.10	2.38
13	6.00	1224.20	1.23
14	6.50	1231.80	0.62
15	7.00	1235.40	0.29
16	7.50	1237.60	0.18
17	8.00	1238.70	0.09
18	8.50	1239.50	0.06
19	9.00	1240.30	0.06
20	9.50	1241.00	0.06
21	10.00	1241.60	0.05
22	10.50	1242.00	0.03

USER INPUT BLANK VALUE
BLANK VALUE = 8.399195 micrograms carbon
BLANK FACTOR = 8.399195 / 10.49899 = +8.0E-01 ug/min Carbon

SAMPLE RESULTS:
(1242 - 8.398438)(1)/(1) = +1.2336E+03 g/L Carbon
(1242 - 8.398438)(1)/(1)(12) = +1.0280E+02 Molar Carbon

Sample Run By: RJM
PJ MCCOWN 00000

.0709

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5922 DUP-2 Date: 04/18/97 Time: 14:07:25

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.27 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.40	100.00
3	1.01	0.80	50.00
4	1.51	1.40	42.86
5	2.01	14.30	90.21
6	2.50	70.80	79.80
7	3.00	156.20	54.67
8	3.50	235.30	33.62
9	4.00	292.40	19.53
10	4.50	326.40	10.42
11	5.00	341.50	4.42
12	5.50	347.60	1.75
13	6.00	350.90	0.94
14	6.50	353.20	0.65
15	7.00	354.90	0.48
16	7.50	356.60	0.48
17	8.00	357.90	0.36
18	8.50	359.00	0.31
19	9.00	360.00	0.28
20	9.50	360.90	0.25
21	10.00	361.80	0.25
22	10.50	362.60	0.22

USER INPUT BLANK VALUE
BLANK VALUE = 34.33171 micrograms carbon
BLANK FACTOR = 34.33171 / 10.49899 = +3.3E+00 ug/min Carbon

SAMPLE RESULTS:
(362.6 - 34.335)(1)/(1) = +3.283E+02 g/L Carbon
(362.6 - 34.335)(1)/(1)(12) = +2.736E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

-07098

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005950-1 Date: 04/18/97 Time: 14:25:02

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .8 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.30	100.00
3	1.01	0.70	57.14
4	1.50	1.60	56.25
5	2.00	34.10	95.31
6	2.50	157.30	78.32
7	3.00	354.00	55.56
8	3.50	543.00	34.81
9	4.00	682.30	20.42
10	4.50	776.70	12.15
11	5.00	840.10	7.55
12	5.50	882.10	4.76
13	6.00	904.20	2.44
14	6.50	912.80	0.94
15	7.00	916.20	0.37
16	7.50	918.30	0.23
17	8.00	919.40	0.12
18	8.50	920.40	0.11
19	9.00	921.00	0.07
20	9.50	921.70	0.08
21	10.00	922.30	0.07
22	10.50	922.90	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 8.399195 micrograms carbon
BLANK FACTOR = 8.399195 / 10.49899 = +8.0E-01 ug/min Carbon

SAMPLE RESULTS:
(922.9 - 8.399219)(1)/(1) = +9.145E+02 g/L Carbon
(922.9 - 8.399219)(1)/(1)(12) = +7.621E+01 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0699g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S96T005950-2 Date: 04/18/97 Time: 14:37:11

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.27 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.20	100.00
3	1.01	0.70	71.43
4	1.51	5.40	87.04
5	2.00	135.80	96.02
6	2.50	625.70	78.30
7	3.00	1122.30	44.25
8	3.50	1418.70	20.89
9	4.00	1544.00	8.12
10	4.50	1604.70	3.78
11	5.00	1637.70	2.02
12	5.50	1648.80	0.67
13	6.00	1653.80	0.30
14	6.50	1657.00	0.19
15	7.00	1659.30	0.14
16	7.50	1661.40	0.13
17	8.00	1663.20	0.11
18	8.50	1664.70	0.09
19	9.00	1665.90	0.07
20	9.50	1667.10	0.07
21	10.00	1668.10	0.06
22	10.50	1668.90	0.05

USER INPUT BLANK VALUE
BLANK VALUE = 34.33171 micrograms carbon
BLANK FACTOR = 34.33171 / 10.49899 = +3.3E+00 ug/min Carbon

SAMPLE RESULTS:
(1668.9 - 34.32841)(1)/(1) = +1.6346E+03 g/L Carbon
(1668.9 - 34.32841)(1)/(1)(12) = +1.3621E+02 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJ MCCOWN 00000

.0699g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5950 DUP-2 Date: 04/18/97 Time: 14:53:12

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .8 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

Reading	Analysis Time	Coulometer	% Difference
1	0.08	0.00	0.00
2	0.51	0.60	100.00
3	1.01	1.00	40.00
4	1.51	1.80	44.44
5	2.00	23.50	92.34
6	2.50	113.00	79.20
7	3.00	252.30	55.21
8	3.50	384.70	34.42
9	4.00	475.40	19.08
10	4.50	535.70	11.26
11	5.00	573.70	6.62
12	5.50	590.70	2.88
13	6.00	596.10	0.91
14	6.50	598.50	0.40
15	7.00	599.60	0.18
16	7.50	600.40	0.13
17	8.00	601.20	0.13
18	8.50	602.00	0.13
19	9.00	602.40	0.07
20	9.50	602.90	0.08
21	10.00	603.40	0.08
22	10.50	603.80	0.07

USER INPUT BLANK VALUE
BLANK VALUE = 8.399195 micrograms carbon
BLANK FACTOR = 8.399195 / 10.49899 = +8.0E-01 ug/min Carbon

SAMPLE RESULTS:
(603.8 - 8.399902)(1)/(1) = +5.954E+02 g/L Carbon
(603.8 - 8.399902)(1)/(1)(12) = +4.962E+01 Molar Carbon

Sample Run By: PJ MCCOWN 00000

.0543g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: 5950 DUP-2 Date: 04/18/97 Time: 15:05:25

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.27 ug/minute C

Analyst : PJ MCCOWN
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.08	0.00	0.00
2	0.51	0.30	100.00
3	1.01	0.70	57.14
4	1.50	13.30	94.74
5	2.00	195.20	93.19
6	2.50	552.60	64.68
7	3.00	785.60	29.66
8	3.50	889.80	11.71
9	4.00	944.90	5.83
10	4.50	975.90	3.18
11	5.00	986.40	1.06
12	5.50	990.50	0.41
13	6.00	993.10	0.26
14	6.50	995.10	0.20
15	7.00	996.80	0.17
16	7.50	998.10	0.13
17	8.00	999.20	0.11
18	8.50	1000.20	0.10
19	9.00	1000.90	0.07
20	9.50	1001.80	0.09
21	10.00	1002.50	0.07
22	10.50	1002.90	0.04

USER INPUT BLANK VALUE
BLANK VALUE = 34.33171 micrograms carbon
BLANK FACTOR = 34.33171 / 10.49899 = +3.3E+00 ug/min Carbon

SAMPLE RESULTS:
(1002.9 - 34.32841)(1)/(1) = +9.6857E+02 g/L Carbon
(1002.9 - 34.32841)(1)/(1)(12) = +8.0714E+01 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!>>>>

Sample Run By: PJM
PJ MCCOWN 00000

.0543g

RADIOCHEMCIAL ANALYSIS

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LABCORE Completed RadChem Report for Worklist#: 15245

Analyst: tam **Instrument:** AB18 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: BY-112 AT, DETERMINE SS USING LUDLUM. RCJ

Seq	Type	Sample#	R	A	Test	Matrix	Actual		Found	DL or Yield	Unit
1	STD		0		@ALPHA01 ALPHA01	LIQUID	2.30E-04		1.95E-4	84.783	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	LIQUID	1.00		3.39E+00	3.390	% Ct. Erro
2	BLNK		0		@ALPHA01 ALPHA01	LIQUID	1		<1.22E-2		uCi/mL
2	BLNK		0		@ALPHA01 ALPHA01E	LIQUID	1.00		5.00E+02	500.000	uCi/mL
3	BLNK/BKG		0		@ALPHA01 ALPHA01	LIQUID	1.00E+00		6.86E-01	0.686	BLNK/BKG
4	SAMPLE	S96T005907	0		@ALPHA01 ALPHA01	LIQUID	N/A	<	1.22E-02	307.0e-004	uCi/mL
4	SAMPLE	S96T005907	0		@ALPHA01 ALPHA01E	LIQUID	N/A		5.00E+02	0.0e+000	% Ct. Error
5	DUP	S96T005907	0		@ALPHA01 ALPHA01	LIQUID	<1.22E-2		<1.22E-2	RPD	
5	DUP	S96T005907	0		@ALPHA01 ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Erro
6	SPK	S96T005907	0		@ALPHA01 ALPHA01	LIQUID	3.59E-02		3.07E-02	85.515	% Recovery
7	SAMPLE	S96T005960	0		@ALPHA01 ALPHA01	LIQUID	N/A	<	6.11E-03	154.0e-004	uCi/mL
7	SAMPLE	S96T005960	0		@ALPHA01 ALPHA01E	LIQUID	N/A		5.00E+02	0.0e+000	% Ct. Error
8	DUP	S96T005960	0		@ALPHA01 ALPHA01	LIQUID	<6.11E-3		<3.46E-2	RPD	
8	DUP	S96T005960	0		@ALPHA01 ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Erro
9	SPK	S96T005960	0		@ALPHA01 ALPHA01	LIQUID	3.59E-02		2.96E-02	82.451	% Recovery
10	SAMPLE	S96T005909	0		@ALPHA01 ALPHA01	LIQUID	N/A	<	3.63E-06	753.0e-008	uCi/mL
10	SAMPLE	S96T005909	0		@ALPHA01 ALPHA01E	LIQUID	N/A		5.00E+02	0.0e+000	% Ct. Error
11	DUP	S96T005909	0		@ALPHA01 ALPHA01	LIQUID	<3.63E-6		<2.99E-6	RPD	
11	DUP	S96T005909	0		@ALPHA01 ALPHA01E	LIQUID	1.00		5.00E+02	500.000	% Ct. Erro

Final page for worklist# 15245

Analyst Signature **Date**

Analyst Signature **Date**

12/11/96

Reviewer Signature **Date**

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

11/25/96 12:33
A-0004-1

LABCORE Data Entry Template for Worklist# 15245

Analyst: [illegible] **Instrument:** AB00 #18 **Book#** WHB54

Method: LA-508-101 Rev/Mod E-1

Worklist Comment: BY-112 AT, DETERMINE SS USING LUDLUM. RCJ

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	LIQUID		
2	BLNK				@ALPHA01	LIQUID		
3	BLNK/BKG				@ALPHA01	LIQUID		
4	SAMPLE	S96T005907	0		@ALPHA01	LIQUID	96001393	BY-112
	Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S96T005907	0		@ALPHA01	LIQUID		
6	SPK	S96T005907	0		@ALPHA01	LIQUID		
7	SAMPLE	S96T005960	0		@ALPHA01	LIQUID	96001466	BY-112
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T005960	0		@ALPHA01	LIQUID		
9	SPK	S96T005960	0		@ALPHA01	LIQUID		
10	SAMPLE	S96T005909	0		@ALPHA01	LIQUID	96001466	BY-112
	Analytes Requested: ALPHA01 , ALPHA01E							
11	DUP	S96T005909	0		@ALPHA01	LIQUID		

Final page for worklist # 15245

[illegible] Murphy 12-5-96
Analyst Signature **Date**

Sue Hogan 12/6/96
Analyst Signature **Date**

C.J. Quinn 12/6/96

Data Entry Comments:

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) LA-508-113 (A-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		18	18
STD	DISH SIZE (1, 2, or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	3523	3363
15245	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	66B56	66B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		117.263	111.930
Batch Number	Standard Value in µCi/mL		2.30E-04	
96011852	Concentration in µCi/L	=	2.00E-01	
Rerun	Replicate Concentration in µCi/L	=	1.91E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.9523E-01	

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)
WL15245	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SEH	
Chemist	
SLF	
Analyst	
TAM	
Date Complete	
12/06/96	
Analysis Date	
12/05/96	
Analysis Time	
09:15 AM	
Sample Point	
BY-112	

ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.95E-04	DETECTION LEVEL	
RELATIVE COUNTING ERROR	=	3.4%	7.53E-07	µCi/mL

Analyst:	SEH	Date: 06-Dec-96	
Signature of Chemist:	SLF	Date: 12/11/96	

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1) LIQUIDS

Type			BLNK	REPLICATE
BLNK	DETECTOR NUMBER		18	18
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15245	GROSS COUNTS	(GC)	3	4
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.17	0.17
Test Code	SAMPLE SIZE in mL	(SS)	0.250	0.250
@ALPHA01	DILUTION FACTOR	(DF)	10201	10201
Matrix	DIGEST DILUTION FACTOR	(DDF)	1	1
LIQUID	EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.176	0.176
96011852				
Rerun	Blank Concentration in µCi/L	<	1.22E+01	
0	Replicate Concentration in µCi/L	<	1.22E+01	
Sample Prep	Maximum Concentration in µCi/L	<	1.2211E+01	
N/A				
Sample #				
WL15245				
Instrument Code				
WB27809				
Prepared By				
SEH				
Chemist				
SLF				
Analyst				
TAM				
Date Complete				
12/06/96				
Analysis Date				
12/05/96				
Analysis Time				
09:15 AM				
Sample Point				
BY-112				

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

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

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

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

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

ALPHA TOTAL in µCi/mL (Maximum)	=	< 1.22E-02	DETECTION LEVEL
LESS Than Value was Determined from Lc.			3.07E-02 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst:	TAM	Date:	06-Dec-96
Signature of Chemist:	SLF	Date:	12/11/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (E-1) LIQUIDS

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		18	18
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15245	GROSS COUNTS	(GC)	6	2
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.17	0.17
Test Code	SAMPLE SIZE in mL	(SS)	0.250	0.250
@ALPHA01	DILUTION FACTOR	(DF)	10201	10201
Matrix	DIGEST DILUTION FACTOR	(DDF)	1	1
LIQUID	EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.176	0.176
96011852				
Rerun	Blank Concentration in µCi/L	<	1.22E+01	
0	Replicate Concentration in µCi/L	<	1.22E+01	
Sample Prep	Maximum Concentration in µCi/L	<	1.2211E+01	
N/A				
Sample #	Rs (Sample Count Rate) = (TC / CT) - BKG			
S96T005907	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)			
Instrument Code	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
WB27809	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
Prepared By	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
SEH				
Chemist				
SLF	ALPHA TOTAL in µCi/mL (Maximum)	=	< 1.22E-02	DETECTION LEVEL
Analyst				
TAM	LESS Than Value was Determined from Lc.			3.07E-02 µCi/mL
Date Complete				
12/06/96	RELATIVE COUNTING ERROR		500.0%	
Analysis Date				
12/05/96				
Analysis Time				
09:15 AM				
Sample Point				
BY-112				

{/ system;exit}yes~

Analyst:	TAM	Date:	06-Dec-96
Signature of Chemist:	SLF	Date:	12/11/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (E-1) LIQUIDS

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		18	18
Work List	DISH SIZE (1, 2, or 5)	(MS)	2	2
15245	GROSS COUNTS	(GC)	3	4
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.17	0.17
Test Code	SAMPLE SIZE in mL	(SS)	0.250	0.250
@ALPHA01	DILUTION FACTOR	(DF)	10201	10201
Matrix	DIGEST DILUTION FACTOR	(DDF)	1	1
LIQUID	EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.176	0.176
96011852				
Rerun	Blank Concentration in µCi/L	<	1.22E+01	
0	Replicate Concentration in µCi/L	<	1.22E+01	
Sample Prep	Maximum Concentration in µCi/L	<	1.2211E+01	
N/A				
Sample #				
S96T005907				
Instrument Code				
WB27809				
Prepared By				
SEH				
Chemist				
SLF				
Analyst				
TAM				
Date Complete				
12/06/96				
Analysis Date				
12/05/96				
Analysis Time				
09:16 AM				
Sample Point				
BY-112				

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

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

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

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

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

			DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Maximum)	=	< 1.22E-02	
LESS Than Value was Determined from Lc.			3.07E-02 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

{/ system;exit}yes~

Analyst:		TAM	Date: 06-Dec-96
Signature of Chemist:		SLF	Date: 12/11/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

AT : LA-508-101 (E-1) LA-508-113 (A-2) SPIKED SAMPLE

Type	DETECTOR NUMBER		SPIKE	REPLICATE
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	52864	55216
15245	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.250	0.250
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
LIQUID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96011852	SPIKE VALUE in µCi/mL	(SVal)	3.5859E-02	3.5859E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
0	SAMPLE + SPIKE µCi/mL	(S+S)	1.22E+02	1.28E+02
Sample Prep	AVERAGE or MAXIMUM µCi/mL in SAMPLE	<	1.2033E-02	
N/A				

Sample #
S96T005907
Instrument Code
WB27809
Prepared By
SEH
Chemist
SLF
Analyst
TAM
Date Compleld
12/06/96
Analysis Date
12/05/96
Analysis Time
09:15 AM
Sample Point
BY-112

Rs (Sample Count Rate) = (TC / CT) - BKG
SAMPLE + SPIKE µCi/mL = Rs * DF * DDF / (EFF * SS * 2220000dpm/µCi)
QC ACTUAL = SVal
QC FOUND = (((S+S µCi/mL - SAMPLE µCi/mL) * ((SDF/SVol)/(DF*DDF/SS))))
PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

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

QC ACTUAL	=	3.59E-02
QC FOUND	=	3.07E-02
AVG. PERCENT SPIKE RECOVERY	=	85.6%

Analyst: SEH Date: 06-Dec-96

Signature of Chemist: SLF Date: 12/11/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

AT : LA-508-101 (E-1) LIQUIDS

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		18	18
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15245	GROSS COUNTS	(GC)	5	3
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.17	0.17
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	10201	10201
Matrix	DIGEST DILUTION FACTOR	(DDF)	1	1
LIQUID	EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.176	0.176

96011852	Blank Concentration in µCi/L	<	6.11E+00
Rerun	Replicate Concentration in µCi/L	<	6.11E+00
0	Maximum Concentration in µCi/L	<	6.1055E+00

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
S96T005960	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SEH	
Chemist	
SLF	
Analyst	
TAM	
Date Complete	
12/06/96	
Analysis Date	
12/05/96	
Analysis Time	
09:16 AM	
Sample Point	
BY-112	

ALPHA TOTAL in µCi/mL (Maximum)	=	< 6.11E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.			1.54E-02 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

{/ system;exit}yes~

Analyst:		TAM	Date: 06-Dec-96
Signature of Chemist:		SLF	Date: 12/11/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (E-1) LIQUIDS

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		18	18
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15245	GROSS COUNTS	(GC)	35	6
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.17	0.17
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	10201	10201
Matrix	DIGEST DILUTION FACTOR	(DDF)	1	1
LIQUID	EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.997	0.213
96011852				
Rerun	Blank Concentration in µCi/L		3.46E+01	
0	Replicate Concentration in µCi/L	<	7.41E+00	
Sample Prep	Maximum Concentration in µCi/L	<	3.4642E+01	
N/A				
Sample #				
S96T005960				
Instrument Code				
WB27809				
Prepared By				
SEH				
Chemist				
SLF				
Analyst				
TAM				
Date Complete				
12/06/96				
Analysis Date				
12/05/96				
Analysis Time				
09:16 AM				
Sample Point				
BY-112				

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

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

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

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

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

			DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Maximum)	=	< 3.46E-02	
LESS THAN Value was Determined from Rs.			1.54E-02 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

{/ system;exit}yes~

Analyst:	TAM	Date:	06-Dec-96
Signature of Chemist:	SLF	Date:	12/11/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK9

AT : LA-508-101 (E-1) LA-508-113 (A-2) SPIKED SAMPLE

Type	DETECTOR NUMBER		SPIKE	REPLICATE
SPK	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	53501	50757
15245	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	10201	10201
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
LIQUID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96011852	SPIKE VALUE in µCi/mL	(SVal)	3.5859E-02	3.5859E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
0	SAMPLE + SPIKE µCi/mL	(S+S)	6.20E+01	5.88E+01
Sample Prep	AVERAGE or MAXIMUM µCi/mL in SAMPLE	<	6.1055E-03	
N/A				

Sample #
S96T005960
Instrument Code
WB27809
Prepared By
SEH
Chemist
SLF
Analyst
TAM
Date Complete
12/06/96
Analysis Date
12/05/96
Analysis Time
09:15 AM
Sample Point
BY-112

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

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

QC ACTUAL = SVal

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

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

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

QC ACTUAL	=	3.59E-02
QC FOUND	=	2.96E-02
AVG. PERCENT SPIKE RECOVERY	=	82.5%

Analyst:		SEH	Date: 06-Dec-96
Signature of Chemist:		SLF	Date: 12/11/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM10

AT : LA-508-101 (E-1) LIQUIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1, 2, or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	4	6
15245	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.100	0.100
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.176	0.213
Batch Number				
96011852	Blank Concentration in µCi/L	<	2.99E-03	
Rerun	Replicate Concentration in µCi/L	<	3.63E-03	
0	Maximum Concentration in µCi/L	<	3.6329E-03	

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
S96T005909	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SEH	
Chemist	
SLF	
Analyst	
TAM	
Date Complete	
12/06/96	
Analysis Date	
12/05/96	
Analysis Time	
09:15 AM	
Sample Point	
BY-112	

			DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Maximum)	=	< 3.63E-06	
LESS Than Value was Determined from Lc.			7.53E-06 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

{/ system;exit}yes~

Analyst:	TAM	Date:	06-Dec-96
Signature of Chemist:	SLF	Date:	12/11/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP11

AT : LA-508-101 (E-1) LIQUIDS

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		18	18
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15245	GROSS COUNTS	(GC)	3	3
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.17	0.17
Test Code	SAMPLE SIZE in mL	(SS)	0.100	0.100
@ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST DILUTION FACTOR	(DDF)	1	1
LIQUID	EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.176	0.176
96011852	Blank Concentration in µCi/L	<	2.99E-03	
Rerun	Replicate Concentration in µCi/L	<	2.99E-03	
0	Maximum Concentration in µCi/L	<	2.9926E-03	

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
S96T005909	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SEH	
Chemist	
SLF	
Analyst	
TAM	
Date Complete	
12/06/96	
Analysis Date	
12/05/96	
Analysis Time	
09:15 AM	
Sample Point	
BY-112	

			DETECTION LEVEL
ALPHA TOTAL in µCi/mL (Maximum)	=	< 2.99E-06	
LESS Than Value was Determined from Lc.			7.53E-06 µCi/mL
RELATIVE COUNTING ERROR		500.0%	

Analyst:		TAM	Date: 06-Dec-96
Signature of Chemist:		SLF	Date: 12/11/96

SAMPLE.WB1 Rev. 1. 508101ML

worklistrad Version 1.0 05/09/96
12/12/96 11:50

LABCORE Completed RadChem Report for Worklist#: 15461

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

Method: _____ Rev/Mod _____

Worklist Comment: Std ENVCRB 1mL. Sample Size use Ludlam. gjh

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01	ALPHA01	SOLID	2.30E-04	2.14E-4	93.043	% Recovery
1	STD		0		@ALPHA01	ALPHA01E	SOLID	1.00	3.21E+00	3.210	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01	ALPHA01	SOLID	1	<3.29E-4		uCi/g
2	BLNK-PREP		0		@ALPHA01	ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	SAMPLE	S96T005929	0	F	@ALPHA01	ALPHA01	SOLID	N/A	2.32E-03	386.0e-006	uCi/g
3	SAMPLE	S96T005929	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	3.16E+01	0.0e+000	% Ct. Error
4	DUP	S96T005929	0	F	@ALPHA01	ALPHA01	SOLID	2.32E-3	2.32E-3	0.000	RPD
4	DUP	S96T005929	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	3.39E+01	33.900	% Ct. Erro
5	SAMPLE	S96T005930	0	F	@ALPHA01	ALPHA01	SOLID	N/A	4.02E-02	370.0e-006	uCi/g
5	SAMPLE	S96T005930	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	7.43E+00	0.0e+000	% Ct. Error
6	DUP	S96T005930	0	F	@ALPHA01	ALPHA01	SOLID	4.02E-2	3.55E-2	12.417	RPD
6	DUP	S96T005930	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	7.69E+00	7.690	% Ct. Erro
7	SAMPLE	S96T005931	0	F	@ALPHA01	ALPHA01	SOLID	N/A	4.97E-02	359.0e-006	uCi/g
7	SAMPLE	S96T005931	0	F	@ALPHA01	ALPHA01E	SOLID	N/A	6.27E+00	0.0e+000	% Ct. Error
8	DUP	S96T005931	0	F	@ALPHA01	ALPHA01	SOLID	4.97E-2	4.75E-2	4.527	RPD
8	DUP	S96T005931	0	F	@ALPHA01	ALPHA01E	SOLID	1.00	7.13E+00	7.130	% Ct. Erro

Final page for worklist# 15461

Analyst Signature **Date**

Analyst Signature **Date**

12/13/96

Reviewer Signature **Date**

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

LABCORE Data Entry Template for Worklist# 15461

Analyst: S.L **Instrument:** AB00 #15 **Book#** 66B56

Method: LA-508-101 Rev/Mod E-1

Worklist Comment: Std ENVCRB 1mL. Sample Size use Ludlam. gjh

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	SAMPLE	S96T005929	0	F	@ALPHA01	SOLID	96001466	BY-112
	Analytes Requested: ALPHA01 , ALPHA01E							
4	DUP	S96T005929	0	F	@ALPHA01	SOLID		
5	SAMPLE	S96T005930	0	F	@ALPHA01	SOLID	96001466	BY-112
	Analytes Requested: ALPHA01 , ALPHA01E							
6	DUP	S96T005930	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T005931	0	F	@ALPHA01	SOLID	96001466	BY-112
	Analytes Requested: ALPHA01 , ALPHA01E							
8	DUP	S96T005931	0	F	@ALPHA01	SOLID		

Final page for worklist # 15461

S L 12-11-96
Analyst Signature **Date**

12/12/96
Analyst Signature **Date**
CRaymond 12.12.96

Data Entry Comments: boil down

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) **LA-508-113 (A-2) STANDARD**

Type	DETECTOR NUMBER		STANDARD	REPLICATE
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
WorkList#	GROSS COUNTS	(GC)	3974	3741
15461	COUNT TIME in MINUTES	(CT)	30	30
AT,or,tBq?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
TestCode	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	66B56	66B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2701	0.2701
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		132.437	124.670
BatchNumber	Standard Value in µCi/mL		2.30E-04	
96012074	Concentration in µCi/L	=	2.21E-01	
ReRun	Replicate Concentration in µCi/L	=	2.08E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	2.1439E-01	

SamplePrep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample#	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)
WL15461-STD	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
InstrumentCode	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
PreparedBy	
MCB	
Chemist	
SLF	
Analyst	
SCL	
DateComplete	
12/12/96	
AnalystDate	
12/11/96	
AnalystTime	
12:00 PM	
SamplePoint	
BY-112	

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	2.14E-04	
RELATIVE COUNTING ERROR	=	3.2%	3.97E-07 µCi/mL

Analyst:	MCB		Date: 12-Dec-96
Signature of Chemist:	SLF		Date: 12/13/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1) SOLIDS

Type			BLNK-PREP	REPLICATE
BLNK-PREP	DETECTOR NUMBER		15	15
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15461	GROSS COUNTS	(GC)	1	7
AT or LB?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.03	0.03
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0612	2.0612
SOLID	EFFICIENCY FACTOR	(EFF)	0.2701	0.2701
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.079	0.203
96012074	Blank Concentration in µCi/g	<	1.28E-04	
Rerun	Replicate Concentration in µCi/g		3.29E-04	
0	Maximum Concentration in µCi/g	<	3.2903E-04	

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB26872	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
MCB	
Chemist	
SLF	
Analyst	
SCL	
Date Complete	
12/12/96	
Analysis Date	
12/11/96	
Analysis Time	
12:00 PM	
Sample Point	
BY-112	

				DETECTION LEVEL
ALPHA TOTAL in µCi/g (Maximum)	=	< 3.29E-04		
LESS THAN Value was Determined from Rmax.				3.86E-04
RELATIVE COUNTING ERROR		500.0%		µCi/g

Analyst:		SCL	Date: 12-Dec-96
Signature of Chemist:		SLF	Date: 12/13/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM3

AT : LA-508-101 (E-1) SOLIDS

Type	DETECTOR NUMBER		SAMPLE	REPLICATE
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	41	47
15461	COUNT TIME in MINUTES	(CT)	30	30
AT or AT B?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0612	2.0612
Matrix	EFFICIENCY FACTOR	(EFF)	0.2701	0.2701
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.337	1.537

Batch Number		
96012074	Blank Concentration in µCi/g	2.16E-03
Rerun	Replicate Concentration in µCi/g	2.49E-03
0	Average Concentration in µCi/g	2.3248E-03

Sample Prep
FUSION01

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

Sample #
S96T005929

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

Instrument Code
WB26872

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

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

Prepared By
MCB

Chemist
SLF

ALPHA TOTAL in µCi/g (Average)	=	2.32E-03	DETECTION LEVEL
RELATIVE COUNTING ERROR		31.6%	3.86E-04 µCi/g

Analyst
SCL

Date Complete
12/12/96

Analysis Date
12/11/96

Analysis Time
12:00 PM

Sample Point
BY-112

Analyst:	SCL		Date: 12-Dec-96
Signature of Chemist:		SLF	Date: 12/13/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP4

AT : LA-508-101 (E-1) SOLIDS

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		15	15
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15461	GROSS COUNTS	(GC)	36	58
A T or I Bkr	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.03	0.03
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.21	2.21
SOLID	EFFICIENCY FACTOR	(EFF)	0.2701	0.2701
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.170	1.903
96012074				
Rerun	Blank Concentration in µCi/g		1.77E-03	
0	Replicate Concentration in µCi/g		2.87E-03	
Sample Prep	Average Concentration in µCi/g		2.3192E-03	
FUSION01				
Sample #				
S96T005929				
Instrument Code				
WB26872				
Prepared By				
MCB				
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
12/12/96				
Analysis Date				
12/11/96				
Analysis Time				
12:00 PM				
Sample Point				
BY-112				

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

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

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

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

				DETECTION LEVEL
ALPHA TOTAL in µCi/g	(Average)	=	2.32E-03	
RELATIVE COUNTING ERROR			33.9%	3.60E-04 µCi/g

Analyst:	SCL		Date: 12-Dec-96
Signature of Chemist:		SLF	Date: 12/13/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM5

AT : LA-508-101 (E-1) SOLIDS

Type	DETECTOR NUMBER		SAMPLE	REPLICATE
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
WorkList	GROSS COUNTS	(GC)	698	857
15461	COUNT TIME in MINUTES	(CT)	30	30
AT:on:LB?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.15	2.15
Matrix	EFFICIENCY FACTOR	(EFF)	0.2701	0.2701
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		23.237	28.537

Batch:Number		
96012074	Blank Concentration in µCi/g	3.60E-02
Rerun	Replicate Concentration in µCi/g	4.43E-02
0	Average Concentration in µCi/g	4.0160E-02

Sample:Prep
FUSION01

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

Sample #
S96T005930

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

Instrument Code
WB26872

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

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

Prepared By
MCB

Chemist
SLF

ALPHA TOTAL in µCi/g (Average) =	4.02E-02	DETECTION LEVEL
		3.70E-04 µCi/g
RELATIVE COUNTING ERROR	7.4%	

Analyst
SCL

Date Complete
12/12/96

Analysis Date
12/11/96

Analysis Time
12:00 PM

Sample Point
BY-112

Analyst:	SCL		Date: 12-Dec-96
Signature of Chemist:		SLF	Date: 12/13/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP6

AT : LA-508-101 (E-1) SOLIDS

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		15	15
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15461	GROSS COUNTS	(GC)	756	652
AT or LB?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.03	0.03
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	1	1
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2012	2.2012
SOLID	EFFICIENCY FACTOR	(EFF)	0.2701	0.2701
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		25.170	21.703
96012074				
Rerun	Blank Concentration in µCi/g		3.81E-02	
0	Replicate Concentration in µCi/g		3.29E-02	
Sample Prep	Average Concentration in µCi/g		3.5513E-02	
FUSION01				
Sample #				
S96T005930				
Instrument Code				
WB26872				
Prepared By				
MCB				
Chemist				
SLF				
Analyst				
SCL				
Date Complete				
12/12/96				
Analysis Date				
12/11/96				
Analysis Time				
12:00 PM				
Sample Point				
BY-112				

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

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

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

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

ALPHA TOTAL in µCi/g	(Average)	=	3.55E-02	DETECTION LEVEL
				3.61E-04 µCi/g
RELATIVE COUNTING ERROR			7.7%	

Analyst:		SCL	Date: 12-Dec-96
Signature of Chemist:		SLF	Date: 12/13/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

AT : LA-508-101 (E-1) SOLIDS

			SAMPLE	REPLICATE
Type:	DETECTOR NUMBER		15	15
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List:	GROSS COUNTS	(GC)	1002	980
15461	COUNT TIME in MINUTES	(CT)	30	30
AT or LI By?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code:	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.2132	2.2132
Matrix:	EFFICIENCY FACTOR	(EFF)	0.2701	0.2701
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		33.370	32.637

Blank Concentration in µCi/g	5.03E-02
Replicate Concentration in µCi/g	4.92E-02
Average Concentration in µCi/g	4.9738E-02

Batch Number: 96012074
Rerun: 0
Sample Prep: FUSION01
Sample #: S96T005931
Instrument Code: WB26872
Prepared By: MCB
Chemist: SLF
Analyst: SCL
Date Complete: 12/12/96
Analysis Date: 12/11/96
Analysis Time: 12:00 PM
Sample Point: BY-112

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

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

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

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

		DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average) =	4.97E-02	
RELATIVE COUNTING ERROR	6.3%	3.59E-04 µCi/g

Analyst: SCL Date: 12-Dec-96

Signature of Chemist: SLF Date: 12/13/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (E-1) SOLIDS

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		15	15
	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
WorkList	GROSS COUNTS	(GC)	916	758
15461	COUNT TIME in MINUTES	(CT)	30	30
AT or TB?	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
TestCode	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9576	1.9576
Matrix	EFFICIENCY FACTOR	(EFF)	0.2701	0.2701
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		30.503	25.237

Batch Number		
96012074	Blank Concentration in µCi/g	5.20E-02
Rerun	Replicate Concentration in µCi/g	4.30E-02
0	Average Concentration in µCi/g	4.7486E-02

Sample Prep: FUSION01

Sample #: S96T005931

Instrument Code: WB26872

Prepared By: MCB

Chemist: SLF

Analyst: SCL

Date Complete: 12/12/96

Analysis Date: 12/11/96

Analysis Time: 12:00 PM

Sample Point: BY-112

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

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

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

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

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	4.75E-02	
RELATIVE COUNTING ERROR		7.1%	4.06E-04 µCi/g

Analyst: SCL Date: 12-Dec-96

Signature of Chemist: SLF Date: 12/13/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Completed RadChem Report for Worklist#: 15462

Analyst: pjm **Instrument:** AB18 **Book#** _____

Method: _____ Rev/Mod _____

Worklist Comment: Std ENVCRB 1mL. Sample Size use Ludlam. gjh

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01 ALPHA01	SOLID	2.30E-04	2.06E-4	89.565	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	3.27E+00	3.270	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	<2.08E-2		uCi/g
2	BLNK-PREP		0		@ALPHA01 ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	SAMPLE	S96T005933	0	F	@ALPHA01 ALPHA01	SOLID	N/A	1.74E-01	497.0e-004	uCi/g
3	SAMPLE	S96T005933	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	3.32E+01	0.0e+000	% Ct. Error
4	DUP	S96T005933	0	F	@ALPHA01 ALPHA01	SOLID	1.74E-1	1.54E-1	12.195	RPD
4	DUP	S96T005933	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	3.15E+01	31.500	% Ct. Erro

Final page for worklist# 15462

Analyst Signature **Date**

Analyst Signature **Date**

Reviewer Signature 12/10/96 **Date**

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

LABCORE Data Entry Template for Worklist# 15462

Analyst: [illegible] **Instrument:** AB00 18 **Book#** 66B56

Method: LA-508-101 Rev/Mod E-1

Worklist Comment: Std ENVCRB 1mL. Sample Size use Ludlam. gjh

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	SAMPLE	S96T005933	0	F	@ALPHA01	SOLID	96001466	BY-112
	Analytes Requested: ALPHA01 , ALPHA01E							
4	DUP	S96T005933	0	F	@ALPHA01	SOLID		

Final page for worklist # 15462

RJ McCown 12/9/96
Analyst Signature **Date**

C Raymond 12.10.96
Analyst Signature **Date**
C.J. Quinn 12/10/96

Data Entry Comments:

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) LA-508-113 (A-2) STANDARD

Type	DETECTOR NUMBER		STANDARD	REPLICATE
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
WorkList	GROSS COUNTS	(GC)	3613	3658
15462	COUNT TIME in MINUTES	(CT)	30	30
AT or TB?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	66B56	66B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		120.133	121.633
Batch Number	Standard Value in µCi/mL		2.30E-04	
96012075	Concentration in µCi/L	=	2.05E-01	
Rerun	Replicate Concentration in µCi/L	=	2.07E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	2.0595E-01	

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)
WL15462	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
VAR	
Chemist	
SLF	
Analyst	
PJM	
Date Complete	
12/10/96	
Analysis Date	
12/09/96	
Analysis Time	
11:50 AM	
Sample Point	
BY-112	

ALPHA TOTAL CONCENTRATION in µCi/mL	=	2.06E-04	DETECTION LEVEL
			9.50E-07 µCi/mL
RELATIVE COUNTING ERROR	=	3.3%	

Analyst:		VAR	Date: 10-Dec-96
Signature of Chemist:		SLF	Date: 12/10/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1) SOLIDS

Type			BLNK-PREP	REPLICATE
BLNK-PREP	DETECTOR NUMBER		18	18
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15462	GROSS COUNTS	(GC)	3	4
AT or TB?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.3	0.3
Test Code	SAMPLE SIZE in mL	(SS)	1.000	1.000
@ALPHA01	DILUTION FACTOR	(DF)	101	101
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9292	1.9292
SOLID	EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.233	0.233
96012075	Blank Concentration in µCi/g	<	2.08E-02	
Rerun	Replicate Concentration in µCi/g	<	2.08E-02	
0	Maximum Concentration in µCi/g	<	2.0813E-02	

Sample Prep
N/A

Sample #

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

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

Instrument Code
WB27809

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

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

Prepared By
VAR

Chemist
SLF

ALPHA TOTAL in µCi/g (Maximum)	=	< 2.08E-02	DETECTION LEVEL
LESS Than Value was Determined from Lc.			4.97E-02 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst
PJM

Date Complete
12/10/96

Analysis Date
12/09/96

Analysis Time
11:50 AM

Sample Point
BY-112

Analyst:	PJM	Date: 10-Dec-96	
Signature of Chemist:	SLF	Date: 12/10/96	

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM3

AT : LA-508-101 (E-1) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		18	18
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	78	57
15462	COUNT TIME in MINUTES	(CT)	30	30
AT or TB?	BACKGROUND in cpm	(BKG)	0.3	0.3
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9292	1.9292
Matrix	EFFICIENCY FACTOR	(EFF)	0.2644	0.2644
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.300	1.600

Batch Number		
96012075	Blank Concentration in µCi/g	2.05E-01
Reruns	Replicate Concentration in µCi/g	1.43E-01
0	Average Concentration in µCi/g	1.7393E-01

Sample Prep
FUSION01

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

Sample #
S96T005933

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

Instrument Code
WB27809

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

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

Prepared By
VAR

Chemist
SLF

ALPHA TOTAL in µCi/g (Average)	=	1.74E-01	DETECTION LEVEL
			4.97E-02
RELATIVE COUNTING ERROR		33.2%	µCi/g

Analyst
PJM

Date Complete
12/10/96

Analysis Date
12/09/96

Analysis Time
11:50 AM

Sample Point
BY-112

Analyst:		PJM	Date: 10-Dec-96
Signature of Chemist:		SLF	Date: 12/10/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP4

AT : LA-508-101 (E-1) SOLIDS

Type		DUP	REPLICATE
DUP	DETECTOR NUMBER	18	18
Work List	DISH SIZE (1 , 2 , or 5) (MS)	2	2
15462	GROSS COUNTS (GC)	63	61
AT or TB?	COUNT TIME in MINUTES (CT)	30	30
AT	BACKGROUND in cpm (BKG)	0.3	0.3
Test Code	SAMPLE SIZE in mL (SS)	1.000	1.000
@ALPHA01	DILUTION FACTOR (DF)	101	101
Matrix	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.9756	1.9756
SOLID	EFFICIENCY FACTOR (EFF)	0.2644	0.2644
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	1.800	1.733

96012075	Blank Concentration in µCi/g 1.57E-01
Rerun	Replicate Concentration in µCi/g 1.51E-01
0	Average Concentration in µCi/g 1.5387E-01

Sample Prep
FUSION01

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

Sample #
S96T005933

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

Instrument Code
WB27809

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

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

Prepared By
VAR

Chemist
SLF

ALPHA TOTAL in µCi/g (Average)	=	1.54E-01	DETECTION LEVEL
			4.85E-02 µCi/g
RELATIVE COUNTING ERROR		31.5%	

Analyst
PJM

Date Complete
12/10/96

Analysis Date
12/09/96

Analysis Time
11:50 AM

Sample Point
BY-112

Analyst:		PJM	Date: 10-Dec-96
Signature of Chemist:		SLF	Date: 12/10/96

SAMPLE.WB1 Rev. 1. 508101ML

LABCORE Completed RadChem Report for Worklist#: 15463

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

Method: _____ Rev/Mod _____

Worklist Comment: Std ENVCRB 1mL. Sample Size use Ludlam. gjh

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0		@ALPHA01 ALPHA01	SOLID	2.30E-04	1.96E-4	85.217	% Recovery
1	STD		0		@ALPHA01 ALPHA01E	SOLID	1.00	3.33E+00	3.330	% Ct. Erro
2	BLNK-PREP		0		@ALPHA01 ALPHA01	SOLID	1	9.94E-3	99.400e-004	uCi/g
2	BLNK-PREP		0		@ALPHA01 ALPHA01E	SOLID	1.00	6.59E+01	65.900	uCi/g
3	SAMPLE	S96T005934	0	F	@ALPHA01 ALPHA01	SOLID	N/A	3.99E-02	856.0e-005	uCi/g
3	SAMPLE	S96T005934	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	3.01E+01	0.0e+000	% Ct. Error
4	DUP	S96T005934	0	F	@ALPHA01 ALPHA01	SOLID	3.99E-2	3.90E-2	2.281	RPD
4	DUP	S96T005934	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	2.79E+01	27.900	% Ct. Erro
5	SAMPLE	S96T005957	0	F	@ALPHA01 ALPHA01	SOLID	N/A	4.50E-02	179.0e-004	uCi/g
5	SAMPLE	S96T005957	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	4.15E+01	0.0e+000	% Ct. Error
6	DUP	S96T005957	0	F	@ALPHA01 ALPHA01	SOLID	4.50E-2	4.59E-2	1.980	RPD
6	DUP	S96T005957	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	4.92E+01	49.200	% Ct. Erro

Final page for worklist# 15463

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

_____ 12/10/96
Reviewer Signature **Date**

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

LABCORE Data Entry Template for Worklist# 15463

Analyst: RJM **Instrument:** AB00 #14 **Book#** 66B56

Method: LA-508-101 Rev/Mod E-1

Worklist Comment: Std ENVCRB 1mL. Sample Size use Ludlam. gjh

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	SAMPLE	S96T005934	0	F	@ALPHA01	SOLID	96001466	BY-112
	Analytes Requested: ALPHA01 , ALPHA01E							
4	DUP	S96T005934	0	F	@ALPHA01	SOLID		
5	SAMPLE	S96T005957	0	F	@ALPHA01	SOLID	96001466	BY-112
	Analytes Requested: ALPHA01 , ALPHA01E							
6	DUP	S96T005957	0	F	@ALPHA01	SOLID		

Final page for worklist # 15463

RJ McCown 12/9/96
Analyst Signature **Date**

LRaymond 12-10-96
Analyst Signature **Date**

C.J. Quinn 12/10/96

Data Entry Comments:

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) LA-508-113 (A-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
WorkList #	GROSS COUNTS	(GC)	3552	3488
15463	COUNT TIME in MINUTES	(CT)	30	30
AT or TBI?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	66B56	66B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		118.230	116.097
Batch Number	Standard Value in µCi/mL		2.30E-04	
96012076	Concentration in µCi/L	=	1.98E-01	
Rerun	Replicate Concentration in µCi/L	=	1.94E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.9605E-01	

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)
WL15463	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
VAR	
Chemist	
SLF	
Analyst	
PJM	
Date Complete	
12/10/96	
Analysis Date	
12/09/96	
Analysis Time	
02:50 PM	
Sample Point	
BY-112	

ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.96E-04	DETECTION LEVEL	
RELATIVE COUNTING ERROR	=	3.3%	7.40E-07	µCi/mL

Analyst:	VAR	Date:	10-Dec-96
Signature of Chemist:	SLF	Date:	12/10/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1) SOLIDS

Type	DETECTOR NUMBER		BLNK-PREP	REPLICATE
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	21	20
15463	COUNT TIME in MINUTES	(CT)	30	30
AT or TB ?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9016	1.9016
Matrix	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.530	0.497

Batch Number		
96012076	Blank Concentration in µCi/g	1.03E-02
Rerun	Replicate Concentration in µCi/g	9.61E-03
0	Average Concentration in µCi/g	9.9374E-03

Sample Prep
N/A
Sample #
WL15463
Instrument Code
WB27807
Prepared By
VAR
Chemist
SLF
Analyst
PJM
Date Complete
12/10/96
Analysis Date
12/09/96
Analysis Time
02:50 PM
Sample Point
BY-112

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

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

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

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

ALPHA TOTAL in µCi/g (Average)	=	9.94E-03	DETECTION LEVEL
			8.56E-03 µCi/g
RELATIVE COUNTING ERROR		65.9%	

Analyst:	PJM		Date: 10-Dec-96
Signature of Chemist:		SLF	Date: 12/10/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM3

AT : LA-508-101 (E-1) SOLIDS

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		14	14
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15463	GROSS COUNTS	(GC)	56	78
AT or T By	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.17	0.17
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	11	11
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9016	1.9016
SOLID	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.697	2.430

96012076	Blank Concentration in µCi/g 3.28E-02
Rerun #	Replicate Concentration in µCi/g 4.70E-02
0	Average Concentration in µCi/g 3.9943E-02

Sample Prep
FUSION01

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

Sample #
S96T005934

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

Instrument Code
WB27807

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

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

Prepared By
VAR

Chemist
SLF

	ALPHA TOTAL in µCi/g (Average)	=	3.99E-02	DETECTION LEVEL
Analyst				
PJM				8.56E-03
Date Complete	RELATIVE COUNTING ERROR		30.1%	µCi/g
12/10/96				

Analysis Date
12/09/96

Analysis Time
02:50 PM

Sample Point
BY-112

Analyst:		PJM	Date: 10-Dec-96
Signature of Chemist:		SLF	Date: 12/10/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP4

AT : LA-508-101 (E-1) SOLIDS

Type	DETECTOR NUMBER		DUP	REPLICATE
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
WorkList	GROSS COUNTS	(GC)	66	63
15463	COUNT TIME in MINUTES	(CT)	30	30
AT or TB?	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8668	1.8668
Matrix	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.030	1.930

Batch Number		
96012076	Blank Concentration in µCi/g	4.00E-02
Rerun	Replicate Concentration in µCi/g	3.81E-02
0	Average Concentration in µCi/g	3.9045E-02

Sample Prep
FUSION01

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

Sample #
S96T005934

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

Instrument Code
WB27807

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

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

Prepared By
VAR

Chemist
SLF

ALPHA TOTAL in µCi/g (Average)	=	3.90E-02	DETECTION LEVEL
			8.72E-03 µCi/g
RELATIVE COUNTING ERROR		27.9%	

Analyst
PJM

Date Complete
12/10/96

Analysis Date
12/09/96

Analysis Time
02:50 PM

Sample Point
BY-112

Analyst:		PJM	Date: 10-Dec-96
Signature of Chemist:		SLF	Date: 12/10/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM5

AT : LA-508-101 (E-1) SOLIDS

			SAMPLE	REPLICATE
Type	DETECTOR NUMBER		14	14
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	42	35
15463	COUNT TIME in MINUTES	(CT)	30	30
AT or LB	BACKGROUND in cpm	(BKG)	0.17	0.17
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.822	1.822
Matrix	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.230	0.997

Batch Number		
96012076	Blank Concentration in µCi/g	4.97E-02
Rerun	Replicate Concentration in µCi/g	4.03E-02
0	Average Concentration in µCi/g	4.4988E-02

Sample Prep
FUSION01

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

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

S96T005957

Instrument Code
WB27807

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

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

Prepared By
VAR

Chemist
SLF

			DETECTION LEVEL
Analyst	ALPHA TOTAL in µCi/g (Average)	= 4.50E-02	
PJM			1.79E-02
Date Complete	RELATIVE COUNTING ERROR	41.5%	µCi/g
12/10/96			

Analysis Date
12/09/96

Analysis Time
02:50 PM

Sample Point
BY-112

Analyst:		PJM	Date: 10-Dec-96
Signature of Chemist:		SLF	Date: 12/10/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP6

AT : LA-508-101 (E-1) SOLIDS

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		14	14
Work List #	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15463	GROSS COUNTS	(GC)	55	28
AT or TBV	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.17	0.17
Test Code	SAMPLE SIZE in mL	(SS)	0.250	0.250
@ALPHA01	DILUTION FACTOR	(DF)	11	11
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9456	1.9456
SOLID	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.663	0.763

96012076	Blank Concentration in µCi/g	6.29E-02
Rerun	Replicate Concentration in µCi/g	2.89E-02
0	Average Concentration in µCi/g	4.5915E-02

Sample Prep
FUSION01

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

Sample #
S96T005957

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

Instrument Code
WB27807

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

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

Prepared By
VAR

Chemist
SLF

				DETECTION LEVEL
Analyst	ALPHA TOTAL in µCi/g (Average)	=	4.59E-02	
PJM				
Date Complete				1.67E-02
12/10/96	RELATIVE COUNTING ERROR		49.2%	µCi/g

Analyst Date
12/09/96

Analysis Time
02:50 PM

Sample Point
BY-112

Analyst:		PJM	Date: 10-Dec-96
Signature of Chemist:		SLF	Date: 12/10/96

SAMPLE.WB1 Rev. 1.0 508101ML

LABCORE Completed RadChem Report for Worklist#: 15491

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

Method: _____ Rev/Mod _____

Worklist Comment: @ALPHAO1 FOR BY-112)DET SS USING LUDLUM).1ML SPK RTS!

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@ALPHA01	ALPHA01 SOLID	2.30E-04	1.95E-4	84.783	% Recovery
1	STD			0	@ALPHA01	ALPHA01E SOLID	1.00	3.38E+00	3.380	% Ct. Erro
2	BLNK-PREP			0	@ALPHA01	ALPHA01 SOLID	1	<8.08E-3		uCi/g
2	BLNK-PREP			0	@ALPHA01	ALPHA01E SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG			0	@ALPHA01	ALPHA01 SOLID	1.00E+00	6.52E-01	0.652	BLNK/BKG
4	SAMPLE	S96T005889	0	F	@ALPHA01	ALPHA01 SOLID	N/A	1.15E-01	194.0e-004	uCi/g
4	SAMPLE	S96T005889	0	F	@ALPHA01	ALPHA01E SOLID	N/A	2.41E+01	0.0e+000	% Ct. Error
5	DUP	S96T005889	0	F	@ALPHA01	ALPHA01 SOLID	1.15E-1	8.74E-2	27.273	RPD
5	DUP	S96T005889	0	F	@ALPHA01	ALPHA01E SOLID	1.00	2.56E+01	25.600	% Ct. Erro
6	SAMPLE	S96T005890	0	F	@ALPHA01	ALPHA01 SOLID	N/A	3.26E-02	902.0e-005	uCi/g
6	SAMPLE	S96T005890	0	F	@ALPHA01	ALPHA01E SOLID	N/A	3.05E+01	0.0e+000	% Ct. Error
7	DUP	S96T005890	0	F	@ALPHA01	ALPHA01 SOLID	3.26E-2	2.75E-2	16.972	RPD
7	DUP	S96T005890	0	F	@ALPHA01	ALPHA01E SOLID	1.00	3.77E+01	37.700	% Ct. Erro
8	SPK	S96T005890	0	F	@ALPHA01	ALPHA01 SOLID	3.59E-02	2.96E-02	82.451	% Recovery
9	SAMPLE	S96T005891	0	F	@ALPHA01	ALPHA01 SOLID	N/A	3.73E-02	900.0e-005	uCi/g
9	SAMPLE	S96T005891	0	F	@ALPHA01	ALPHA01E SOLID	N/A	3.05E+01	0.0e+000	% Ct. Error
10	DUP	S96T005891	0	F	@ALPHA01	ALPHA01 SOLID	3.73E-2	5.57E-2	55.146	RPD
10	DUP	S96T005891	0	F	@ALPHA01	ALPHA01E SOLID	1.00	2.37E+01	23.700	% Ct. Erro

Final page for worklist# 15491

Analyst Signature **Date**

Analyst Signature **Date**

Reviewer Signature **Date**

The RPDs for 5889 and 5891 are acceptable due to low sample alpha activity. No rerun requested.

12/17/96

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

LABCORE Data Entry Template for Worklist# 15491

Analyst: [redacted] **Instrument:** AB00 14 **Book#** 106B56

Method: LA-508-101 Rev/Mod E-1

Worklist Comment: @ALPHAO1 FOR BY-112)DET SS USING LUDLUM).1ML SPK RTS!

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T005889	0	F	@ALPHA01	SOLID	96001393	BY-112
	Analytes Requested:	ALPHA01 , ALPHA01E						
5	DUP	S96T005889	0	F	@ALPHA01	SOLID		
6	SAMPLE	S96T005890	0	F	@ALPHA01	SOLID	96001393	BY-112
	Analytes Requested:	ALPHA01 , ALPHA01E						
7	DUP	S96T005890	0	F	@ALPHA01	SOLID		
8	SPK	S96T005890	0	F	@ALPHA01	SOLID		
9	SAMPLE	S96T005891	0	F	@ALPHA01	SOLID	96001393	BY-112
	Analytes Requested:	ALPHA01 , ALPHA01E						
10	DUP	S96T005891	0	F	@ALPHA01	SOLID		

Final page for worklist # 15491

[redacted] Murphy 12-13-96
Analyst Signature **Date**

[redacted] 12/16/96
Analyst Signature **Date**

12/16/96

Data Entry Comments:

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) LA-508-113 (A-2) STANDARD

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		14	14
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	3630	3378
15491	COUNT TIME in MINUTES	(CT)	30	30
SAT or LBT?	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	66B56	66B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		120.770	112.370
Batch Number	Standard Value in µCi/mL		2.30E-04	
96012104	Concentration in µCi/L	=	2.02E-01	
Rerun	Replicate Concentration in µCi/L	=	1.88E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	1.9506E-01	

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)
WL15491	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SZC	
Chemist	
SLF	
Analyst	
TAM	
Date Complete	
12/16/96	
Analysis Date	
12/13/96	
Analysis Time	
09:40 AM	
Sample Point	
BY-112	

ALPHA TOTAL CONCENTRATION in µCi/mL	=	1.95E-04	DETECTION LEVEL
RELATIVE COUNTING ERROR	=	3.4%	8.35E-07 µCi/mL

Analyst:	SZC		Date: 16-Dec-96
Signature of Chemist:	SLF		Date: 12/17/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1) SOLIDS

Type			BLNK-PREP	REPLICATE
BLNK-PREP	DETECTOR NUMBER		14	14
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15491	GROSS COUNTS	(GC)	2	7
AT or LBr?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.23	0.23
Test Code	SAMPLE SIZE in mL	(SS)	0.250	0.250
@ALPHA01	DILUTION FACTOR	(DF)	11	11
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.898	1.898
SOLID	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.204	0.208
96012104	Blank Concentration in µCi/g	<	7.93E-03	
Rerun	Replicate Concentration in µCi/g	<	8.08E-03	
0	Maximum Concentration in µCi/g	<	8.0835E-03	

Sample Prep
N/A

Sample#
WL15491

Instrument Code
WB27807

Prepared By
SZC

Chemist
SLF

Analyst
TAM

Date Complete
12/16/96

Analysis Date
12/13/96

Analysis Time
09:40 AM

Sample Point
BY-112

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

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

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

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

ALPHA TOTAL in µCi/g	(Maximum)	=	< 8.08E-03	DETECTION LEVEL
LESS Than Value was Determined from Lc.				
RELATIVE COUNTING ERROR			500.0%	1.94E-02 µCi/g

Analyst:	TAM		Date: 16-Dec-96
Signature of Chemist:		SLF	Date: 12/17/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (E-1) SOLIDS

Type	DETECTOR NUMBER		SAMPLE	REPLICATE
SAMPLE	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	85	106
15491	COUNT TIME in MINUTES	(CT)	30	30
AT or TBZ	BACKGROUND in cpm	(BKG)	0.23	0.23
AT	SAMPLE SIZE in mL	(SS)	0.250	0.250
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.898	1.898
Matrix	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.603	3.303

Batch Number		
96012104	Blank Concentration in µCi/g	1.01E-01
Rerun	Replicate Concentration in µCi/g	1.28E-01
0	Average Concentration in µCi/g	1.1456E-01

Sample Prep
FUSION01
Sample #
S96T005889
Instrument Code
WB27807
Prepared By
SZC
Chemist
SLF
Analyst
TAM
Date Complete
12/16/96
Analysis Date
12/13/96
Analysis Time
09:40 AM
Sample Point
BY-112

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

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

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

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

ALPHA TOTAL in µCi/g	(Average)	=	1.15E-01	DETECTION LEVEL
				1.94E-02
RELATIVE COUNTING ERROR			24.1%	µCi/g

Analyst:		TAM	Date: 16-Dec-96
Signature of Chemist:		SLF	Date: 12/17/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (E-1) SOLIDS

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		14	14
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15491	GROSS COUNTS	(GC)	81	77
AT for LB's	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.23	0.23
Test Code	SAMPLE SIZE in mL	(SS)	0.250	0.250
@ALPHA01	DILUTION FACTOR	(DF)	11	11
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0256	2.0256
SOLID	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.470	2.337
96012104				
Rerun	Blank Concentration in µCi/g		8.98E-02	
0	Replicate Concentration in µCi/g		8.49E-02	
Sample Prep	Average Concentration in µCi/g		8.7354E-02	
FUSION01				
Sample #				
S96T005889				
Instrument Code				
WB27807				
Prepared By				
SZC				
Chemist				
SLF				
Analyst				
TAM				
Date Complete				
12/16/96				
Analysis Date				
12/13/96				
Analysis Time				
09:40 AM				
Sample Point				
BY-112				

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

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

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

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

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	8.74E-02	
RELATIVE COUNTING ERROR		25.6%	1.81E-02 µCi/g

Analyst:	TAM		Date: 16-Dec-96
Signature of Chemist:	SLF		Date: 12/17/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: SAM6

AT : LA-508-101 (E-1) SOLIDS

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		14	14
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15491	GROSS COUNTS	(GC)	63	59
AT or LB #	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.23	0.23
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	11	11
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0372	2.0372
SOLID	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
Batch Number #	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.870	1.737
96012104	Blank Concentration in µCi/g		3.38E-02	
Rerun #	Replicate Concentration in µCi/g		3.14E-02	
0	Average Concentration in µCi/g		3.2586E-02	

Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T005890	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27807	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SZC	
AT's Chemist	
SLF	
Analyst	
TAM	
Date Complete	
12/16/96	
Analysis Date	
12/13/96	
Analysis Time	
09:40 AM	
Sample Point	
BY-112	

ALPHA TOTAL in µCi/g (Average)	=	3.26E-02	DETECTION LEVEL
RELATIVE COUNTING ERROR		30.5%	9.02E-03 µCi/g

Analyst:	TAM		Date: 16-Dec-96
Signature of Chemist:	SLF		Date: 12/17/96

SAMPLE.WB1 Rev. 1. 508101ML

. WORKBOOK PAGE: DUP7

AT : LA-508-101 (E-1) SOLIDS

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		14	14
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15491	GROSS COUNTS	(GC)	44	63
AT or TBz	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.23	0.23
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	11	11
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0784	2.0784
SOLID	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.237	1.870

96012104	Blank Concentration in µCi/g 2.19E-02
Rerun	Replicate Concentration in µCi/g 3.31E-02
0	Average Concentration in µCi/g 2.7513E-02

Sample Prep
FUSION01

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

Sample #
S96T005890

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

Instrument Code
WB27807

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

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

Prepared By
SZC

Chemist
SLF

ALPHA TOTAL in µCi/g (Average) =	2.75E-02	DETECTION LEVEL
Analyst: TAM		8.84E-03 µCi/g
Date Complete: 12/16/96	RELATIVE COUNTING ERROR 37.7%	

Analysis Date
12/13/96

Analysis Time
09:40 AM

Sample Point
BY-112

Analyst:	TAM	Date: 16-Dec-96	
Signature of Chemist:	SLF	Date: 12/17/96	

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: SPK8

AT : LA-508-101 (E-1) LA-508-113 (A-2) SPIKED SAMPLE

Type			SPIKE	REPLICATE
SPK	DETECTOR NUMBER		14	14
Work List	DISH SIZE 1 , 2 , or 5	(MS)	2	2
15491	TOTAL COUNTS	(TC)	53537	52821
AT or T By?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.23	0.23
Test Code	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
@ALPHA01	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0372	2.0372
SOLID	SPIKE VOLUME in mL	(SVol)	0.100	0.100
Batch Number	SPIKE DILUTION FACTOR	(SDF)	1	1
96012104	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
Rerun	SPIKE VALUE in µCi/mL	(SVal)	3.5858E-02	3.5858E-02
0	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
Sample Prep	SAMPLE + SPIKE µCi/g	(S+S)	3.22E+01	3.18E+01
FUSION01	AVERAGE or MAXIMUM µCi/g in SAMPLE		3.2586E-02	

Sample #
S96T005890
Instrument Code
WB27807
Prepared By
SZC
Chemist
SLF
Analyst
TAM
Date Complete
12/16/96
Analysis Date
12/13/96
Analysis Time
09:40 AM
Sample Point
BY-112

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

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

QC ACTUAL = SVal

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

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

QC ACTUAL	=	3.59E-02
QC FOUND	=	2.96E-02
AVG. PERCENT SPIKE RECOVERY	=	82.6%

Analyst:		SZC	Date: 16-Dec-96
Signature of Chemist:		SLF	Date: 12/17/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM9

AT : LA-508-101 (E-1) SOLIDS

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		14	14
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15491	GROSS COUNTS	(GC)	59	79
AT or TB?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.23	0.23
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	11	11
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0432	2.0432
SOLID	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.737	2.403
96012104				

Blank Concentration in µCi/g	3.13E-02
Replicate Concentration in µCi/g	4.33E-02
Average Concentration in µCi/g	3.7295E-02

Rerun: 0

Sample Prep: FUSION01

Sample #: S96T005891

Instrument Code: WB27807

Prepared By: SZC

Chemist: SLF

Analyst: TAM

Date Complete: 12/16/96

Analysis Date: 12/13/96

Analysis Time: 09:40 AM

Sample Point: BY-112

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

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

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

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

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	3.73E-02	
RELATIVE COUNTING ERROR		30.5%	9.00E-03 µCi/g

Analyst:	TAM		Date: 16-Dec-96
Signature of Chemist:	SLF		Date: 12/17/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP10

AT : LA-508-101 (E-1) SOLIDS

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		14	14
WorkList	DISH SIZE (1, 2, or 5)	(MS)	2	2
15491	GROSS COUNTS	(GC)	123	87
AT or LB	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.23	0.23
TestCode	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	11	11
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8332	1.8332
SOLID	EFFICIENCY FACTOR	(EFF)	0.2692	0.2692
BatchNumber	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.870	2.670
96012104	Blank Concentration in µCi/g		7.77E-02	
Rerun	Replicate Concentration in µCi/g		5.36E-02	
0	Average Concentration in µCi/g		6.5665E-02	

SamplePrep: FUSION01

Sample#: S96T005891

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

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

InstrumentCode: WB27807

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

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

PreparedBy: SZC

Chemist: SLF

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	6.57E-02	
Analyst: TAM			
DateComplete: 12/16/96			1.00E-02 µCi/g
RELATIVE COUNTING ERROR		23.7%	

AnalysisDate: 12/13/96

AnalysisTime: 09:40 AM

SamplePoint: BY-112

Analyst:	TAM	Date: 16-Dec-96	
Signature of Chemist:	SLF	Date: 12/17/96	

SAMPLE.WB1 Rev. 1. 508101ML

LABCORE Completed RadChem Report for Worklist#: 15492

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

Method: _____ Rev/Mod _____

Worklist Comment: @ALPHA01 FOR BY-112)DET SS USNING LUDLUM).1ML SPK RTS!

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@ALPHA01 ALPHA01	SOLID	2.30E-04	2.18E-4	94.783	% Recovery
1	STD			0	@ALPHA01 ALPHA01E	SOLID	1.00	3.16E+00	3.160	% Ct. Erro
2	BLNK-PREP			0	@ALPHA01 ALPHA01	SOLID	1	<2.17E-2		uCi/g
2	BLNK-PREP			0	@ALPHA01 ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3	BLNK/BKG			0	@ALPHA01 ALPHA01	SOLID	1.00E+00	2.22E+00	2.220	BLNK/BKG
4	SAMPLE	S96T005892	0	F	@ALPHA01 ALPHA01	SOLID	N/A	2.36E-01	396.0e-004	uCi/g
4	SAMPLE	S96T005892	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	3.30E+01	0.0e+000	% Ct. Error
5	DUP	S96T005892	0	F	@ALPHA01 ALPHA01	SOLID	2.36E-1	2.79E-1	16.699	RPD
5	DUP	S96T005892	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	2.91E+01	29.100	% Ct. Erro
6	SPK	S96T005892	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	3.13E-02	87.187	% Recovery
7	SAMPLE	S96T005893	0	F	@ALPHA01 ALPHA01	SOLID	N/A	6.65E-02	579.0e-005	uCi/g
7	SAMPLE	S96T005893	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	2.98E+01	0.0e+000	% Ct. Error
8	DUP	S96T005893	0	F	@ALPHA01 ALPHA01	SOLID	6.65E-2	4.33E-2	42.259	RPD
8	DUP	S96T005893	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	3.61E+01	36.100	% Ct. Erro

Final page for worklist# 15492

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

Reviewer Signature 12/17/96 **Date**

The RPD for 5893 is acceptable due to low sample alpha activity.

12/17/96

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

LABCORE Data Entry Template for Worklist# 15492

Analyst: CAM **Instrument:** AB00 16 **Book#** 66856

Method: LA-508-101 Rev/Mod E-1

Worklist Comment: @ALPHA01 FOR BY-112)DET SS USNING LUDLUM).1ML SPK RTS!

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T005892	0	F	@ALPHA01	SOLID	96001393	BY-112
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T005892	0	F	@ALPHA01	SOLID		
6	SPK	S96T005892	0	F	@ALPHA01	SOLID		
7	SAMPLE	S96T005893	0	F	@ALPHA01	SOLID	96001393	BY-112
		Analytes Requested: ALPHA01 , ALPHA01E						
8	DUP	S96T005893	0	F	@ALPHA01	SOLID		

Final page for worklist # 15492

CAMorphy 12-13-96
Analyst Signature **Date**

Sylvia Z. Cochrane
Analyst Signature **Date**

MLB 12/14/96

Data Entry Comments:

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) **LA-508-113 (A-2) STANDARD**

Type	DETECTOR NUMBER		STANDARD	REPLICATE
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	3843	3945
15492	COUNT TIME in MINUTES	(CT)	30	30
AT or LBY	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
TestCode	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	66B56	66B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		128.070	131.470
Batch Number	Standard Value in µCi/mL		2.30E-04	
96012105	Concentration in µCi/L	=	2.15E-01	
Rerun	Replicate Concentration in µCi/L	=	2.21E-01	
0	AVERAGE CONCENTRATION in µCi/L	=	2.1787E-01	

Sample Prep
N/A
Sample #
WL15492
Instrument Code
WB27806
Prepared By
SZC
Chemist
SLF
Analyst
TAM
Date Complete
12/16/96
Analysis Date
12/13/96
Analysis Time
02:00 PM
Sample Point
BY-112

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

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

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

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

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

			DETECTION LEVEL
ALPHA TOTAL CONCENTRATION in µCi/mL	=	2.18E-04	
RELATIVE COUNTING ERROR	=	3.2%	4.00E-07 µCi/mL

Analyst:	SZC		Date: 16-Dec-96
Signature of Chemist:		SLF	Date: 12/17/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1) SOLIDS

Type			BLNK-PREP	REPLICATE
BLNK-PREP	DETECTOR NUMBER		16	16
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15492	GROSS COUNTS	(GC)	2	2
AT or TBx?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.03	0.03
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	101	101
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0384	2.0384
SOLID	EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.130	0.130

96012105	Blank Concentration in µCi/g	<	2.17E-02
Rerun	Replicate Concentration in µCi/g	<	2.17E-02
0	Maximum Concentration in µCi/g	<	2.1683E-02

Sample Prep	
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
WL	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SZC	
Chemist	
SLF	
Analyst	
TAM	
Date Complete	
12/16/96	
Analysis Date	
12/13/96	
Analysis Time	
02:00 PM	
Sample Point	
BY-112	

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Maximum)	=	< 2.17E-02	
LESS THAN Value was Determined from Rmax.			3.96E-02 µCi/g
RELATIVE COUNTING ERROR		500.0%	

Analyst:	TAM		Date: 16-Dec-96
Signature of Chemist:		SLF	Date: 12/17/96

BLANK.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (E-1) SOLIDS

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		16	16
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15492	GROSS COUNTS	(GC)	49	38
AT or TB?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.03	0.03
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	101	101
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0384	2.0384
SOLID	EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.603	1.237
96012105	Blank Concentration in µCi/g		2.67E-01	
Rerun	Replicate Concentration in µCi/g		2.06E-01	
0	Average Concentration in µCi/g		2.3625E-01	

Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sampler	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T005892	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SZC	
Chemist	
SLF	
Analyst	
TAM	
Date Complete	
12/16/96	
Analysis Date	
12/13/96	
Analysis Time	
02:00 PM	
Sample Point	
BY-112	

			DETECTION LEVEL
ALPHA TOTAL in µCi/g (Average)	=	2.36E-01	
RELATIVE COUNTING ERROR		33.0%	3.96E-02 µCi/g

Analyst:	TAM		Date: 16-Dec-96
Signature of Chemist:		SLF	Date: 12/17/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (E-1) SOLIDS

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		16	16
Work List #	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15492	GROSS COUNTS	(GC)	48	61
AT or LB?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.03	0.03
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	101	101
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.17	2.17
SOLID	EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.570	2.003

Batch Number		
96012105	Blank Concentration in µCi/g	2.45E-01
Rerun	Replicate Concentration in µCi/g	3.13E-01
0	Average Concentration in µCi/g	2.7923E-01

Sample Prep	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T005892	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SZC	
Chemist	
SLF	

Analyst	ALPHA TOTAL in µCi/g (Average)	=	2.79E-01	DETECTION LEVEL
TAM				
Date Complete				3.72E-02
12/16/96	RELATIVE COUNTING ERROR		29.1%	µCi/g
Analysis Date				
12/13/96				
Analysis Time				
02:00 PM				
Sample Point				
BY-112				

Analyst:		TAM	Date: 16-Dec-96
Signature of Chemist:		SLF	Date: 12/17/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: SPK6

AT : LA-508-101 (E-1) LA-508-113 (A-2) SPIKED SAMPLE

Type			SPIKE	REPLICATE
SPK	DETECTOR NUMBER		16	16
	DISH SIZE 1 , 2 , or 5	(MS)	2	2
Work List	TOTAL COUNTS	(TC)	55502	56329
15492	COUNT TIME in MINUTES	(CT)	30	30
A Prep By	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	101	101
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0384	2.0384
Matrix	SPIKE VOLUME in mL	(SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR	(SDF)	1	1
Batch Number	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
96012105	SPIKE VALUE in µCi/mL	(SVal)	3.5858E-02	3.5858E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
0	SAMPLE + SPIKE µCi/g	(S+S)	3.08E+02	3.12E+02
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE		2.3625E-01	
FUSION01				
Sample #				
S96T005892	Rs (Sample Count Rate) = (TC / CT) - BKG			
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)			
WB27806	QC ACTUAL = SVal			
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))			
SZC	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100			
Chemist				
SLF				
Analyst				
TAM				
Date Complete				
12/16/96				
Analysis Date				
12/13/96	QC ACTUAL	=	3.59E-02	
Analysis Time	QC FOUND	=	3.13E-02	
02:00 PM	AVG. PERCENT SPIKE RECOVERY	=	87.2%	
Sample Point				
BY-112				

Analyst:		SZC	Date: 16-Dec-96
Signature of Chemist:		SLF	Date: 12/12/96

SPIKE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SAM7

AT : LA-508-101 (E-1) SOLIDS

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		16	16
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15492	GROSS COUNTS	(GC)	46	64
AT or TB?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.03	0.03
Test Code	SAMPLE SIZE in mL	(SS)	0.250	0.250
@ALPHA01	DILUTION FACTOR	(DF)	11	11
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0032	2.0032
SOLID	EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.503	2.103
96012105	Blank Concentration in µCi/g		5.54E-02	
Rerun	Replicate Concentration in µCi/g		7.76E-02	
0	Average Concentration in µCi/g		6.6501E-02	

Sample Prep	
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
S96T005893	
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.
Prepared By	
SZC	
Chemist	
SLF	

Analyst	ALPHA TOTAL in µCi/g (Average)	=	6.65E-02	DETECTION LEVEL
TAM				
Date Complete				8.79E-03
12/16/96	RELATIVE COUNTING ERROR		29.8%	µCi/g
Analysis Date				
12/13/96				
Analysis Time				
02:00 PM				
Sample Point				
BY-112				

Analyst:		TAM	Date: 16-Dec-96
Signature of Chemist:		SLF	Date: 12/17/96

SAMPLE.WB1 Rev. 1. 508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (E-1) SOLIDS

Type			DUP	REPLICATE
DUP	DETECTOR NUMBER		16	16
Work List	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15492	GROSS COUNTS	(GC)	32	40
AT or TB ?	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.03	0.03
Test Code	SAMPLE SIZE in mL	(SS)	0.250	0.250
@ALPHA01	DILUTION FACTOR	(DF)	11	11
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9944	1.9944
SOLID	EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		1.037	1.303

96012105	Blank Concentration in µCi/g	3.84E-02
Rerun	Replicate Concentration in µCi/g	4.83E-02
0	Average Concentration in µCi/g	4.3336E-02

Sample Prep: FUSION01

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

Sample #: S96T005893

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

Instrument Code: WB27806

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

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

Prepared By: SZC

Chemist: SLF

	ALPHA TOTAL in µCi/g (Average)	=	4.33E-02	DETECTION LEVEL
Analyst: TAM				
Date Complete: 12/16/96	RELATIVE COUNTING ERROR		36.1%	8.82E-03 µCi/g

Analyst Date: 12/13/96

Analysis Time: 02:00 PM

Sample Point: BY-112

Analyst:		TAM	Date: 16-Dec-96
Signature of Chemist:		SLF	Date: 12/17/96

SAMPLE.WB1 Rev. 1. 508101ML

LABCORE Completed RadChem Report for Worklist#: 15662

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

Method: _____ Rev/Mod _____

Worklist Comment: Use 1-10-.5 mL sample size. Rerun #1. SLF

Seq	Type	Sample#	R	A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD			0	@ALPHA01 ALPHA01	SOLID	2.30E-04	2.09E-4	90.870	% Recovery
1	STD			0	@ALPHA01 ALPHA01E	SOLID	1.00	3.20E+00	3.200	% Ct. Erro
2	BLNK-PREP			0	@ALPHA01 ALPHA01	SOLID	1	4.38E-3	43.800e-004	uCi/g
2	BLNK-PREP			0	@ALPHA01 ALPHA01E	SOLID	1.00	8.24E+01	82.400	uCi/g
3	BLNK/BKG			0	@ALPHA01 ALPHA01	SOLID	1.00E+00	8.89E+00	8.890	BLNK/BKG
4	SAMPLE	S96T005895	0	F	@ALPHA01 ALPHA01	SOLID	N/A	6.18E-02	441.0e-005	uCi/g
4	SAMPLE	S96T005895	0	F	@ALPHA01 ALPHA01E	SOLID	N/A	2.19E+01	0.0e+000	% Ct. Error
5	DUP	S96T005895	0	F	@ALPHA01 ALPHA01	SOLID	6.18E-2	6.28E-2	1.605	RPD
5	DUP	S96T005895	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	2.05E+01	20.500	% Ct. Erro
6	SPK	S96T005895	0	F	@ALPHA01 ALPHA01	SOLID	3.59E-02	2.56E-02	71.309	% Recovery

Final page for worklist# 15662

Analyst Signature **Date**

Analyst Signature **Date**

12/19/96
Reviewer Signature **Date**

BLNK value is acceptable. SPK recovery is within method control limits for the STD. No further reruns requested.

12/19/96

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

LABCORE Data Entry Template for Worklist# 15662

Analyst: JMJ **Instrument:** AB00 16 **Book#** 66B56

Method: LA-508-101 Rev/Mod E-1

Worklist Comment: Use 1-10-.5 mL sample size. Rerun #1. SLF

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD				@ALPHA01	SOLID		
2	BLNK-PREP				@ALPHA01	SOLID		
3	BLNK/BKG				@ALPHA01	SOLID		
4	SAMPLE	S96T005895	0	F	@ALPHA01	SOLID	96001393	BY-112
		Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S96T005895	0	F	@ALPHA01	SOLID		
6	SPK	S96T005895	0	F	@ALPHA01	SOLID		

Final page for worklist # 15662

Analyst Signature Date 12-18-96

Analyst Signature Date 12/19/96

C.J. Quinn

Data Entry Comments:

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

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) **LA-508-113 (B-0) STANDARD**

			STANDARD	REPLICATE
Type	DETECTOR NUMBER		16	16
STD	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	3744	3744
15662	COUNT TIME in MINUTES	(CT)	30	30
A1 or 1B-2	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER	(Std BN)	66B56	66B56
Matrix	EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		124.770	124.770
Batch Number	Standard Value in µCi/mL		2.30E-04	
96012289	Concentration in µCi/L =		2.09E-01	
Rerun	Replicate Concentration in µCi/L =		2.09E-01	
0	AVERAGE CONCENTRATION in µCi/L =		2.0948E-01	
Sample Prep				
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG			
Sample #	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)			
WL15662	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L			
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
Prepared By				
MCB				
Chemist				
SLF	ALPHA TOTAL CONCENTRATION in µCi/mL =		2.09E-04	DETECTION LEVEL
Analyst				
JMV				
Date Complete				4.00E-07 µCi/mL
12/19/96	RELATIVE COUNTING ERROR =		3.2%	
Analysis Date				
12/18/96				
Analysis Time				
01:00 PM				
Sample Point				
BY-112				

Analyst:		MCB	Date: 19-Dec-96
Signature of Chemist:		SLF	Date: 12/19/96

STANDARD.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1) SOLIDS

			BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER		16	16
BLNK-PREP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
WorkOrder	GROSS COUNTS	(GC)	8	8
15662	COUNT TIME in MINUTES	(CT)	30	30
Analysis Type	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Lab Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9956	1.9956
Matrix	EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.237	0.237
Batch Number				
96012289	Blank Concentration in µCi/g		4.38E-03	
Rerun	Replicate Concentration in µCi/g		4.38E-03	
0	Average Concentration in µCi/g		4.3804E-03	
Sample Prep				
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG			
Sample	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)			
WL15662				
Instrument Code	Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100			
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.			
Prepared By				
MCB				
Chemist				
SLF	ALPHA TOTAL in µCi/g (Average) =		4.38E-03	DETECTION LEVEL
Analyst				
JMV				4.41E-03
Date Complete	RELATIVE COUNTING ERROR		82.4%	µCi/g
12/19/96				
Analysis Date				
12/18/96				
Analysis Time				
01:00 PM				
Sample Color				
BY-112				

Analyst:	JMV		Date: 19-Dec-96
Signature of Chemist:		SLF	Date: 12/19/96

BLANK.WB1 .Rev. 1.0 508101ML

WORKBOOK PAGE: SAM4

AT : LA-508-101 (E-1) SOLIDS

Type			SAMPLE	REPLICATE
SAMPLE	DETECTOR NUMBER		16	16
Worklist	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
15662	GROSS COUNTS	(GC)	83	119
Analyst ID	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.03	0.03
Test Code	SAMPLE SIZE in mL	(SS)	0.500	0.500
@ALPHA01	DILUTION FACTOR	(DF)	11	11
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9956	1.9956
SOLID	EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
Batch Number	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		2.737	3.937

96012289	Blank Concentration in µCi/g	5.07E-02
Reruns	Replicate Concentration in µCi/g	7.29E-02
1	Average Concentration in µCi/g	6.1757E-02

Sample Prep
FUSION01

Sample #
S96T005895

Instrument Code
WB27806

Prepared By
MCB

Chemist
SLF

Analyst
JMV

Date Complete
12/19/96

Analysis Date
12/18/96

Analysis Time
01:00 PM

Sample Size
BY-112

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

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

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

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

ALPHA TOTAL in µCi/g (Average)	=	6.18E-02	DETECTION LEVEL
			4.41E-03
RELATIVE COUNTING ERROR		21.9%	µCi/g

Analyst:		JMV	Date: 19-Dec-96
Signature of Chemist:		SLF	Date: 12/19/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: DUP5

AT : LA-508-101 (E-1) SOLIDS

			DUP	REPLICATE
Type	DETECTOR NUMBER		16	16
DUP	DISH SIZE (1 , 2 , or 5)	(MS)	2	2
Work List	GROSS COUNTS	(GC)	94	95
15662	COUNT TIME in MINUTES	(CT)	30	30
Analysis Type	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500	0.500
Test Code	DILUTION FACTOR	(DF)	11	11
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.8344	1.8344
Raw Matrix	EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		3.103	3.137

Batch Number		
96012289	Blank Concentration in µCi/g	6.25E-02
Rerun	Replicate Concentration in µCi/g	6.32E-02
1	Average Concentration in µCi/g	6.2822E-02

Sample Prep
FUSION01

Rs (Sample Count Rate) = (TC / CT) - BKG
ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Sample
S96T005895

Instrument Code
WB27806

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By
MCB

Chemist
SLF

			DETECTION LEVEL
Analyst	ALPHA TOTAL in µCi/g (Average)	= 6.28E-02	
JMV			
Date Complete			4.80E-03
12/19/96	RELATIVE COUNTING ERROR	20.5%	µCi/g

Analyst Date
12/18/96

Analyst Time
01:00 PM

Sample Split
BY-112

Analyst:		JMV	Date: 19-Dec-96
Signature of Chemist:		SLF	Date: 12/19/96

SAMPLE.WB1 Rev. 1.0 508101ML

WORKBOOK PAGE: SPK6

AT : LA-508-101 (E-1) LA-508-113 (B-0) SPIKED SAMPLE

Type			SPIKE	REPLICATE
SPK	DETECTOR NUMBER		16	16
WorkList	DISH SIZE 1 , 2 , or 5	(MS)	2	2
15662	TOTAL COUNTS	(TC)	44734	46793
AnalyteEx	COUNT TIME in MINUTES	(CT)	30	30
AT	BACKGROUND in cpm	(BKG)	0.03	0.03
TestCode	SAMPLE VOLUME in mL (Spiked Vial)	(SS)	0.500	0.500
@ALPHA01	SAMPLE DILUTION FACTOR (Spiked Vial)	(DF)	11	11
Matrix	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9956	1.9956
SOLID	SPIKE VOLUME in mL	(SVol)	0.100	0.100
BatchNumber	SPIKE DILUTION FACTOR	(SDF)	1	1
96012289	SPIKE BOOK NUMBER	(Spk BN)	123B43	123B43
Rerun	SPIKE VALUE in µCi/mL	(SVal)	3.5857E-02	3.5857E-02
1	INSTRUMENT EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
SamplePrep	SAMPLE + SPIKE µCi/g	(S+S)	2.76E+01	2.89E+01
FUSION01	AVERAGE or MAXIMUM µCi/g in SAMPLE		6.1757E-02	

Sample #
S96T005895
Instrument Code
WB27806
Prepared By
MCB
Counter
SLF
Analyst
JMV
Date Analyzed
12/19/96
Analyzed Date
12/18/96
Analyzed Time
01:00 PM
Sample Point
BY-112

Rs (Sample Count Rate) = (TC / CT) - BKG
SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)
QC ACTUAL = SVal
QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))
PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) *100

QC ACTUAL	=	3.59E-02
QC FOUND	=	2.56E-02
AVG. PERCENT SPIKE RECOVERY	=	71.3%

Analyst:		MCB	Date: 19-Dec-96
Signature of Chemist:		SLF	Date: 12/19/96

SPIKE.WB1 Rev. 1.0 508101ML

DISTRIBUTION SHEET

To	From	Page 1 of 1
Distribution	Production Planning & Control	Date: 04/29/97 620398
Project Title/Work Order **HNF-SD-WM-DP-229**, Rev. 0 "Tank 241-BY-112, Cores 174 and 177 Analytical Results for the Final Report"		EDT NO.: EDT-~~630398~~ KMG 5/6/97 ECN NO.: N/A

Name	MSIN	Text With all Attach	EDT/ECN ONLY
DE&S Hanford, Inc.			
J. E. Meacham	S7-14	X	
U.S. Department of Energy, RL			
C. A. Babel	S7-54	X	
Lockheed Martin Hanford Corp.			
J. N. Appel	G3-21		X
J. H. Baldwin	R2-12	X	
T. J. Kelley	S7-21		X
M. J. Kupfer	H5-49		X
J. B. Schaffer	R2-12		X
J. A. Voogd	H5-03		X
A. E. Young	R1-08		X*
Lockheed Martin Services, Inc.			
Central Files	A3-88	1	
Los Alamos Technical Associates			
M. T. Ellsworth	T6-06		X*
Pacific Northwest National Laboratory			
S. J. Harris	K7-22	X	
K. L. Silvers	K9-08		X
Rust Federal Services of Hanford, Inc.			
M. W. Barnes	T6-16	X	
D. C. Hetzer	S6-31		X
J. L. Nuzum	T6-06		X
K. L. Powell	T6-04		X
C. M. Seidel	T6-04	X	
LTIC	T6-03		X
SGN Eurisys Services Corp.			
B. A. Higley	H5-27		X
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